Compal Confidential

G470/G570 DIS+UMA+Muxless M/B Schematics Document

Intel Sandy Bridge Processor with DDRIII + Cougar Point PCH
ATI Robson/PX3.0,PX4.0

2010-07-22

LA-6758P

REV:0.1

Security Classification	Compal Secret Data		
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Title: Cover Page		
Size: Custom	Document Number: LA-6758P	Rev: 0.1
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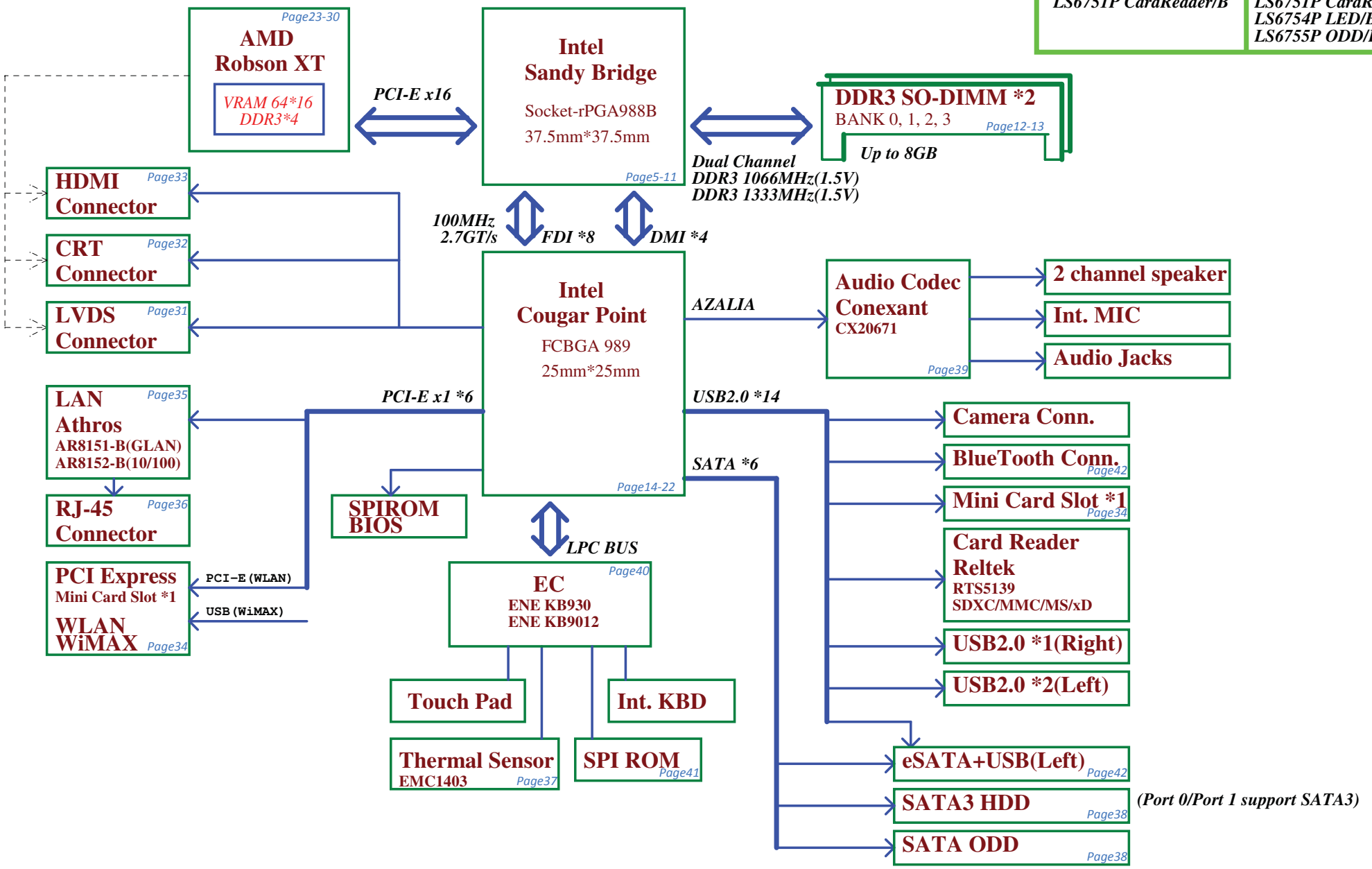
Compal confidential
File Name : G470/G570

For 14"(Page 4x)	For 15"(Page 4x+1)
LS6753P PWR/B	LS6753P PWR/B
LS6751P CardReader/B	LS6751P CardReader/B
	LS6754P LED/B
	LS6755P ODD/B



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Compal Electronics, Inc.

Title: Block Diagram

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Voltage Rails

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

STATE \ SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)	LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

BOARD ID Table

Board ID	PCB Revision
0	0.1
1	
2	
3	
4	
5	
6	
7	

Board ID / SKU ID Table for AD channel

Vcc	3.3V +/- 5%
Ra/Rc/Re	100K +/- 5%

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

EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b

EC SM Bus2 address

Device	Address
Thermal Sensor EMC1403-2	1001_101xb
Thermal Sensor EMC1402-1	100_1100 b

PCH SM Bus address

Device	Address
DDR DIMM0	1001 000Xb
DDR DIMM2	1001 010Xb

USB Port Table

USB 2.0	USB 1.1	Port	3 External USB Port
EHCI1	UHCI0	0	USB/B (Right Side)
		1	USB Port (Left Side)
	UHCI1	2	USB Port (Left Side)
		3	USB Port (Left Side)
	UHCI2	4	
		5	Camera
	UHCI3	6	
		7	
EHCI2	UHCI4	8	Mini Card(WLAN)
		9	
	UHCI5	10	
		11	Card Reader
	UHCI6	12	
		13	Blue Tooth

BOM Structure Table

BTO Item	BOM Structure
UMA only	PX@
Muxless	PX@+VGA@
Discrete Only	DIS@+VGA@
PX3.0 only, not for BACO	PX3@
BACO	BACO@
COMMON HDMI	HDMI@
UMA HDMI	UMA_HDMI@
Discrete HDMI	VGA_HDMI@
eSATA	ESATA@
Blue Tooth	BT@
Connector	ME@
45 LEVEL	45@
10/100 LAN	8152@
GIGA LAN	GIGA@
Cameara	CMOS@
Unpop	@

SMBUS Control Table

	SOURCE	VGA	BATT	KE930	SODIMM	WLAN WWAN	Thermal Sensor	PCH
SMB_EC_CK1 SMB_EC_DA1	KB930 +3VALW	X	V +3VALW	X	X	X	X	X
SMB_EC_CK2 SMB_EC_DA2	KB930 +3VALW	X	X	X	X	X	X	V +3VS
SMBCLK SMBDATA	PCH +3VALW	X	X	X	V +3VS	V +3VS	X	X
SML0CLK SML0DATA	PCH +3VALW	X	X	X	X	X	X	X
SML1CLK SML1DATA	PCH +3VALW	V +3VS	X	V +3VS	X	X	V +3VS	X

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Power-Up/Down Sequence

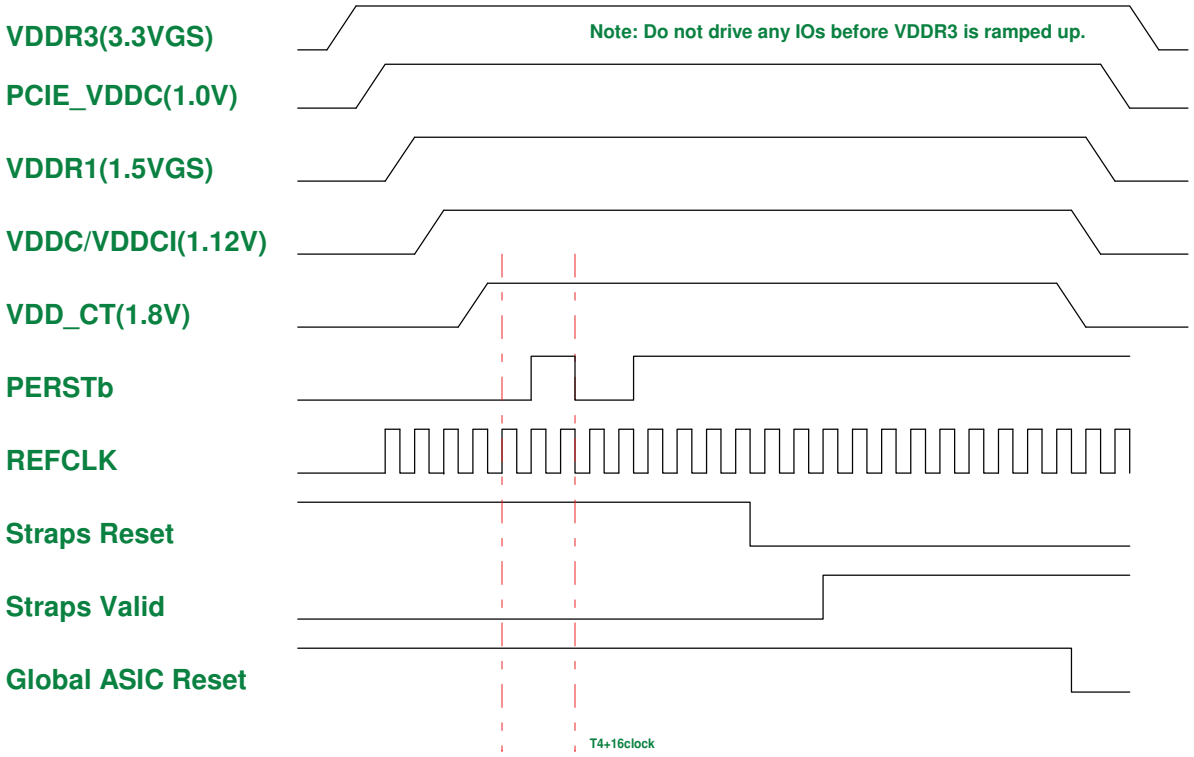
1. All the ASIC supplies must fully reach their respective nominal voltages within 20 ms of the start of the ramp-up sequence, though a shorter ramp-up duration is preferred.

2. VDDR3 should ramp-up before or simultaneously with VDDC.

3. For LVDS, DPx_VDD10 should ramp-up before DPx_VDD18 and the PCIe Reference clock should begin before DPx_VDD18. For power-down, DPx_VDD18 should ramp-down before DPx_VDD10.

4. The external pull-ups on the DDC/AUX signals (if applicable) should ramp-up before or after both VDDC and VDD_CT have ramped up.

5.VDDC and VDD_CT should not ramp-up simultaneously. (e.g., VDDC should reach 90% before VDD_CT starts to ramp-up (or vice versa).)



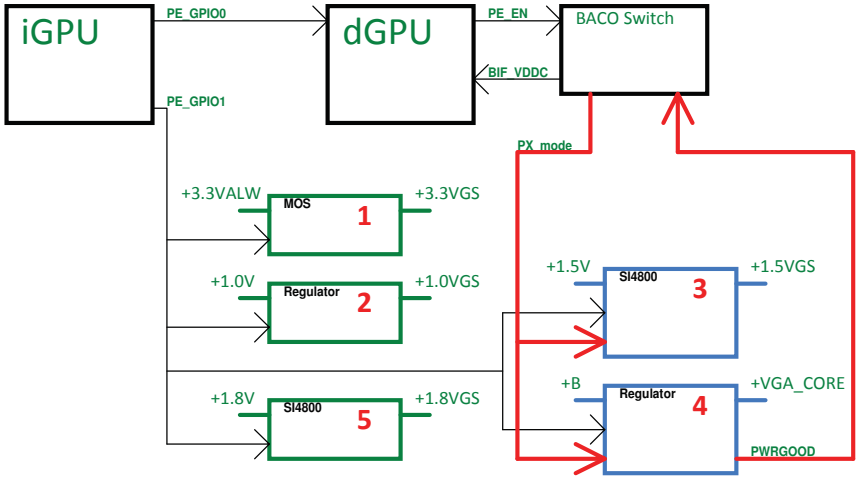
Without BACO option :

PE_GPIO0 : Low -> Reset dGPU ; High ->Normal operation
PE_GPIO1 : Low -> dGPU Power OFF ; High -> dGPU Power ON

BACO option :

PE_GPIO0 : High ->Normal operation (dGPU is not reseton BACO mode)
PE_GPIO1 : Low -> dGPU Power OFF ; High -> dGPU Power ON (always High)

dGPU Power Pins	Voltage	PX 3.0	BACO Mode	Max current
PCIE_PVDD, PCIE_VDDR, TSVDD, VDDR4, VDD_CT, DPE_PVDD, DP[F:E]_VDD18, DP[D:A]_PVDD, DP[D:A]_VDD18, AVDD, VDD1DI, A2VDDQ, VDD2DI, DPLL_PVDD, MPV18, and SPV18	1.8V	OFF	ON	1679mA
DP[F:E]_VDD10, DP[D:A]_VDD10, DPLL_VDDC, and SPV10	1.0V	OFF	ON	575mA
PCIE_VDDC	1.0V	OFF	ON	2A
VDDR3 , and A2VDD	3.3V	OFF	ON	190mA
BIF_VDDC (current consumption = 55mA@1.0V, in BACO mode)	Same as VDDC	OFF	ON Same as PCIE_VDDC	70mA
VDDR1	1.5V	OFF	OFF	2.8A
VDDC/VDDCI	1.12V	OFF	OFF	12.9A



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Title: dGPU Block Diagram

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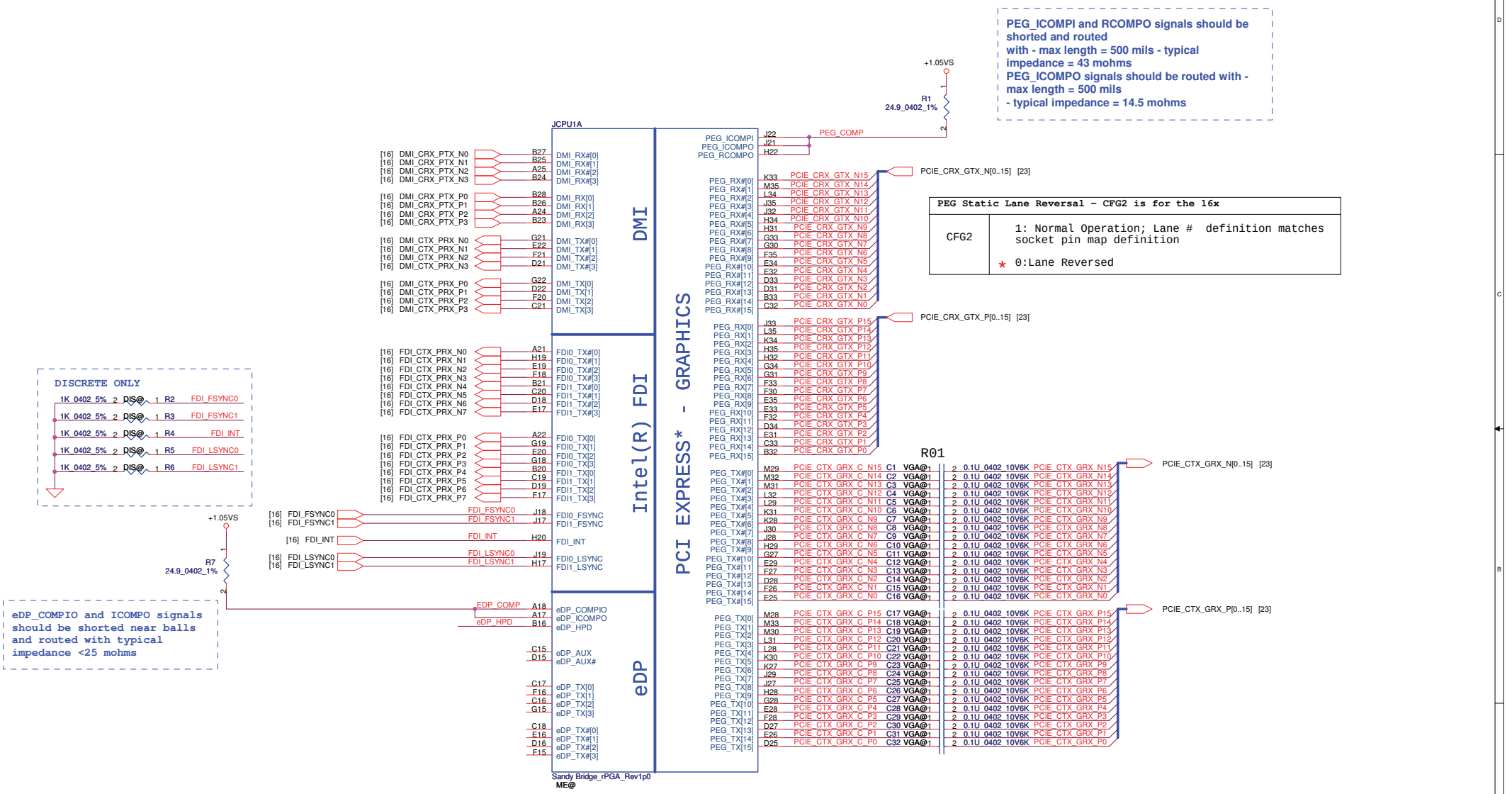

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Title: PROCESSOR(1/7) DMI,FDI,PEG

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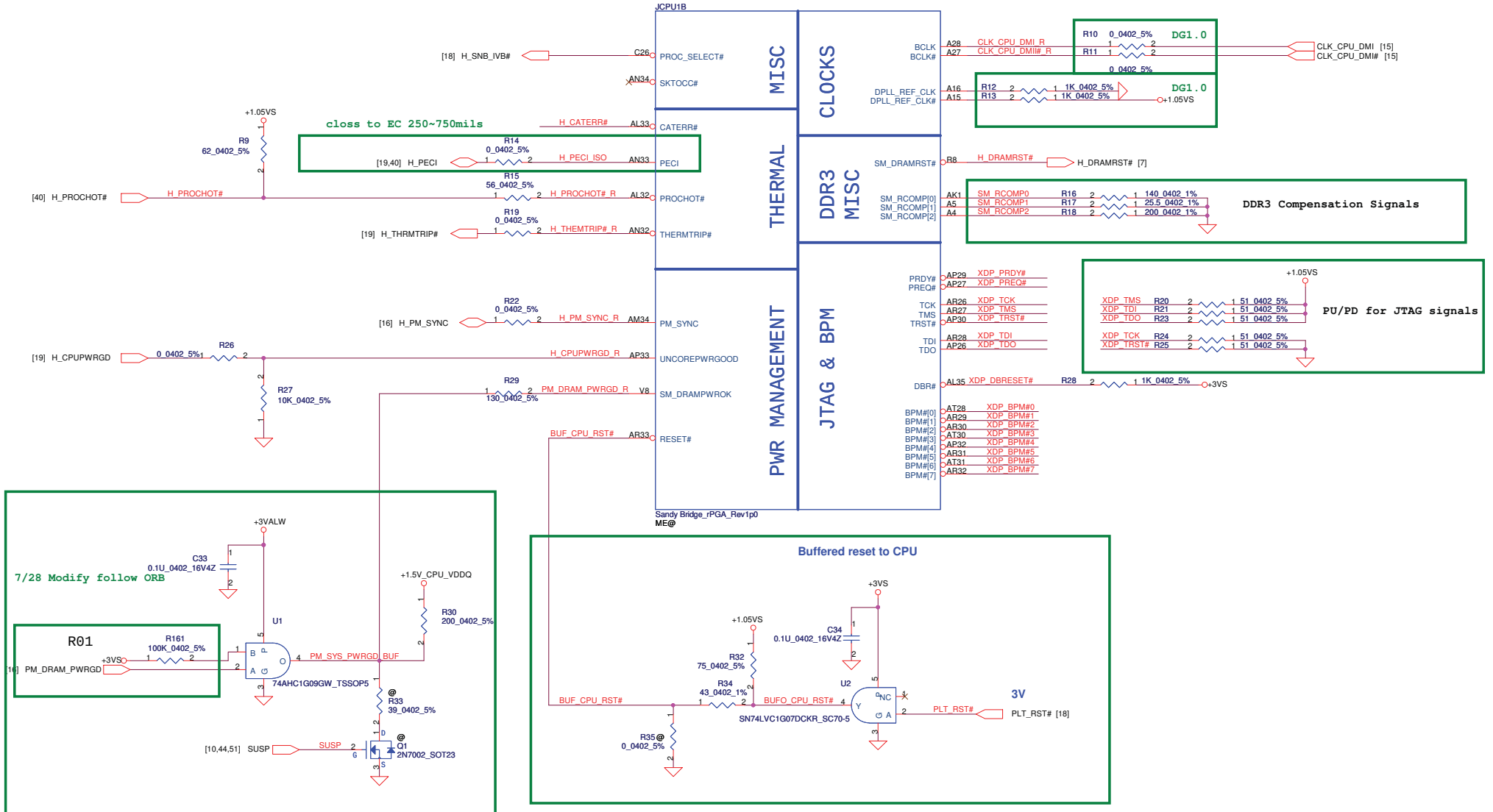

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Title: PROCESSOR(2/7) PM,XDP,CLK

Size: Custom | Document Number: LA-6758P | Rev: 0.1

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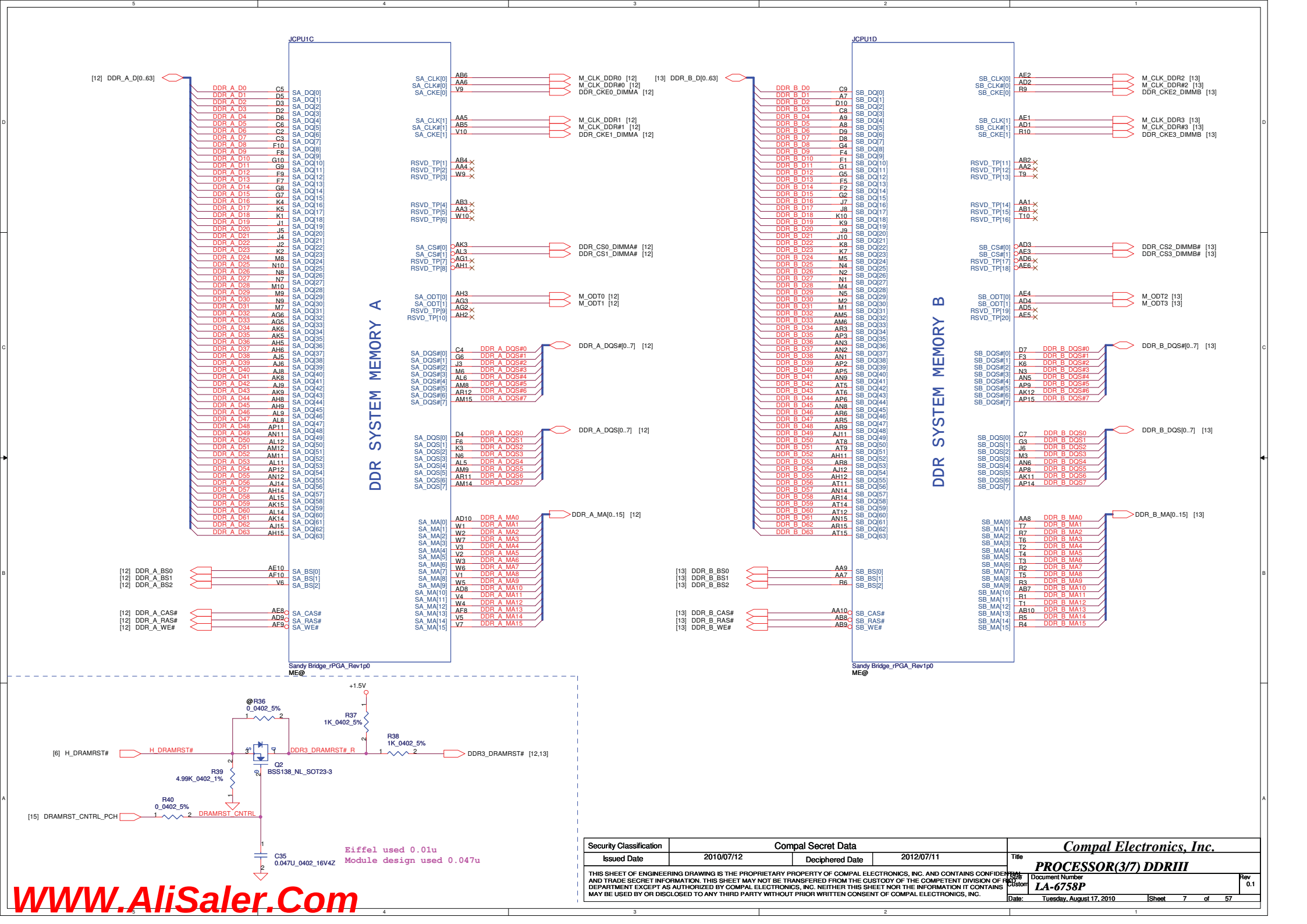

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Title: PROCESSOR(3/7) DDRIII

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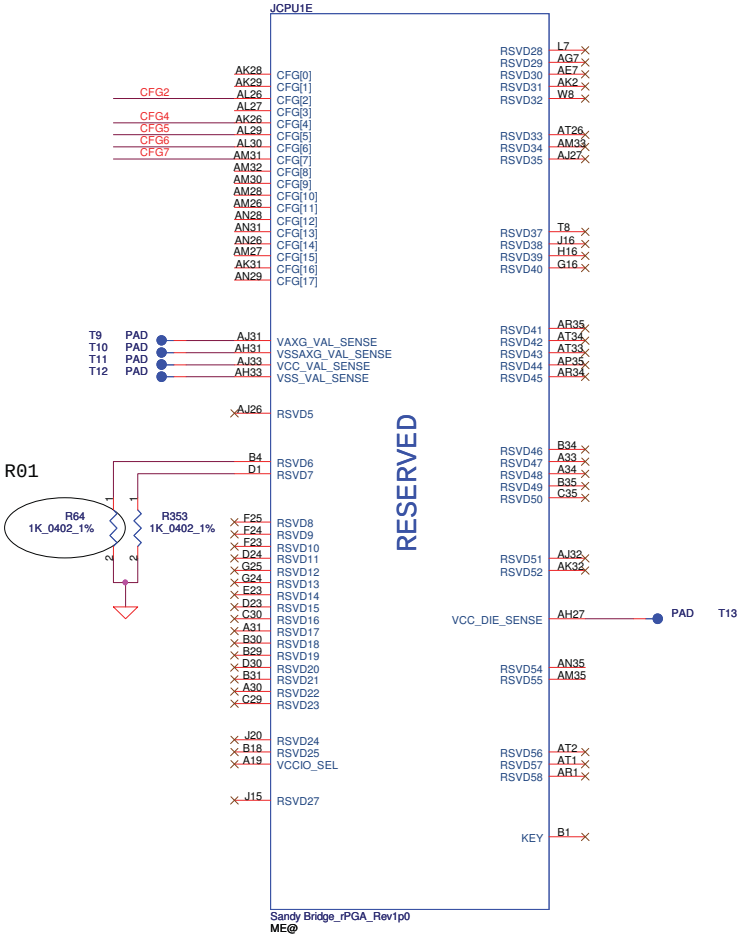
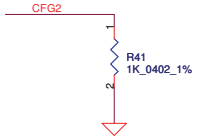
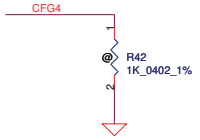
CFG Straps for Processor

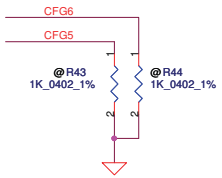




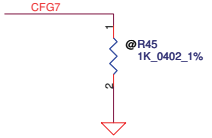
PEG Static Lane Reversal – CFG2 is for the 16x	
CFG2	1: Normal Operation; Lane # definition matches socket pin map definition * 0:Lane Reversed



Display Port Presence Strap	
CFG4	* 1 : Disabled; No Physical Display Port attached to Embedded Display Port 0 : Enabled; An external Display Port device is connected to the Embedded Display Port



PCIE Port Bifurcation Straps	
CFG[6:5]	*11: (Default) x16 - Device 1 functions 1 and 2 disabled 10: x8, x8 - Device 1 function 1 enabled ; function 2 disabled 01: Reserved - (Device 1 function 1 disabled ; function 2 enabled) 00: x8,x4,x4 - Device 1 functions 1 and 2 enabled



PEG DEFER TRAINING	
CFG7	1: (Default) PEG Train immediately following xxRESETB de assertion 0: PEG Wait for BIOS for training

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Title: PROCESSOR(4/7) RSVD,CFG

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POWER

JCPU1F

PEG AND DDR

CORE SUPPLY

SVID

SENSE LINES

+CPU_CORE

(6/16 change 10uF_0603_6.3V)*5

QC=94A
DC=53A

C36 10U_0805_6.3V6M
C37 10U_0805_6.3V6M
C38 10U_0805_6.3V6M
C39 10U_0805_6.3V6M
C40 10U_0805_6.3V6M
C48 10U_0603_6.3V6M
C49 10U_0603_6.3V6M
C50 10U_0603_6.3V6M
C51 10U_0603_6.3V6M
C52 10U_0603_6.3V6M
C53 @ 10U_0603_6.3V6M

+CPU_CORE

(22uF_0805_6.3V)*16

C66 22U_0805_6.3V6M
C67 22U_0805_6.3V6M
C68 22U_0805_6.3V6M
C70 22U_0805_6.3V6M
C71 22U_0805_6.3V6M
C74 22U_0805_6.3V6M
C75 22U_0805_6.3V6M
C76 22U_0805_6.3V6M
C77 22U_0805_6.3V6M
C78 22U_0805_6.3V6M
C79 22U_0805_6.3V6M
C80 22U_0805_6.3V6M
C81 22U_0805_6.3V6M
C82 22U_0805_6.3V6M
C83 22U_0805_6.3V6M
C84 22U_0805_6.3V6M
C85 @ 22U_0805_6.3V6M
C86 @ 22U_0805_6.3V6M
C87 @ 22U_0805_6.3V6M

+CPU_CORE

(330uF)*4

C88 330U_X_2VM_R8M
C89 330U_X_2VM_R8M
C90 330U_X_2VM_R8M
C91 330U_X_2VM_R8M

AG35 AG34 AG33 AG32 AG31 AG30 AG29 AG28 AG27 AG26
AF35 AF34 AF33 AF32 AF31 AF30 AF29 AF28 AF27 AF26
AD35 AD34 AD33 AD32 AD31 AD30 AD29 AD28 AD27 AD26
AC35 AC34 AC33 AC32 AC31 AC30 AC29 AC28 AC27 AC26
AA35 AA34 AA33 AA32 AA31 AA30 AA29 AA28 AA27 AA26
Y35 Y34 Y33 Y32 Y31 Y30 Y29 Y28 Y27 Y26
V35 V34 V33 V32 V31 V30 V29 V28 V27 V26
U35 U34 U33 U32 U31 U30 U29 U28 U27 U26
R35 R34 R33 R32 R31 R30 R29 R28 R27 R26
P35 P34 P33 P32 P31 P30 P29 P28 P27 P26

VCC1 VCC2 VCC3 VCC4 VCC5 VCC6 VCC7 VCC8 VCC9 VCC10
VCC11 VCC12 VCC13 VCC14 VCC15 VCC16 VCC17 VCC18 VCC19 VCC20
VCC21 VCC22 VCC23 VCC24 VCC25 VCC26 VCC27 VCC28 VCC29 VCC30
VCC31 VCC32 VCC33 VCC34 VCC35 VCC36 VCC37 VCC38 VCC39 VCC40
VCC41 VCC42 VCC43 VCC44 VCC45 VCC46 VCC47 VCC48 VCC49 VCC50
VCC51 VCC52 VCC53 VCC54 VCC55 VCC56 VCC57 VCC58 VCC59 VCC60
VCC61 VCC62 VCC63 VCC64 VCC65 VCC66 VCC67 VCC68 VCC69 VCC70
VCC71 VCC72 VCC73 VCC74 VCC75 VCC76 VCC77 VCC78 VCC79 VCC80
VCC81 VCC82 VCC83 VCC84 VCC85 VCC86 VCC87 VCC88 VCC89 VCC90
VCC91 VCC92 VCC93 VCC94 VCC95 VCC96 VCC97 VCC98 VCC99 VCC100

Cap quantity follow HR_PDDG_Rev07
22uF*7 NO-STUFF

18A

OSCAN(22uF_0805_6.3V)*13

+1.05VS

VCCIO1 AH13
VCCIO2 AH10
VCCIO3 AG10
VCCIO4 AC10
VCCIO5 Y10
VCCIO6 U10
VCCIO7 P10
VCCIO8 L10
VCCIO9 J14
VCCIO10 J13
VCCIO11 J12
VCCIO12 J11
VCCIO13 H14
VCCIO14 H12
VCCIO15 H11
VCCIO16 G14
VCCIO17 G13
VCCIO18 G12
VCCIO19 F14
VCCIO20 F13
VCCIO21 F12
VCCIO22 F11
VCCIO23 E14
VCCIO24 E12
VCCIO25 E11
VCCIO26 D14
VCCIO27 D13
VCCIO28 D12
VCCIO29 D11
VCCIO30 C14
VCCIO31 C13
VCCIO32 C12
VCCIO33 C11
VCCIO34 B14
VCCIO35 B12
VCCIO36 A14
VCCIO37 A13
VCCIO38 A12
VCCIO39 A11
VCCIO40 J23

C41 C42 C43 C44 C54 C45 C46 C55 C56 C47 22U_0805_6.3V6M
C57 C58 C59 @ C60 @ C61 @ C62 @ C63 @ C64 @ C65 @ 22U_0805_6.3V6M

C69 220U_6.3V_M
C72 220U_6.3V_M
C73 @ 330U_D2_2.5VY_R9M

OSCAN
(220uF_6.3V_4.2L_ESR17m)*2=(SF000002Y00)

+1.05VS

R46 75_0402_5%

VR_SVID_CLK series-resistors close to VR

VIDALERT# AJ29 H_CPU_SVIDALRT# R47 43_0402_5%
VIDSCLK AJ30 H_CPU_SVIDCLK R48 0_0402_5%
VIDSOUT AJ28 H_CPU_SVIDDAT R49 0_0402_5%

VR_SVID_ALRT# [53]
VR_SVID_CLK [53]
VR_SVID_DAT [53]

R50 130_0402_5% +1.05VS

VCC_SENCE 100ohm +-1% pull-up to VCC near processor

+CPU_CORE

R51 100_0402_1%

VCC_SENSE AJ35 VCCSENSE_R R52 0_0402_5%
VSS_SENSE AJ34 VSSSENSE_R R53 0_0402_5%

VCCSENSE [53]
VSSSENSE [53]

VCCIO_SENSE [51]

VCCIO_SENSE B10
VSSIO_SENSE A10 VSSIO_SENSE

R54 100_0402_1%

R01

R74 @ 0_0402_5%

8/6 Modify, need follow diffential routing

VSS_SENCE 100ohm +-1% pull-down to GND near processor

Sandy Bridge_rPGA_Rev1p0
ME@

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Title: PROCESSOR(5/7) PWR,BYPASS

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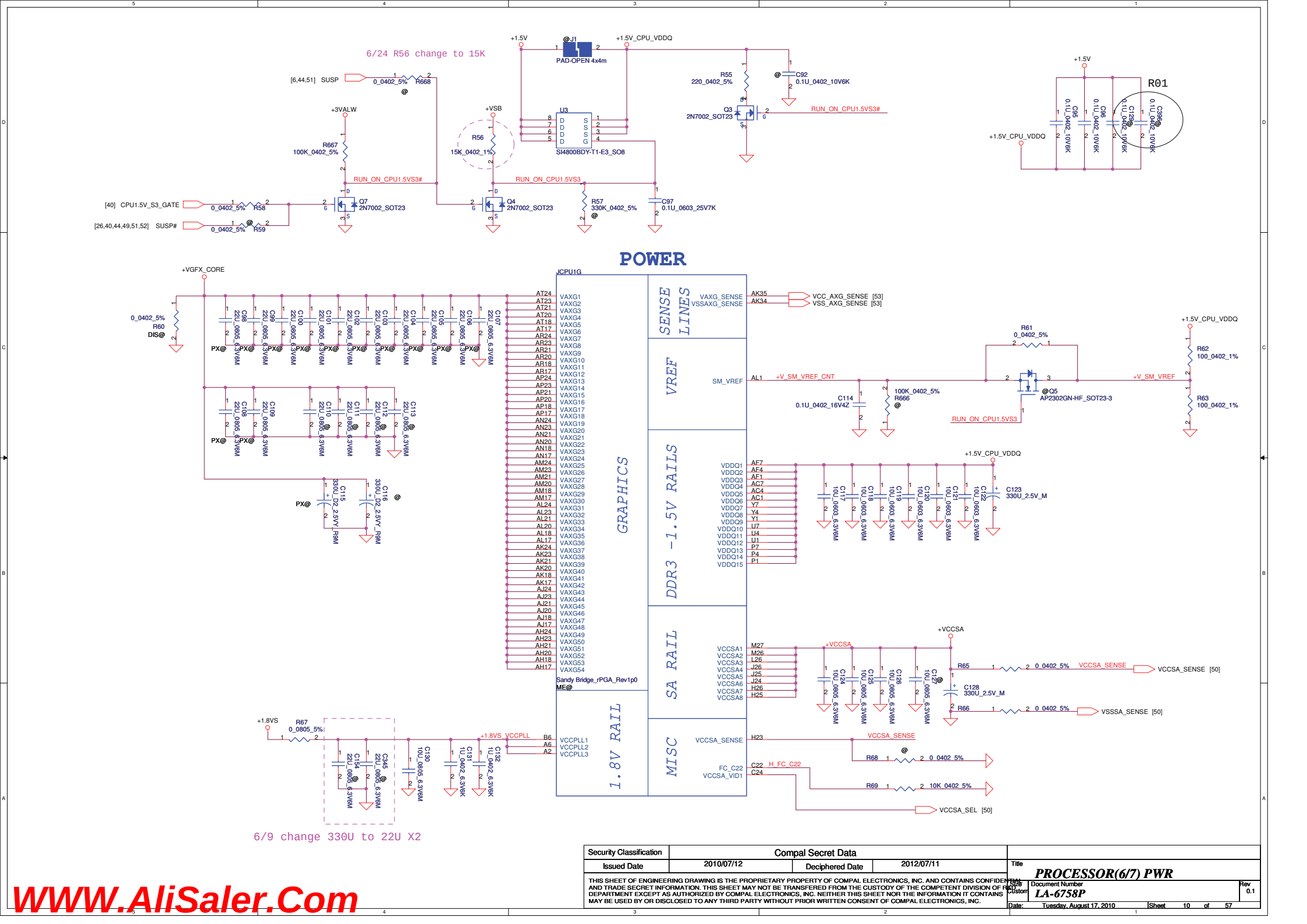

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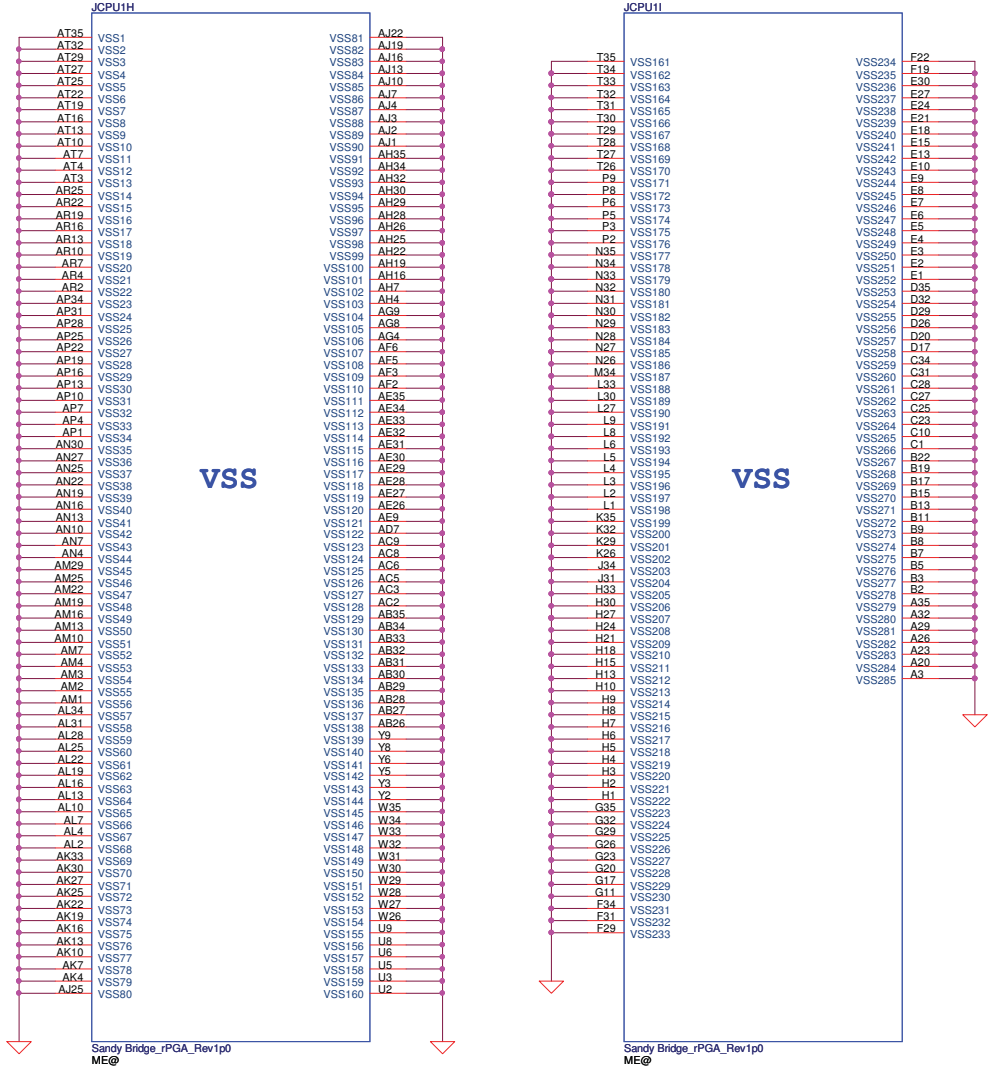

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Compal Electronics, Inc.

Title: PROCESSOR(7/7) VSS

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DDR3 SO-DIMM A

JDIMM1

FOX_AS0A626-U4SN-7F

ME@

[7] DDR_A_D[0..63]
[7] DDR_A_DQS[0..7]
[7] DDR_A_DQS#[0..7]
[7] DDR_A_MA[0..15]

R70 1K_0402_1%
R71 1K_0402_1%

DDR3_DRAMRST# [7,13]
DDR_CKE1_DIMMA [7]
M_CLK_DDR1 [7]
M_CLK_DDR#1 [7]
DDR_A_BS1 [7]
DDR_A_RAS# [7]
DDR_CS0_DIMMA# [7]
M_ODT0 [7]
M_ODT1 [7]
SMB_DATA_S3 [13,15,34]
SMB_CLK_S3 [13,15,34]

R72 1K_0402_1%
R73 1K_0402_1%

R81 10K_0402_5%
R83 10K_0402_5%

OSCAN (220uF_6.3V_4.2L_ESR17m)*1=(SF000002Y00)
(10uF_0603_6.3V)*8
(0.1uF_402_10V)*4

Layout Note:
Place near DIMM

Layout Note:
Place near DIMM

Layout Note:
Place near DIMM

VDDQ(1.5V) =
3*330uf / 12m ohm (TOTAL FOR 2 SO-DIMMs)
6*0603 10uf (PER CONNECTOR)

VTT(0.75V) =
3*0805 10uf 4*0402 1uf
VREF =
1*0402 0.1uf 1*0402 2.2uf
VDDSPD (3.3V)=
1*0402 0.1uf 1*0402 2.2uf

7/28 Update connect GND directly

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Title: DDRIII-SODIMM SLOT1

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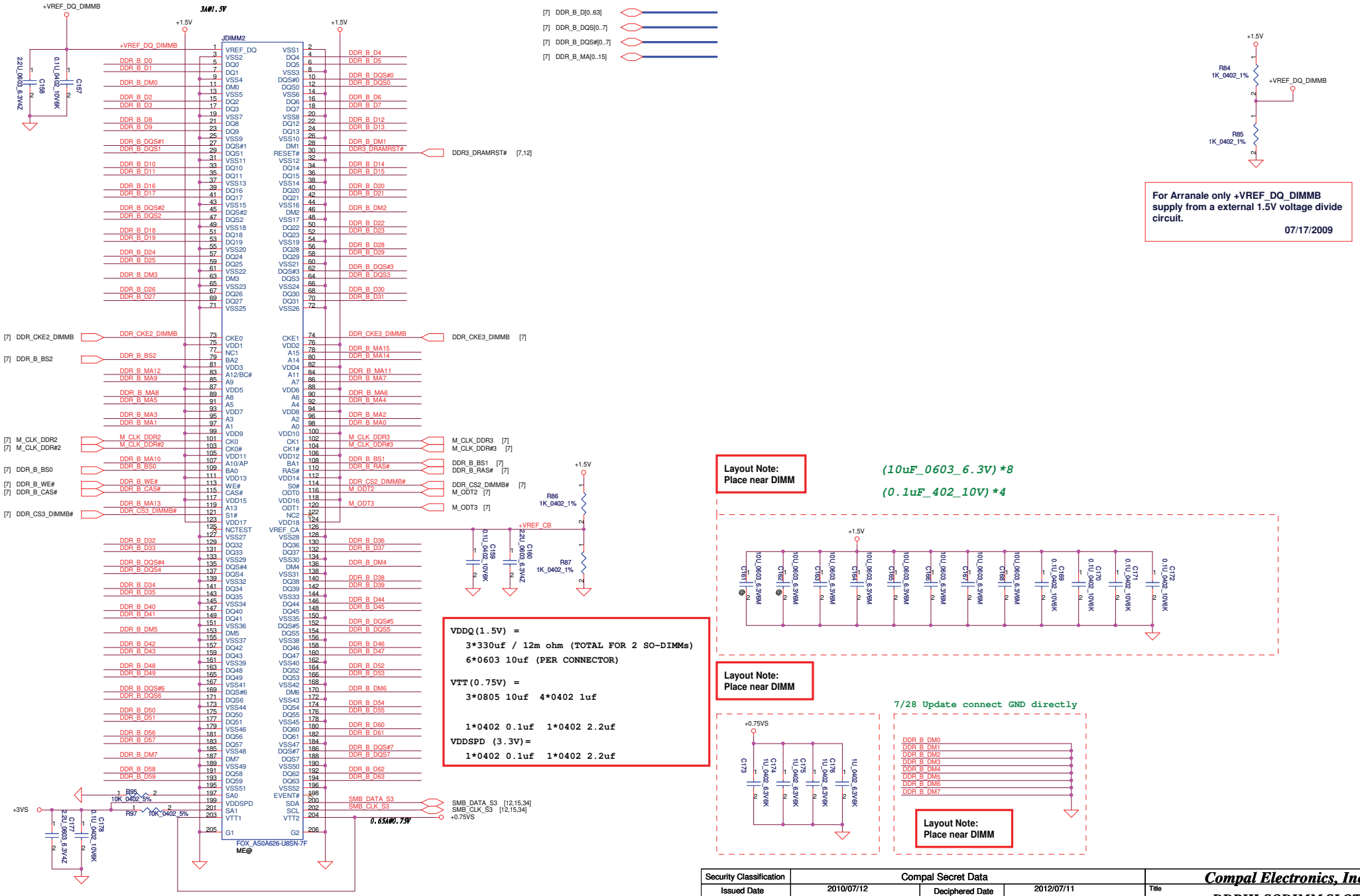

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Compal Electronics, Inc.			
Title	DDRIII-SODIMM SLOT2		
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W=20mils +RTCVCC R99 1K_0402_5% C179 1U_0603_10V4Z
W=20mils +RTCBATT CLRP1 SHORT PADS

PCH_RTCX1 R663 0_0402_5% PCH_RTCX1_OUT [40]
PCH_RTCX2 R670 0_0402_5% PCH_RTCX2_OUT [40]
R98 10M_0402_5%
6/24 Update R663,R670 must be close Y1
C180 18P_0402_50V8J Y1 32.768KHZ_12.5PF_9H03200413 C181 18P_0402_50V8J
CMOS

+RTCVCC R101 1M_0402_5% SM_INTRUDER# R102 330K_0402_5% PCH_INTVRMEN
INTVRMEN
* H : Integrated VRM enable
L : Integrated VRM disable
(INTVRMEN should always be pull high.)

+3VS R105 1K_0402_5% HDA_SPKR
* HIGH= Enable (No Reboot)
LOW= Disable (Default)

+3VALW R106 1K_0402_5% HDA_SDOUT
* Low = Disabled (Default)
High = Enabled [Flash Descriptor Security Overide]

+3VALW R108 1K_0402_5% HDA_SYNC
This signal has a weak internal pull-down
On Die PLL VR Select is supplied by
* 1.5V when smapled high
1.8V when sampled low
Needs to be pulled High for Huron River platfrom

[39] HDA_BITCLK_AUDIO R112 33_0402_5% HDA_BIT_CLK
[39] HDA_SYNC_AUDIO R114 33_0402_5% HDA_SYNC_R
[39] HDA_RST_AUDIO# R116 33_0402_5% HDA_RST#
[39] HDA_SDOUT_AUDIO R118 33_0402_5% HDA_SDOUT

+3VALW R121 200_0402_5% PCH_JTAG_TDO
+3VALW R122 200_0402_5% PCH_JTAG_TMS
+3VALW R123 200_0402_5% PCH_JTAG_TDI
R125 100_0402_1%
R126 100_0402_1%
R128 100_0402_1%
DPDG1.1
6/30 update R121, R122, R123

+3VS Q10 BSS138_NL_SOT23-3 HDA_SYNC @R325 0_0402_5%
6/17 follow module design

+RTCVCC C183 1U_0603_10V4Z R103 20K_0402_5% R100 20K_0402_5% C182 1U_0603_10V4Z CLRP2 SHORT PADS CLRP3 SHORT PADS

U4A

PCH_RTCX1	A20	RTCX1	RTC	
PCH_RTCX2	C20	RTCX2		
PCH_RTCRST#	D20	RTCRST#		
PCH_SRTCRST#	G22	SRTCRST#		
SM_INTRUDER#	K22	INTRUDER#		
PCH_INTVRMEN	C17	INTVRMEN		
HDA_BIT_CLK	N34	HDA_BCLK	IHDA	
HDA_SYNC	L34	HDA_SYNC		
HDA_SPKR	T10	SPKR		
HDA_RST#	K34	HDA_RST#		
HDA_SDIN0	E34	HDA_SDIN0		
	G34	HDA_SDIN1		
	C34	HDA_SDIN2		
	A34	HDA_SDIN3		
HDA_SDOUT	A36	HDA_SDO		
PCH_GPIO33	C36	HDA_DOCK_EN# / GPIO33		
Kill_SW#	N32	HDA_DOCK_RST# / GPIO13		
PCH_JTAG_TCK	J3	JTAG_TCK	JTAG	
PCH_JTAG_TMS	H7	JTAG_TMS		
PCH_JTAG_TDI	K5	JTAG_TDI		
PCH_JTAG_TDO	H1	JTAG_TDO		
SPI_CLK_PCH_R	T3	SPI_CLK	SPI	
SPI_SB_CS0#	Y14	SPI_CS0#		
	T1	SPI_CS1#		
SPI_SI	V4	SPI_MOSI		
SPI_SO_R	U3	SPI_MISO		

COUGARPOINT_FCBGA989

R109 0_0402_5% [40] ME_FLASH ME_FLASH HDA_SDOUT
R107 1K_0402_1% [56] Kill_SW#
R110 51_0402_5%

FWH0 / LAD0	C38	LPC_AD0	LPC	LPC_AD0 [34,40]
FWH1 / LAD1	A38	LPC_AD1		LPC_AD1 [34,40]
FWH2 / LAD2	B37	LPC_AD2		LPC_AD2 [34,40]
FWH3 / LAD3	C37	LPC_AD3		LPC_AD3 [34,40]
FWH4 / LFRAME#	D36	LPC_FRAME#		LPC_FRAME# [34,40]
LDRQ0#	E36			
LDRQ1# / GPIO23	K36			
SERIRQ	V5	SERIRQ		SERIRQ [40]
SATA0RXN	AM3	SATA_DTX_C_IRX_N0	SATA 6G	SATA_DTX_C_IRX_N0 [38]
SATA0RXP	AM1	SATA_DTX_C_IRX_P0		SATA_DTX_C_IRX_P0 [38]
SATA0TXN	AP7	SATA_ITX_C_DRX_N0 0.01U 0402 16V7K		C184 SATA_ITX_DRX_N0 SATA_ITX_DRX_N0 [38]
SATA0TXP	AP5	SATA_ITX_C_DRX_P0 0.01U 0402 16V7K		C185 SATA_ITX_DRX_P0 SATA_ITX_DRX_P0 [38]
SATA1RXN	AM10			
SATA1RXP	AM8			
SATA1TXN	AP11			
SATA1TXP	AP10			
SATA2RXN	AD7	SATA_DTX_C_IRX_N2		SATA_DTX_C_IRX_N2 [56]
SATA2RXP	AD5	SATA_DTX_C_IRX_P2		SATA_DTX_C_IRX_P2 [56]
SATA2TXN	AH5	SATA_ITX_C_DRX_N2 0.01U 0402 16V7K		C186 SATA_ITX_DRX_N2_CONN SATA_ITX_DRX_N2_CONN [56]
SATA2TXP	AH4	SATA_ITX_C_DRX_P2 0.01U 0402 16V7K		C187 SATA_ITX_DRX_P2_CONN SATA_ITX_DRX_P2_CONN [56]
SATA3RXN	AB8			
SATA3RXP	AB10			
SATA3TXN	AF3			
SATA3TXP	AF1			
SATA4RXN	Y7	SATA_DTX_C_IRX_N4		SATA_DTX_C_IRX_N4 [42]
SATA4RXP	Y5	SATA_DTX_C_IRX_P4		SATA_DTX_C_IRX_P4 [42]
SATA4TXN	AD3	SATA_ITX_C_DRX_N4 ESATA@ 0.01U 0402 16V7K		C188 SATA_ITX_DRX_N4 SATA_ITX_DRX_N4 [42]
SATA4TXP	AD1	SATA_ITX_C_DRX_P4 ESATA@ 0.01U 0402 16V7K		C189 SATA_ITX_DRX_P4 SATA_ITX_DRX_P4 [42]
SATA5RXN	Y3			
SATA5RXP	Y1			
SATA5TXN	AB3			
SATA5TXP	AB1			
SATAICOMPO	Y11			
SATAICOMPI	Y10	SATA_COMP		R111 37.4_0402_1% +1.05VS_VCC_SATA
SATA3RCOMPO	AB12			
SATA3COMPI	AB13	SATA3_COMP		R113 49.9_0402_1% +1.05VS_SATA3
SATA3RBIAS	AH1	RBIAS_SATA3		R115 750_0402_1%
SATALED#	P3	HDD_LED#		R117 10K_0402_5% +3VS HDD_LED# [56]
SATA0GP / GPIO21	V14	PCH_GPIO21		R119 10K_0402_5% +3VS
SATA1GP / GPIO19	P1	PCH_GPIO19		

EC and Mini card debug port
+3VS R104 10K_0402_5% SERIRQ
HDD
ODD
ESATA R01
7/28 change from port 5 to port 4

4MB SPI ROM FOR ME & Non-share ROM.

+3VS R127 3.3K_0402_5% SPI_WP# R129 3.3K_0402_5% SPI_HOLD#
SPI_CLK_PCH R124 33_0402_5% @ C190 22P_0402_50V8J @
+3VS C191 0.1U_0402_16V4Z
SPI_SB_CS0# SPI_SO_R R130 0_0402_5% R131 33_0402_5%
U5 S IC FL 32M W25Q32BVSSIG SOIC 8P
CS# SO WP# GND VCC HOLD# SCLK SI
SPI_HOLD# SPI_CLK_PCH SPI_SI_R R132 0_0402_5% SPI_CLK_PCH_R SPI_SI R133 33_0402_5%

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Issued Date	2010/07/12	Deciphered Date	2012/07/11

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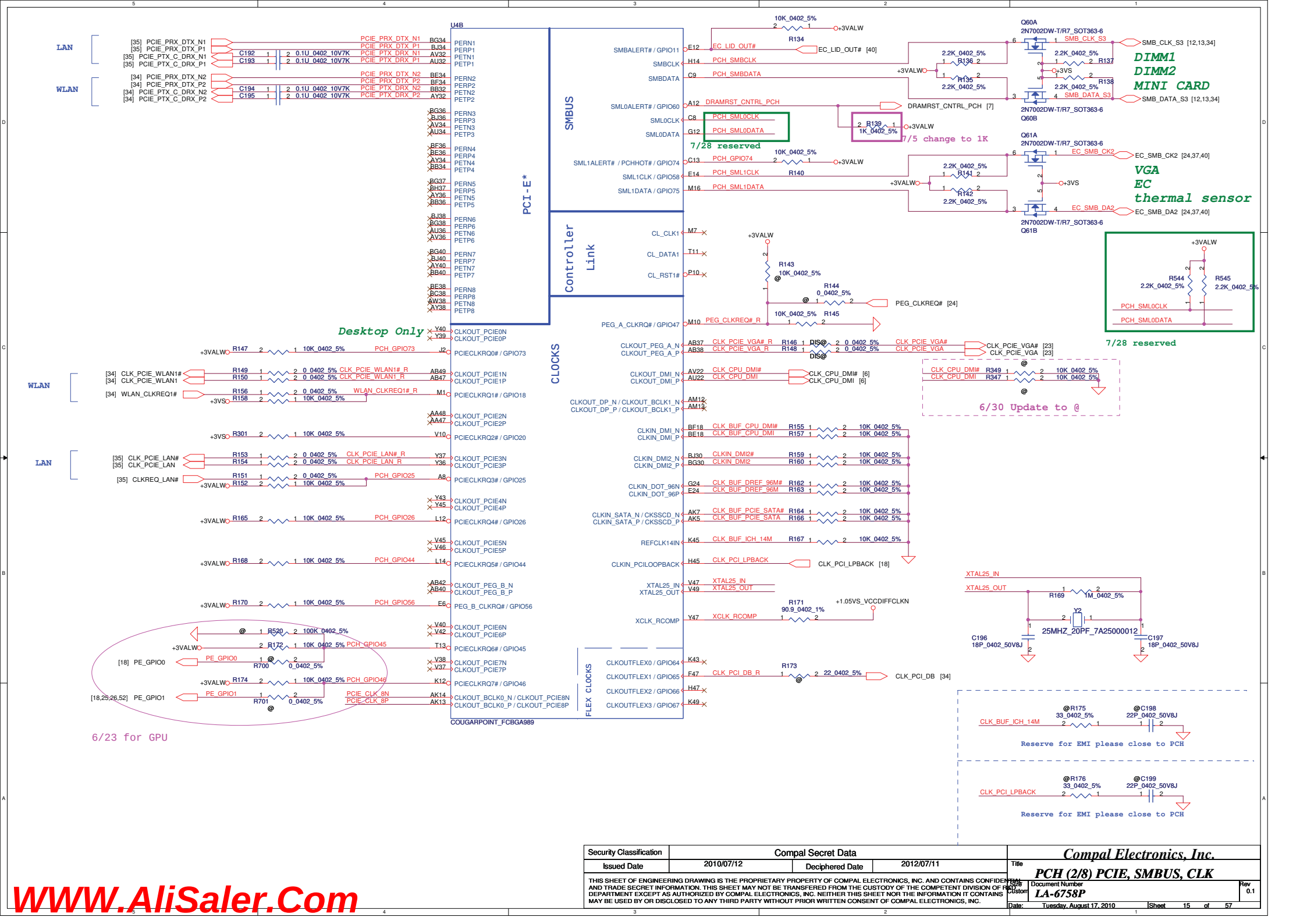
Compal Electronics, Inc.
Title: PCH (1/8) SATA,HDA,SPI, LPC, XDP
Size: Custom | Document Number: LA-6758P | Rev: 0.1
Date: Tuesday, August 17, 2010 | Sheet 14 of 57

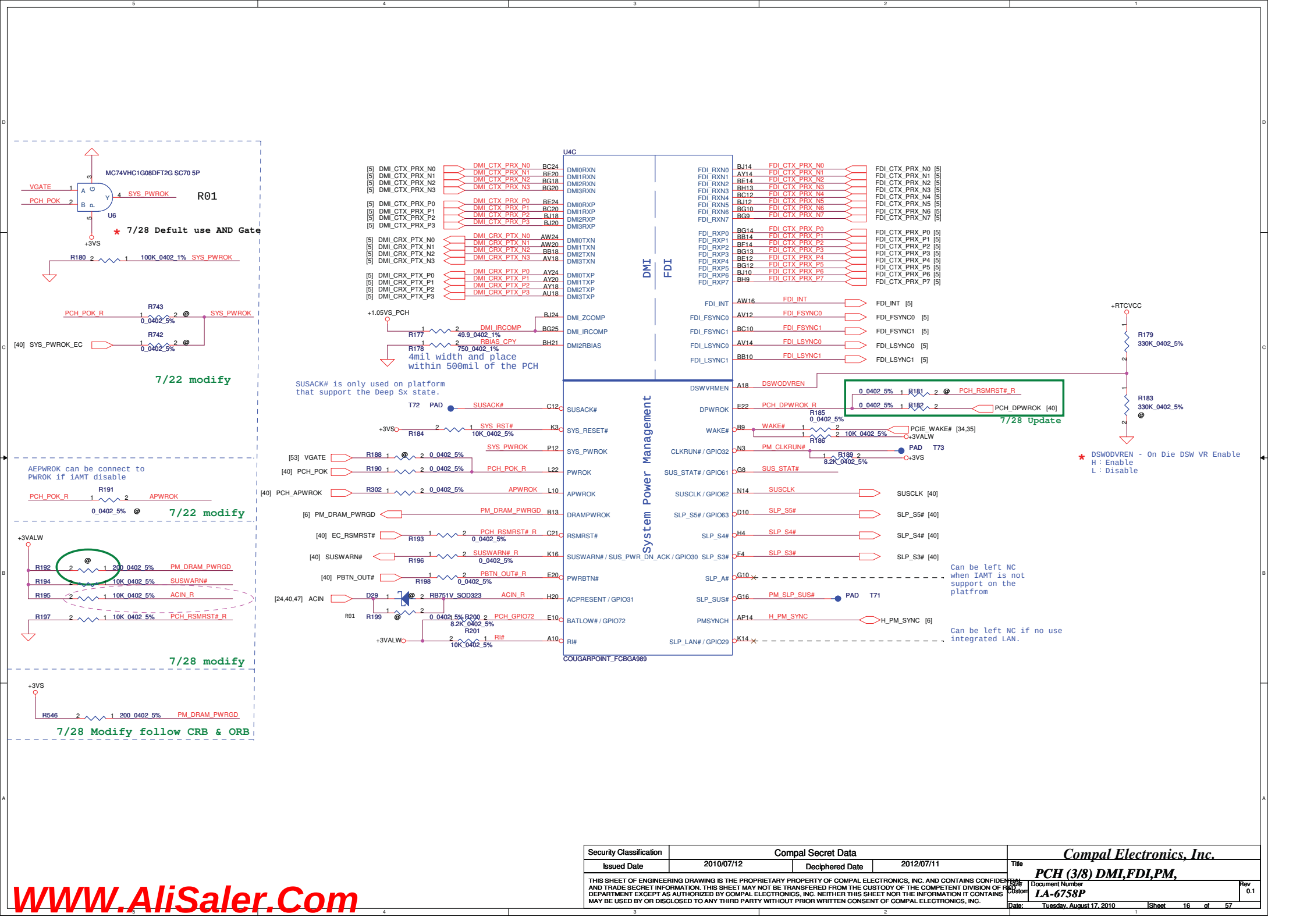


Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: PCH (2/8) PCIE, SMBUS, CLK

Size: Custom	Document Number: LA-6758P	Rev: 0.1
Date: Tuesday, August 17, 2010	Sheet 15 of 57	



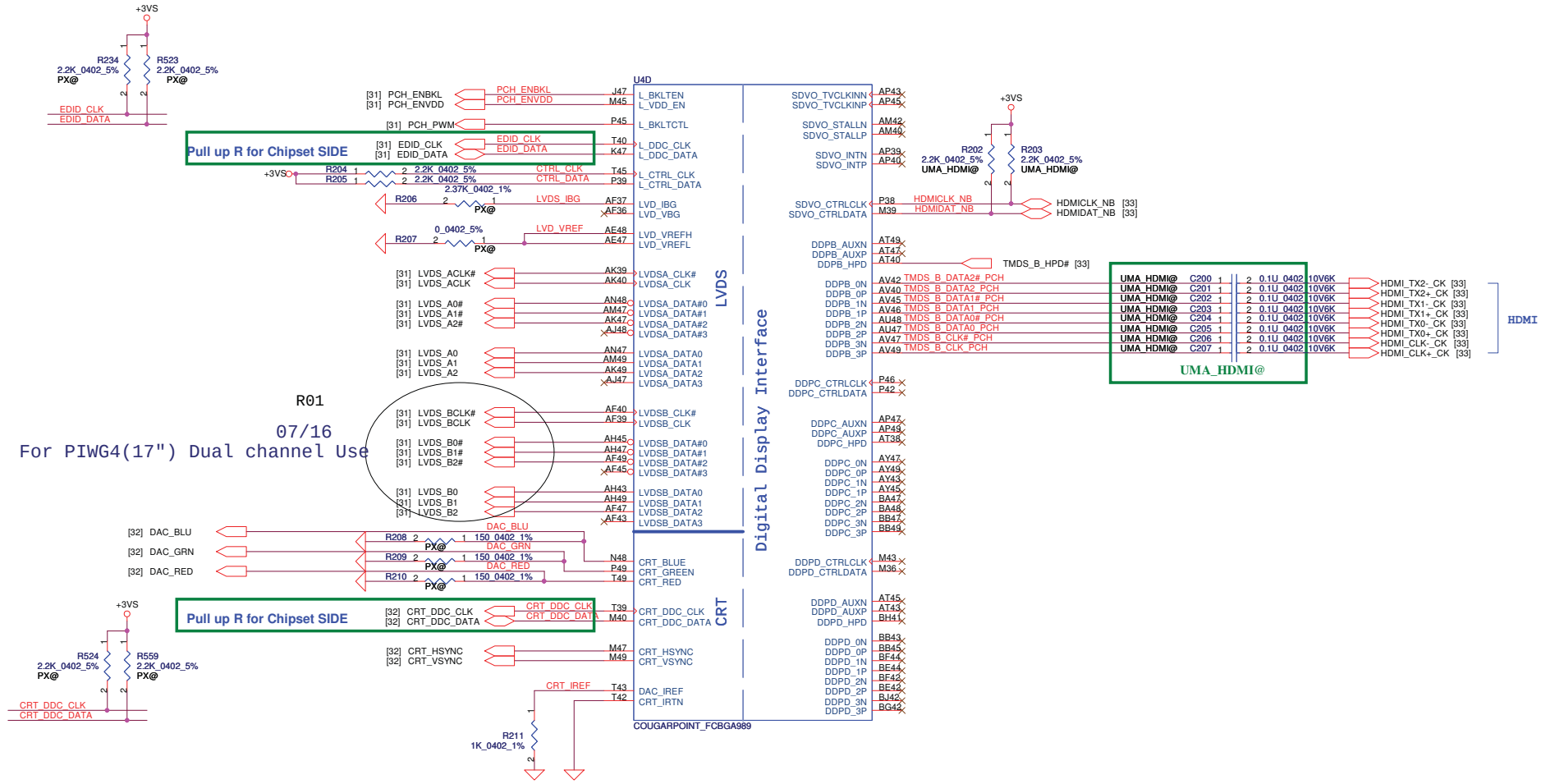
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: PCH (3/8) DMI,FDI,PM,

Size: Custom | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 16 of 57



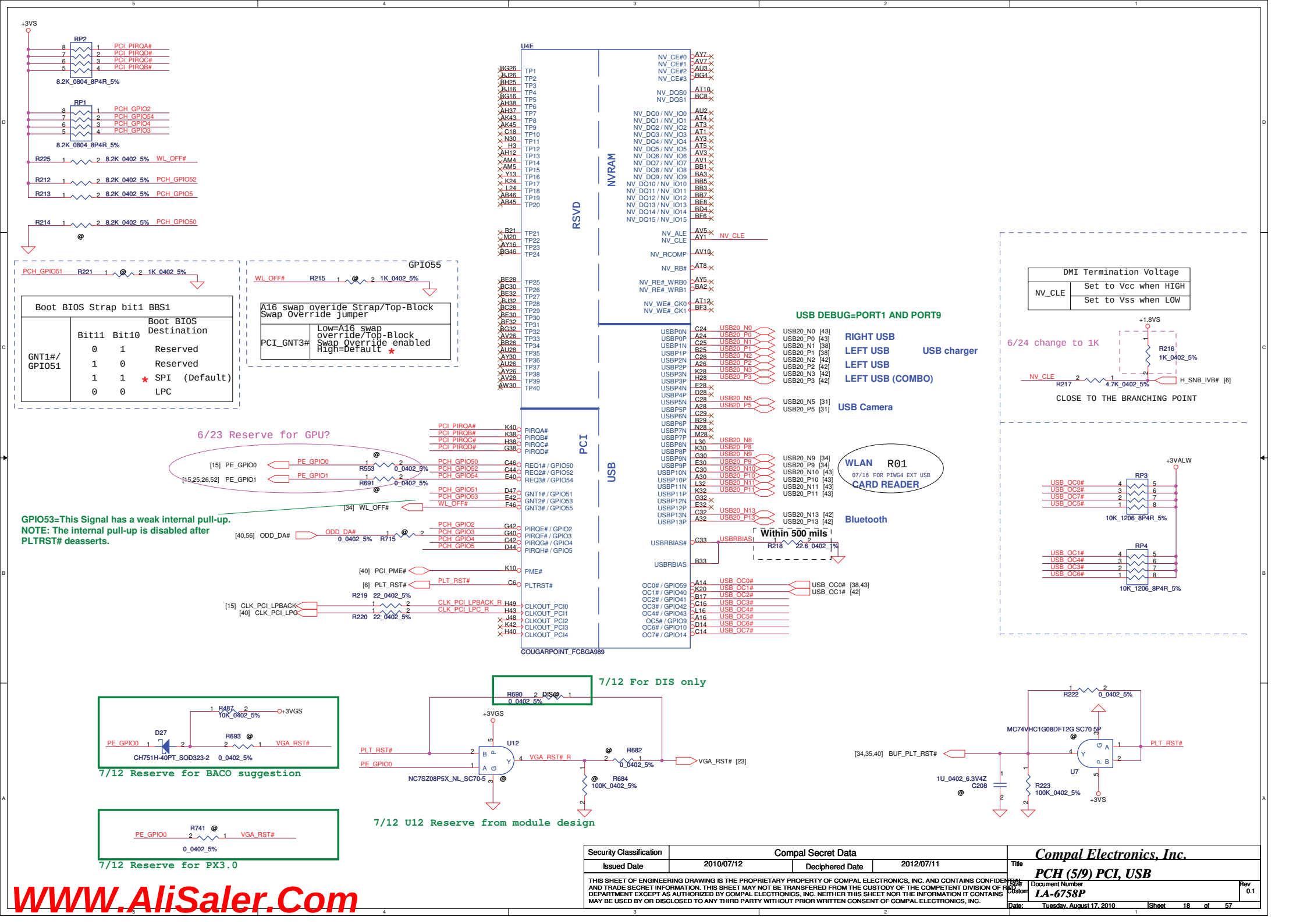
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: PCH (4/9) LVDS,CRT,DP,HDMI

Size: Custom | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 17 of 57



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

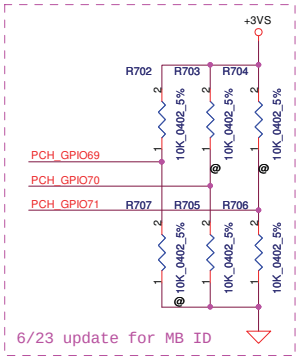
Compal Electronics, Inc.

Title: PCH (5/9) PCI, USB

Size: Custom | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 18 of 57

PCH_GPIO69	PCH_GPIO70	PCH_GPIO71	Function
0	0	0	UMA
1	0	0	DIS *
0	1	0	PX3.0
1	1	0	PX4.0



ICC_EN#
Integrated Clock Chip Enable
H ; Disable
L ; Enable
R235 1 @ 2 1K_0402_5% EC_SMI#
Weak internal pull-high

GPIO28
On-Die PLL Voltage Regulator
This signal has a weak internal pull up
H : On-Die voltage regulator enable
L : On-Die PLL Voltage Regulator disable
R240 1 @ 2 1K_0402_5% PCH_GPIO28

PCH_GPIO27 (Have internal Pull-High)
High: VCCVRM VR Enable
Low: VCCVRM VR Disable
R245 1 @ 2 10K_0402_5% PCH_GPIO27

+3VS R250 1 @ 2 10K_0402_5% PCH_GPIO36
1 R547 2 10K_0402_5%
R01

7/22 update to reserve only

+3VS R233 1 2 10K_0402_5% PCH_GPIO0
ESATA_DET# 1 @ 2 0_0402_5% R303
R227 1 2 10K_0402_5%
+3VS R228 1 2 10K_0402_5% PCH_GPIO6
[40] EC_SCI# EC_SCI# E38
[40] EC_SMI# EC_SMI# C10
+3VALW R229 1 @ 2 10K_0402_5% CPUSB# C4
R230 1 2 1K_0402_5% PCH_GPIO15 G2
+3VS R231 1 2 10K_0402_5% PCH_GPIO16 U2
[42] ESATA_DET# R542 1 2 0_0402_5%
+3VS R232 1 2 10K_0402_1% GPIO17 D40
+3VS R238 1 2 10K_0402_5% PCH_GPIO22 T5
7/22 update to used intel function
+3VALW [38] ODD_EN ODD_EN E8
PCH_GPIO27 E16
R241 1 2 10K_0402_5% PCH_GPIO28 P8
[42] BT_OFF# +3VS 1 @ 2 10K_0402_5% BT_OFF# K1
R242
R243 1 2 10K_0402_5% PCH_GPIO35 K4
PCH_GPIO36 V8
+3VS R244 1 2 10K_0402_5% PCH_GPIO37 M5
R246 1 2 10K_0402_5% PCH_GPIO38 N2
R247 1 2 10K_0402_5% PCH_GPIO39 M3
R248 1 2 10K_0402_5% PCH_GPIO48 V13
+3VS R249 1 2 10K_0402_5% ESATA_DET# R V3
PCH_GPIO57 D6
+3VALW R251 1 2 10K_0402_5%
7/22 update to used intel function

U4F

T7	BMBUSY# / GPIO0	TACH4 / GPIO68	C40 PCH_GPIO68
A42	TACH1 / GPIO1	TACH5 / GPIO69	B41 PCH_GPIO69
H36	TACH2 / GPIO6	TACH6 / GPIO70	C41 PCH_GPIO70
E38	TACH3 / GPIO7	TACH7 / GPIO71	A40 PCH_GPIO71
C10	GPIO8		
C4	LAN_PHY_PWR_CTRL / GPIO12		
G2	GPIO15		
U2	SATA4GP / GPIO16		
D40	TACH0 / GPIO17		
T5	SCLOCK / GPIO22		
E8	GPIO24 / MEM_LED		
E16	GPIO27		
P8	GPIO28		
K1	STP_PCI# / GPIO34		
K4	GPIO35		
V8	SATA2GP / GPIO36		
M5	SATA3GP / GPIO37		
N2	SLOAD / GPIO38		
M3	SDATAOUT0 / GPIO39		
V13	SDATAOUT1 / GPIO48		
V3	SATA5GP / GPIO49		
D6	GPIO57		
		A20GATE	P4
		PECI	AU16 PCH_PECI_R 1 @ 2 0_0402_5% R237 H_PECI [6,40]
		RCIN#	P5 KB_RST# KB_RST# [40]
		PROCPWRGD	AY11 H_CPUPWRGD [6]
		THRMTRIP#	AY10 PCH_THRMTRIP#_R 1 R239 2 390_0402_5% H_THRMTRIP# H_THRMTRIP# [6]
		INIT3_3V#	T14
		NC_1	AH8
		NC_2	AK11
		NC_3	AH10
		NC_4	AK10
		NC_5	P37

GPIO
CPU/MISC
NCTF

PAD T19 @	A4	VSS_NCTF_1	BG2 @T15 PAD
PAD T21 @	A44	VSS_NCTF_2	BG48 @T16 PAD
PAD T23 @	A45	VSS_NCTF_3	BH3 @T17 PAD
PAD T25 @	A46	VSS_NCTF_4	BH47 @T18 PAD
PAD T27 @	A5	VSS_NCTF_5	BJ4 @T20 PAD
PAD T29 @	A6	VSS_NCTF_6	BJ44 @T22 PAD
PAD T31 @	B3	VSS_NCTF_7	BJ45 @T24 PAD
PAD T33 @	B47	VSS_NCTF_8	BJ46 @T26 PAD
PAD T35 @	BD1	VSS_NCTF_9	BJ5 @T28 PAD
PAD T37 @	BD49	VSS_NCTF_10	BJ6 @T30 PAD
PAD T39 @	BE1	VSS_NCTF_11	C2 @T32 PAD
PAD T41 @	BE49	VSS_NCTF_12	C48 @T34 PAD
PAD T43 @	BF1	VSS_NCTF_13	D1 @T36 PAD
PAD T45 @	BF49	VSS_NCTF_14	D49 @T38 PAD
		VSS_NCTF_15	E1 @T40 PAD
		VSS_NCTF_16	E49 @T42 PAD
		VSS_NCTF_17	F1 @T44 PAD
		VSS_NCTF_18	F49 @T46 PAD
		VSS_NCTF_19	
		VSS_NCTF_20	
		VSS_NCTF_21	
		VSS_NCTF_22	
		VSS_NCTF_23	
		VSS_NCTF_24	
		VSS_NCTF_25	
		VSS_NCTF_26	
		VSS_NCTF_27	
		VSS_NCTF_28	
		VSS_NCTF_29	
		VSS_NCTF_30	
		VSS_NCTF_31	
		VSS_NCTF_32	

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+3VS R236 10K_0402_5% GATEA20 [40]

INIT3_3V
This signal has weak internal PU, can't pull low

Intel schematic reviwe recommand

PCH_GPIO68 R224 10K_0402_5%
KB_RST# R226 10K_0402_5%

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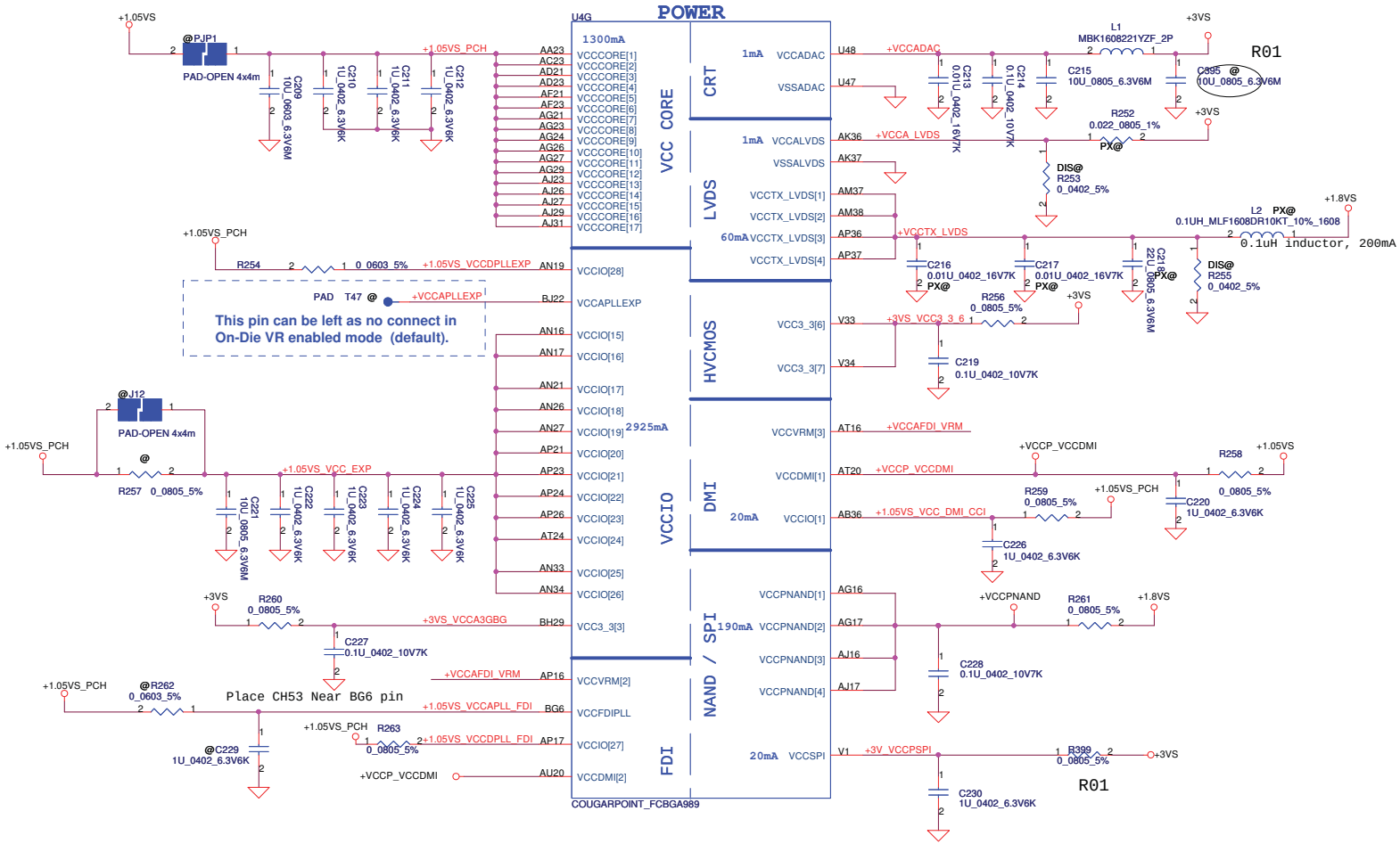
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: PCH (6/9) GPIO, CPU, MISC

Size: Custom | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 19 of 57



PCH Power Rail Table

Voltage Rail	Voltage	S0 Iccmax Current (A)
V_PROC_IO	1.05	0.001
V5REF	5	0.001
V5REF_Sus	5	0.001
Vcc3_3	3.3	0.266
VccADAC	3.3	0.001
VccADPLLA	1.05	0.08
VccADPLLB	1.05	0.08
VccCore	1.05	1.3
VccDMI	1.05	0.042
VccIO	1.05	2.925
VccASW	1.05	1.01
VccSPI	3.3	0.02
VccDSW	3.3	0.003
VccpNAND	1.8	0.19
VccRTC	3.3	6 uA
VccSus3_3	3.3	0.119
VccSusHDA	3.3 / 1.5	0.01
VccVRM	1.8 / 1.5	0.16
VccCLKDMI	1.05	0.02
VccSSC	1.05	0.095
VccDIFFCLKN	1.05	0.055
VccALVDS	3.3	0.001
VccTX_LVDS	1.8	0.06

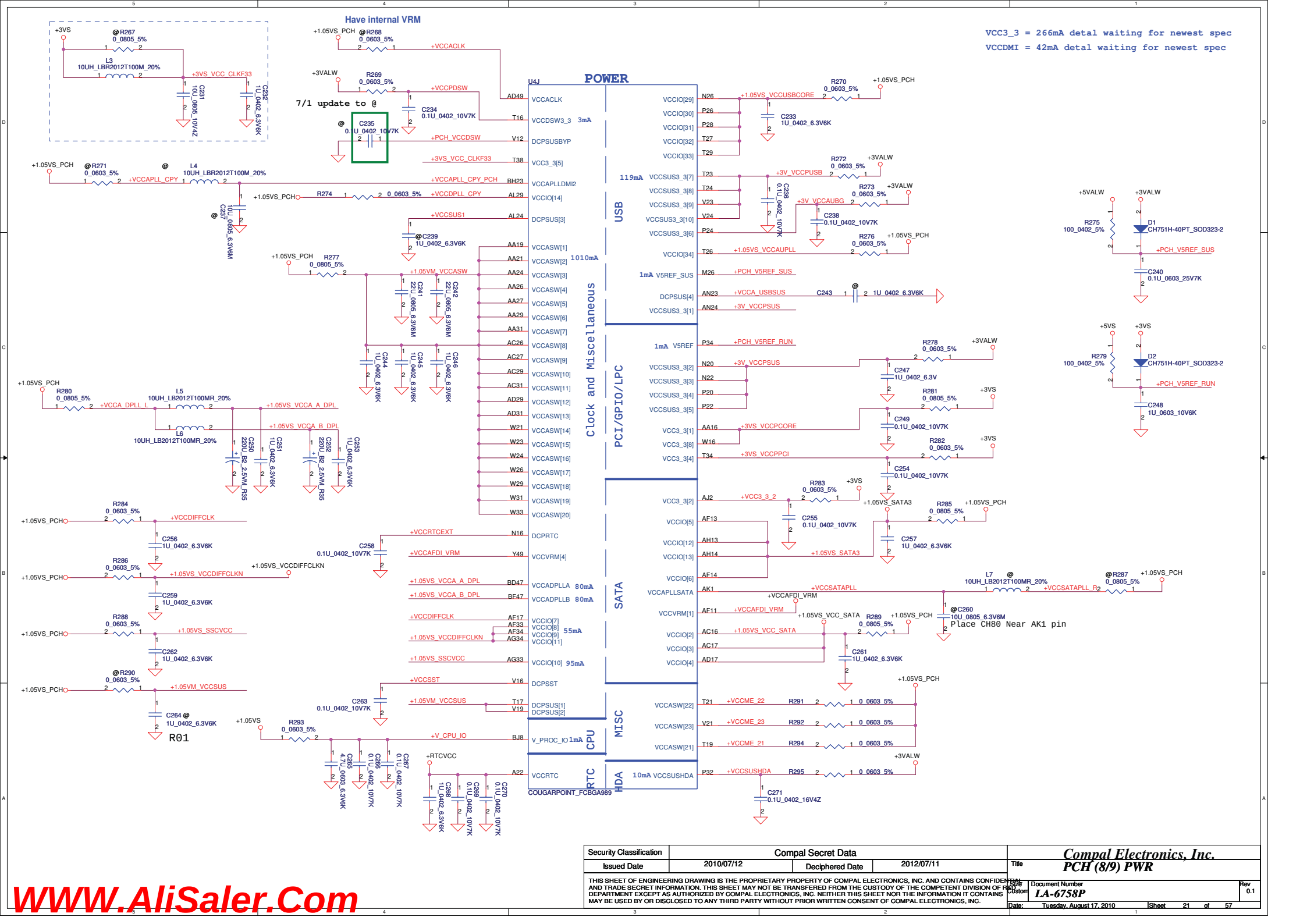
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: PCH (7/9) PWR

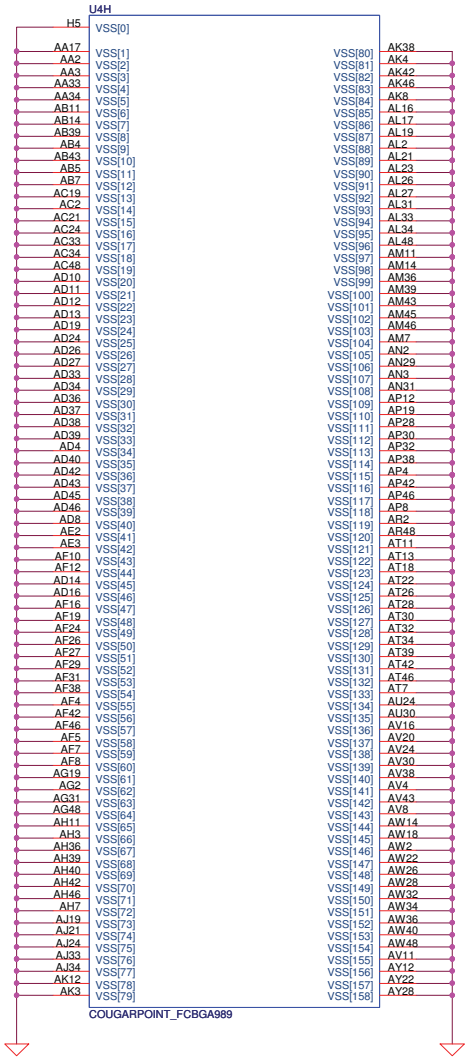
Size: Custom | Document Number: LA-6758P | Rev: 0.1

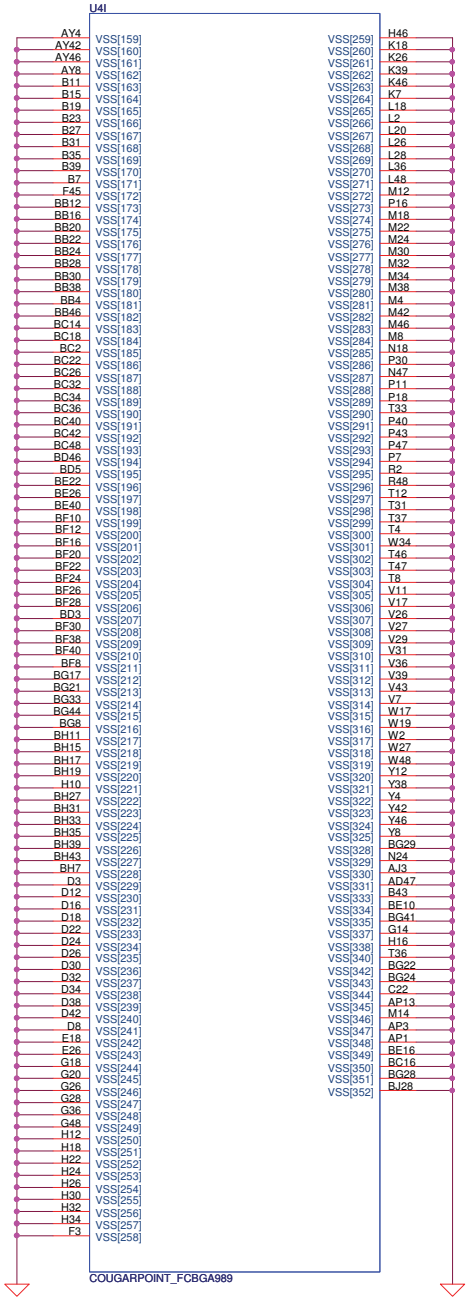
Date: Tuesday, August 17, 2010 | Sheet 20 of 57



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Title	Compal Electronics, Inc.	
	PCH (8/9) PWR	
Size: Custom	Document Number: LA-6758P	Rev: 0.1
Date: Tuesday, August 17, 2010	Sheet 21 of 57	





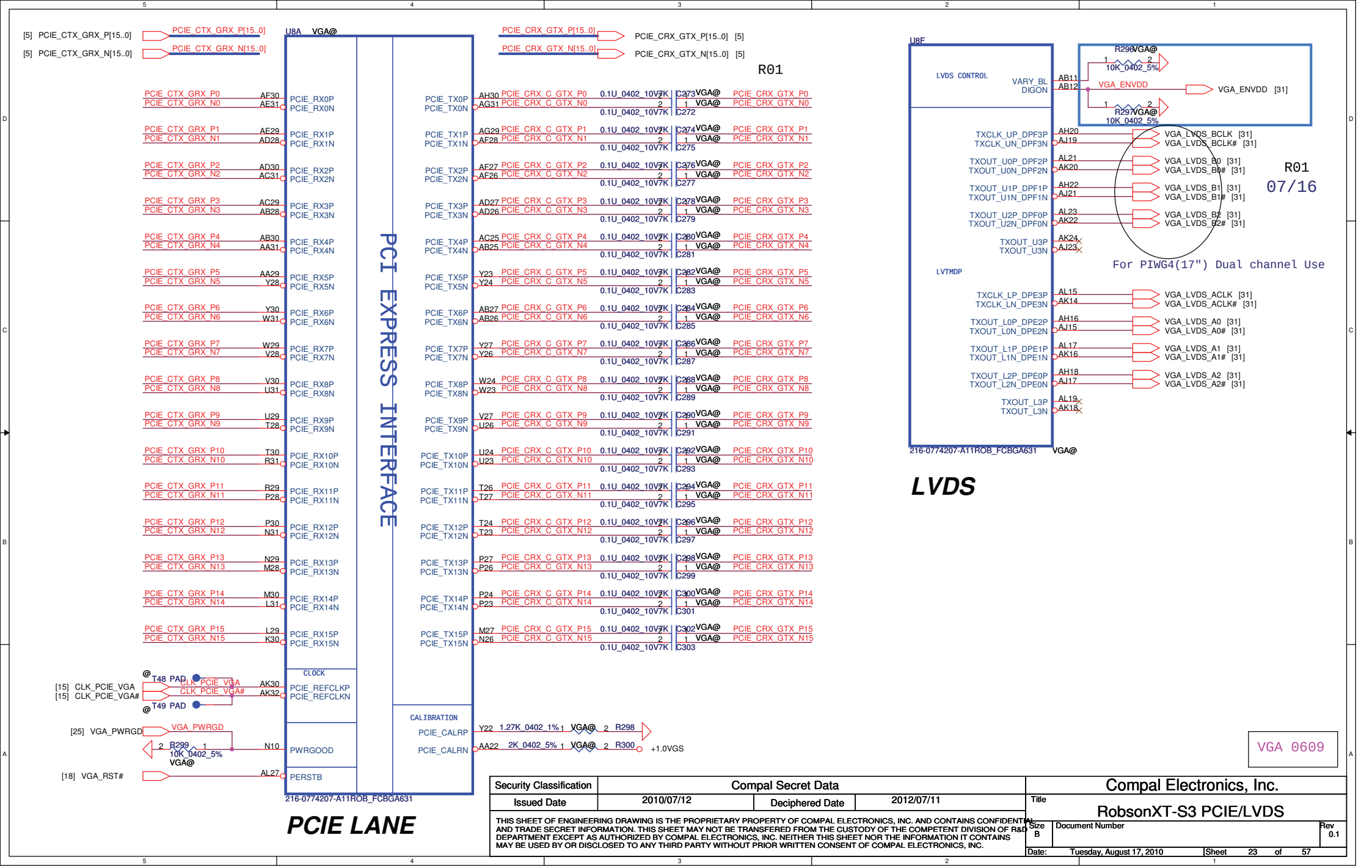
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: PCH (9/9) VSS

Size: Custom | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 22 of 57



TX_PWRS_ENB	GPIO0	Transmitter Power Saving Enable 0: 50% Tx output swing for mobile mode 1: full Tx output swing (Default setting for Desktop)
TX_DEEMPH_EN	GPIO1	PCI Express Transmitter De-emphasis Enable 0: Tx de-emphasis diabled for mobile mode 1: Tx de-emphasis enabled (Defailt setting for desktop)

CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

RECOMMENDED SETTINGS
0= DO NOT INSTALL RESISTOR
1 = INSTALL 10K RESISTOR
X = DESIGN DEPENDANT
NA = NOT APPLICABLE

STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	RECOMMENDED SETTINGS
TX_PWRS_ENB	GPIO0	PCIE FULL TX OUTPUT SWING	X
TX_DEEMPH_EN	GPIO1	PCIE TRANSMITTER DE-EMPHASIS ENABLED	X
RSVD	GPIO2	RESERVED	0
RSVD	GPIO8	RESERVED	0
BIF_VGA DIS	GPIO9	VGA ENABLED	0
RSVD	GPIO21	RESERVED	0
BIOS_ROM_EN	GPIO_22_ROMCSB	ENABLE EXTERNAL BIOS ROM	X
ROMIDCFG(2:0)	GPIO[13:11]	SERIAL ROM TYPE OR MEMORY APERTURE SIZE SELECT	XXX
VIP_DEVICE_STRAP_ENA	V2SYNC	IGNORE VIP DEVICE STRAPS	0
RSVD	H2SYNC		0
RSVD	GENERICC		0
AUD[1] AUD[0]	HSYNC VSYNC	AUD[1] AUD[0] 0 0 No audio function 0 1 Audio for DisplayPort and HDMI if dongle is detected 1 0 Audio for DisplayPort only 1 1 Audio for both DisplayPort and HDMI	11

AMD RESERVED CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS BUT DO NOT INSTALL RESISTOR. IF THESE GPIOS ARE USED, THEY MUST KEEP "LOW" AND NOT CONFLICT DURING RESET

GPIO21	H2SYNC	GENERICC	GPIO2	GPIO8

STRAPS

GPU_GPIO0	R309	2	@	1	10K_0402_5%
GPU_GPIO1	R310	2	VGA@	1	10K_0402_5%
GPU_GPIO2	R311	2	VGA@	1	10K_0402_5%
GPU_GPIO5	R308	2	@	1	10K_0402_5%
GPU_GPIO8	R313	2	@	1	10K_0402_5%
GPU_GPIO9	R314	2	@	1	10K_0402_5%
GPU_GPIO11	R315	2	VGA@	1	10K_0402_5%
GPU_GPIO12	R316	2	@	1	10K_0402_5%
GPU_GPIO13	R317	2	@	1	10K_0402_5%

VGA_HDMI_SCL	R714	DIS_HDMI@	1	10K_0402_5%	
VGA_HDMI_SDA	R713	DIS_HDMI@	1	10K_0402_5%	
VGA_LVDS_SCL	R712	2	DIS@	1	10K_0402_5%
VGA_LVDS_SDA	R711	2	DIS@	1	10K_0402_5%
VGA_DDCCLK	R621	2	DIS@	1	10K_0402_5%
VGA_DDCDATA	R426	2	DIS@	1	10K_0402_5%

VGA Thermal Sensor EMC1402-1

Closed to GPU

EMC1412-A (SA00003YA00)
Address 1111_100xb
S IC EMC1412-A-AC2L-TR MSOP 8P SENSOR

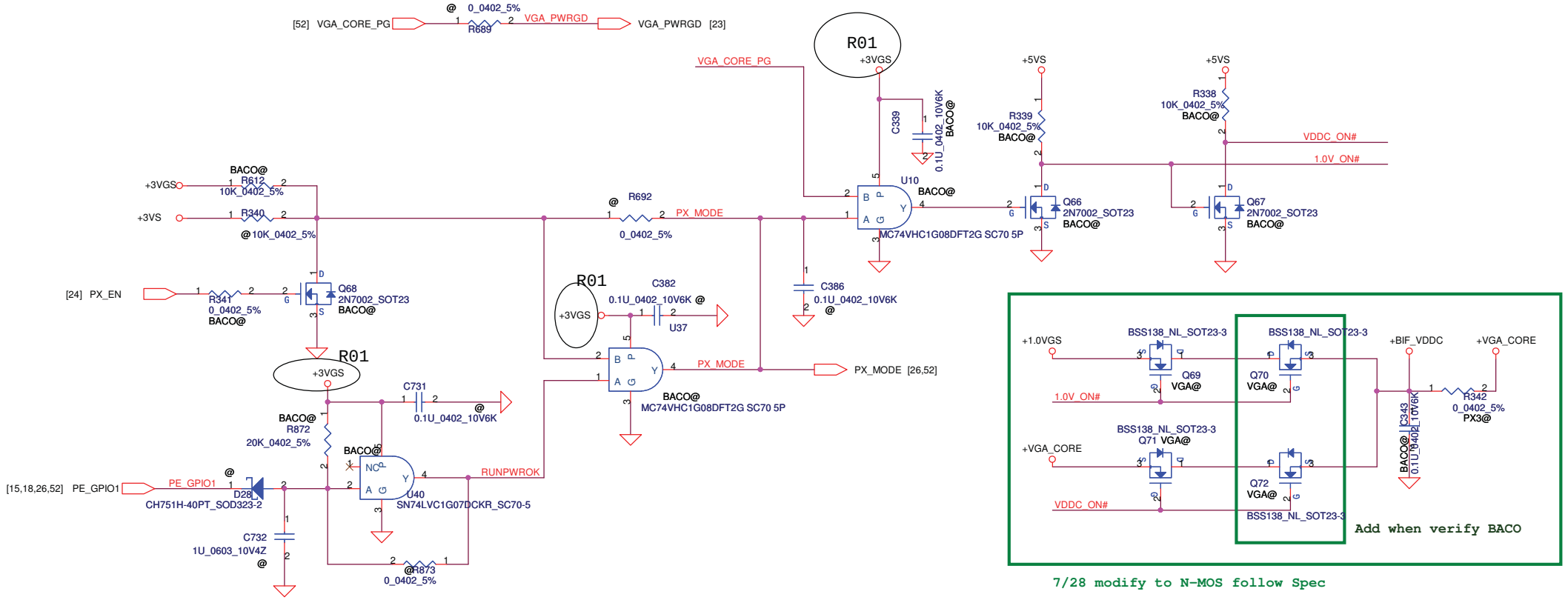
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: RobsonXT-S3 Main Generic/MSIC

Size	Document Number	Rev
C		0.1

Date: Tuesday, August 17, 2010 Sheet 24 of 57



D28 with leakage need to check

7/28 modify to N-MOS follow Spec

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

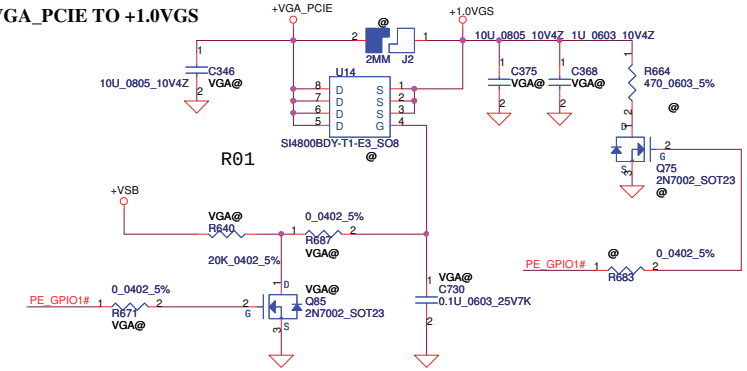
Title: PARK-S3 Main Generic/MSIC

Size	Document Number	Rev
B	LA-6758P	0.1

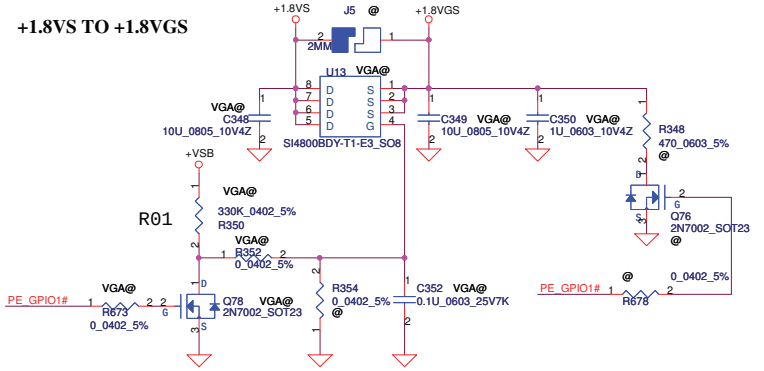
Date: Tuesday, August 17, 2010 Sheet 25 of 57

EVT Short J2 for DIS only

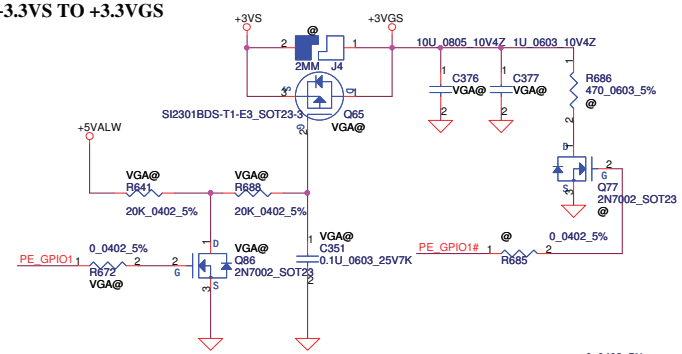
+VGA_PCIE TO +1.0VGS



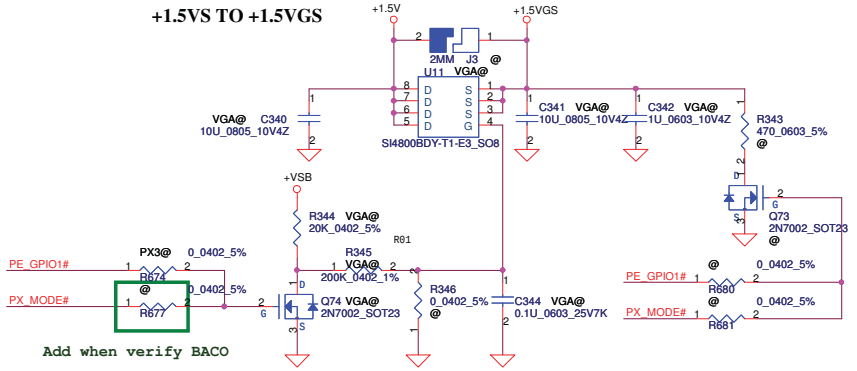
+1.8VS TO +1.8VGS

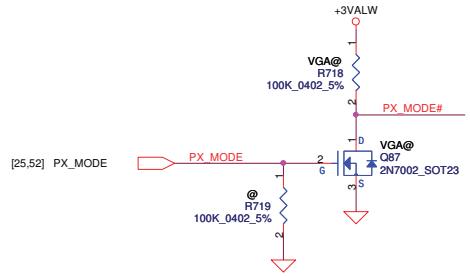


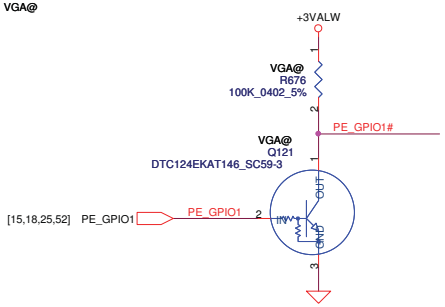
+3.3VS TO +3.3VGS



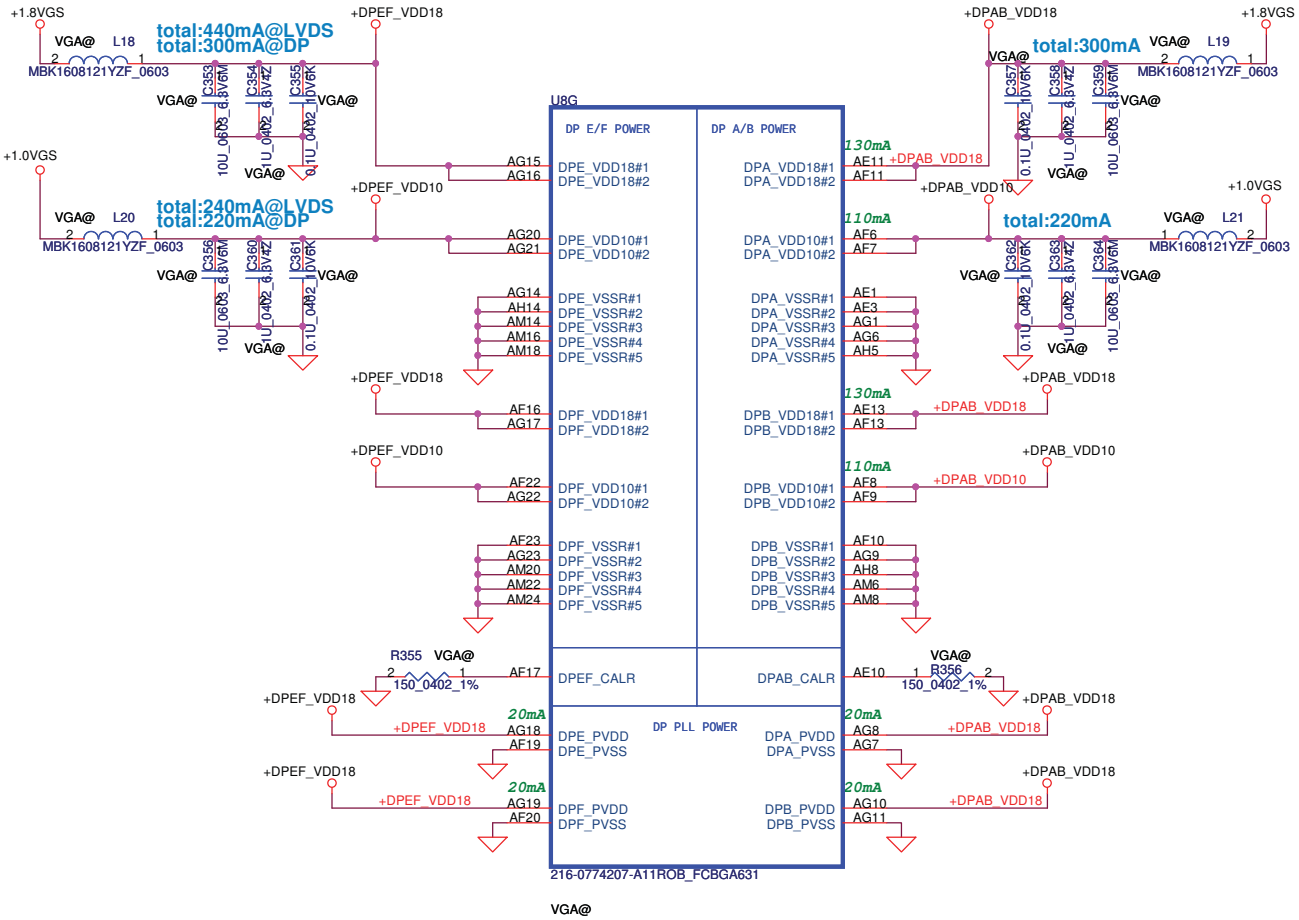
+1.5VS TO +1.5VGS







Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2010/07/12	Deciphered Date 2012/07/11	Title: PARK-S3 Main Generic/MSIC
Size: Custom	Document Number: LA-6758P		Rev: 0.1
Date: Tuesday, August 17, 2010	Sheet 26 of 57		



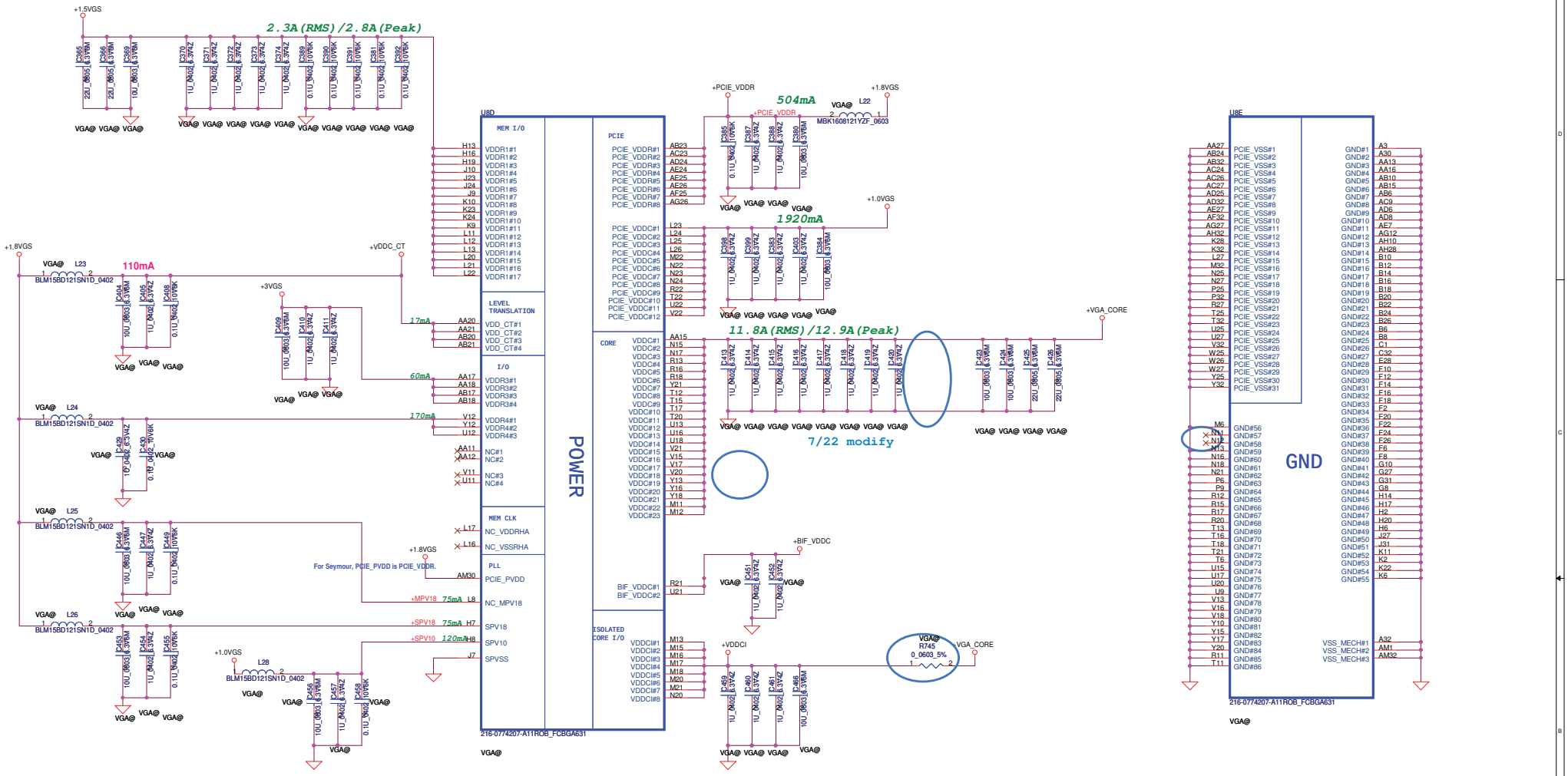
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: RobsonXT-S3 DP PWR

Size	Document Number	Rev
B		0.1

Date: Tuesday, August 17, 2010 Sheet 27 of 57



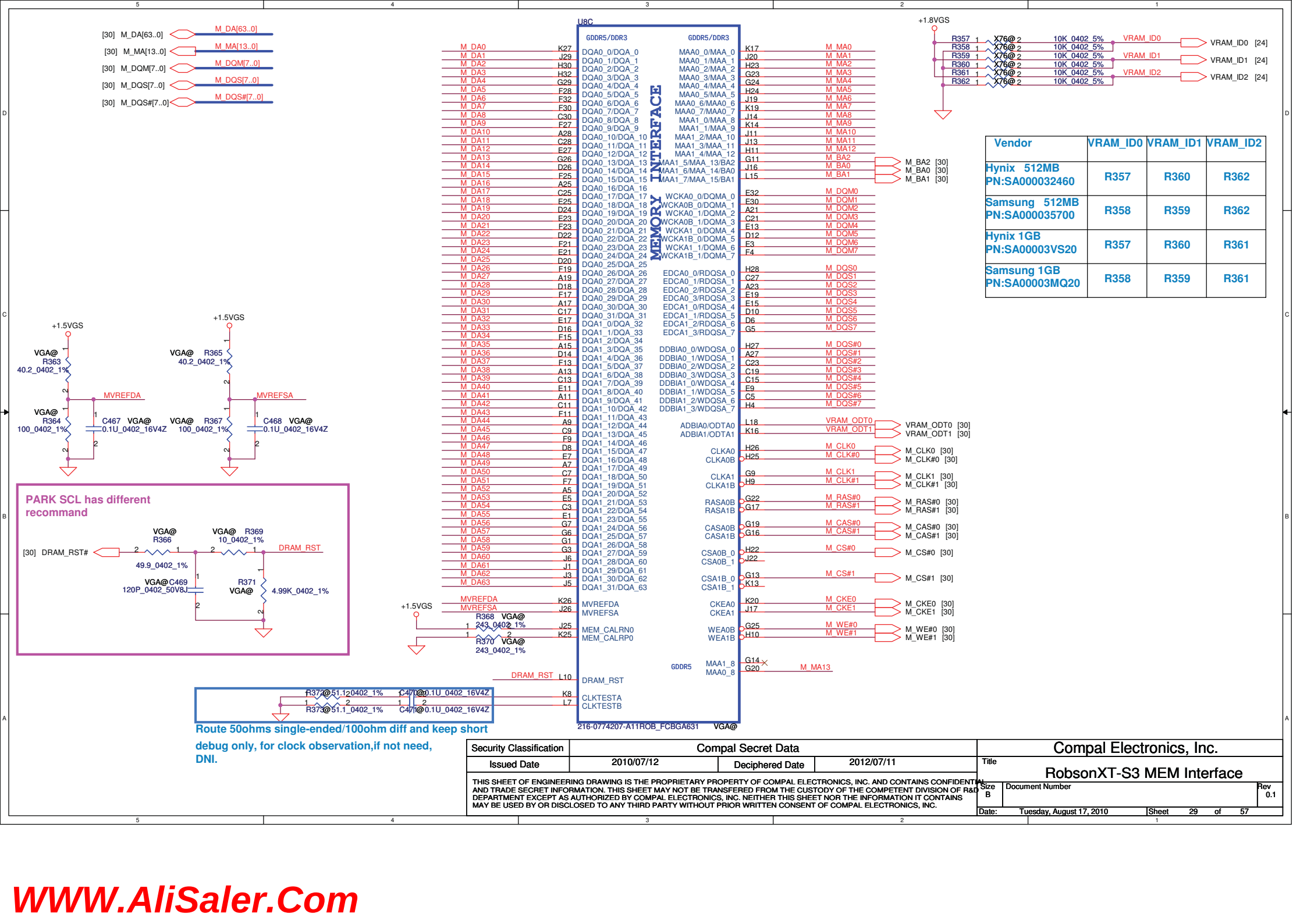
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: RobsonXT-S3 PWR/GND

Size	Document Number	Rev
C		0.1

Date: Tuesday, August 17, 2010 Sheet 28 of 57



Vendor	VRAM_ID0	VRAM_ID1	VRAM_ID2
Hynix 512MB PN:SA000032460	R357	R360	R362
Samsung 512MB PN:SA000035700	R358	R359	R362
Hynix 1GB PN:SA00003VS20	R357	R360	R361
Samsung 1GB PN:SA00003MQ20	R358	R359	R361

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: RobsonXT-S3 MEM Interface

Size: B | Document Number | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 29 of 57

[29] M_DA[63..0] → M_DA[63..0]
[29] M_MA[13..0] → M_MA[13..0]
[29] M_DQM[7..0] → M_DQM[7..0]
[29] M_DQS[7..0] → M_DQS[7..0]
[29] M_DQS#[7..0] → M_DQS#[7..0]

H1G Hynix H1G@ X7624938L01 | S1G Samsung S1G@ X7624938L02
0706 update
update X76 PN
H512 Hynix H512@ X7624938L03 | S512 Samsung S512@ X7624938L04

U19 / U20 / U18 / U21 — 100-BALL SDRAM DDR3 64MX16 H5TQ1G63BFR-12C FBGA X76@

VGA@ R374 243_0402_1% | R375 243_0402_1% | R376 243_0402_1% | R377 243_0402_1%

VGA@ R378 4.99K_0402_1% | R379 4.99K_0402_1% | R380 4.99K_0402_1% | R381 4.99K_0402_1% | R382 4.99K_0402_1% | R383 4.99K_0402_1% | R384 4.99K_0402_1% | R385 4.99K_0402_1%
R386 4.99K_0402_1% | R387 4.99K_0402_1% | R388 4.99K_0402_1% | R389 4.99K_0402_1% | R390 4.99K_0402_1% | R391 4.99K_0402_1% | R392 4.99K_0402_1% | R393 4.99K_0402_1%
C472 | C473 | C474 | C475 | C476 | C477 | C478 | C479 0.1U_0402_10V6K

M_CLK0 R394 56_0402_1% | M_CLK#0 R396 56_0402_1% | C506 0.01U_0402_16V7K
M_CLK1 R395 56_0402_1% | M_CLK#1 R397 56_0402_1% | C507 0.01U_0402_16V7K

10U_0603_6.3V6M: C488 C489 C490 C480 C491 C481
1U_0402_6.3V4Z: C482 C483 C484 C485 C486 C487 C488 C489 C500 C501 C494 C495 C496 C502 C503 C504 C505 C497

ref 139-02 recommand
add off page
Park SCL recommand pu 60.4 ohm to 1.5VGS
0611 update

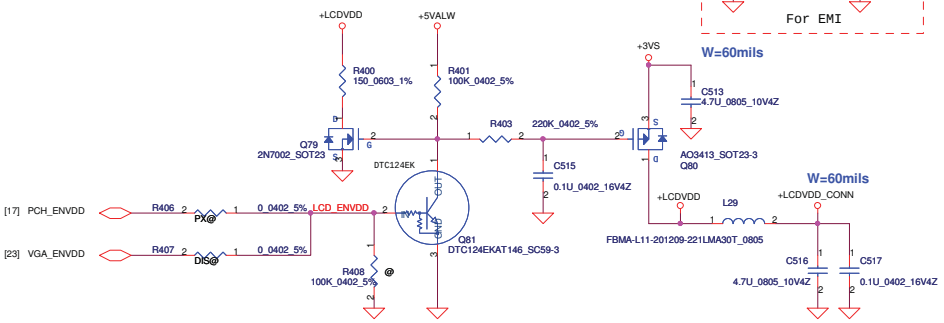
VRAM P/N :
Hynix : SA000041S10 (S IC D3 64MX16 H5TQ1G63BFR-11C FBGA C38!)
Samsung : SA000041T10 (S IC D3 64MX16 K4W1G1646E-HC11 FBGA C38!)
update VRAM PN 0619 update

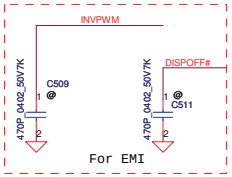
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

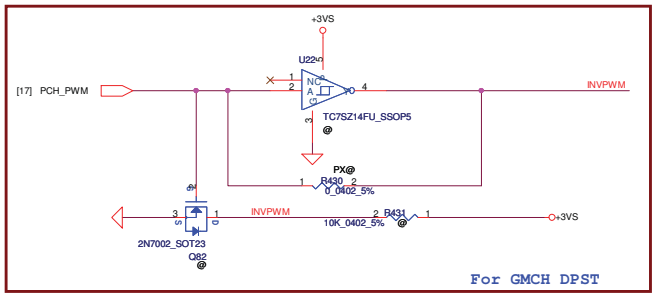
Compal Electronics, Inc.
Title: RobsonXT-S3 VRAM
Size: C | Document Number | Rev: 0.1
Date: Tuesday, August 17, 2010 | Sheet 30 of 57

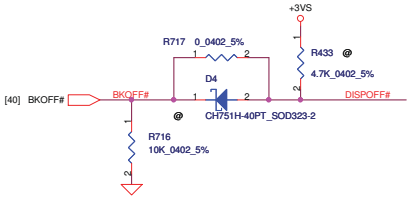
VGA LCD/PANEL BD. Conn.

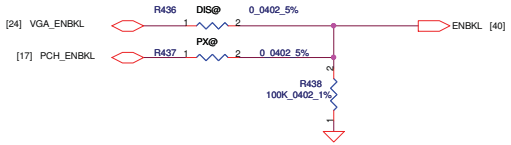
LCD POWER CIRCUIT

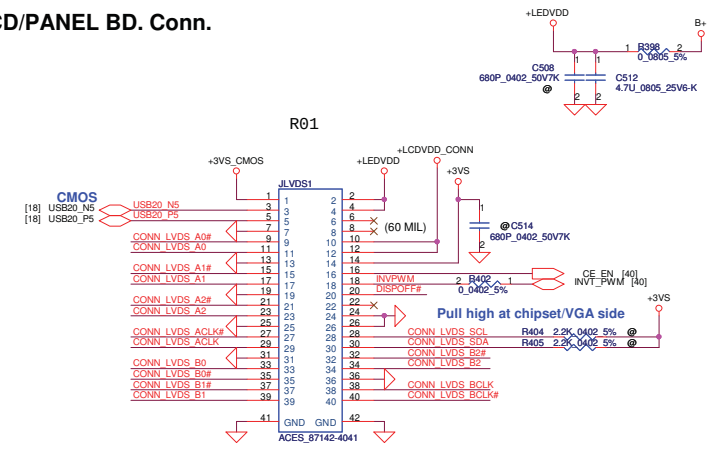


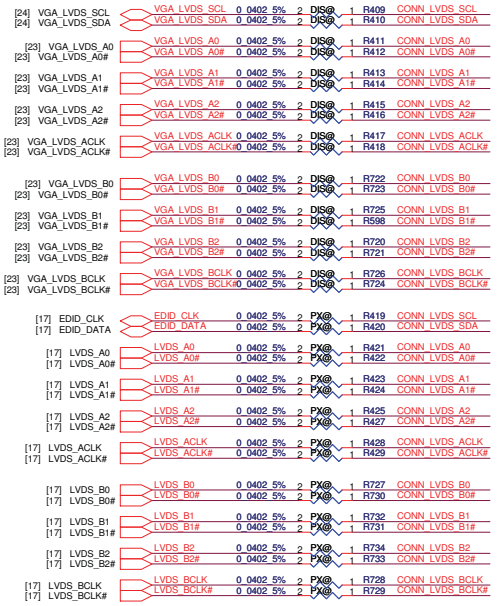




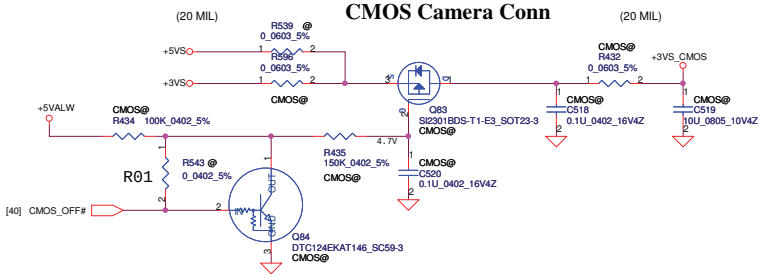








CMOS Camera Conn



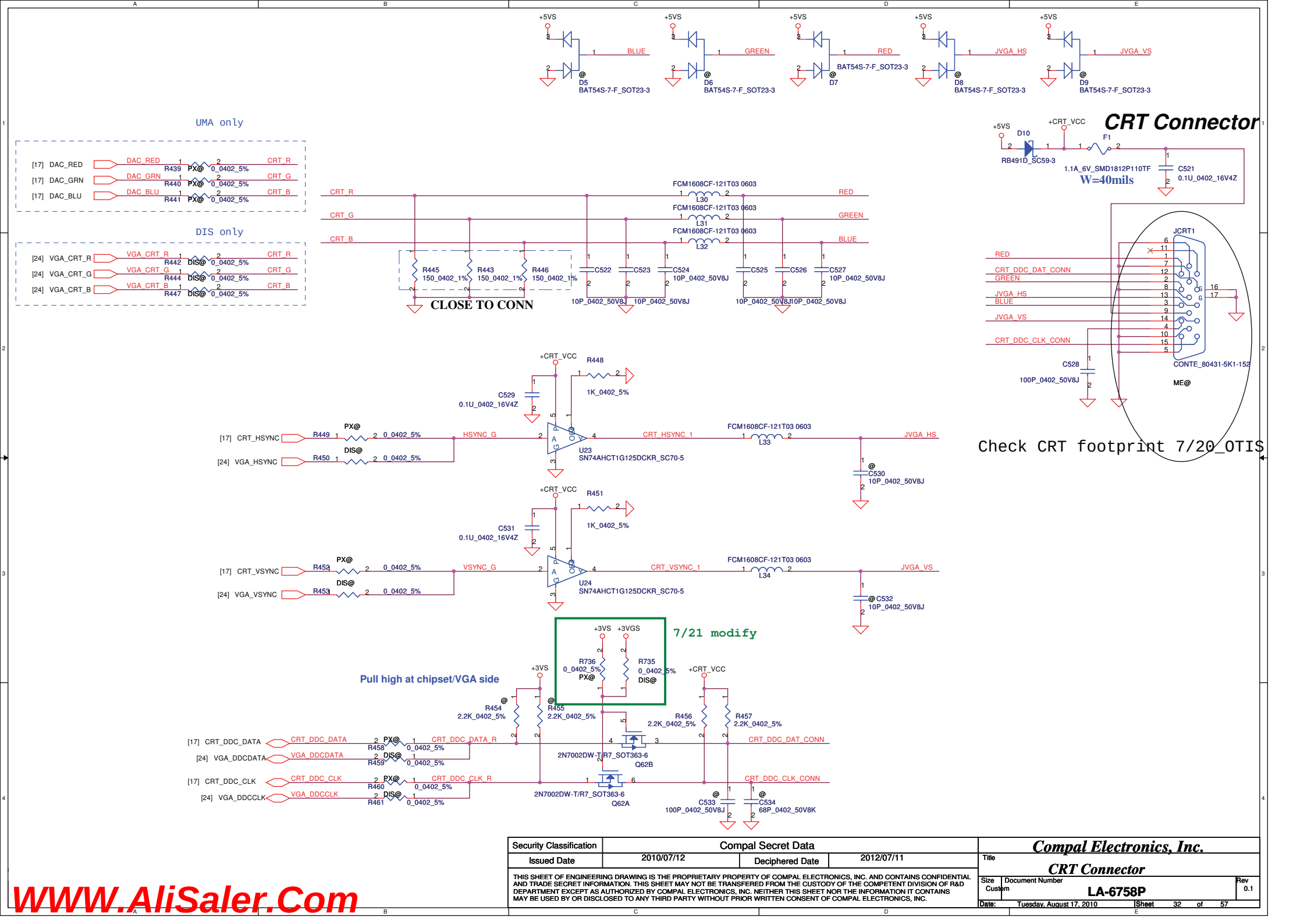
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: LVDS/CAMERA

Size	Document Number	Rev
Custom	LA-6758P	0.1

Date: Tuesday, August 17, 2010 | Sheet 31 of 57



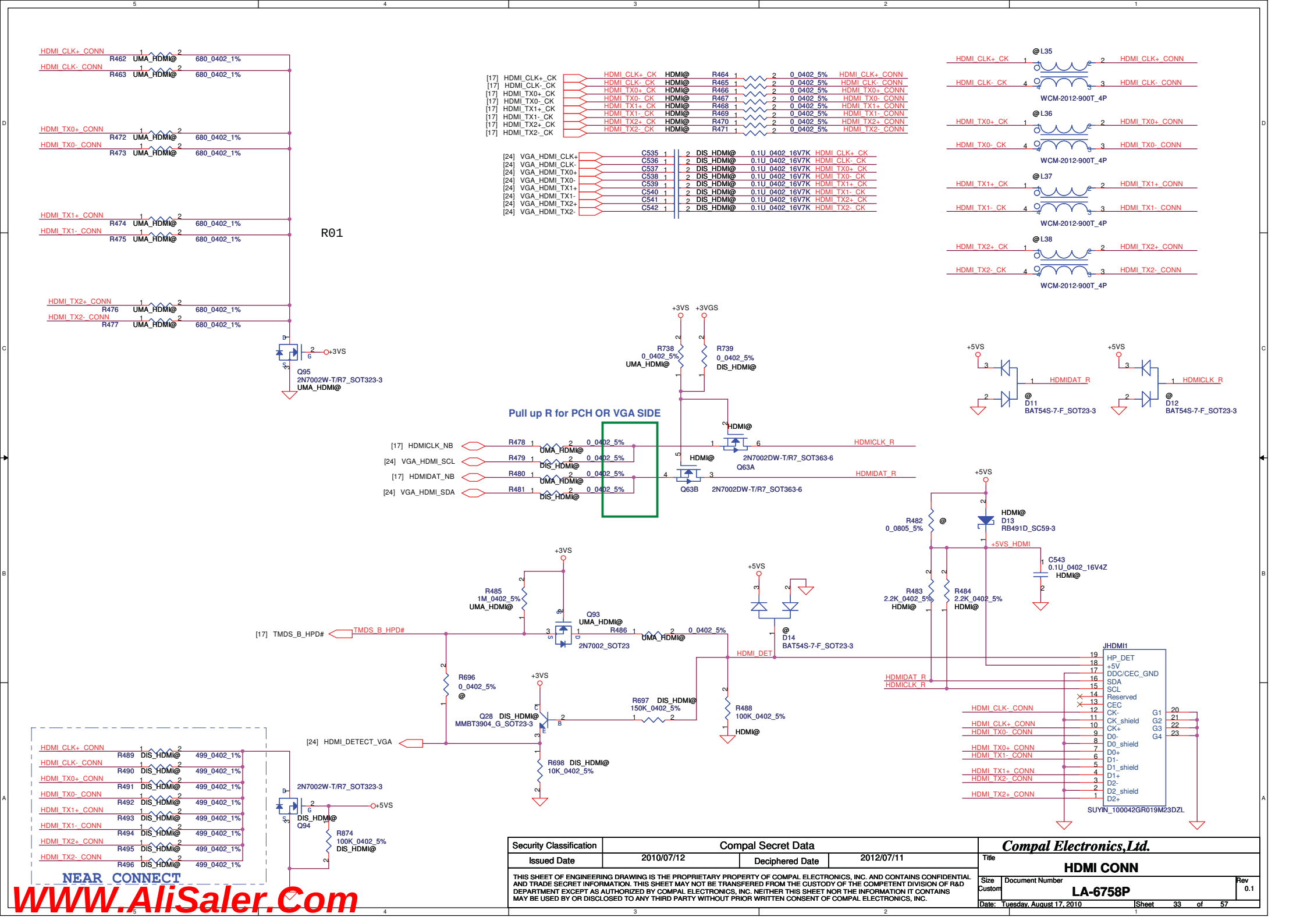
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: CRT Connector

Size: Custom | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 32 of 57



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

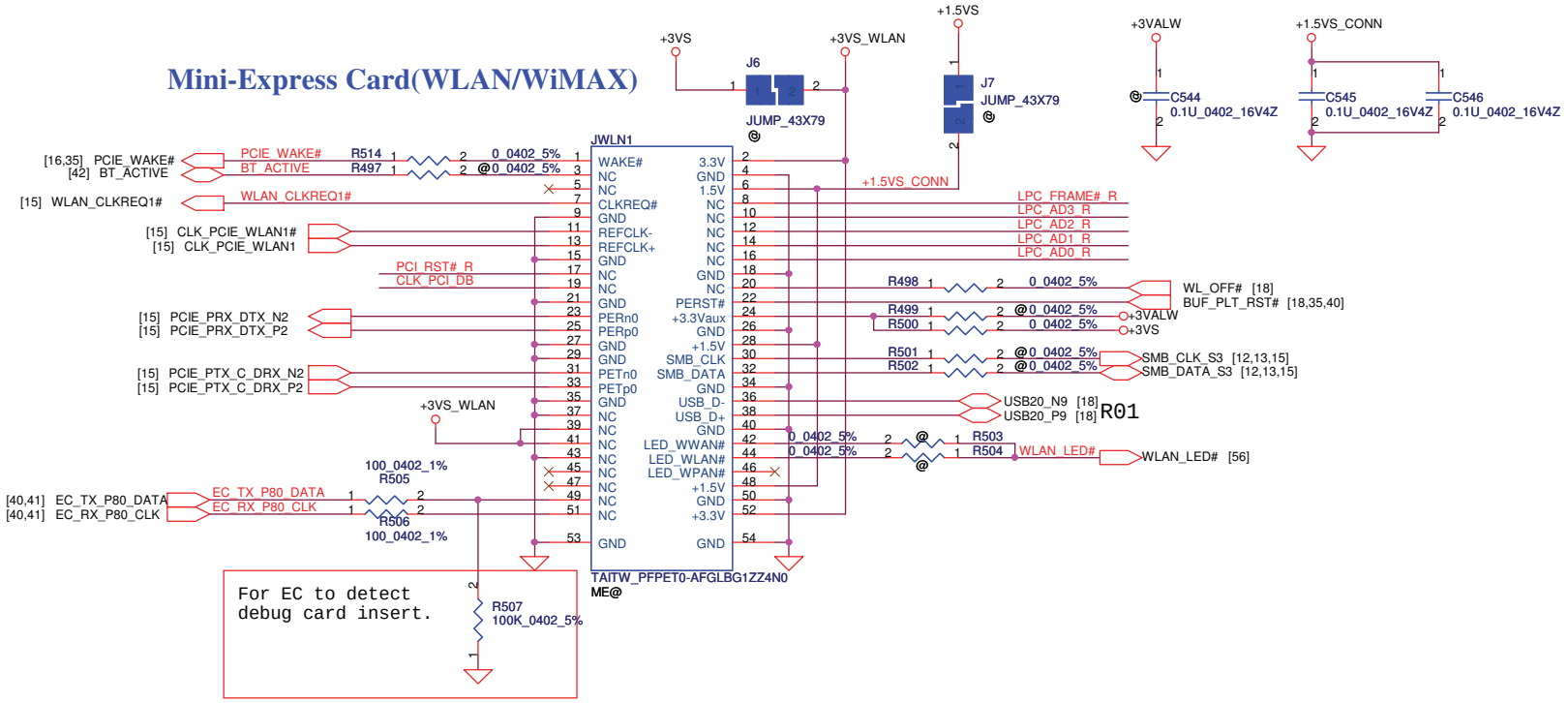
Compal Electronics, Ltd.

Title: HDMI CONN

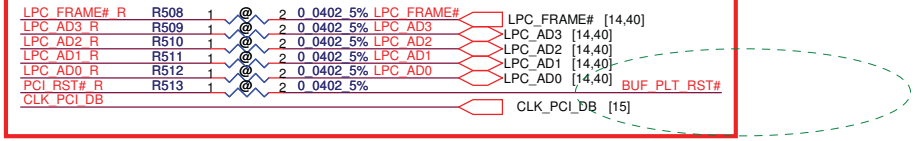
Size	Document Number	Rev
Custom	LA-6758P	0.1

Date: Tuesday, August 17, 2010 Sheet 33 of 57

Mini-Express Card for WLAN/WiMAX(Half)



Reserve for SW mini-pcie debug card.
Series resistors closed to KBC side.



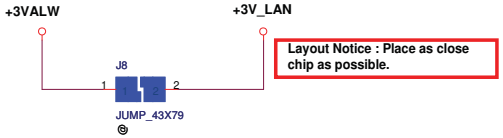
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

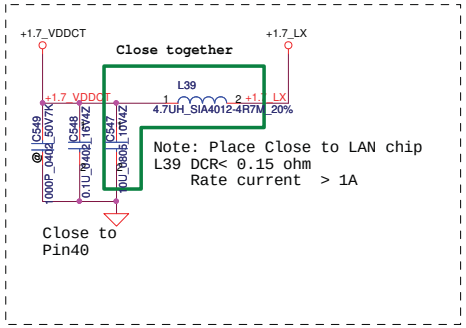
Title: Mini-Card/NEW Card/SIM

Size | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 34 of 57

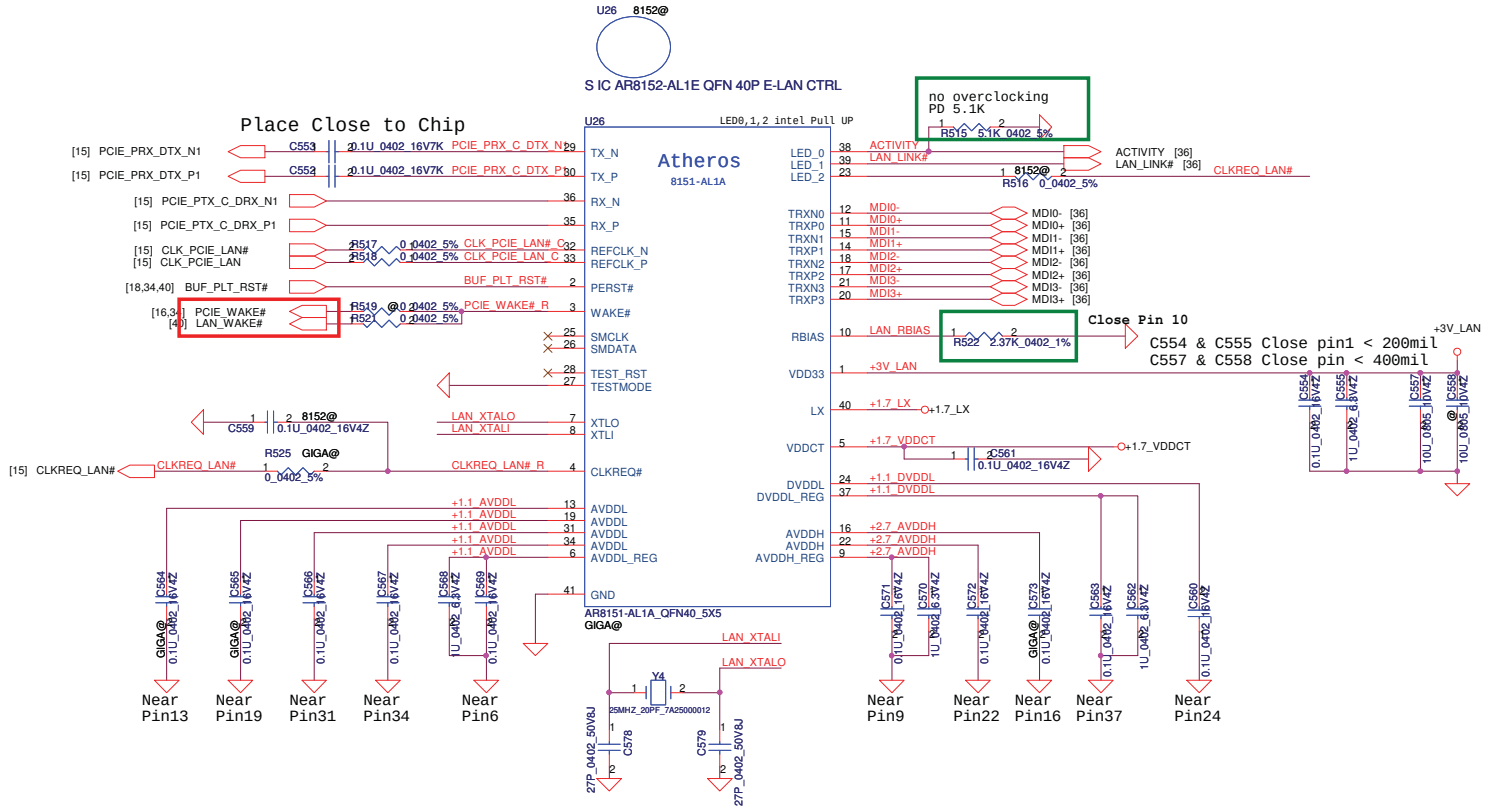


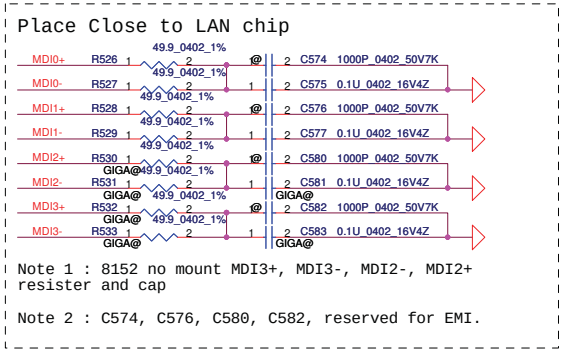
Atheros request can't disable LAN power



Power On strapping

Pin	Description	Chip Default
LED0	H:Over Clock Enable L:Over Clock Disable *	H
LED2	H:SWR Switch mode regulator Select * AR8151 Pin23=LED2. AR8152, Pin23 is CLKREQ	--





	Pin4	Configure R525	Configure C559		Pin23	Configure R516
AR8152	VDDCT_REG		*		CLKREQn	*
AR8151	CLKREQn	*			LED[2]	

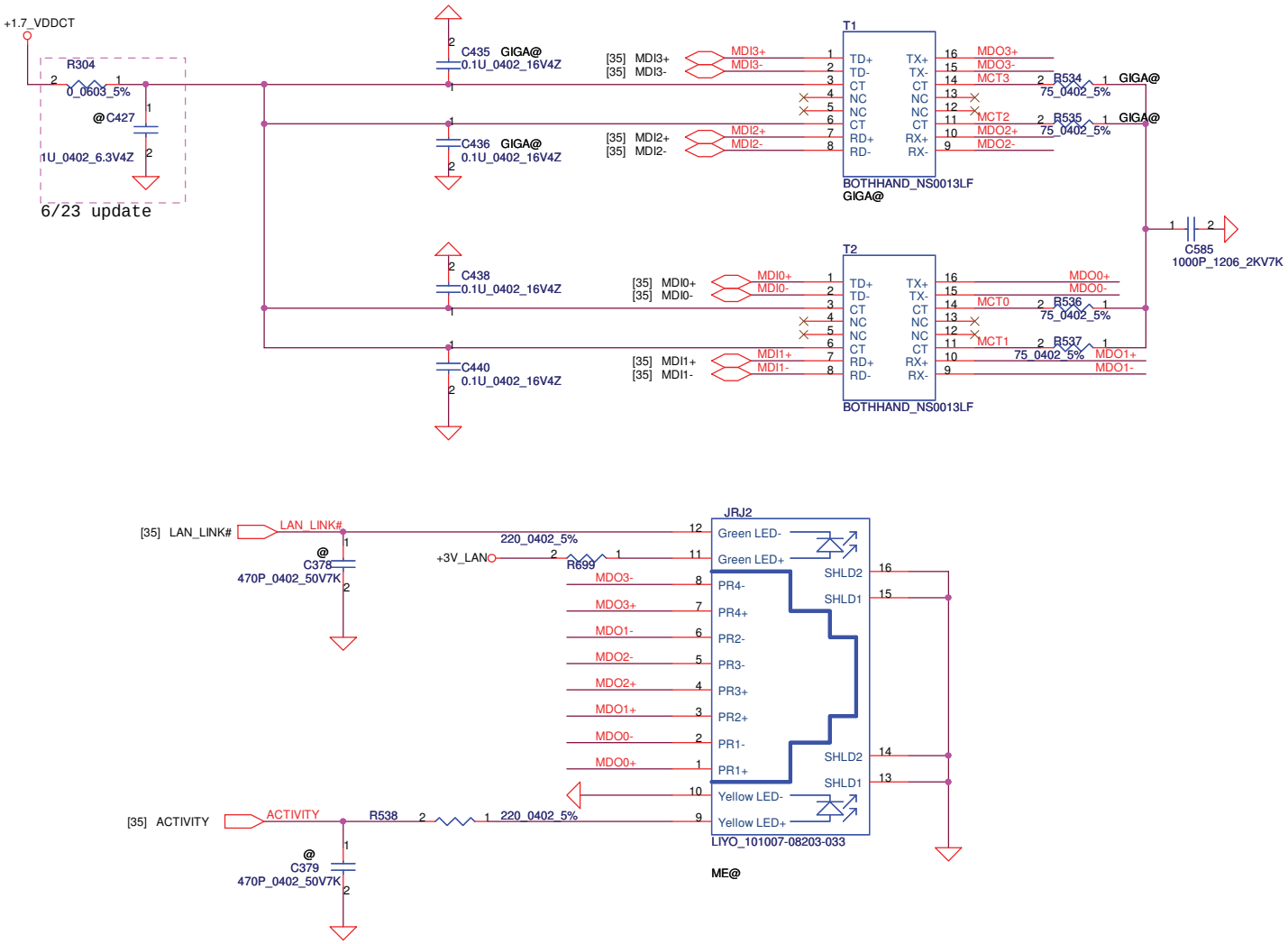
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: LAN-AR8151/8152

Size: Custom | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 35 of 57



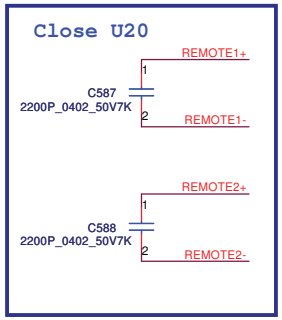
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

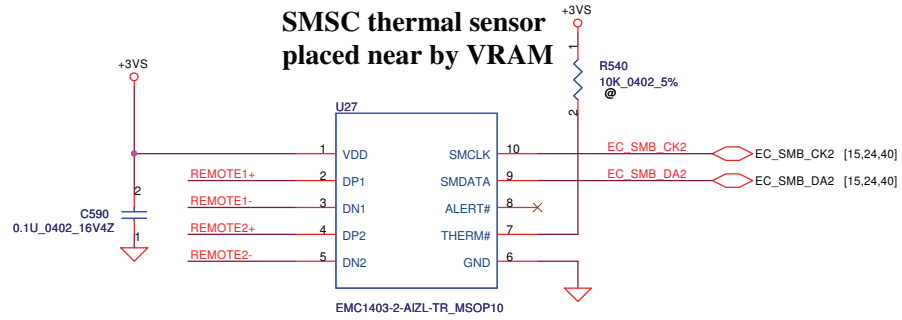
Compal Electronics, Inc.

Title: **LAN_Transformer**

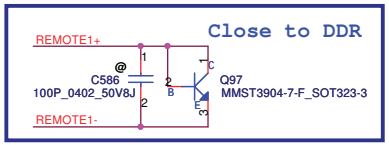
Size	Document Number	Rev
B	LA-6758P	0.1

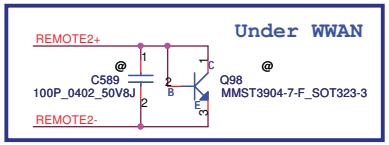
Date: Tuesday, August 17, 2010 Sheet 36 of 57





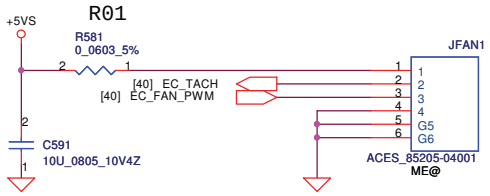
Address 1001_101xb





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

FAN1 Conn



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

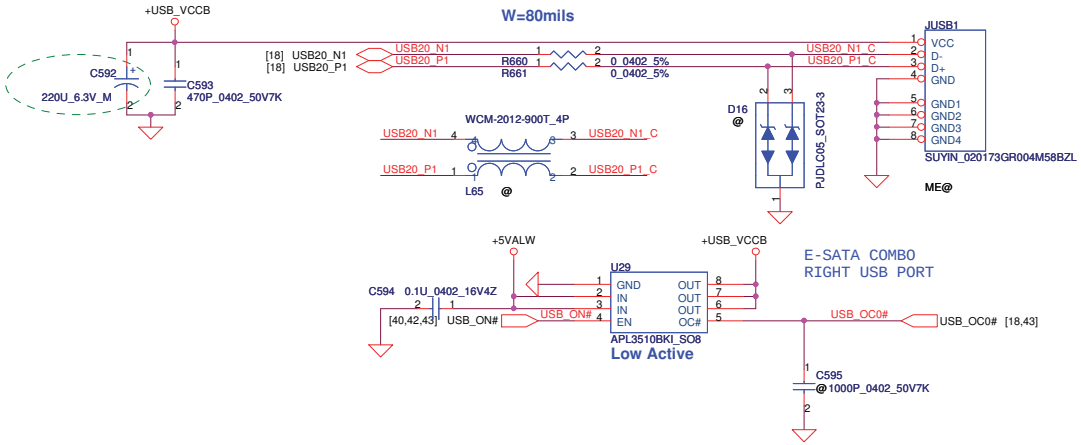
Compal Electronics,Ltd.

Title: **EMC1403_Thermal sensor/FAN**

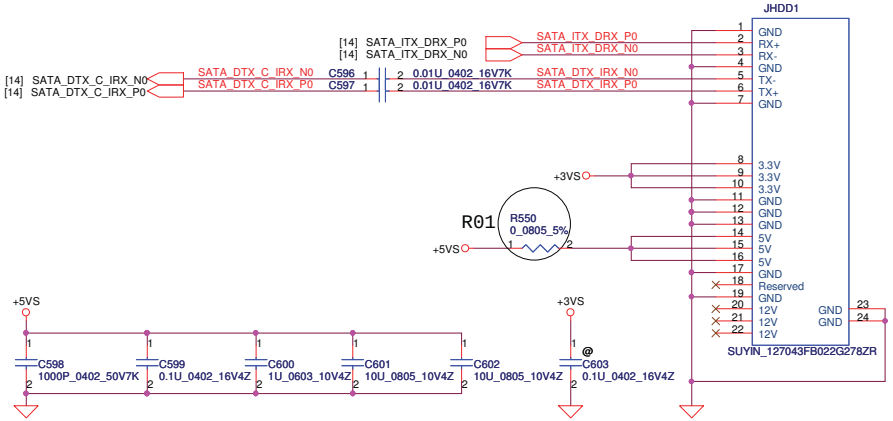
Size	Document Number	Rev
Custom	LA-6758P	0.1

Date: Tuesday, August 17, 2010 Sheet 37 of 57

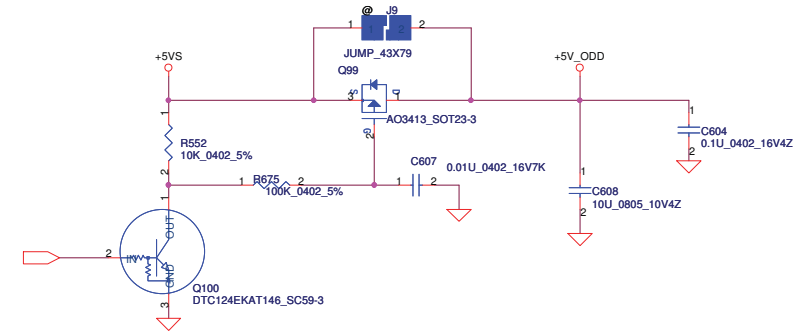
Left USB Conn.



SATA HDD Conn.



ODD Power Control



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

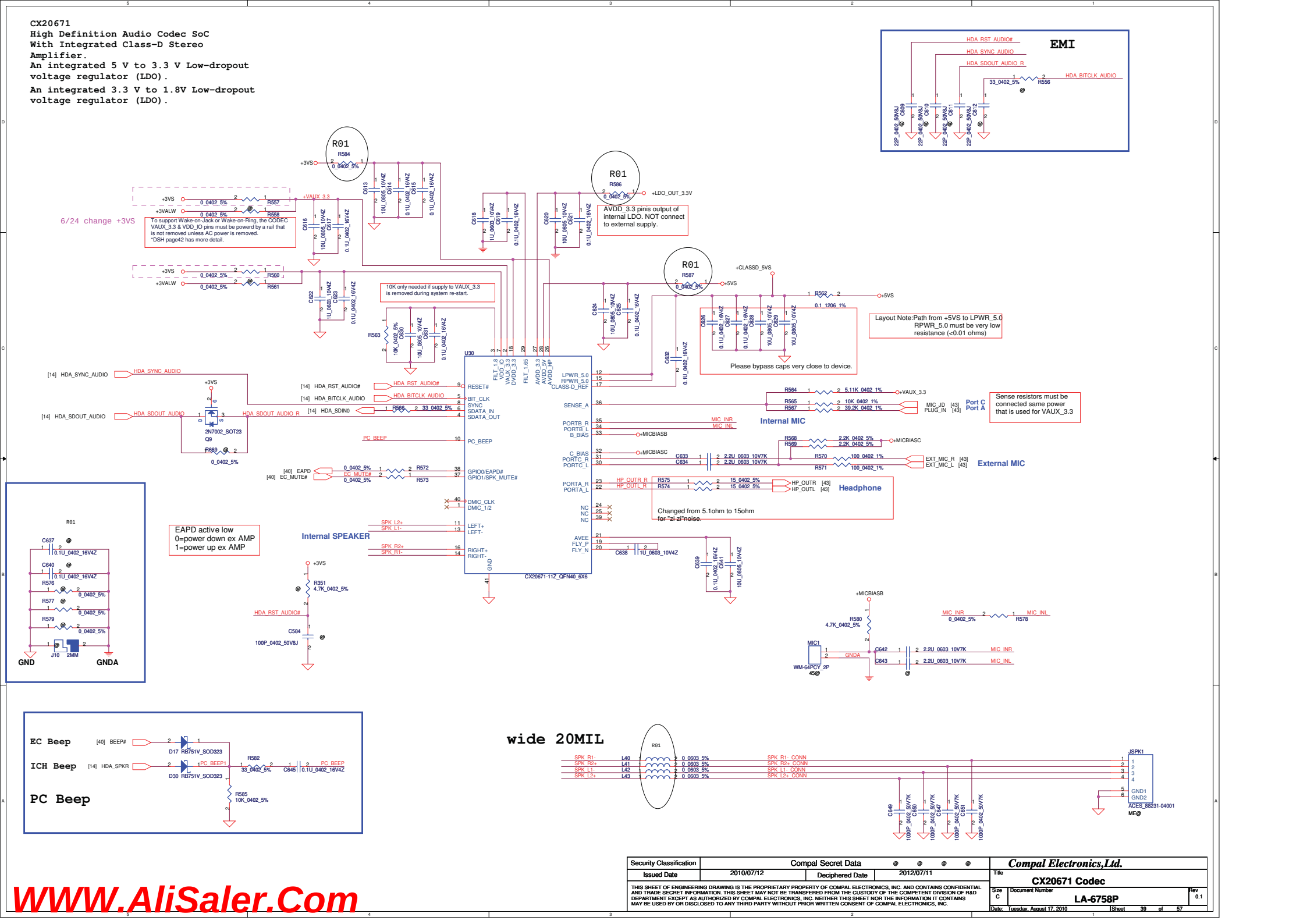
Compal Electronics, Inc.

Title: HDD/ODD Connector

Size: B | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 38 of 57

CX20671
High Definition Audio Codec SoC
With Integrated Class-D Stereo
Amplifier.
An integrated 5 V to 3.3 V Low-dropout
voltage regulator (LDO).
An integrated 3.3 V to 1.8V Low-dropout
voltage regulator (LDO).



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics,Ltd.

Title: CX20671 Codec

Size: C | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 39 of 57

Vcc	3.3V +/- 5%
R694	100K +/- 5%

Board ID	R695	V_{AD_BID} min	V_{AD_BID} typ	V_{AD_BID} max	
0	0	0 V	0 V	0 V	EVT
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V	DVT
2	18K +/- 5%	0.436 V	0.503 V	0.538 V	PVT
3	33K +/- 5%	0.712 V	0.819 V	0.875 V	MP

ENE UPDATE 08/10/21

7/21 modify

7/23 Modify

7/23 Modify

7/28 Modify

6/19 Add BRDID

6/24 Update R708,R709 must be close Y5

6/15 add XTAL

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

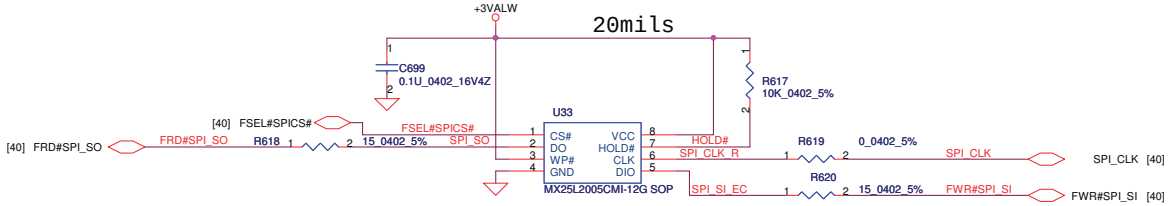
Compal Electronics, Inc.

Title: BIOS & EC I/O Port

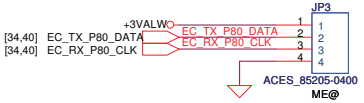
Size: Custom | Document Number: LA-6758P | Rev: 0.1

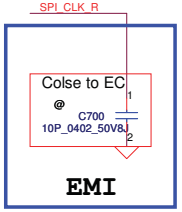
Date: Tuesday, August 17, 2010 | Sheet 40 of 57

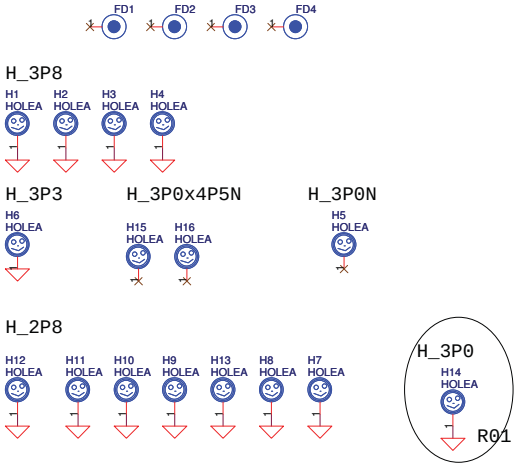
FOR EC 256KB SPI ROM
(150mil PACKAGE)



EC DEBUG PORT

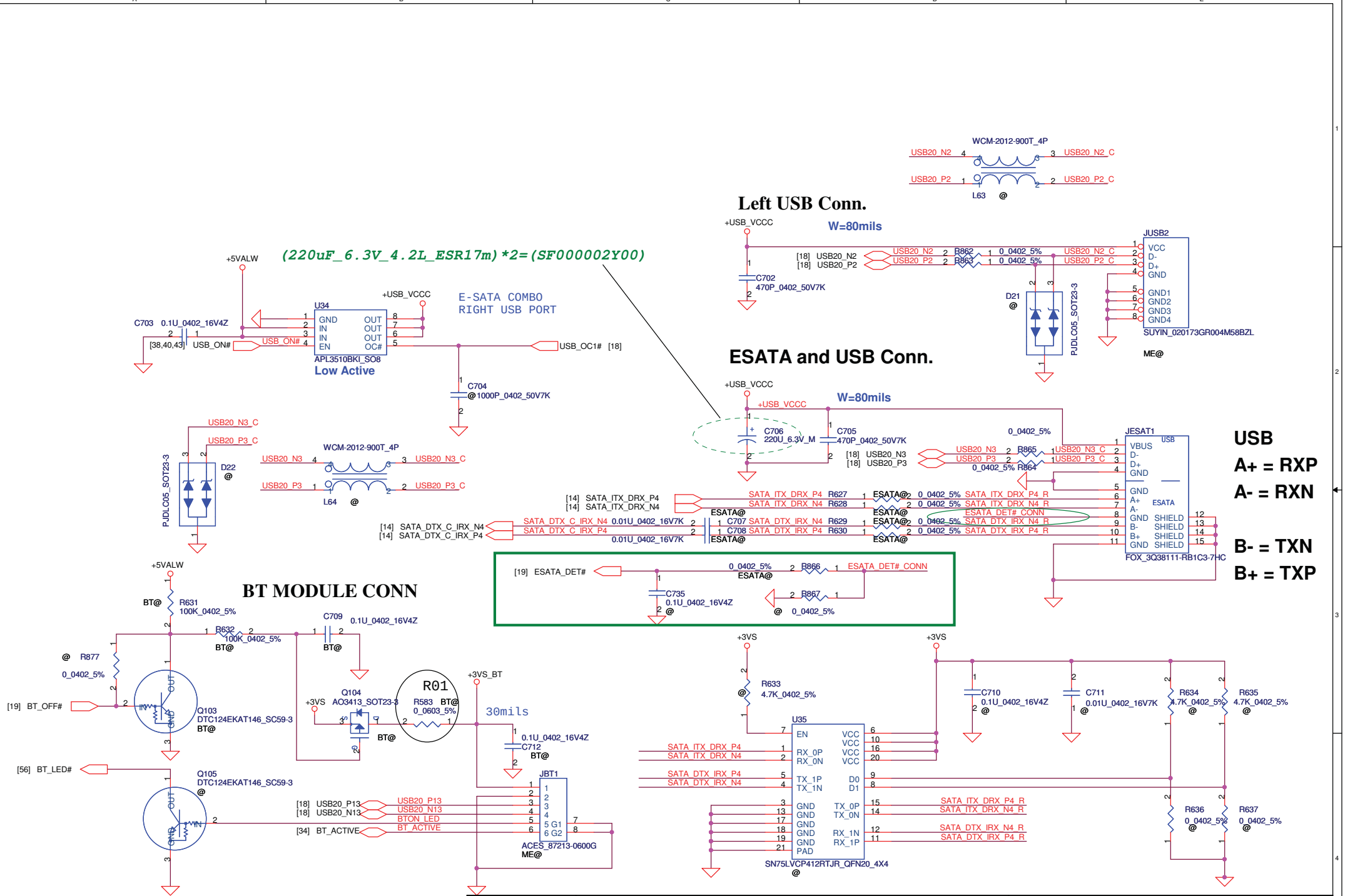




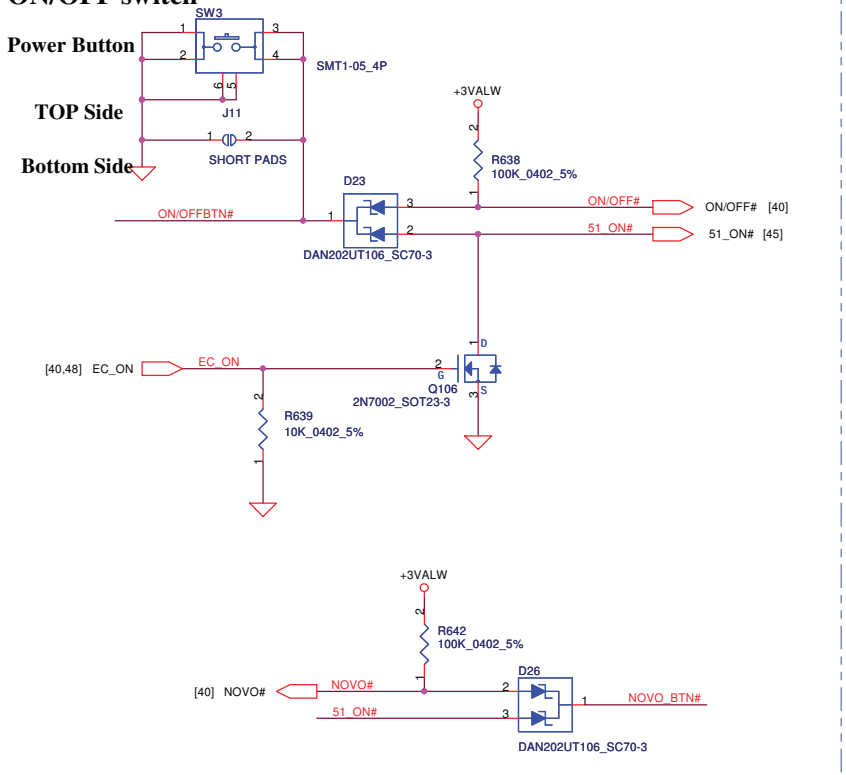


Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

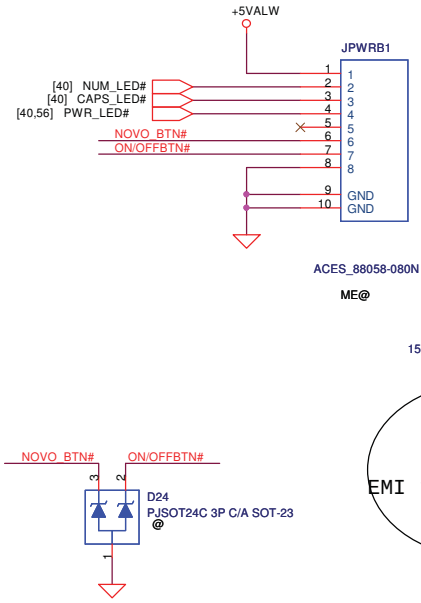
Compal Electronics, Inc.			
Title: LED/EC SPI ROM			
Size: B	Document Number: LA-6758P		Rev: 0.1
Date: Tuesday, August 17, 2010	Sheet 41 of 57		



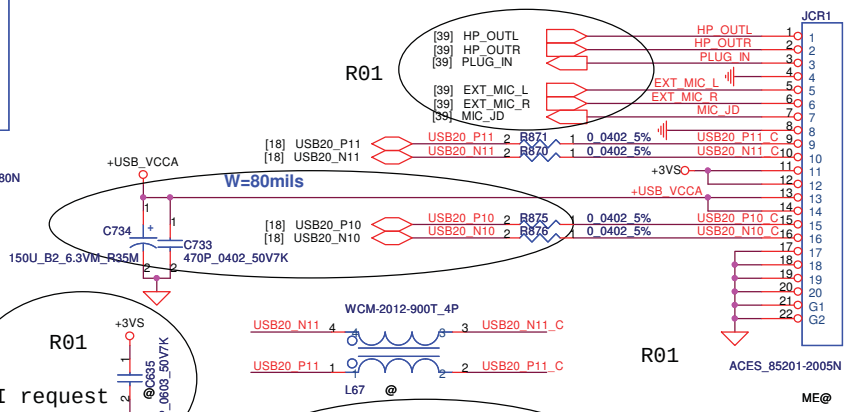
ON/OFF switch



Power Bottom Board Conn. 8pin



Card Reader/Audio Jack SB CONN

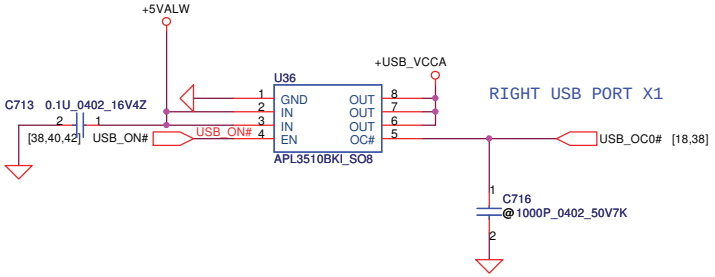


07/16

FOR PIWG4 USE

EMI REQUEST 1ST = SCA00000E00

2ST = SCA00000R00

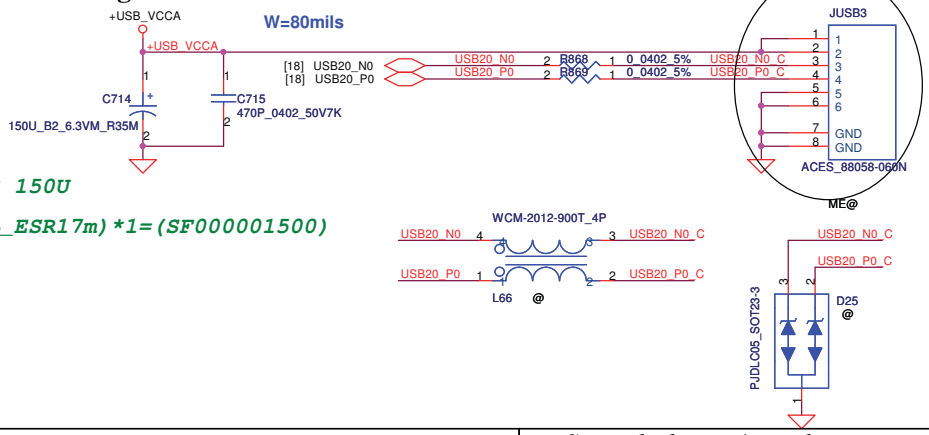


07/16

FOR PIWG4 USE

R01

Right USB Conn.



6/9 change to B2 150U

*(220uF_6.3V_5.8L_ESR17m)*1=(SF000001500)*

Security Classification	Compal Secret Data		
Issued Date	2008/03/25	Deciphered Date	2008/04/

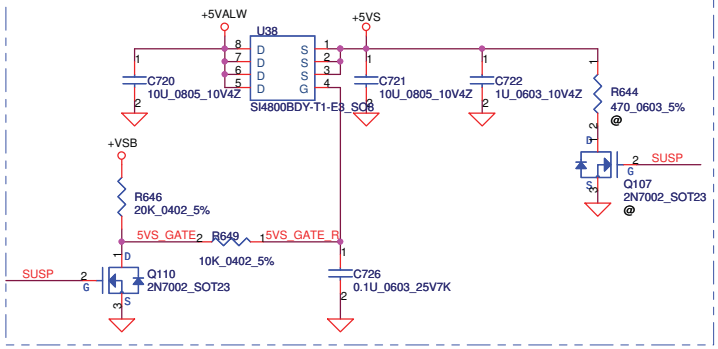
Compal Electronics,Ltd.

Title: other IO connector

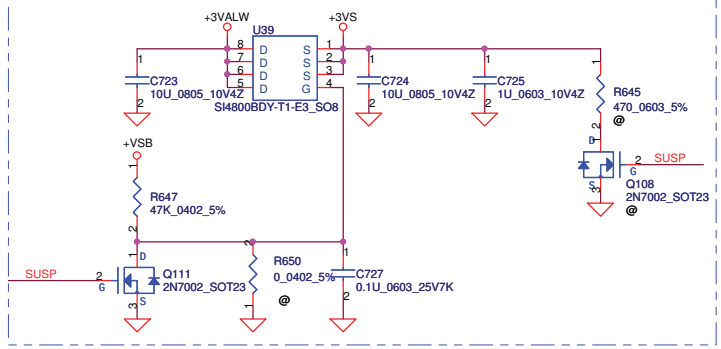
Size	Document Number	Rev
Custom	LA-6758P	0.1

Date: Tuesday, August 17, 2010 Sheet 43 of 57

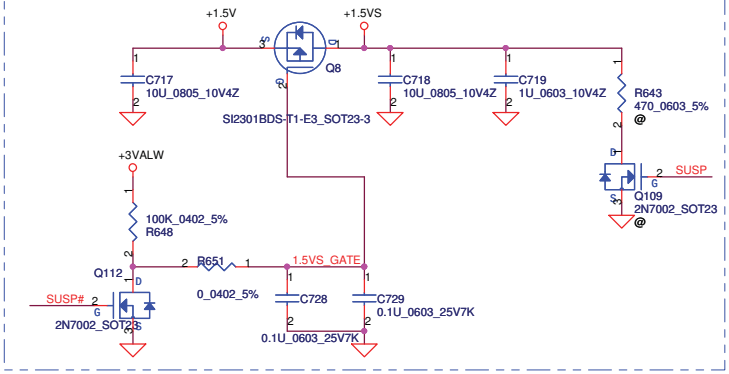
+5VALW TO +5VS



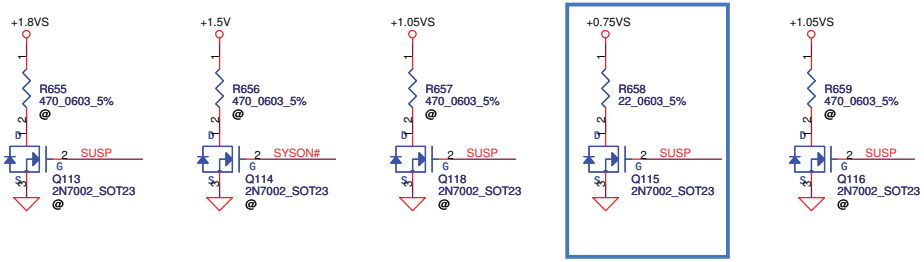
+3VALW TO +3VS



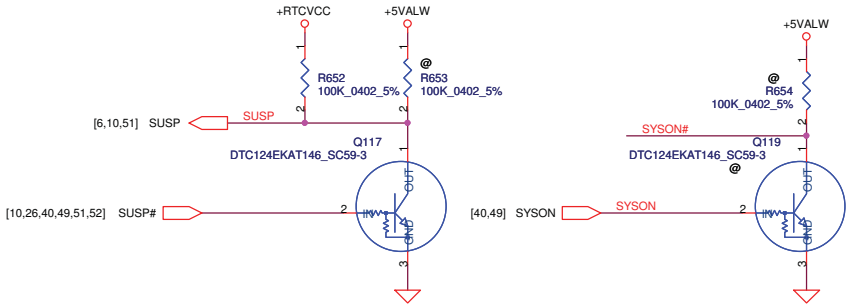
+1.5V to +1.5VS



6/13 change SI4800 to SI2301



For Intel S3 Power Reduction.



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

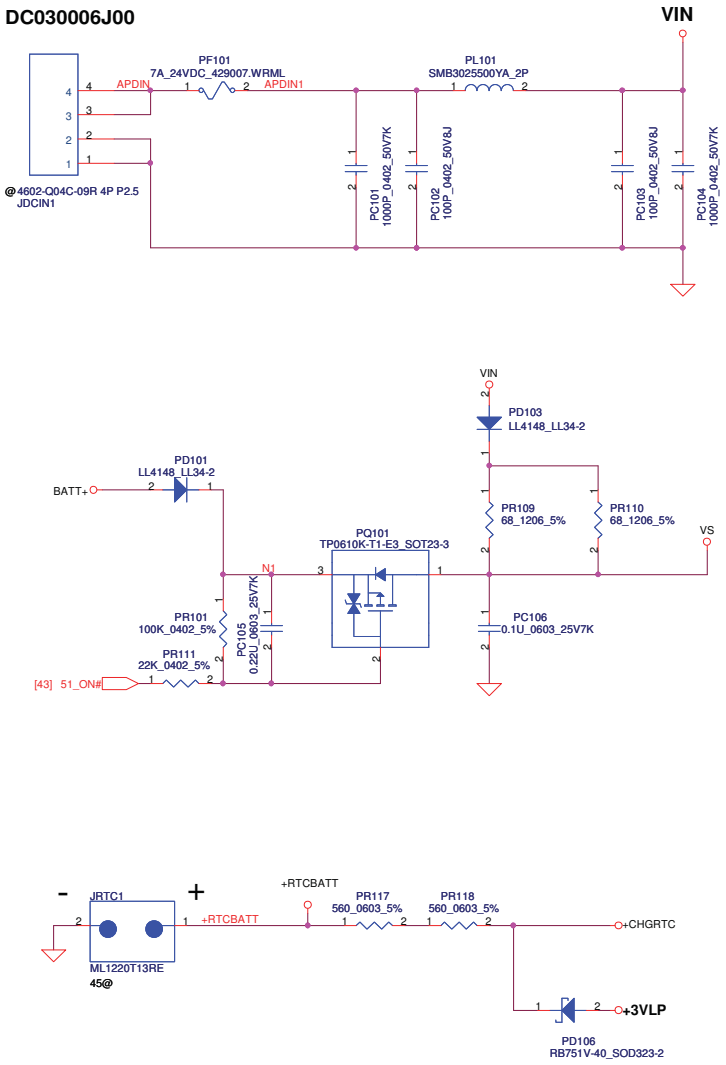
Compal Electronics, Inc.

Title: DC Interface

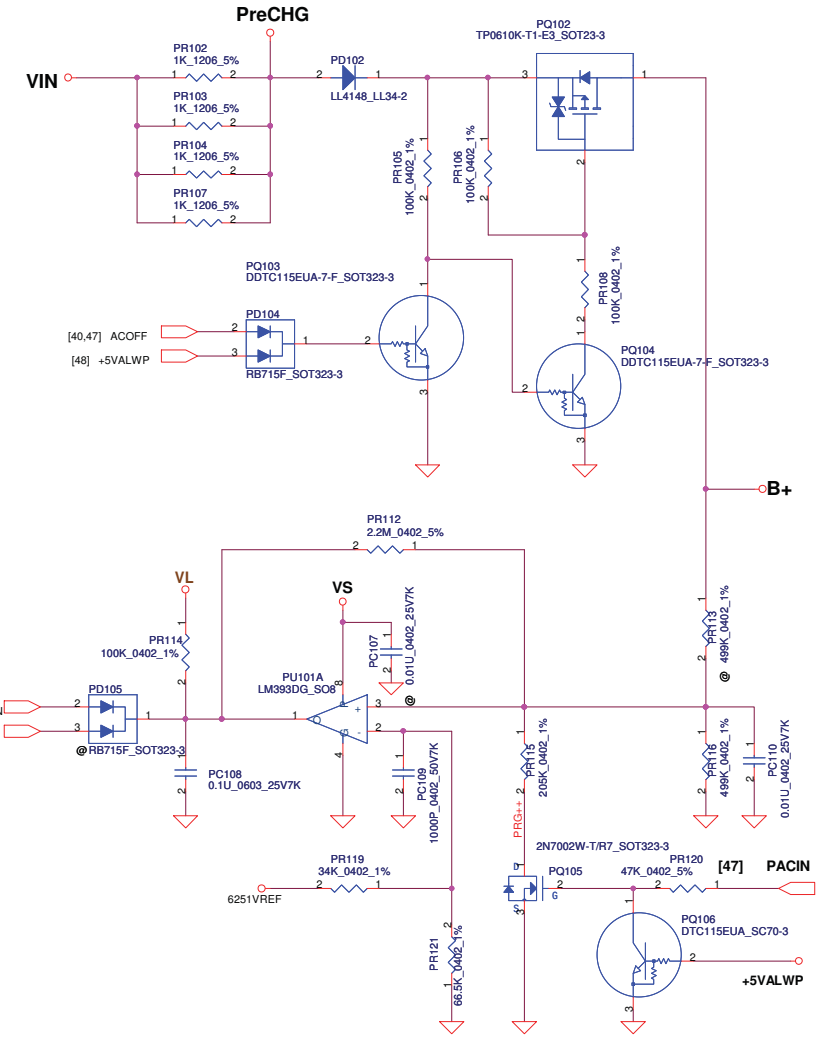
Size: Custom | Document Number: LA-6758P | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 44 of 57

DC030006J00



Precharge detector 15.97V/14.84V FOR ADAPTOR



ACIN

Precharge detector	Min.	typ.	Max.
L-->H	14.991V	15.381V	15.782V
H-->L	13.860V	14.247V	14.621V

BATT ONLY

Precharge detector	Min.	typ.	Max.
L-->H	7.196V	7.349V	7.505V
H-->L	6.138V	6.214V	6.056V

Security Classification	Compal Secret Data		
Issued Date	2010/01/25	Deciphered Date	2010/12/31

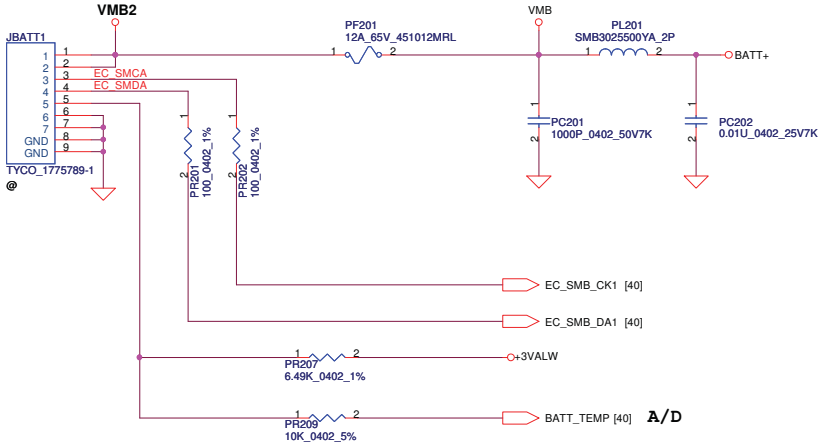
Compal Electronics, Inc.

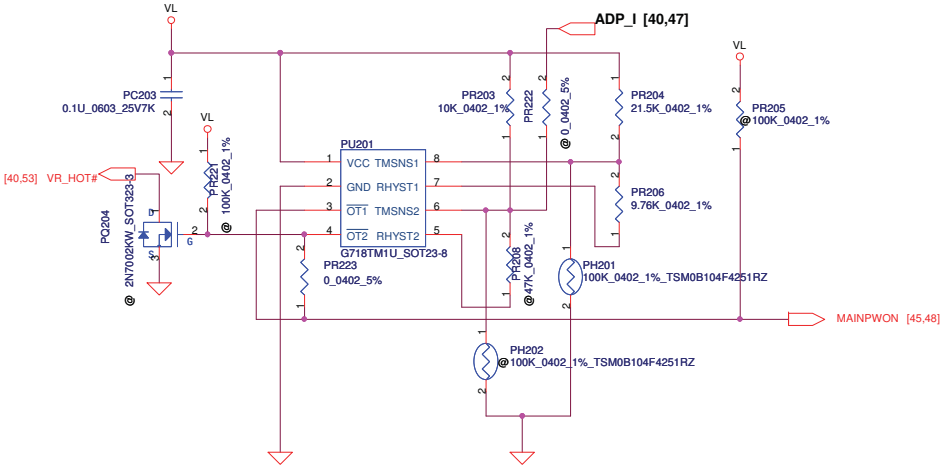
Title: PWR DCIN / Vin Detector /Pre-charge

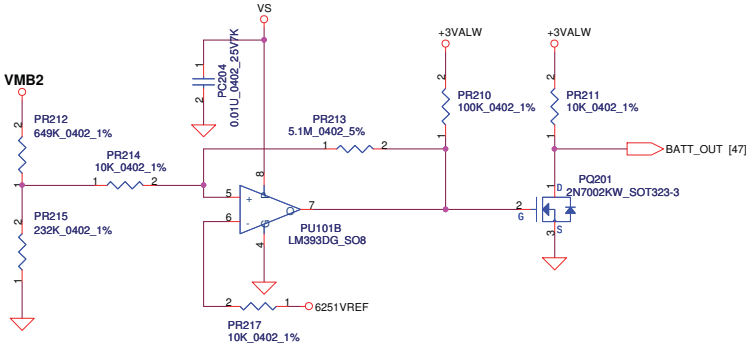
Size: Custom | Document Number: PIWG4 | Rev: 0.1

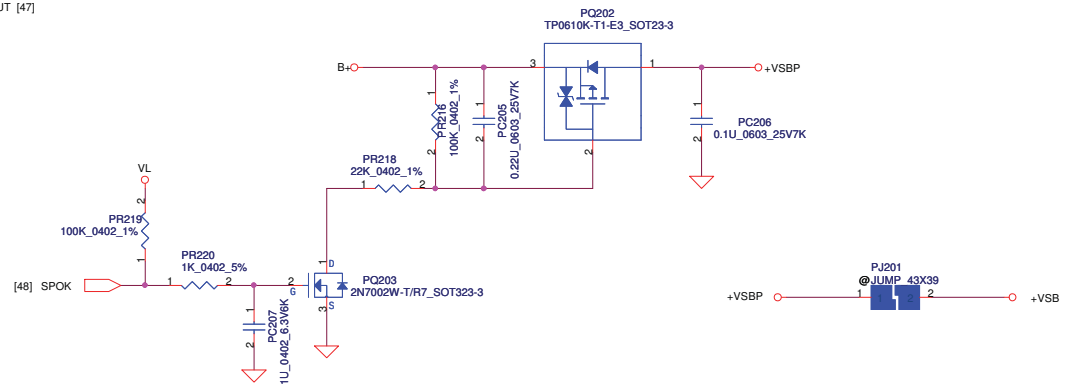
Date: Tuesday, August 17, 2010 | Sheet 45 of 57

PH201 under CPU botten side :
CPU thermal protection at 92 degree C
Recovery at 56 degree C









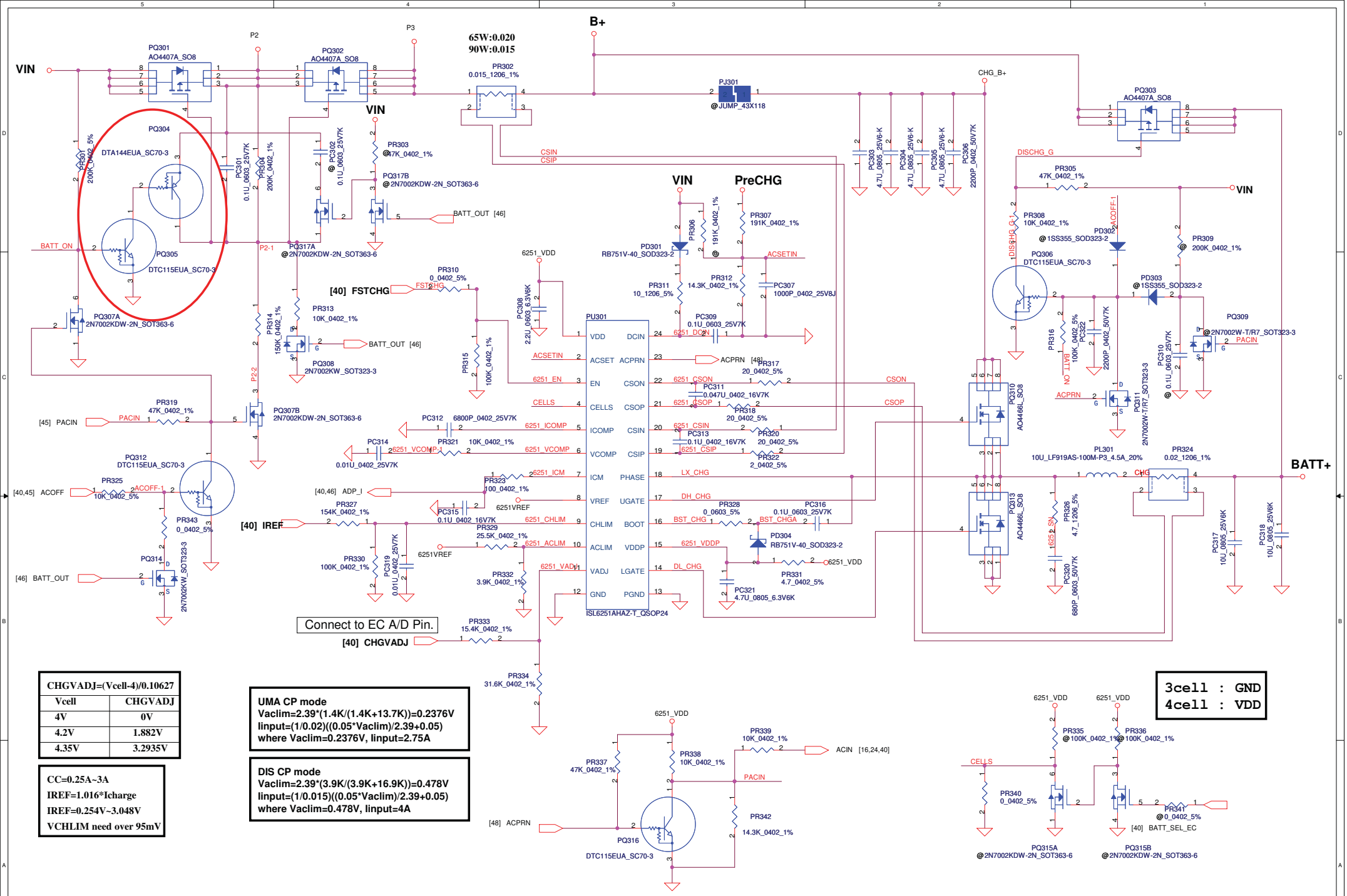
Security Classification	Compal Secret Data		
Issued Date	2010/01/25	Deciphered Date	2010/12/31

Compal Electronics, Inc.

Title: PWR-BATTERY CONN/OTP

Size: Custom | Document Number: PIWG4 | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 46 of 57



CHGVADJ=(Vcell-4)/0.10627	
Vcell	CHGVADJ
4V	0V
4.2V	1.882V
4.35V	3.2935V

CC=0.25A~3A
IREF=1.016*Icharge
IREF=0.254V~3.048V
VCHLIM need over 95mV

UMA CP mode
Vaclim=2.39*(1.4K/(1.4K+13.7K))=0.2376V
linput=(1/0.02)((0.05*Vaclim)/2.39+0.05)
where Vaclim=0.2376V, linput=2.75A

DIS CP mode
Vaclim=2.39*(3.9K/(3.9K+16.9K))=0.478V
linput=(1/0.015)((0.05*Vaclim)/2.39+0.05)
where Vaclim=0.478V, linput=4A

Security Classification	Compal Secret Data		
Issued Date	2010/01/13	Deciphered Date	2011/01/13

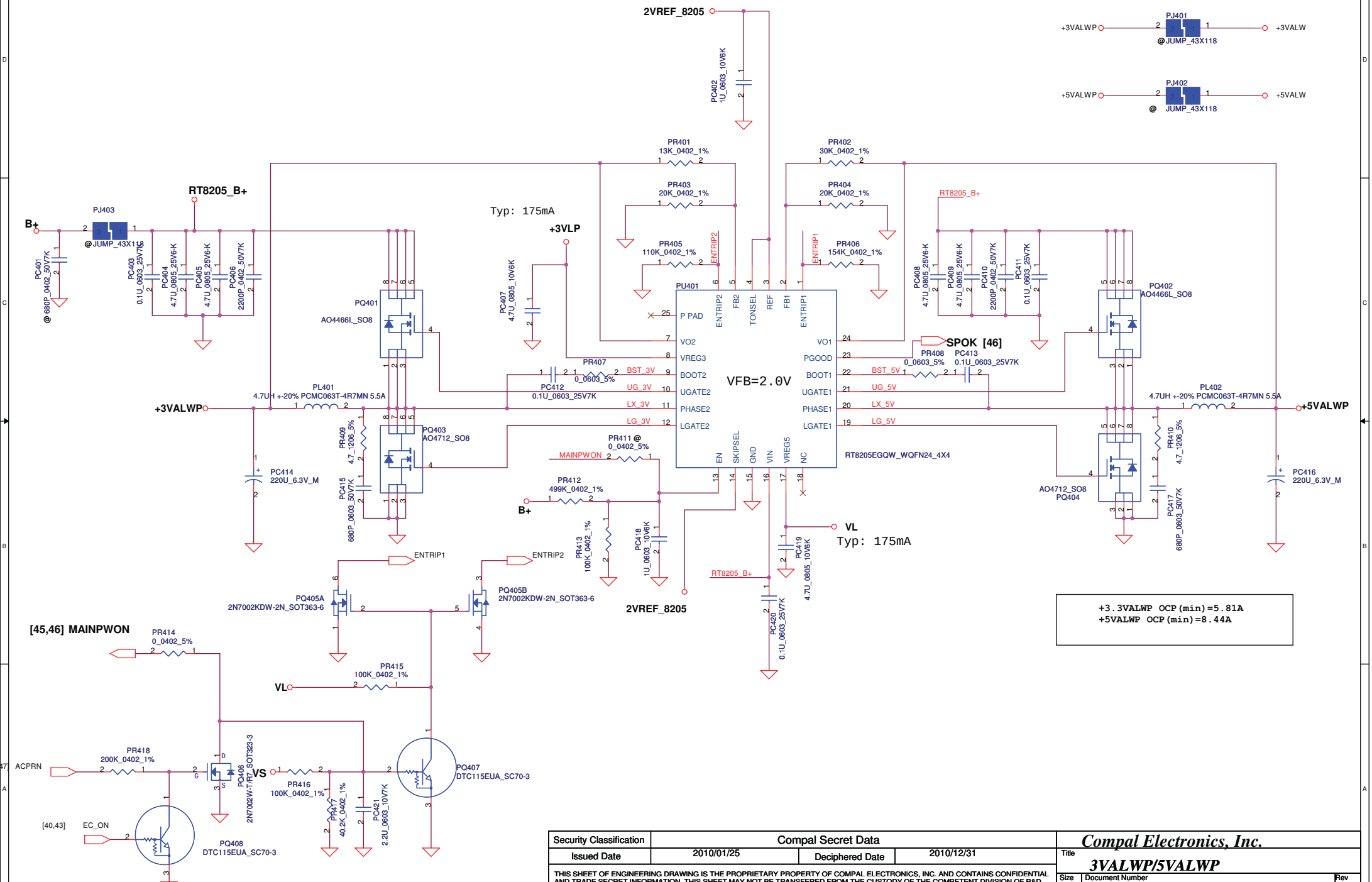
Compal Electronics, Inc.

Title: CHARGER

Size | Document Number: PIWG4 | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 47 of 57

Note:
Use TPS51125 IC can remove RTC refernece LDO
Use TPS51427 IC must keep RTC refernece LDO



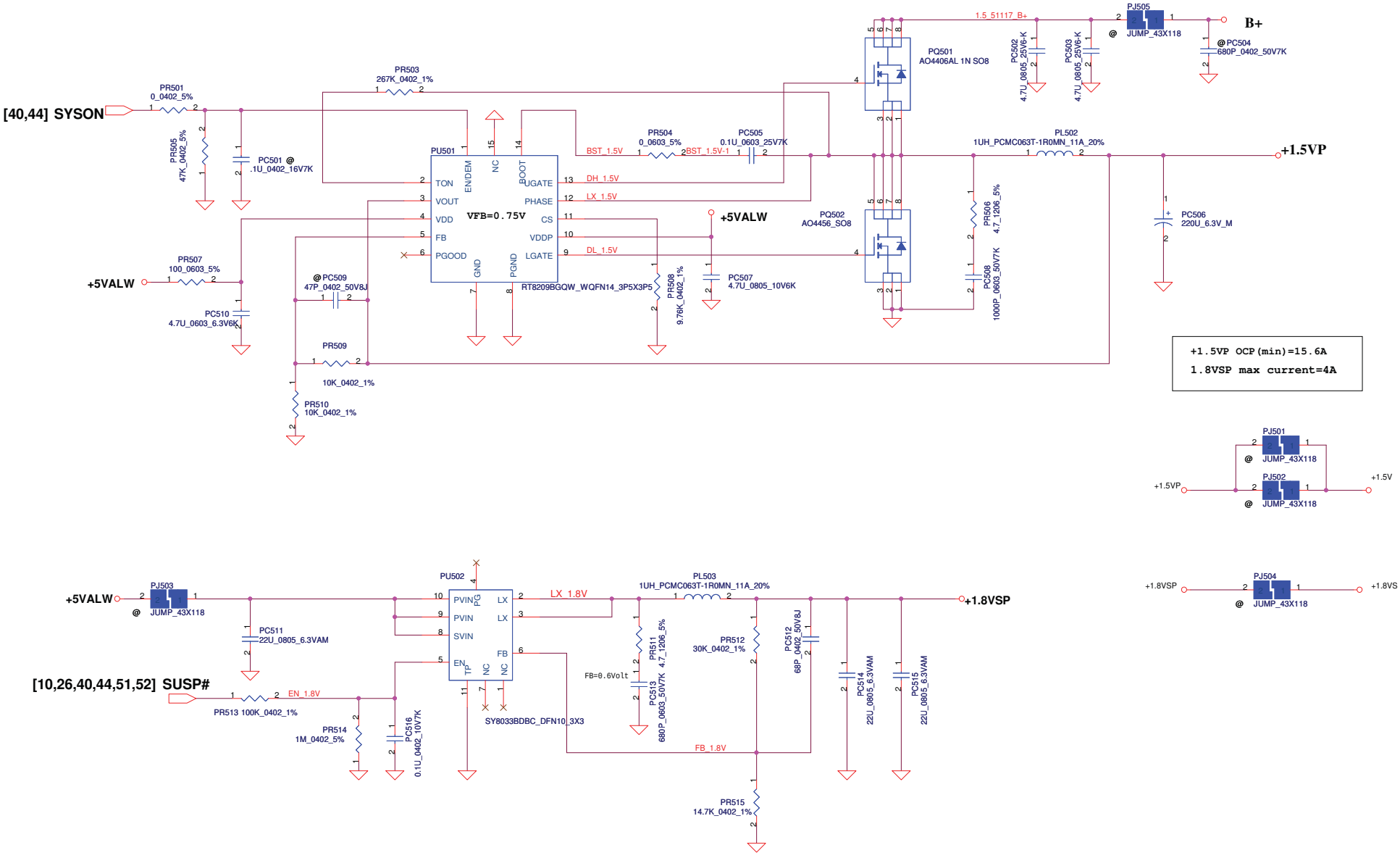
Security Classification	Compal Secret Data		
Issued Date	2010/01/25	Deciphered Date	2010/12/31

Compal Electronics, Inc.

Title: 3VALWP/5VALWP

Size: Custom | Document Number: PIWG4 | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 48 of 57

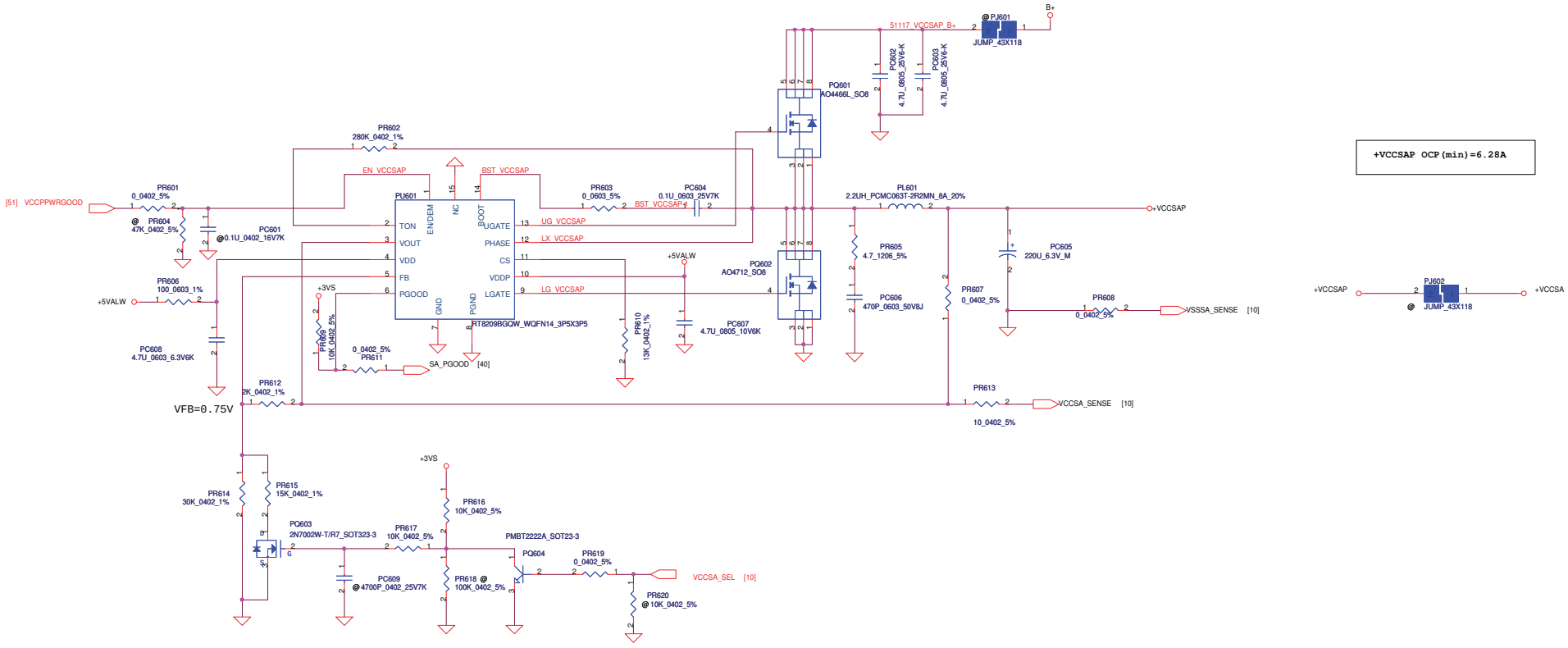


Compal Electronics, Inc.

Title: PWR-+1.5VP/+1.8VSP

Size: Custom | Document Number: PIWG4 | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 49 of 57



VID[0]	VID[1]	VCCSA Vout	Require on 2011/ 2012 Required
0	0	0.9 V	Yes/Yes
0	1	0.8 V	Yes/Yes
1	1	0.75V	No/Yes
1	1	0.65V	No/Yes

Note:Use VCCSA_SEL to switch High & Low Level for VID[1]
(ie. VCCSA_SEL) due to the VID[0] is don't care for this setting.

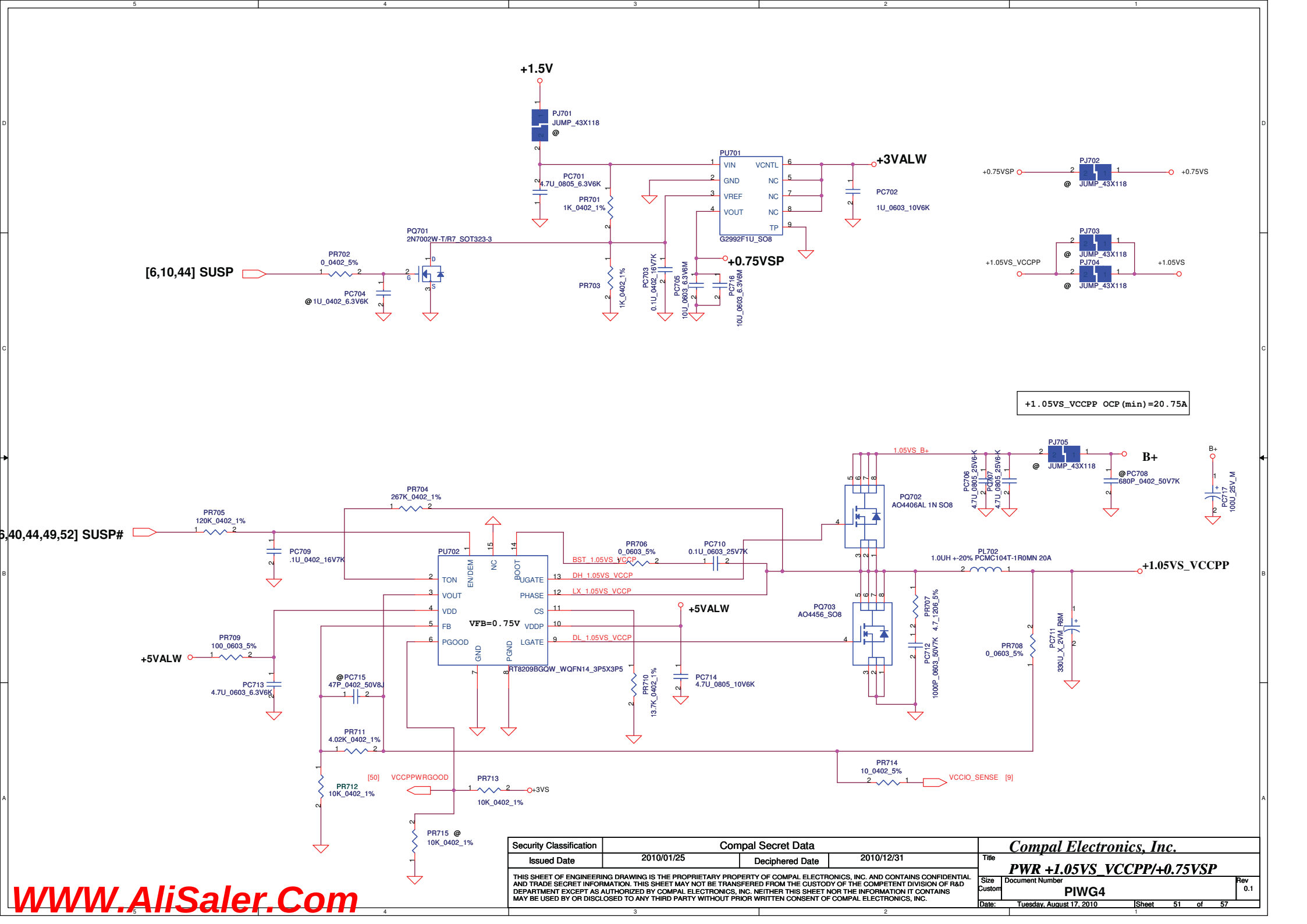
Security Classification	Compal Secret Data		
Issued Date	2010/01/25	Deciphered Date	2010/12/31

Compal Electronics, Inc.

Title: PWR +VCCSAP

Size	Document Number	Rev
C	PIWG4	0.1

Date: Tuesday, August 17, 2010 Sheet 50 of 57



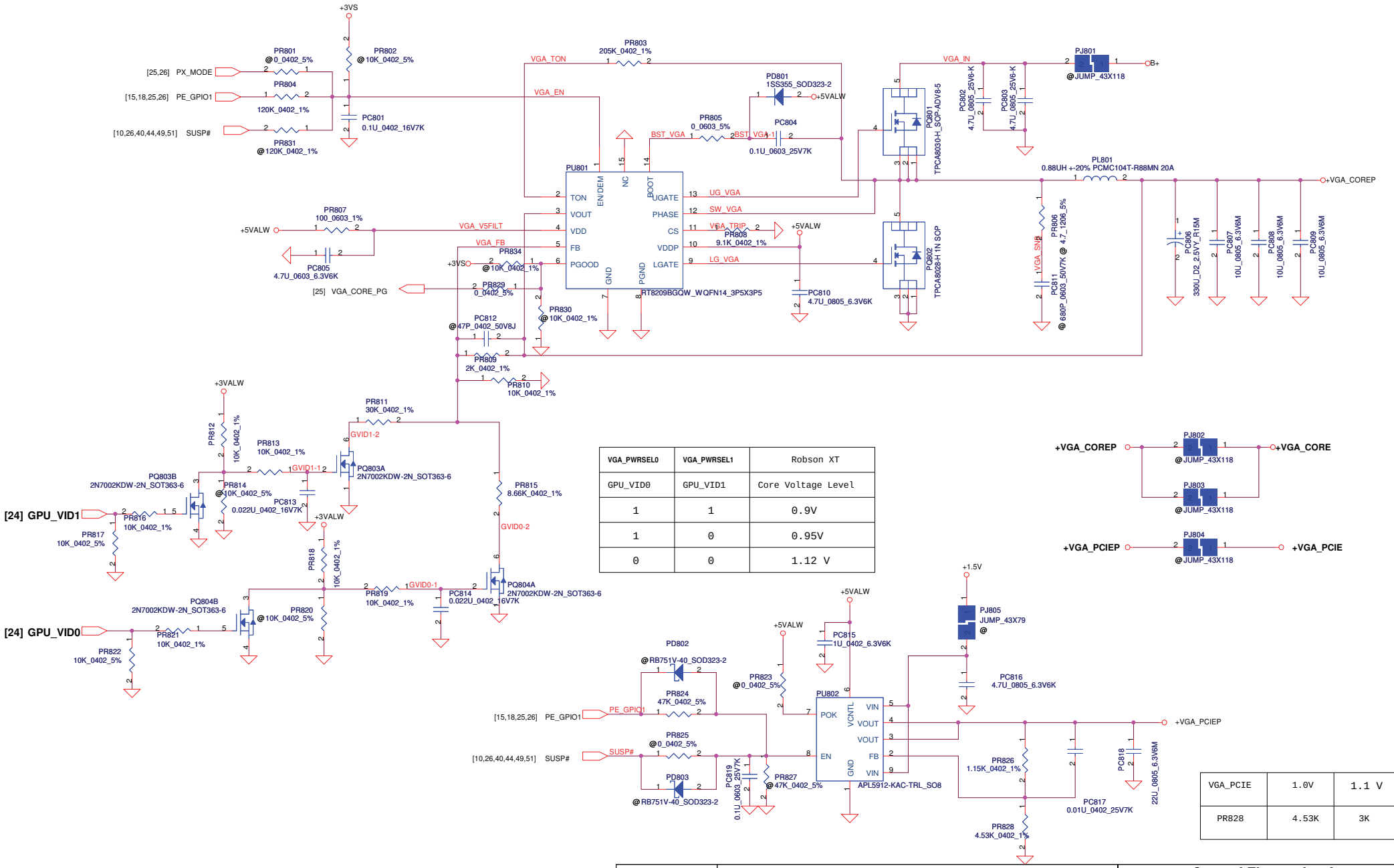
Security Classification	Compal Secret Data		
Issued Date	2010/01/25	Deciphered Date	2010/12/31

Compal Electronics, Inc.

Title: PWR +1.05VS_VCCPP/+0.75VSP

Size	Document Number	Rev
Custom	PIWG4	0.1

Date: Tuesday, August 17, 2010 Sheet 51 of 57



VGA_PWRSEL0	VGA_PWRSEL1	Robson XT
GPU_VID0	GPU_VID1	Core Voltage Level
1	1	0.9V
1	0	0.95V
0	0	1.12 V

VGA_PCIE	1.0V	1.1 V
PR828	4.53K	3K

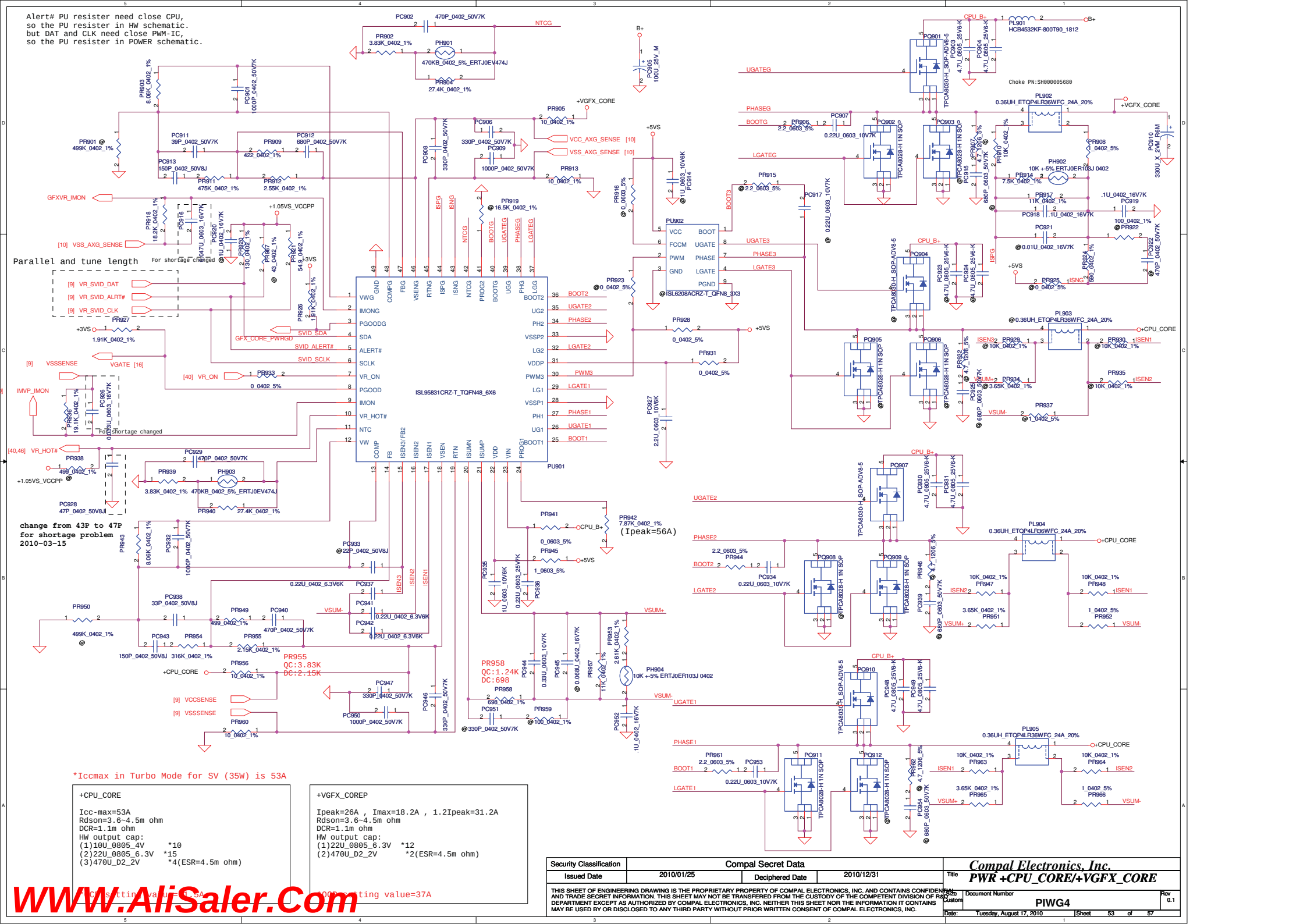
Security Classification	Compal Secret Data		
Issued Date	2009/01/06	Deciphered Date	2010/01/06

Compal Electronics, Inc.

Title: VGA_CORE/PCIE

Size: | Document Number: PIWG4 | Rev: 0.1

Date: Tuesday, August 17, 2010 | Sheet 52 of 57


Alert# PU resister need close CPU,
so the PU resister in HW schematic.
but DAT and CLK need close PWM-IC,
so the PU resister in POWER schematic.
Parallel and tune length
change from 43P to 47P
for shortage problem
2010-03-15
ISL95831CRZ-T_TQFN48_6X6
PU901
ISL6208ACRZ-T_QFN8_3X3
PU902
TPCA8030-H_SOP-ADV8-5
TPCA8028-H 1N SOP
Choke PN:SH000005680
PL901 HCB4532KF-800T90_1812
PL902 0.36UH_ETQP4LR36WFC_24A_20%
PL903 @0.36UH_ETQP4LR36WFC_24A_20%
PL904 0.36UH_ETQP4LR36WFC_24A_20%
PL905 0.36UH_ETQP4LR36WFC_24A_20%
PR955
QC:3.83K
DC:2.15K
PR958
QC:1.24K
DC:698
*Iccmax in Turbo Mode for SV (35W) is 53A
+CPU_CORE
Icc-max=53A
Rdson=3.6~4.5m ohm
DCR=1.1m ohm
HW output cap:
(1)10U_0805_4V *10
(2)22U_0805_6.3V *15
(3)470U_D2_2V *4(ESR=4.5m ohm)
+VGFX_COREP
Ipeak=26A , Imax=18.2A , 1.2Ipeak=31.2A
Rdson=3.6~4.5m ohm
DCR=1.1m ohm
HW output cap:
(1)22U_0805_6.3V *12
(2)470U_D2_2V *2(ESR=4.5m ohm)
WWW.AliSaler.Com
Security Classification
Compal Secret Data
Issued Date
2010/01/25
Deciphered Date
2010/12/31
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Compal Electronics, Inc.
PWR +CPU_CORE/+VGFX_CORE
Document Number
PIWG4
Rev 0.1
Date: Tuesday, August 17, 2010
Sheet 53 of 57

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

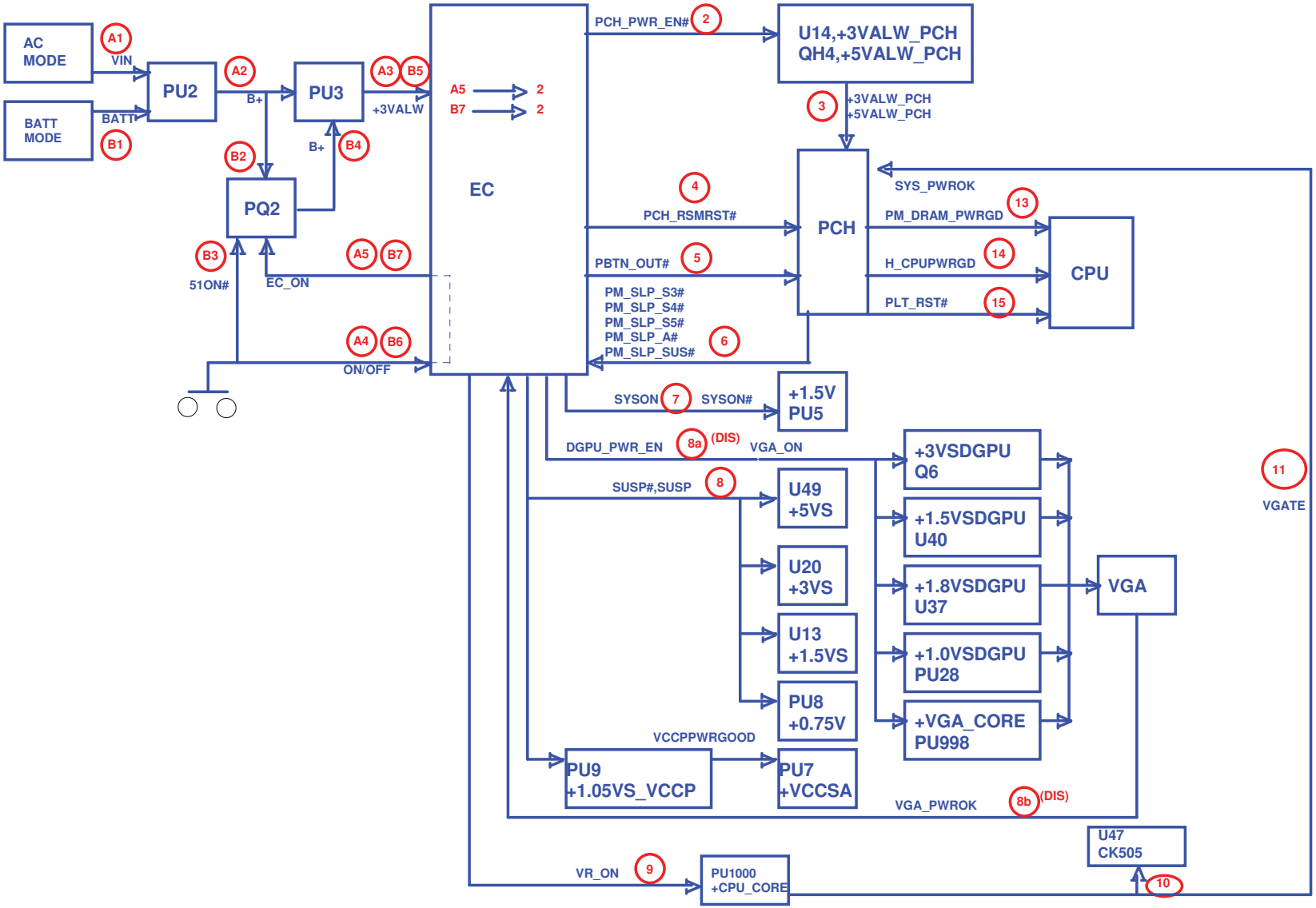
for PWR

Item	Reason for change	PG#	Modify List	Date	Phase
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Security Classification	Compal Secret Data		
Issued Date	2009/01/06	Deciphered Date	2009/01/06

Compal Electronics, Inc.

Title	PIR (PWR)	
Size: Custom	Document Number: PIWG4	Rev: 0.1
Date: Tuesday, August 17, 2010	Sheet 54 of 57	



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

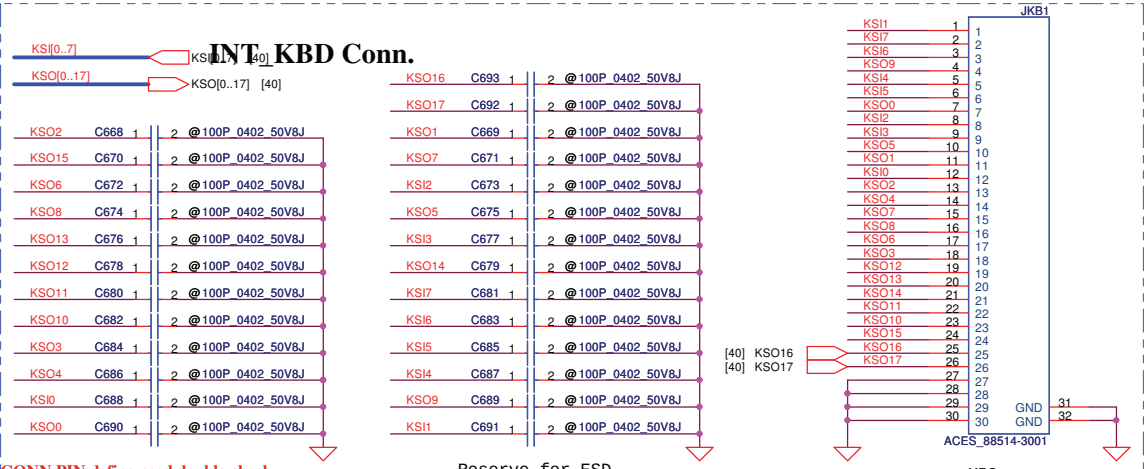
Compal Electronics, Inc.

Title: Power sequence

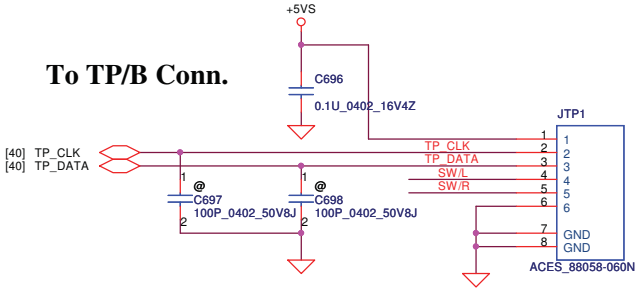
Size: Custom | Document Number: LA-6758P | Rev: 0.1

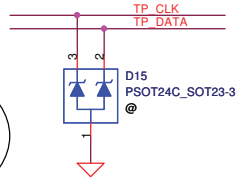
Date: Tuesday, August 17, 2010 | Sheet 55 of 57

INT_KBD Conn.



To TP/B Conn.

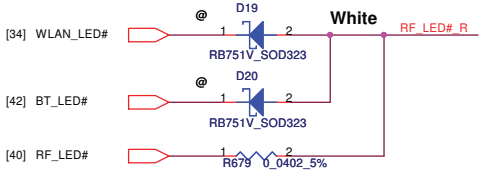


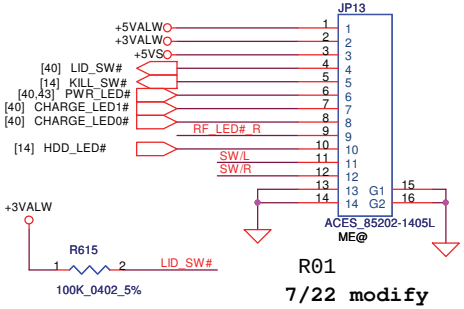


button move to LED B/D

CONN PIN define need double check

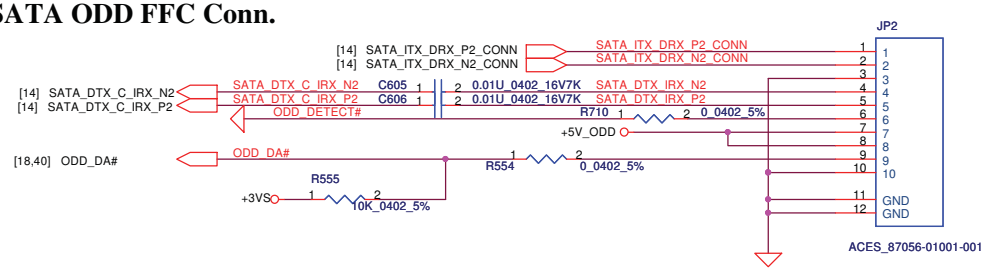
For 17" M/B to LED/B





R01
7/22 modify

SATA ODD FFC Conn.



VRAM screw hole

Fan screw hole

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/11

Compal Electronics, Inc.

Title: KB /SW /LPC Debug Conn.

Size	Document Number	Rev
B	LA-6758P	0.1

Date: Tuesday, August 17, 2010 Sheet 56 of 57

PHASE	PAGE	Modification list	PURPOSE
0.2	P31	Change CRT Symbol	For CRT footprint issue
0.2	P31	Del C510	For Non-used part
0.2	P39	change C610 pin 1 net name	change C610 pin 1 net name to correct
0.2	P35	U25 change to U26	For co-lay 10/100 and GIGA
0.2	P32	Add R735,R736	For DIS only SMBus pull high
0.2	P33	Add R738,R739	For DIS only SMBus pull high
0.2	P33	Change Q63 BOM structure to HDMI@	For DIS HDMI function
0.2	P40	Add R740, C93	For EC request
0.2	P18	Change R215 pin1 net name	Change R215 pin1 net name to correct
0.2	P18	Add R741	Add R741 for Reserved PE_GPIO0
0.2	P16	Add R742, R743	For PCH power sequence
0.2	P38	Del U28, R542~R551 , J12	Del USB charger circuit
0.2	P40	Add EC pin 97,98,103	Add EC pin 97 for SYS_PWROK_EC , pin 98 for CE_EN , pin 103 for BATT_SEL_EC
0.2	P24	Change R662 pin 2 net name	Change R662 pin 2 net name to correct
0.2	P28	Del C421,C422,C431,C432,C433, L27, Add R745, U8 pin N11,N12 change to NC	For AMD new document suggestion
0.2	P26	Add R744	Add R744 for control PE_GPIO1 from SUSP#
0.2	P39	Change J10 footprint and Add J13	Change J10 footprint by DFx request and Add J13 by vendor suggestion
0.2	P39	Change PC_Beep circuit	Change PC_Beep circuit
0.2	P6	Add R161, R182, R192 BOM structure hange to @	Follow ORB circuit
0.2	P58/59	Add R615 in 15" and 17" page	Pull high LID_SW# at M/B side
0.2	P31	Add Q83 pin 1 power net name +CMOS_PW	For power trace net
0.2	P56/57/58	Change JP21 to JKB1	Change connector to standard name
0.2	P56/57/58	Change JP4 to JTP1	Change connector to standard name
0.2	P43/60	Change JP6 to JPWRB1	Change connector to standard name
0.2	P34	Change JP1 to JWLN1	Change connector to standard name
0.2	P42	Change JP5 to JBT1	Change connector to standard name
0.2	P43/60	Change JP7 to JCR1	Change connector to standard name
0.2	P19	Add R542	For ESATA detect function
0.2	P42	Add R886, R887 , C735	For ESATA detect function
0.2	P31	Add R543	For reserve EC control directly
0.2	P39	Change J10 footprint, Del C635, C636	Change J10 for DFx and Del component for layout
0.2	P42	Add R877	For reserve EC control directly
0.2	P42	SW3 BOM structure change to @	For ME ASSY concern
0.2	P24	R324 BOM structure change, del @	For AMD update
0.2	P25	Change Q69,Q70,Q71,Q72 to BSS138, change Q66,Q67 pin 1 net name, D28 change to @	For Change BACO part follow AMD reference DATA ,D28 change to @ for leakage
0.2	P42	Change ESATA from port 5 to port 4	For intel risk
0.2	P15	Add R544,R545	For Pull high SMBus
0.2	P12/13	Del R74~R80,R82 R88~R94,R96	For DDR3 DM Bus to GND
0.2	P16	Add R182,R546	Add 186 for reserve sequence, Add R546 for follow CRB & ORB
0.2	P20	Del Add J12, R257 change to @	For voltage drop

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