Compal Confidential

Model Name : QILE1 & QILE2
File Name : LA-8131P, LA-8132P
BOM P/N:

QILE1:
4319GG39L01 : SMT MB A8131 QILE1 DIS-N13P
4319GG39L02 : SMT MB A8131 QILE1 DIS GPU-N13M
4319GG39L03 : SMT MB A8131 QILE1 UMA

QILE2:
4319GJ39L01 : SMT MB A8133 QILE2 DIS-N13P
4319GJ39L02 : SMT MB A8133 QILE2 DIS GPU-N13M
4319GJ39L03 : SMT MB A8133 QILE2 UMA

Compal Confidential

M/B Schematics Document

Intel Ivy Bridge Processor with DDRIII + Panther Point PCH

GPU nVIDIA N13M-GE1 / N13P-GL

2011-12-20

REV:0.6

Security Classification	Compal Secret Data		
Issued Date	**2011/07/12**	Deciphered Date	**2012/07/01**

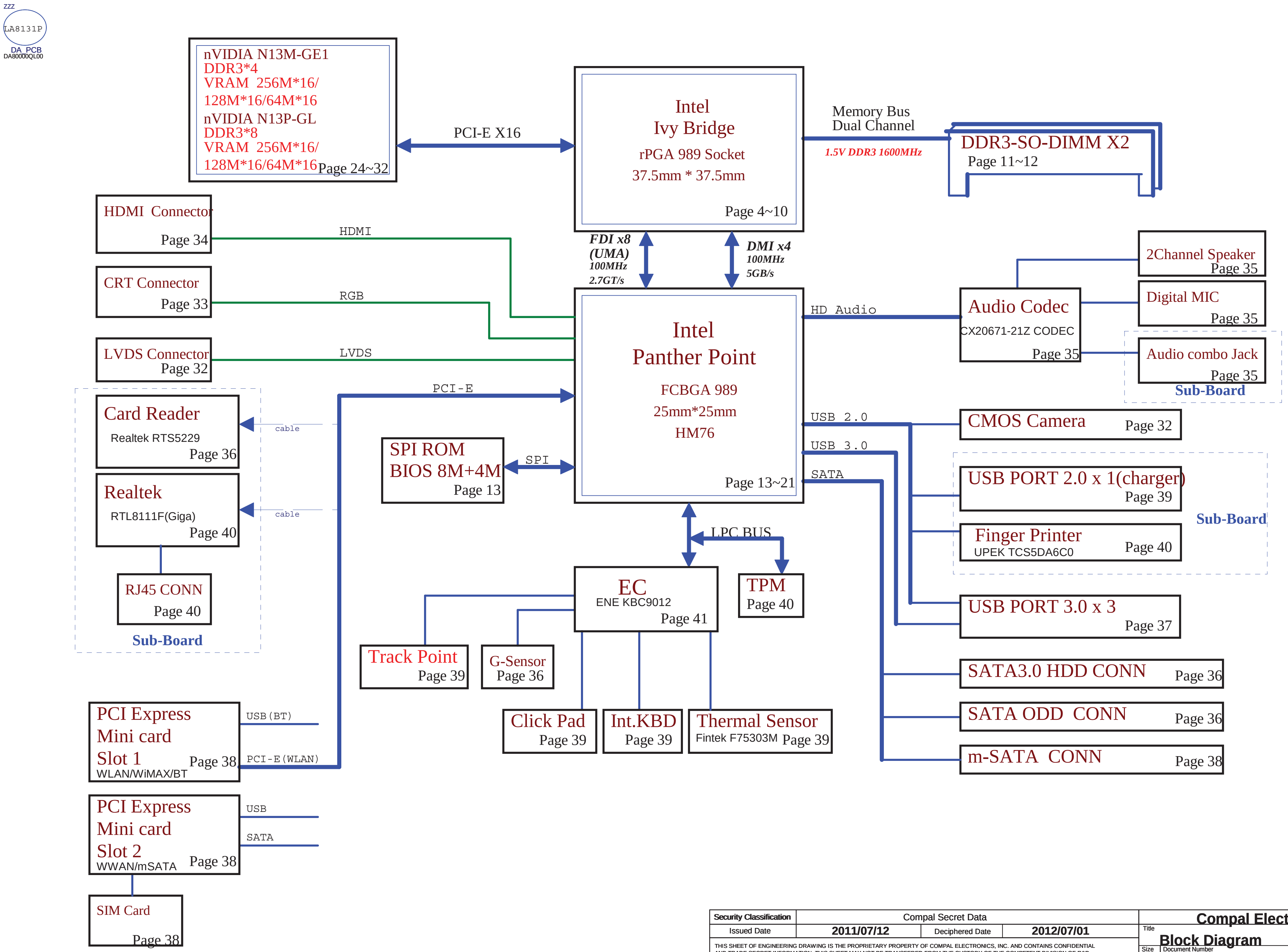
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
Cover Sheet

Size	Document Number	Rev
Custom	**LA-8131P**	0.6

Date: Friday, January 06, 2012 Sheet 1 of 58



Security Classification	Compal Secret Data			**Compal Electronics, Inc.**	
Issued Date	**2011/07/12**	Deciphered Date	**2012/07/01**	Title **Block Diagram**	
				Size Custom	Document Number **LA-8131P**	Rev 0.6
				Date: Friday, January 06, 2012	Sheet 2 of 58

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Voltage Rails

power plane State	+B	+5VALW +3VALW	+1.5V	+5VS +3VS +1.5VS +VCCP +CPU_CORE +VGA_CORE +VCC_GFXCORE_AXG +1.8VS +0.75VS +1.05VS	+3VM +1.05VM
S0	O	O	O	O	O M3 Supported
S3	O	O	O	X	O M3 Supported
S5 S4/AC	O	O	X	X	O M3 Supported
S5 S4/ Battery only	X	X	X	X	
S5 S4/AC & Battery don't exist	X	X	X	X	

EC SM Bus1 address

Device	Address
Smart Battery	**0001 011X b**

EC SM Bus2 address

Device	Address
Thermal Sensor Fintek F75303M	**1001_101xb**

PCH SM Bus address

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

SMBUS Control Table

	SOURCE	VGA	BATT	KE9012	SODIMM	WLAN WWAN	Thermal Sensor	PCH
SMB_EC_CK1 SMB_EC_DA1	KB9012 +3VALW	X	V +3VALW	X	X	X	X	X
SMB_EC_CK2 SMB_EC_DA2	KB9012 +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

SIGNAL STATE	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	*HIGH*	*HIGH*	*HIGH*	*HIGH*	*ON*	*ON*	*ON*	*ON*
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	0.2
2	0.3
3	0.4
4	0.5
5	0.6
6	
7	

USB Port Table

	USB 2.0	Port	3 External USB Port
EHCI1 USB3.0	UHCI0	0	
		1	USB 3.0 Port (Left Side)
	UHCI1	2	USB 3.0 Port (Left Side)
		3	USB 3.0 Port (Left Side)
	UHCI2	4	
		5	Camera
	UHCI3	6	
		7	
EHCI2	UHCI4	8	
		9	USB Port (Right Side)
	UHCI5	10	Mini Card(WLAN/BT)
		11	FPR
	UHCI6	12	Mini Card(WWAN)
		13	Blue Tooth

BOM Structure Table

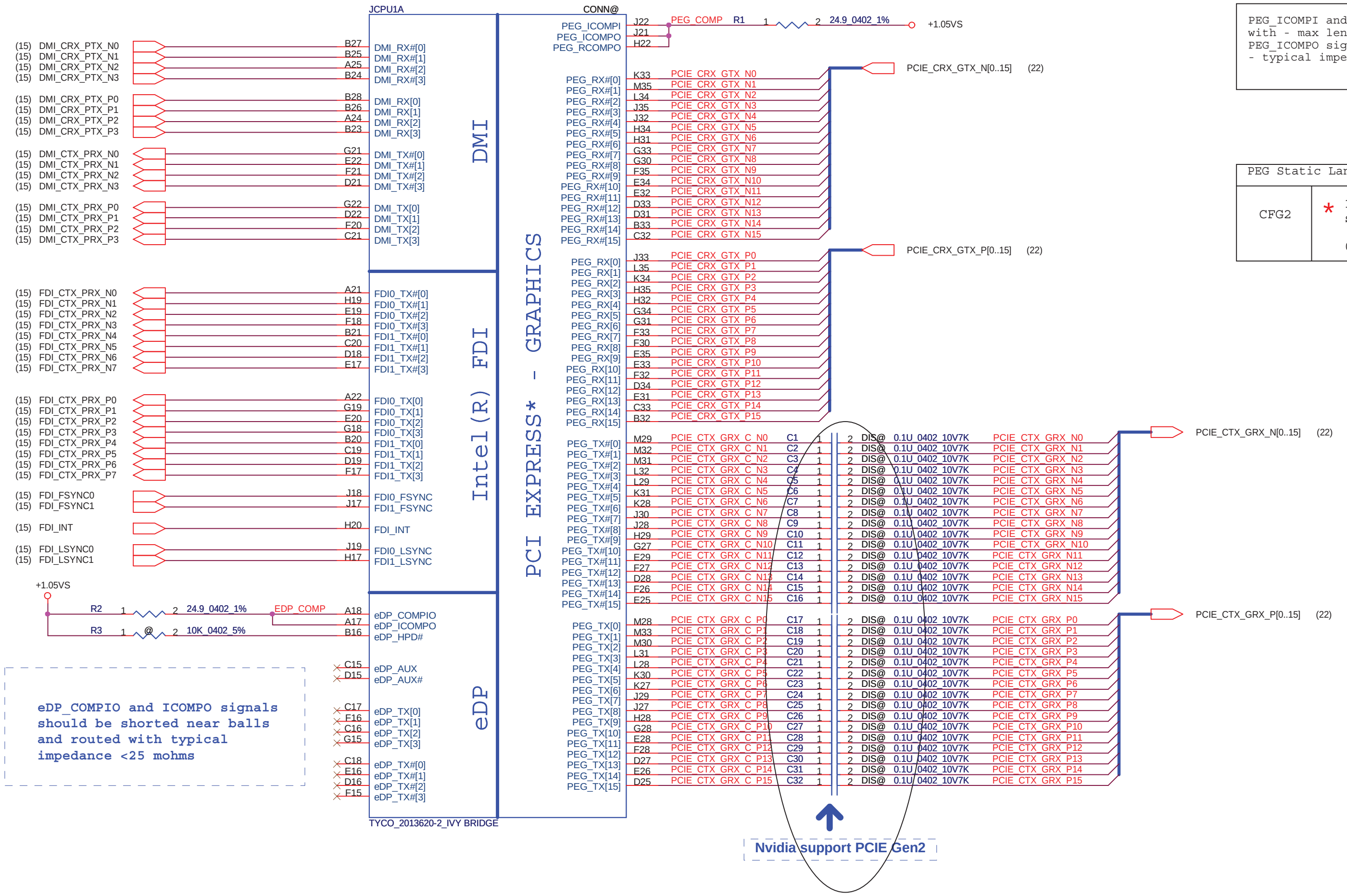
BTO Item	BOM Structure
Connector	CONN@
45 LEVEL	45@
Unpop	@
nVidia	DIS@
INTEL DD3 M3	M3@
SIM Card Slot	3G@
Intel UMA	UMA@
VRAM Option	X76@
Intel SBA	SBA@
Intel AOAC	AOAC@
TPM	TPM@
GPU N13M	N13M@
GPU N13P	N13MP

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
Notes List
Size Custom
Document Number **LA-8131P**
Rev 0.6
Date: Friday, January 06, 2012
Sheet 3 of 58



eDP_COMPIO and ICOMPO signals should be shorted near balls and routed with typical impedance <25 mohms

PEG_ICOMPI and RCOMPO signals should be shorted and routed with - max length = 500 mils - typical impedance = 43 mohms PEG_ICOMPO signals should be routed with - max length = 500 mils - typical impedance = 14.5 mohms

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

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

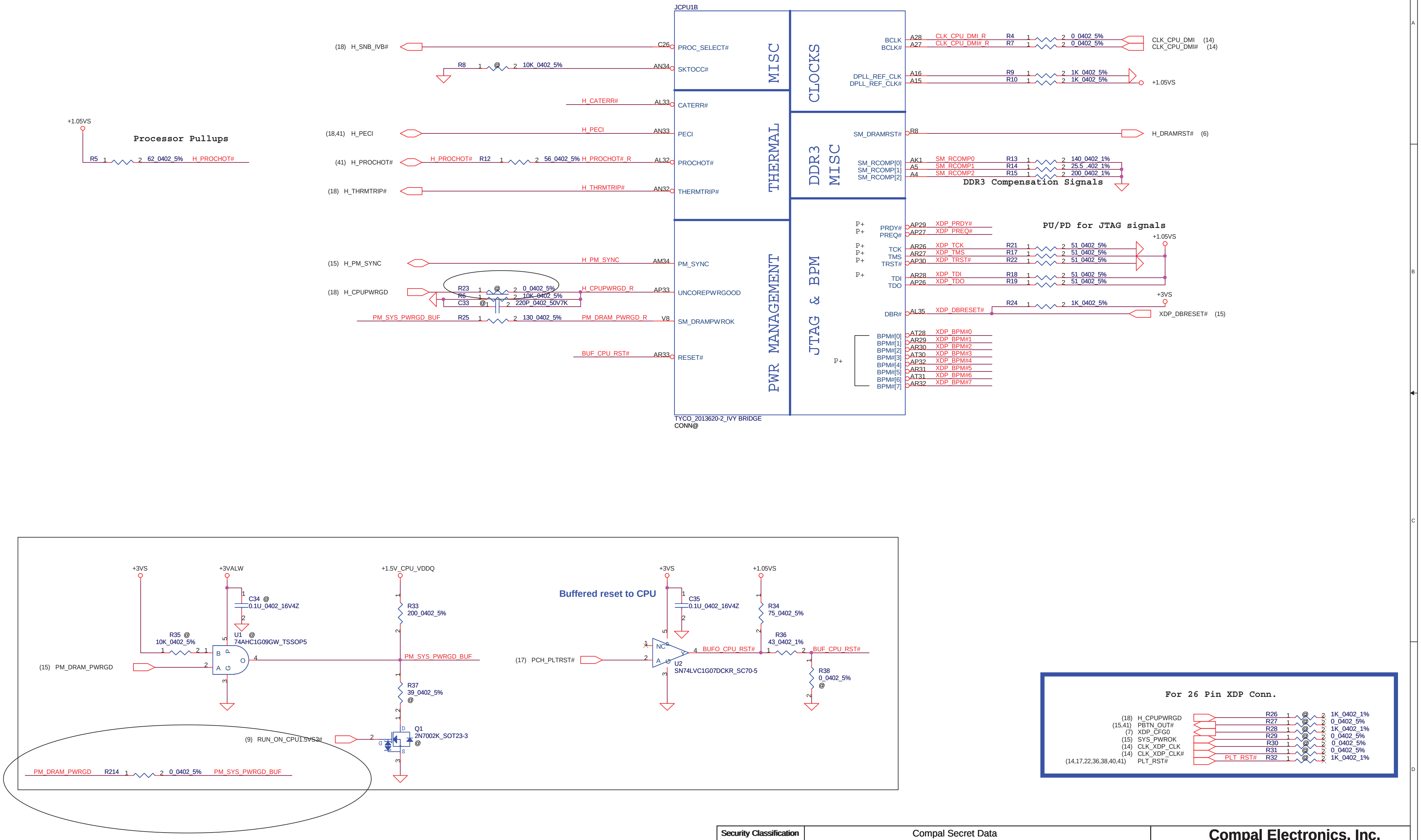
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

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

Size Custom | Document Number **LA-8131P** | Rev 0.6

Date: Friday, January 06, 2012 | Sheet 4 of 58



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

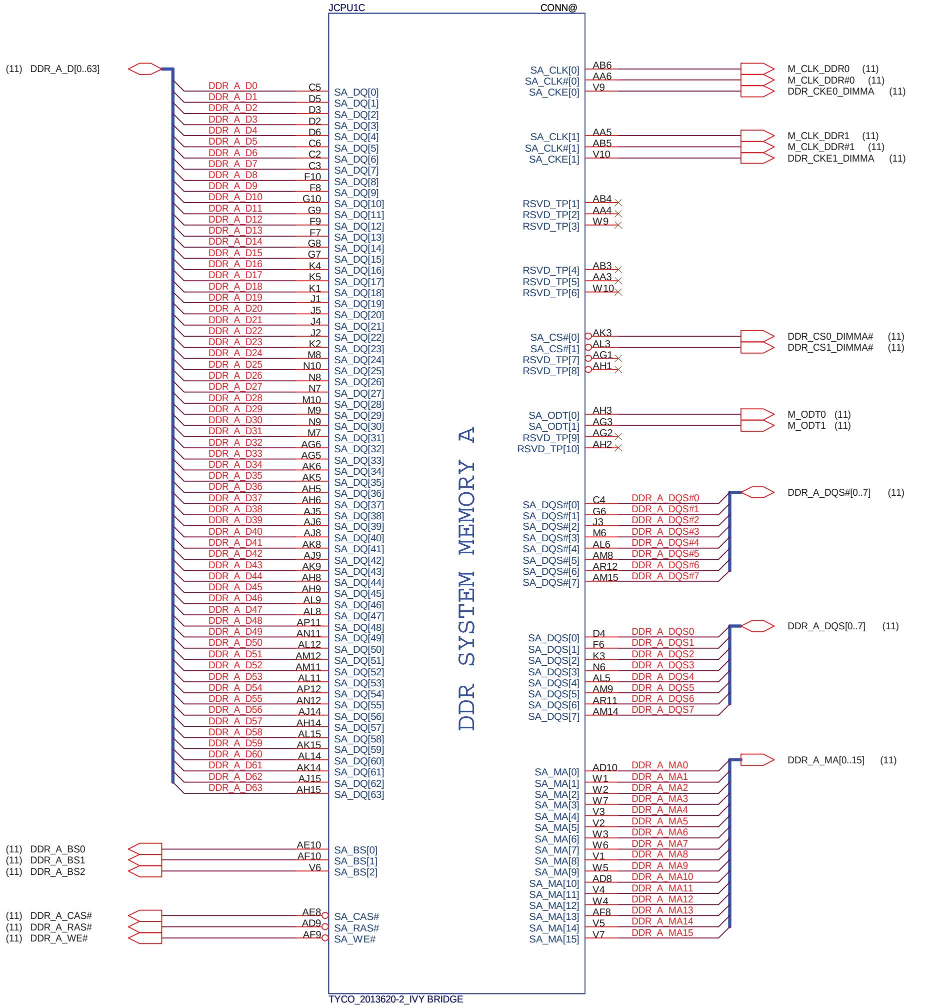
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

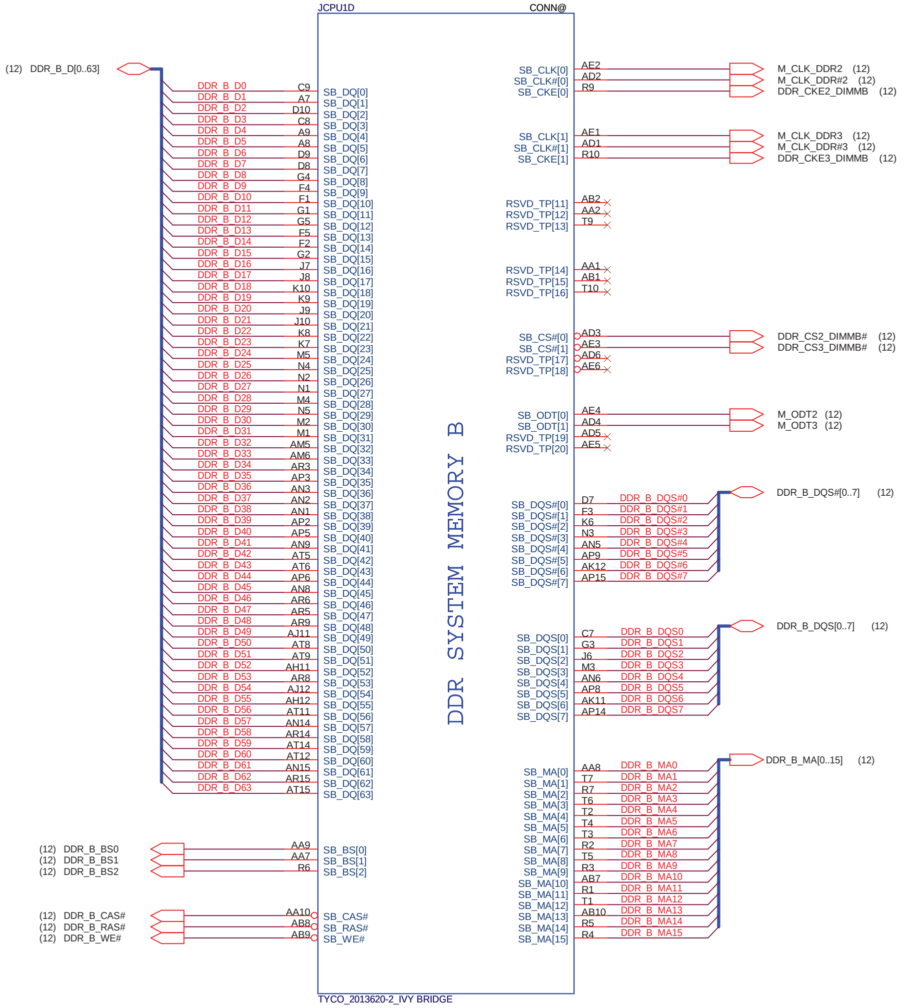
Compal Electronics, Inc.

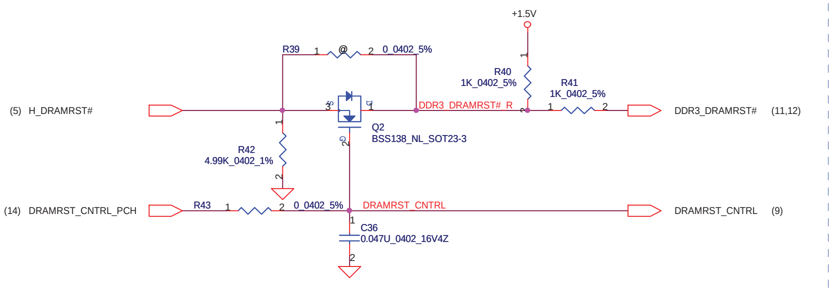
Title
PROCESSOR(2/7) PM,XDP,CLK

Size
Custom
Document Number
LA-8131P
Rev
0.6

Date: Friday, January 06, 2012 Sheet 5 of 58







Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

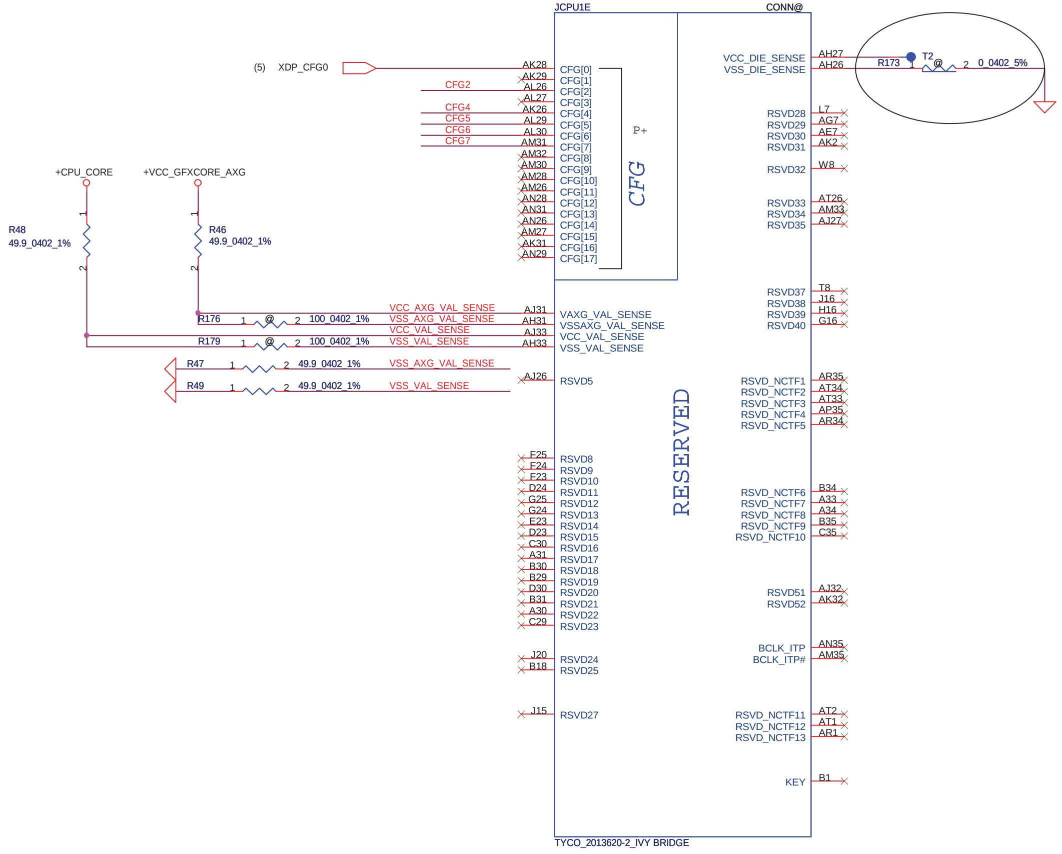
Compal Electronics, Inc.

Title

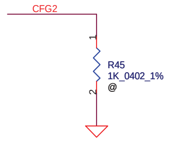
PROCESSOR(3/7) DDRIII

Size	Document Number	Rev
Custom	LA-8131P	0.6

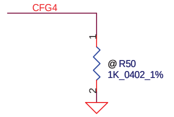
Date: Friday, January 06, 2012 Sheet 6 of 58



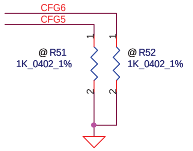
CFG Straps for Processor



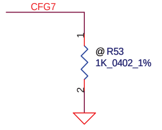
PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	* 1: Normal Operation; Lane # definition matches socket pin map definition 0:Lane Reversed



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

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

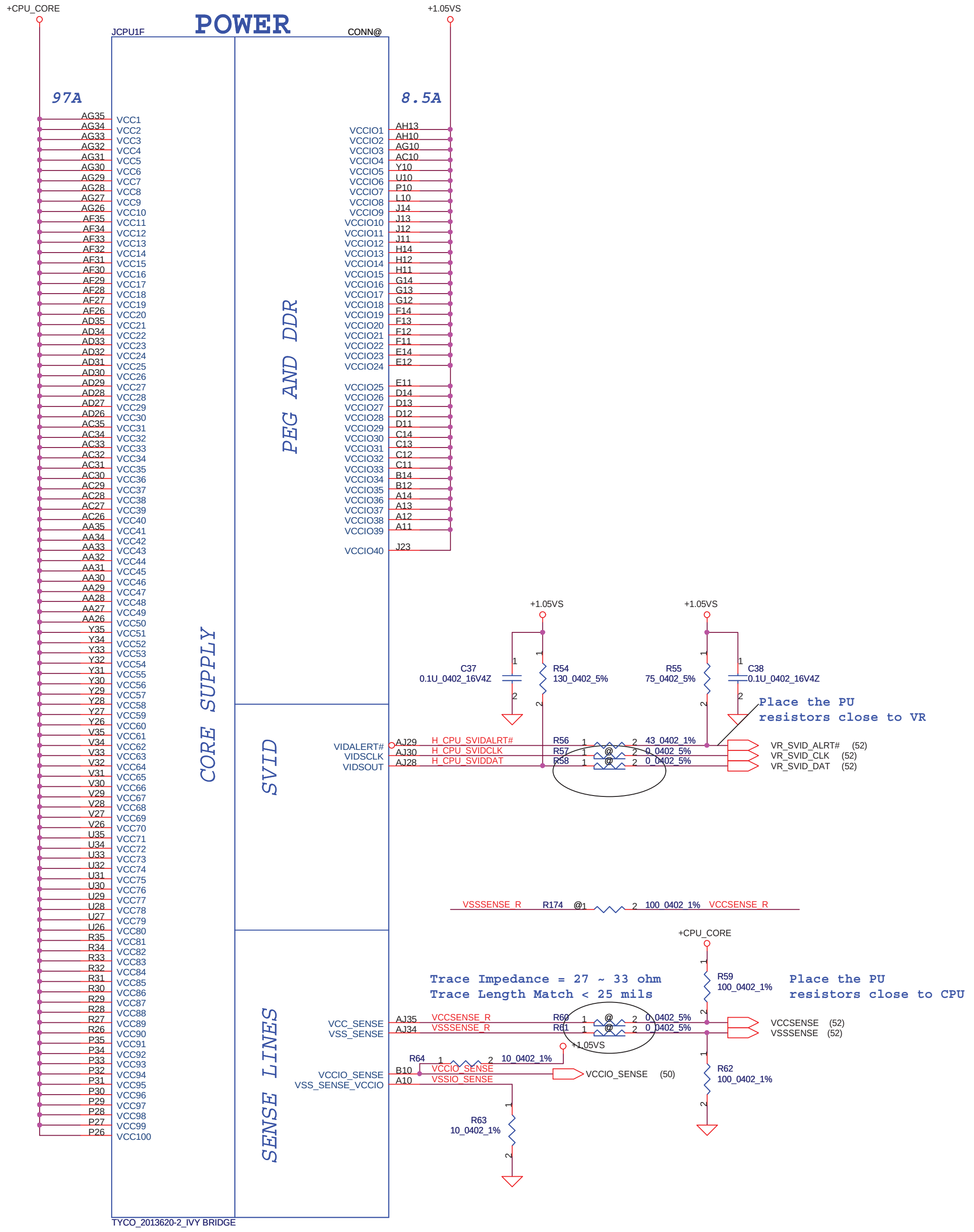
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PROCESSOR(4/7) RSVD,CFG

Size	Document Number	Rev
Custom	LA-8131P	0.6

Date: Friday, January 06, 2012 | Sheet 7 of 58



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

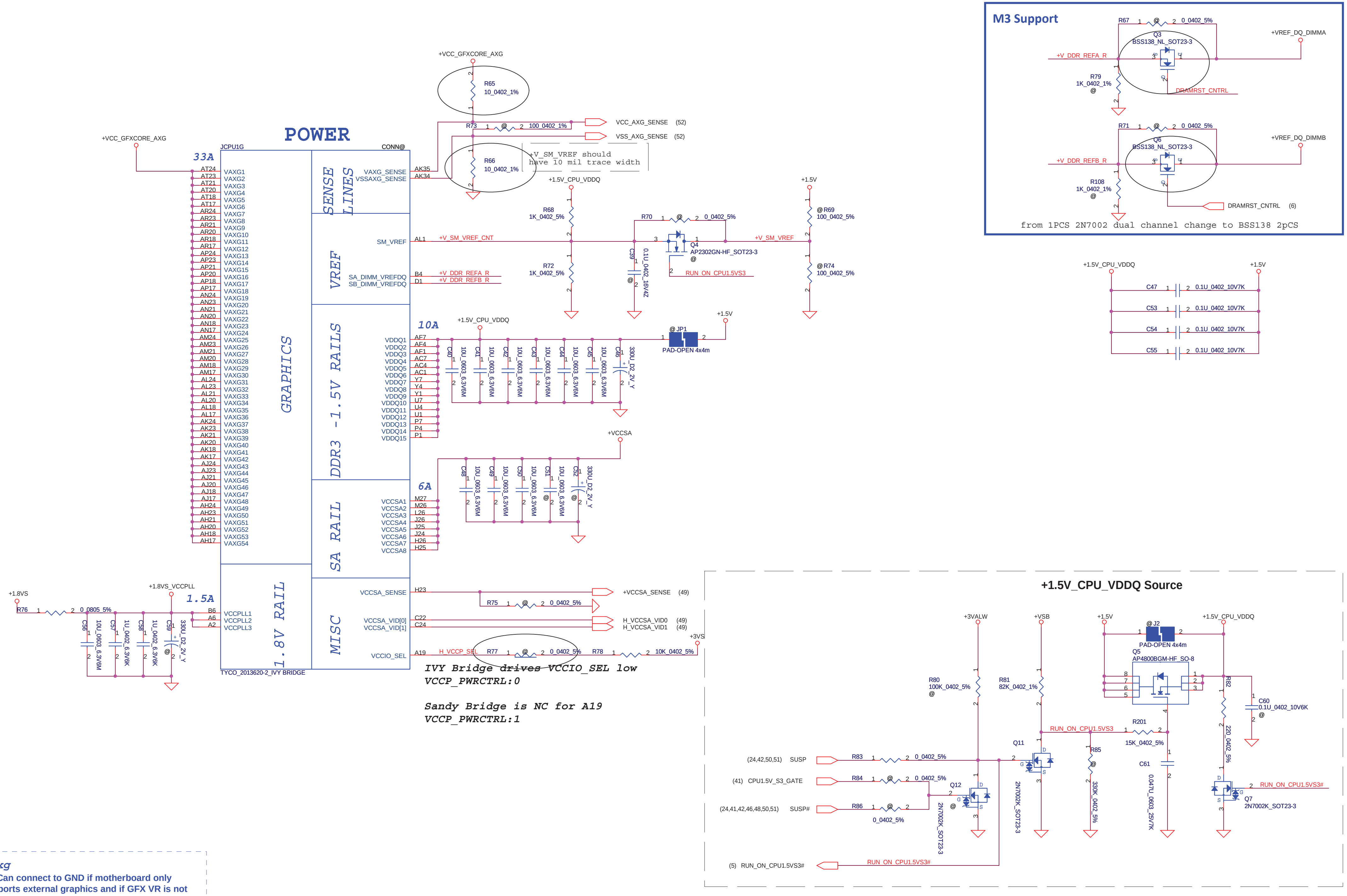
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PROCESSOR(5/7) PWR,BYPASS

Size: Custom
Document Number: **LA-8131P**
Rev: 0.6

Date: Friday, January 06, 2012
Sheet 8 of 58



Vaxg

- Can connect to GND if motherboard only supports external graphics and if GFX VR is not stuffed in a common motherboard design,
- VAXG can be left floating in a common motherboard design (Gfx VR keeps VAXG from floating) if the VR is stuffed

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

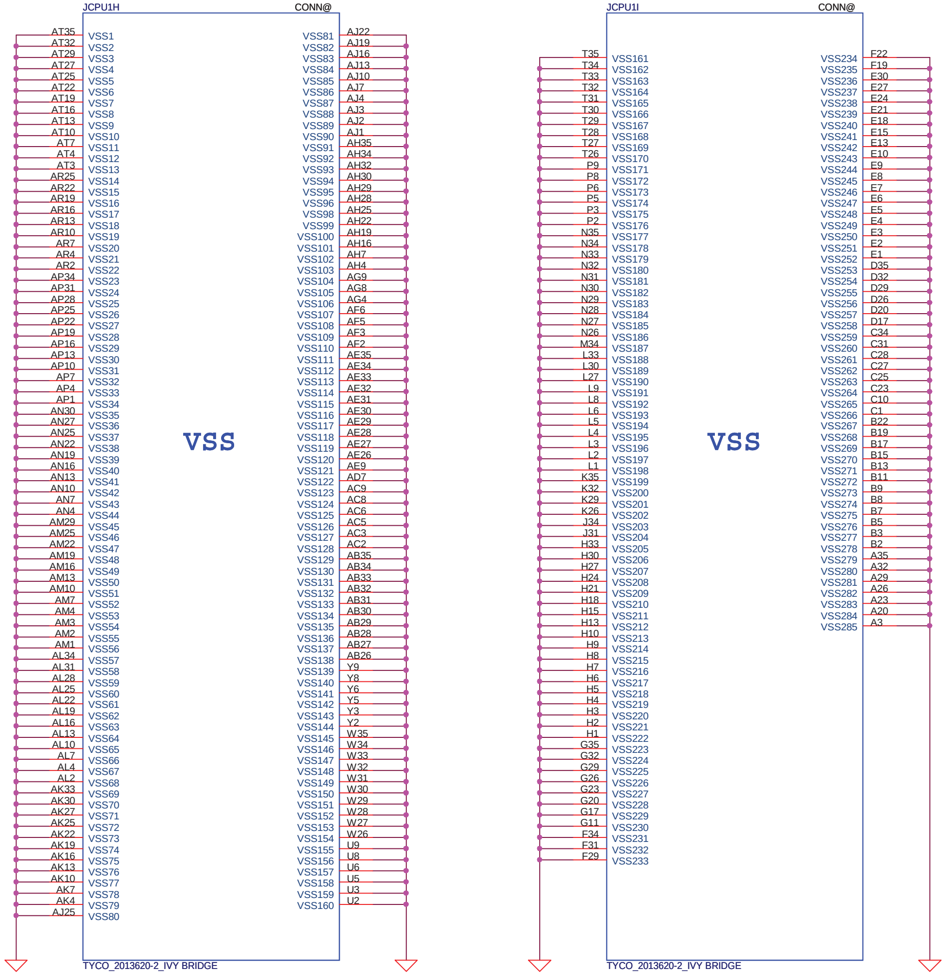
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PROCESSOR(6/7) PWR

Size Custom
Document Number LA-8131P
Rev 0.6

Date: Friday, January 06, 2012
Sheet 9 of 58



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

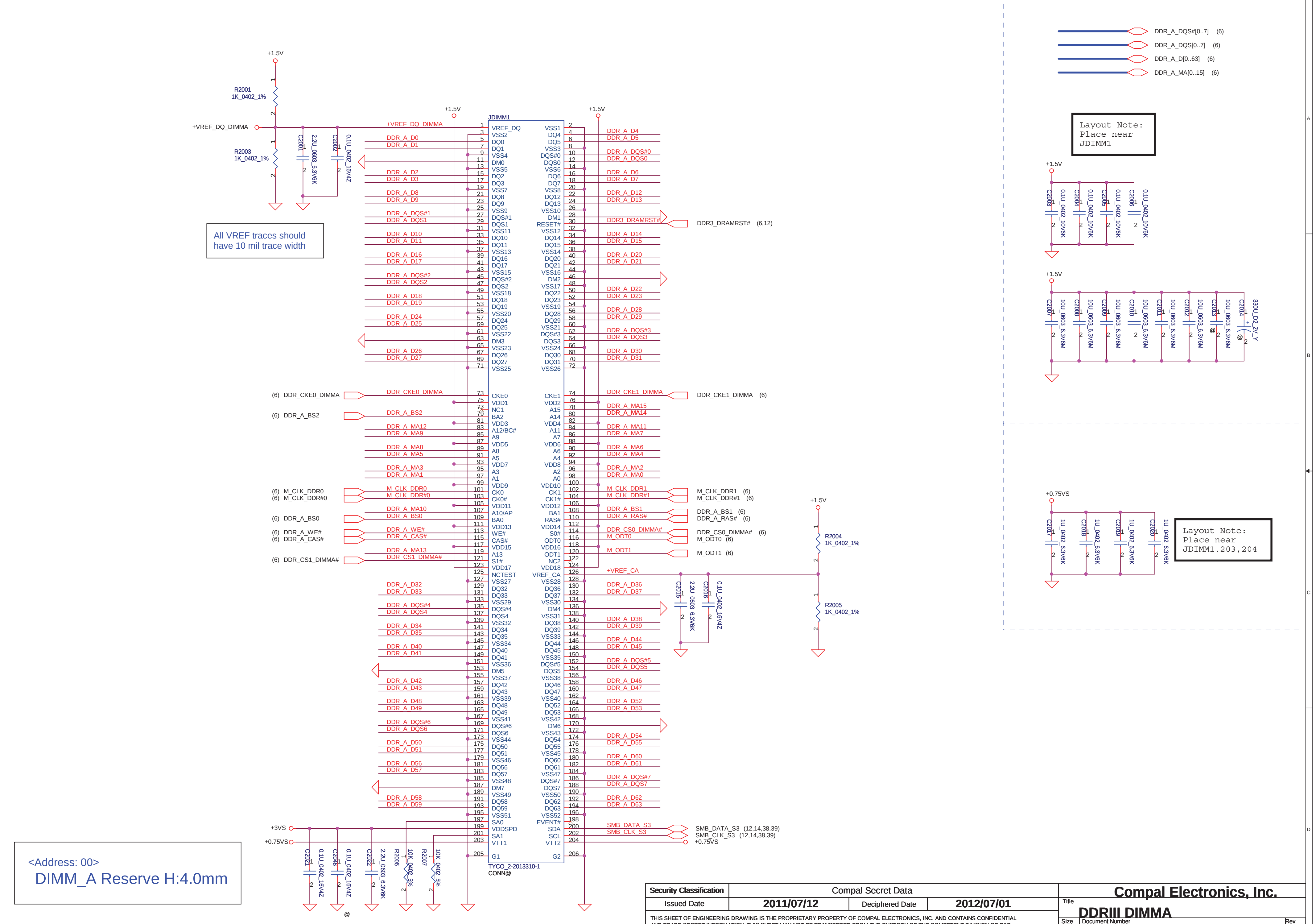
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PROCESSOR(7/7) VSS

Size: Custom
Document Number: **LA-8131P**
Rev: 0.6

Date: Friday, January 06, 2012 Sheet 10 of 58



All VREF traces should have 10 mil trace width

Layout Note:
Place near
JDIMM1

Layout Note:
Place near
JDIMM1.203,204

<Address: 00>
DIMM_A Reserve H:4.0mm

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

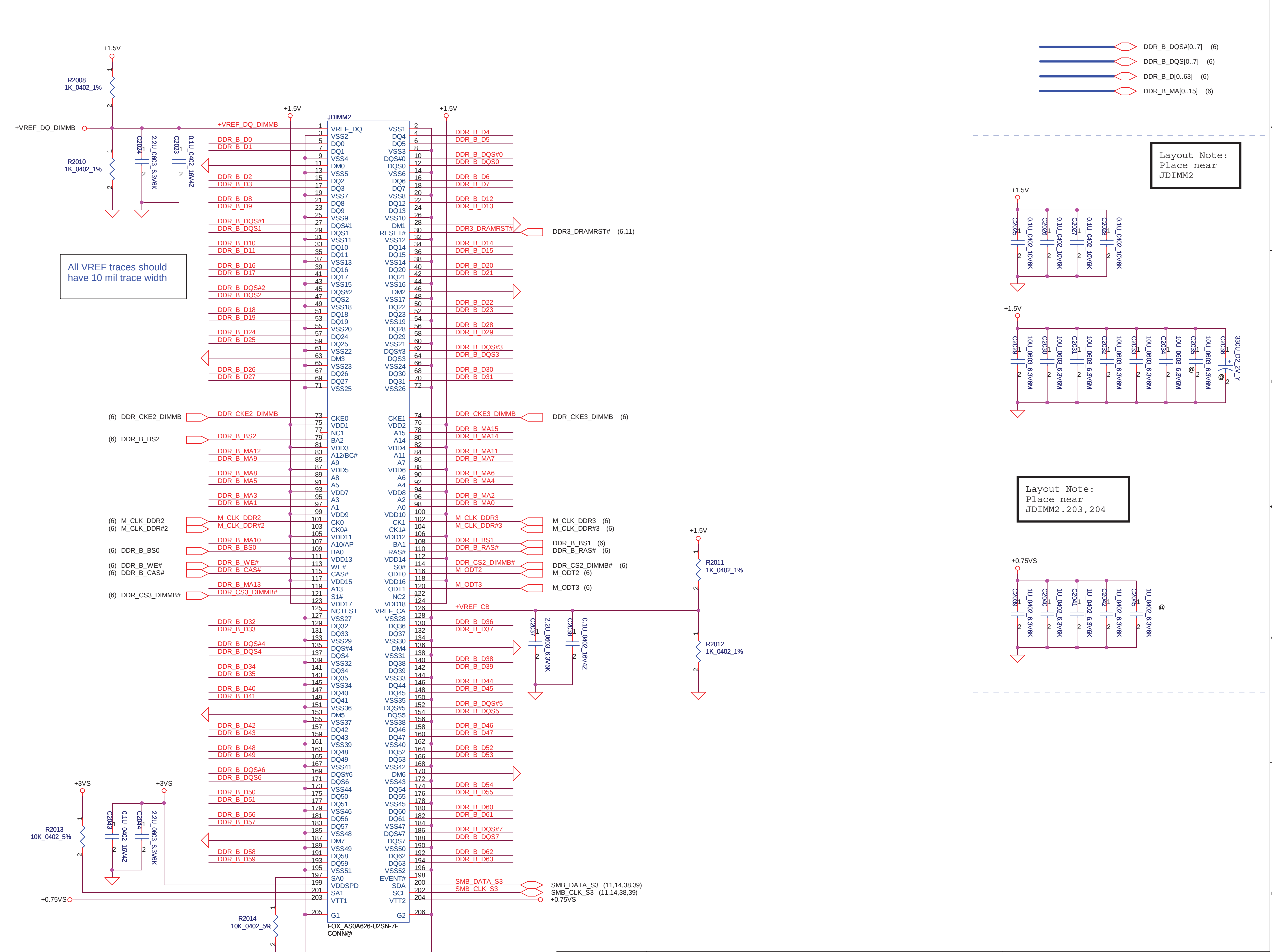
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
DDRIII DIMMA

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Friday, January 06, 2012 Sheet 11 of 58



All VREF traces should have 10 mil trace width

Layout Note:
Place near
JDIMM2

Layout Note:
Place near
JDIMM2.203,204

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

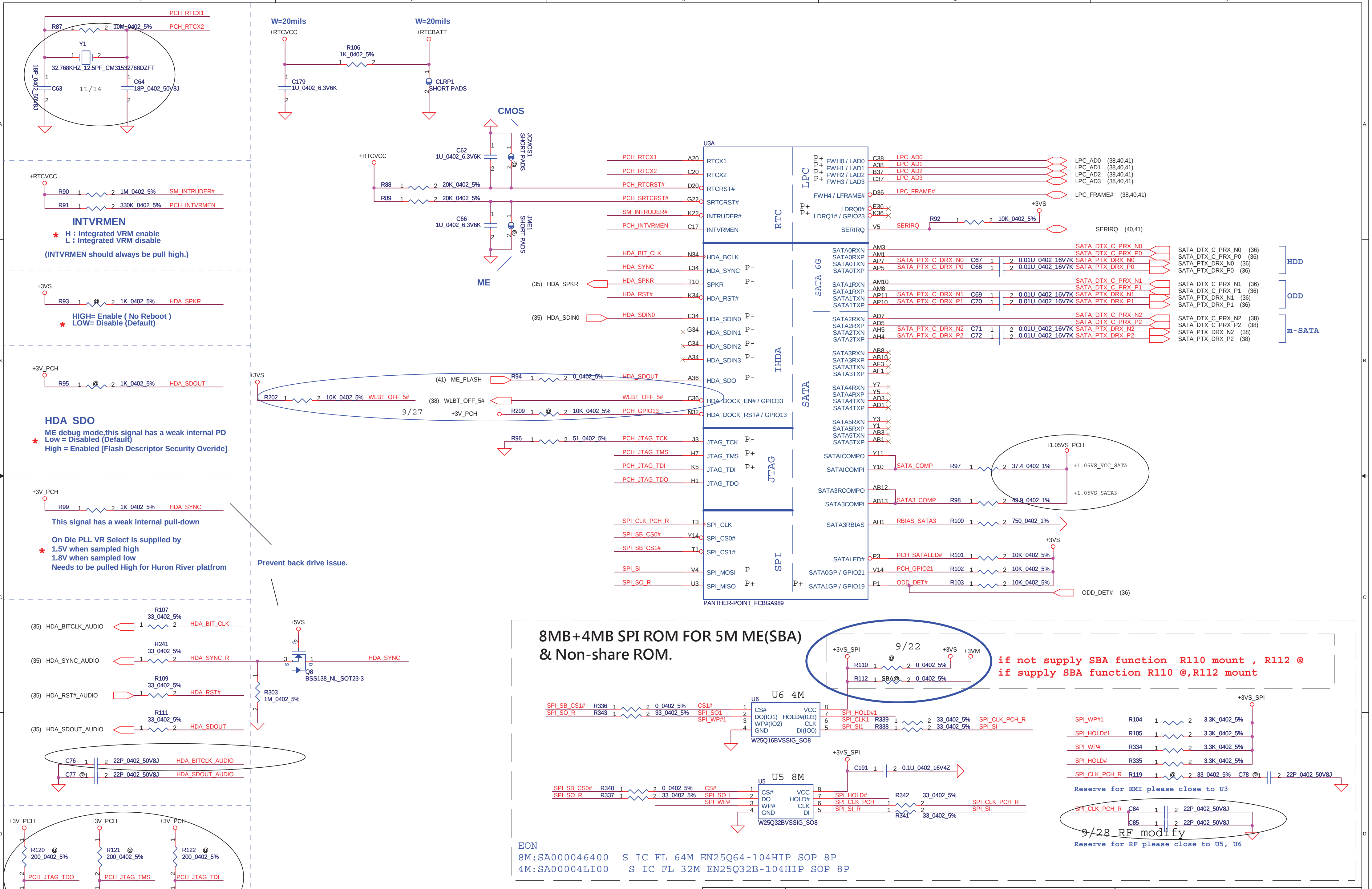
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
DDRIII DIMMB

Size Custom
Document Number
LA-8131P
Rev 0.6

Date: Friday, January 06, 2012 Sheet 12 of 58


PCH_RTCX1
PCH_RTCX2
R87 10M_0402_5%
Y1 32.768KHZ_12.5PF_CM31532768DZFT
C63 18P_0402_50V8J
C64 18P_0402_50V8J
11/14
W=20mils
+RTCVCC
+RTCBATT
R106 1K_0402_5%
C179 1U_0402_6.3V6K
CLRP1 SHORT PADS
CMOS
JCMOS1 SHORT PADS
C62 1U_0402_6.3V6K
R88 20K_0402_5%
R89 20K_0402_5%
C66 1U_0402_6.3V6K
JME1 SHORT PADS
ME
R90 1M_0402_5% SM_INTRUDER#
R91 330K_0402_5% PCH_INTVRMEN
+3VS
R93 @ 1K_0402_5% HDA_SPKR
+3V_PCH
R95 @ 1K_0402_5% HDA_SDOUT
R99 1K_0402_5% HDA_SYNC
U3A
RTCX1 RTCX2 RTCRST# SRTCRST# INTRUDER# INTVRMEN
RTC
LPC
FWH0 / LAD0 FWH1 / LAD1 FWH2 / LAD2 FWH3 / LAD3 FWH4 / LFRAME# LDRQ0# LDRQ1# / GPIO23 SERIRQ
LPC_AD0 (38,40,41)
LPC_AD1 (38,40,41)
LPC_AD2 (38,40,41)
LPC_AD3 (38,40,41)
LPC_FRAME# (38,40,41)
R92 10K_0402_5%
SERIRQ (40,41)
HDA_BCLK HDA_SYNC SPKR HDA_RST# HDA_SDIN0 HDA_SDIN1 HDA_SDIN2 HDA_SDIN3 HDA_SDO HDA_DOCK_EN# / GPIO33 HDA_DOCK_RST# / GPIO13
IHDA
(35) HDA_SPKR
(35) HDA_SDIN0
(41) ME_FLASH
R94 0_0402_5%
R202 10K_0402_5% WLBT_OFF_5#
(38) WLBT_OFF_5#
9/27
R209 @ 10K_0402_5% PCH_GPIO13
R96 51_0402_5%
JTAG_TCK JTAG_TMS JTAG_TDI JTAG_TDO
JTAG
PCH_JTAG_TCK PCH_JTAG_TMS PCH_JTAG_TDI PCH_JTAG_TDO
SPI_CLK SPI_CS0# SPI_CS1# SPI_MOSI SPI_MISO
SPI
SPI_CLK_PCH_R SPI_SB_CS0# SPI_SB_CS1# SPI_SI SPI_SO_R
PANTHER-POINT_FCBGA989
SATA 6G
SATA0RXN SATA0RXP SATA0TXN SATA0TXP
SATA1RXN SATA1RXP SATA1TXN SATA1TXP
SATA2RXN SATA2RXP SATA2TXN SATA2TXP
SATA3RXN SATA3RXP SATA3TXN SATA3TXP
SATA4RXN SATA4RXP SATA4TXN SATA4TXP
SATA5RXN SATA5RXP SATA5TXN SATA5TXP
SATA
C67 C68 C69 C70 C71 C72 0.01U_0402_16V7K
SATA_DTX_C_PRX_N0 (36)
SATA_DTX_C_PRX_P0 (36)
SATA_PTX_DRX_N0 (36)
SATA_PTX_DRX_P0 (36)
HDD
SATA_DTX_C_PRX_N1 (36)
SATA_DTX_C_PRX_P1 (36)
SATA_PTX_DRX_N1 (36)
SATA_PTX_DRX_P1 (36)
ODD
SATA_DTX_C_PRX_N2 (38)
SATA_DTX_C_PRX_P2 (38)
SATA_PTX_DRX_N2 (38)
SATA_PTX_DRX_P2 (38)
m-SATA
SATAICOMPO SATAICOMPI SATA3RCOMPO SATA3COMPI SATA3RBIAS
+1.05VS_PCH
R97 37.4_0402_1%
+1.05VS_VCC_SATA
R98 49.9_0402_1%
+1.05VS_SATA3
R100 750_0402_1%
SATALED# SATA0GP / GPIO21 SATA1GP / GPIO19
R101 10K_0402_5% PCH_SATALED#
R102 10K_0402_5% PCH_GPIO21
R103 10K_0402_5% ODD_DET#
ODD_DET# (36)
(35) HDA_BITCLK_AUDIO
R107 33_0402_5% HDA_BIT_CLK
(35) HDA_SYNC_AUDIO
R241 33_0402_5% HDA_SYNC_R
(35) HDA_RST#_AUDIO
R109 33_0402_5% HDA_RST#
(35) HDA_SDOUT_AUDIO
R111 33_0402_5% HDA_SDOUT
+5VS
Q8 BSS138_NL_SOT23-3
R303 1M_0402_5%
HDA_SYNC
C76 22P_0402_50V8J HDA_BITCLK_AUDIO
C77 @ 22P_0402_50V8J HDA_SDOUT_AUDIO
+3V_PCH
R120 @ 200_0402_5%
R121 @ 200_0402_5%
R122 @ 200_0402_5%
PCH_JTAG_TDO PCH_JTAG_TMS PCH_JTAG_TDI
R123 @ 100_0402_1%
R124 @ 100_0402_1%
R125 @ 100_0402_1%
+3VS_SPI +3VS +3VM
9/22
R110 @ 0_0402_5%
R112 SBA@ 0_0402_5%
U6 4M
R336 0_0402_5% CS1#
R343 33_0402_5% SPI_SO1
SPI_WP#1
CS# DO(IO1) WP#(IO2) GND VCC HOLD#(IO3) CLK DI(IO0)
W25Q16BVSSIG_SO8
SPI_HOLD#1 SPI_CLK1 SPI_SI1
R339 33_0402_5% SPI_CLK_PCH_R
R338 33_0402_5% SPI_SI
C191 0.1U_0402_16V4Z
U5 8M
R340 0_0402_5% CS#
R337 33_0402_5% SPI_SO_L
SPI_WP#
W25Q32BVSSIG_SO8
SPI_HOLD# SPI_CLK_PCH SPI_SI_R
R342 33_0402_5% SPI_CLK_PCH_R
R341 33_0402_5% SPI_SI
+3VS_SPI
R104 3.3K_0402_5% SPI_WP#1
R105 3.3K_0402_5% SPI_HOLD#1
R334 3.3K_0402_5% SPI_WP#
R335 3.3K_0402_5% SPI_HOLD#
R119 @ 33_0402_5% C78 @ 22P_0402_50V8J
C84 22P_0402_50V8J
C85 22P_0402_50V8J
9/28 RF modify

INTVRMEN

* H : Integrated VRM enable
L : Integrated VRM disable

(INTVRMEN should always be pull high.)

HIGH= Enable (No Reboot)
* LOW= Disable (Default)

HDA_SDO

ME debug mode,this signal has a weak internal PD
* Low = Disabled (Default)
High = Enabled [Flash Descriptor Security Overide]

This signal has a weak internal pull-down

On Die PLL VR Select is supplied by
* 1.5V when sampled high
1.8V when sampled low
Needs to be pulled High for Huron River platfrom

Prevent back drive issue.

8MB+4MB SPI ROM FOR 5M ME(SBA)
& Non-share ROM.

if not supply SBA function R110 mount , R112 @
if supply SBA function R110 @,R112 mount

Reserve for EMI please close to U3

Reserve for RF please close to U5, U6

EON
8M:SA000046400 S IC FL 64M EN25Q64-104HIP SOP 8P
4M:SA00004LI00 S IC FL 32M EN25Q32B-104HIP SOP 8P

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

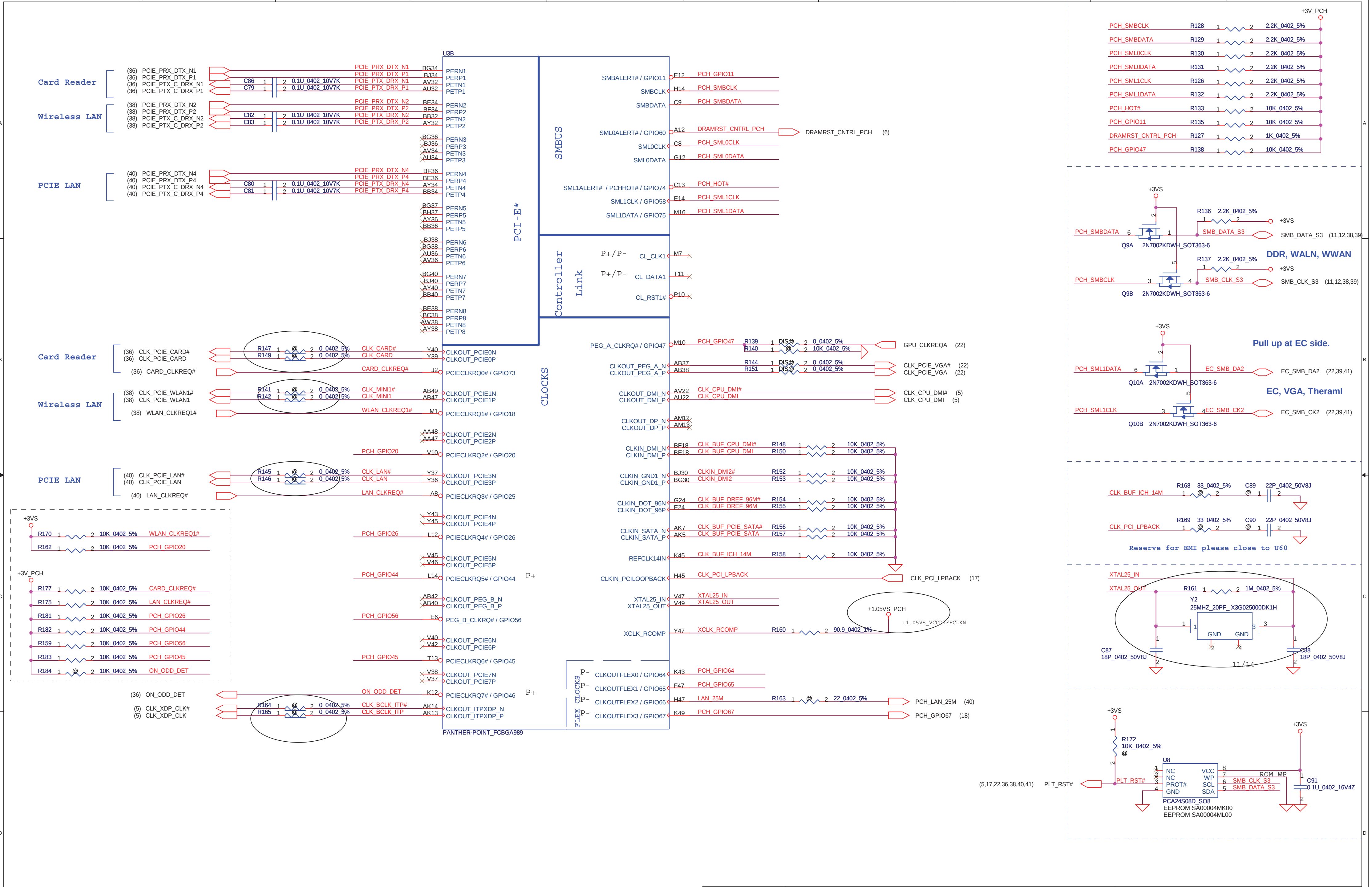
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PCH (1/9) SATA,HDA,SPI, LPC

Size Custom
Document Number LA-8131P
Rev 0.6

Date: Friday, January 06, 2012 Sheet 13 of 58



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

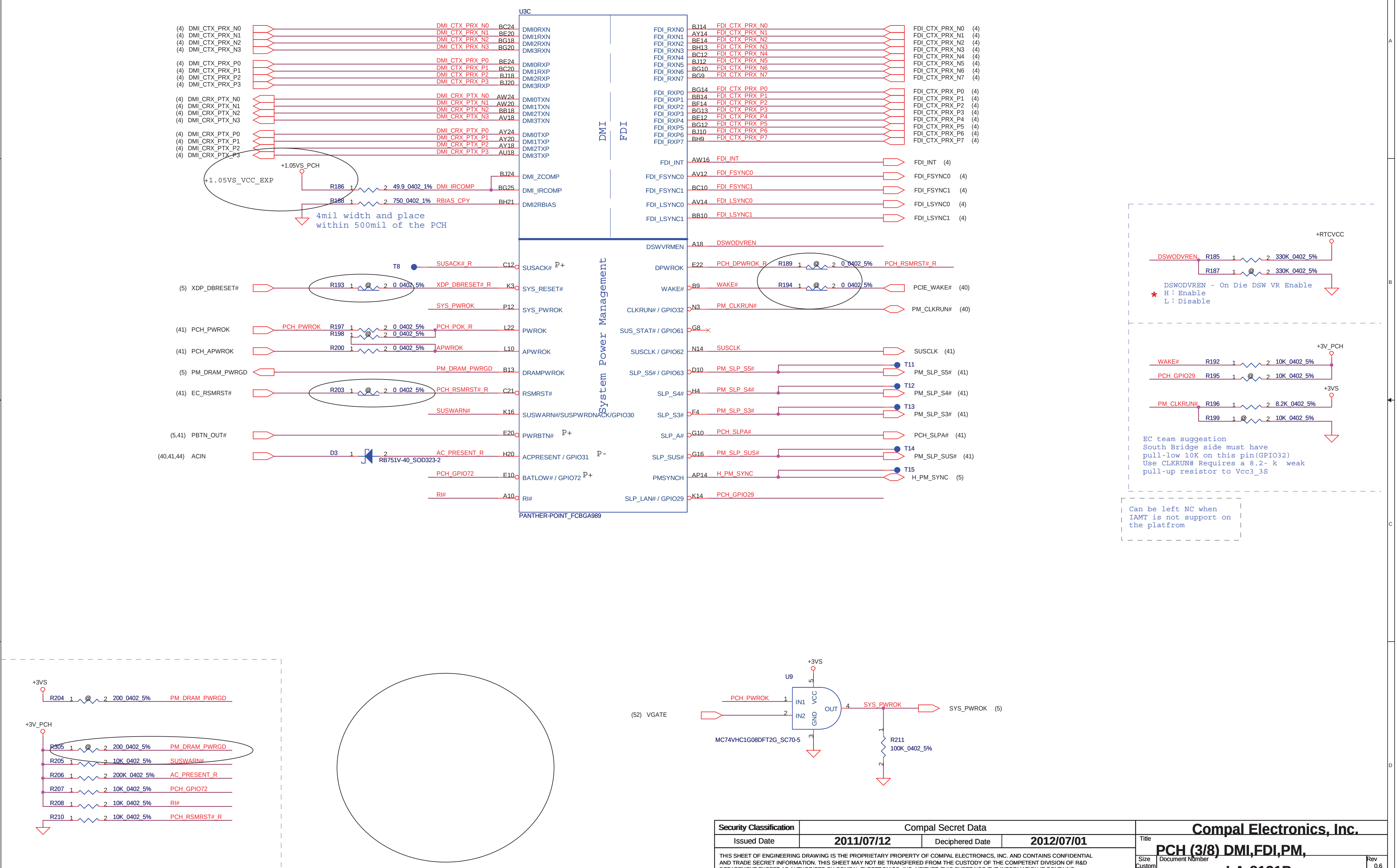
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

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

Size Custom
Document Number
LA-8131P
Rev 0.6

Date: Friday, January 06, 2012 Sheet 14 of 58



4mil width and place
within 500mil of the PCH

DSWODVREN - On Die DSW VR Enable
H：Enable
L：Disable

EC team suggestion
South Bridge side must have
pull-low 10K on this pin(GPIO32)
Use CLKRUN# Requires a 8.2- k weak
pull-up resistor to Vcc3_3S

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

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

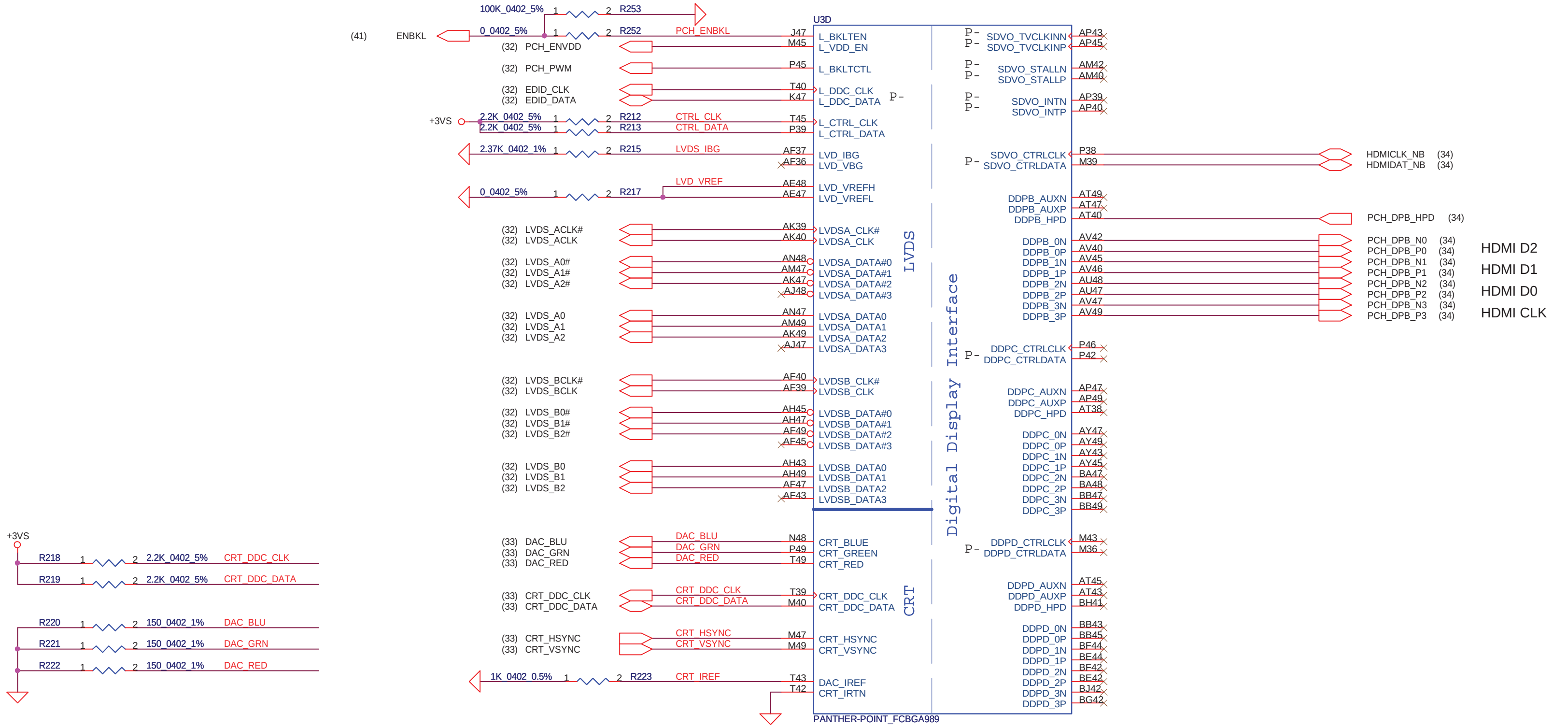
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

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

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Friday, January 06, 2012 Sheet 15 of 58


U3D
PANTHER-POINT_FCBGA989
LVDS
CRT
Digital Display Interface
100K_0402_5% R253
(41) ENBKL
0_0402_5% R252 PCH_ENBKL J47 L_BKLTEN
(32) PCH_ENVDD M45 L_VDD_EN
(32) PCH_PWM P45 L_BKLTCTL
(32) EDID_CLK T40 L_DDC_CLK
(32) EDID_DATA K47 L_DDC_DATA
+3VS
2.2K_0402_5% R212 CTRL_CLK T45 L_CTRL_CLK
2.2K_0402_5% R213 CTRL_DATA P39 L_CTRL_DATA
2.37K_0402_1% R215 LVDS_IBG AF37 LVD_IBG
AF36 LVD_VBG
LVD_VREF AE48 LVD_VREFH
0_0402_5% R217 AE47 LVD_VREFL
(32) LVDS_ACLK# AK39 LVDSA_CLK#
(32) LVDS_ACLK AK40 LVDSA_CLK
(32) LVDS_A0# AN48 LVDSA_DATA#0
(32) LVDS_A1# AM47 LVDSA_DATA#1
(32) LVDS_A2# AK47 LVDSA_DATA#2
AJ48 LVDSA_DATA#3
(32) LVDS_A0 AN47 LVDSA_DATA0
(32) LVDS_A1 AM49 LVDSA_DATA1
(32) LVDS_A2 AK49 LVDSA_DATA2
AJ47 LVDSA_DATA3
(32) LVDS_BCLK# AF40 LVDSB_CLK#
(32) LVDS_BCLK AF39 LVDSB_CLK
(32) LVDS_B0# AH45 LVDSB_DATA#0
(32) LVDS_B1# AH47 LVDSB_DATA#1
(32) LVDS_B2# AF49 LVDSB_DATA#2
AF45 LVDSB_DATA#3
(32) LVDS_B0 AH43 LVDSB_DATA0
(32) LVDS_B1 AH49 LVDSB_DATA1
(32) LVDS_B2 AF47 LVDSB_DATA2
AF43 LVDSB_DATA3
(33) DAC_BLU DAC_BLU N48 CRT_BLUE
(33) DAC_GRN DAC_GRN P49 CRT_GREEN
(33) DAC_RED DAC_RED T49 CRT_RED
(33) CRT_DDC_CLK CRT_DDC_CLK T39 CRT_DDC_CLK
(33) CRT_DDC_DATA CRT_DDC_DATA M40 CRT_DDC_DATA
(33) CRT_HSYNC CRT_HSYNC M47 CRT_HSYNC
(33) CRT_VSYNC CRT_VSYNC M49 CRT_VSYNC
1K_0402_0.5% R223 CRT_IREF T43 DAC_IREF
T42 CRT_IRTN
+3VS
R218 2.2K_0402_5% CRT_DDC_CLK
R219 2.2K_0402_5% CRT_DDC_DATA
R220 150_0402_1% DAC_BLU
R221 150_0402_1% DAC_GRN
R222 150_0402_1% DAC_RED
SDVO_TVCLKINN AP43
SDVO_TVCLKINP AP45
SDVO_STALLN AM42
SDVO_STALLP AM40
SDVO_INTN AP39
SDVO_INTP AP40
SDVO_CTRLCLK P38 HDMICLK_NB (34)
SDVO_CTRLDATA M39 HDMIDAT_NB (34)
DDPB_AUXN AT49
DDPB_AUXP AT47
DDPB_HPD AT40 PCH_DPB_HPD (34)
DDPB_0N AV42 PCH_DPB_N0 (34)
DDPB_0P AV40 PCH_DPB_P0 (34)
DDPB_1N AV45 PCH_DPB_N1 (34)
DDPB_1P AV46 PCH_DPB_P1 (34)
DDPB_2N AU48 PCH_DPB_N2 (34)
DDPB_2P AU47 PCH_DPB_P2 (34)
DDPB_3N AV47 PCH_DPB_N3 (34)
DDPB_3P AV49 PCH_DPB_P3 (34)
HDMI D2
HDMI D1
HDMI D0
HDMI CLK
DDPC_CTRLCLK P46
DDPC_CTRLDATA P42
DDPC_AUXN AP47
DDPC_AUXP AP49
DDPC_HPD AT38
DDPC_0N AY47
DDPC_0P AY49
DDPC_1N AY43
DDPC_1P AY45
DDPC_2N BA47
DDPC_2P BA48
DDPC_3N BB47
DDPC_3P BB49
DDPD_CTRLCLK M43
DDPD_CTRLDATA M36
DDPD_AUXN AT45
DDPD_AUXP AT43
DDPD_HPD BH41
DDPD_0N BB43
DDPD_0P BB45
DDPD_1N BF44
DDPD_1P BE44
DDPD_2N BF42
DDPD_2P BE42
DDPD_3N BJ42
DDPD_3P BG42

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

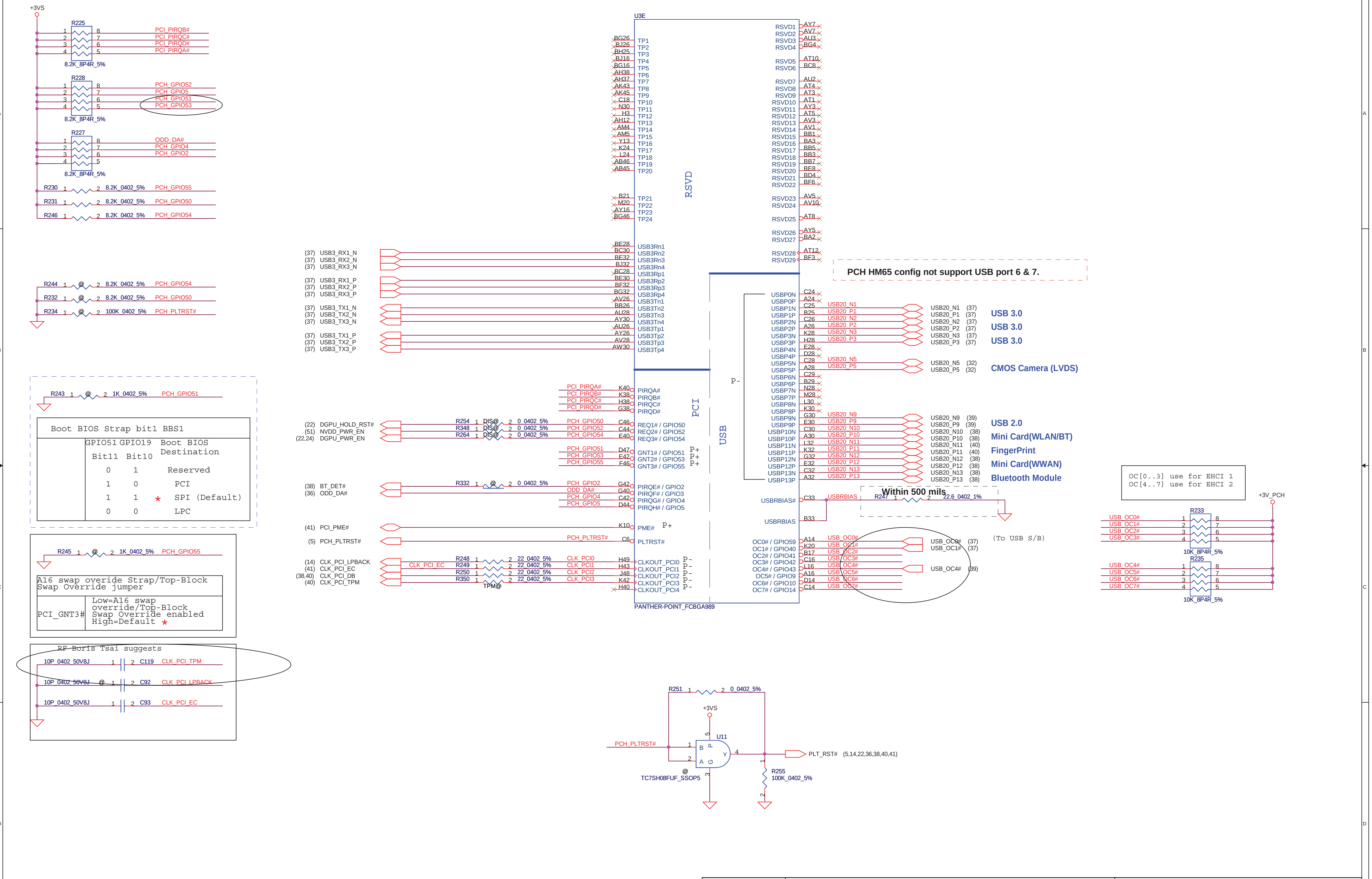
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

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

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Friday, January 06, 2012



Boot BIOS Strap bit1 BBS1

GPIO51 Bit11	GPIO19 Bit10	Boot BIOS Destination
0	1	Reserved
1	0	PCI
1	1	* SPI (Default)
0	0	LPC

A16 swap overide Strap/Top-Block Swap Override jumper	

PCI_GNT3#	Low=A16 swap override/Top-Block Swap Override enabled
	High=Default *

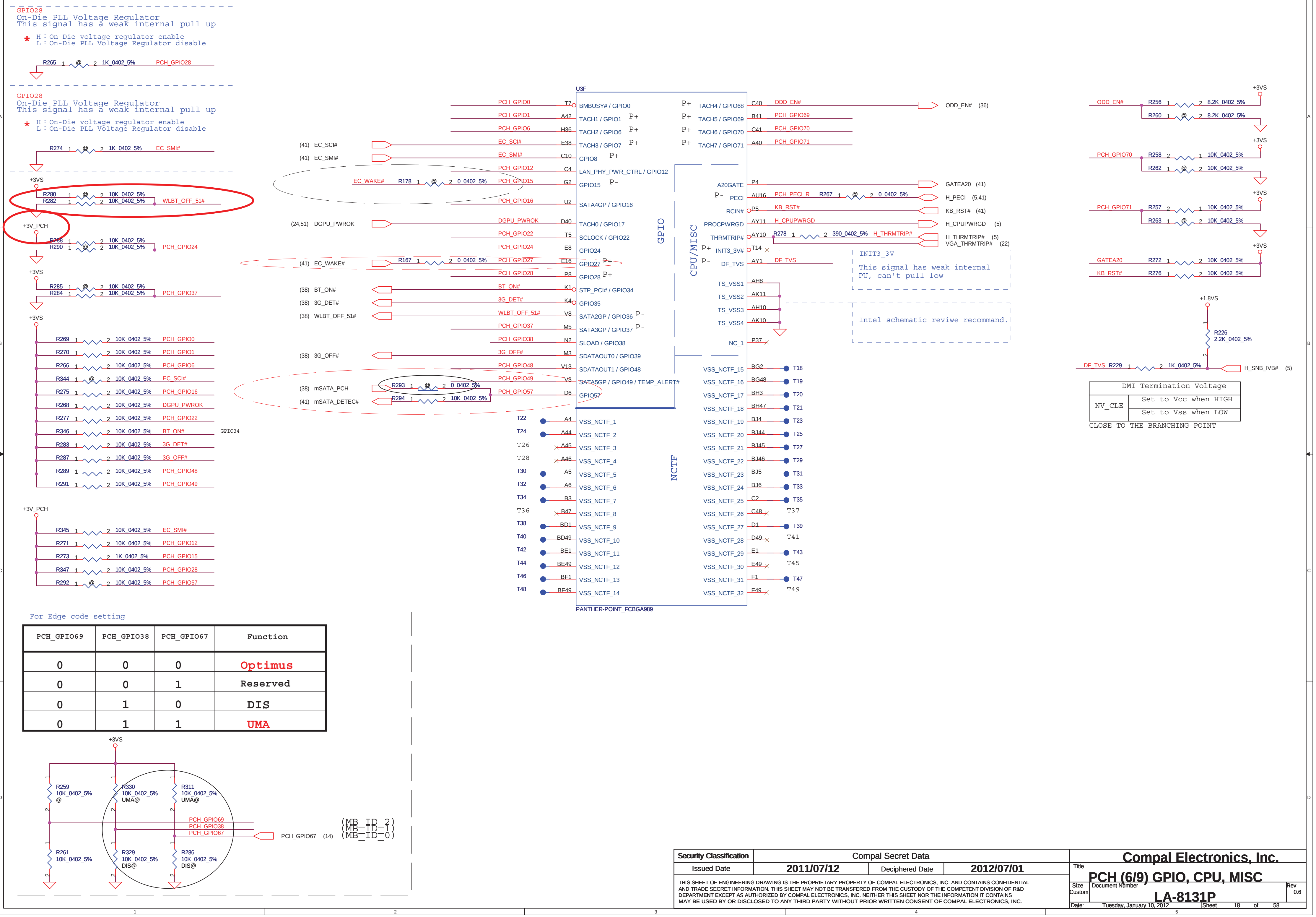
Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PCH (5/9) PCI, USB, NVRAM

Size: Custom
Document Number: **LA-8131P**
Rev: 0.6
Date: Tuesday, January 10, 2012
Sheet 17 of 58



For Edge code setting

PCH_GPIO69	PCH_GPIO38	PCH_GPIO67	Function
0	0	0	Optimus
0	0	1	Reserved
0	1	0	DIS
0	1	1	UMA

DMI Termination Voltage

NV_CLE	Set to Vcc when HIGH	
	Set to Vss when LOW	

CLOSE TO THE BRANCHING POINT

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

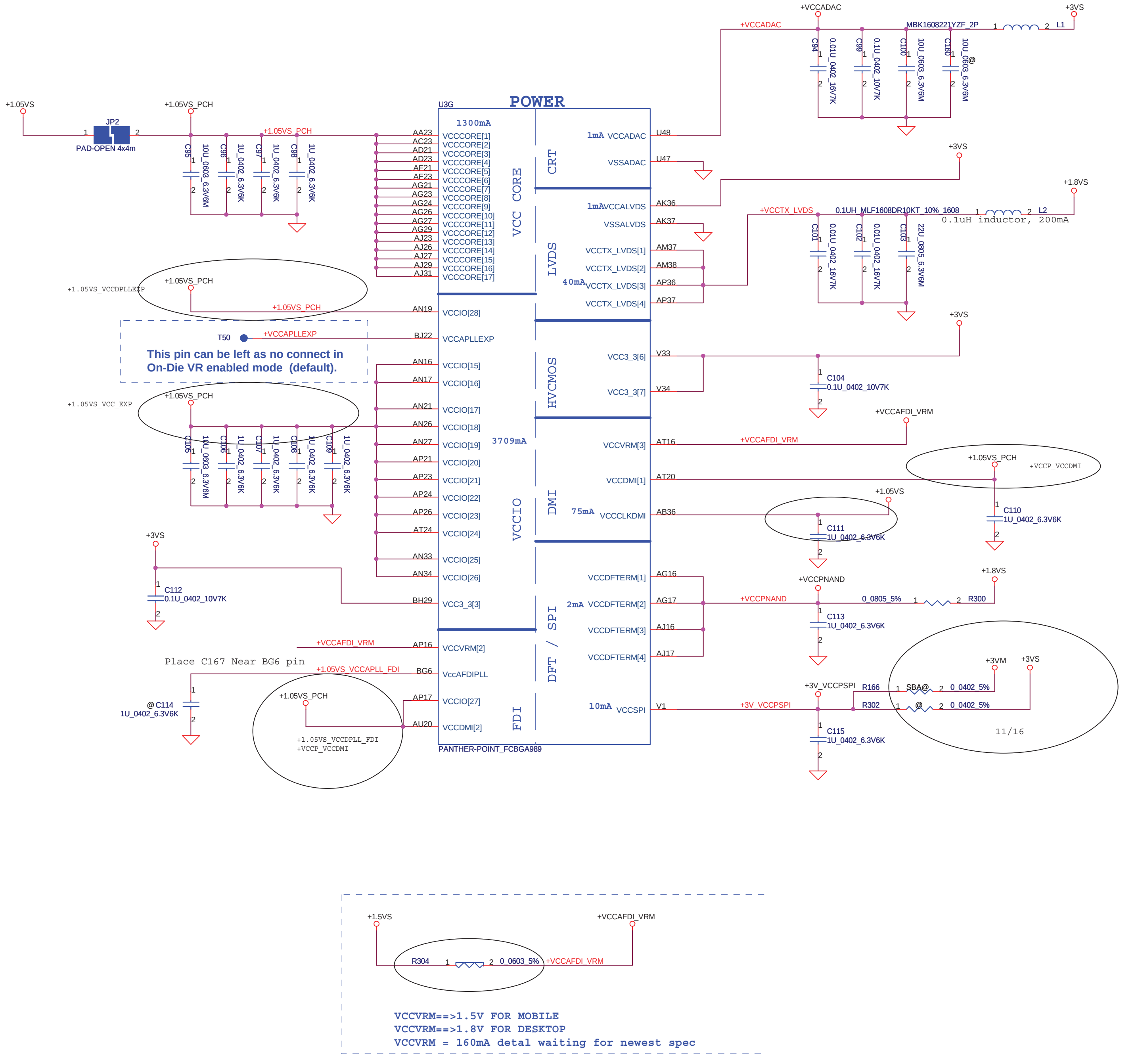
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

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

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Tuesday, January 10, 2012



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

VCCVRM==>1.5V FOR MOBILE
VCCVRM==>1.8V FOR DESKTOP
VCCVRM = 160mA detal waiting for newest spec

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

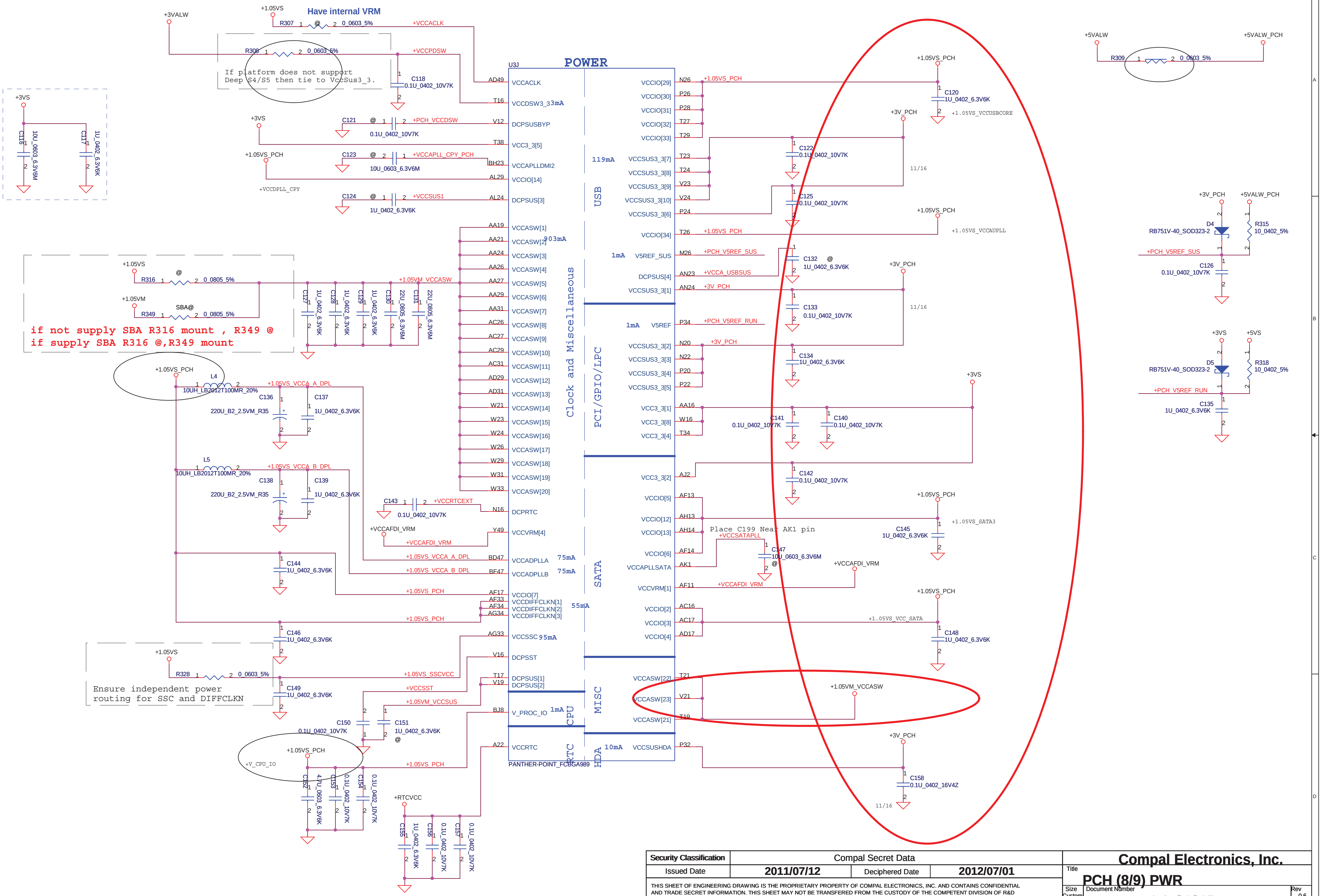
Compal Electronics, Inc.

Title
PCH (7/9) PWR

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Tuesday, January 10, 2012 Sheet 19 of 58

VCC3_3 = 266mA detal waiting for newest spec
VCCDMI = 42mA detal waiting for newest spec



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

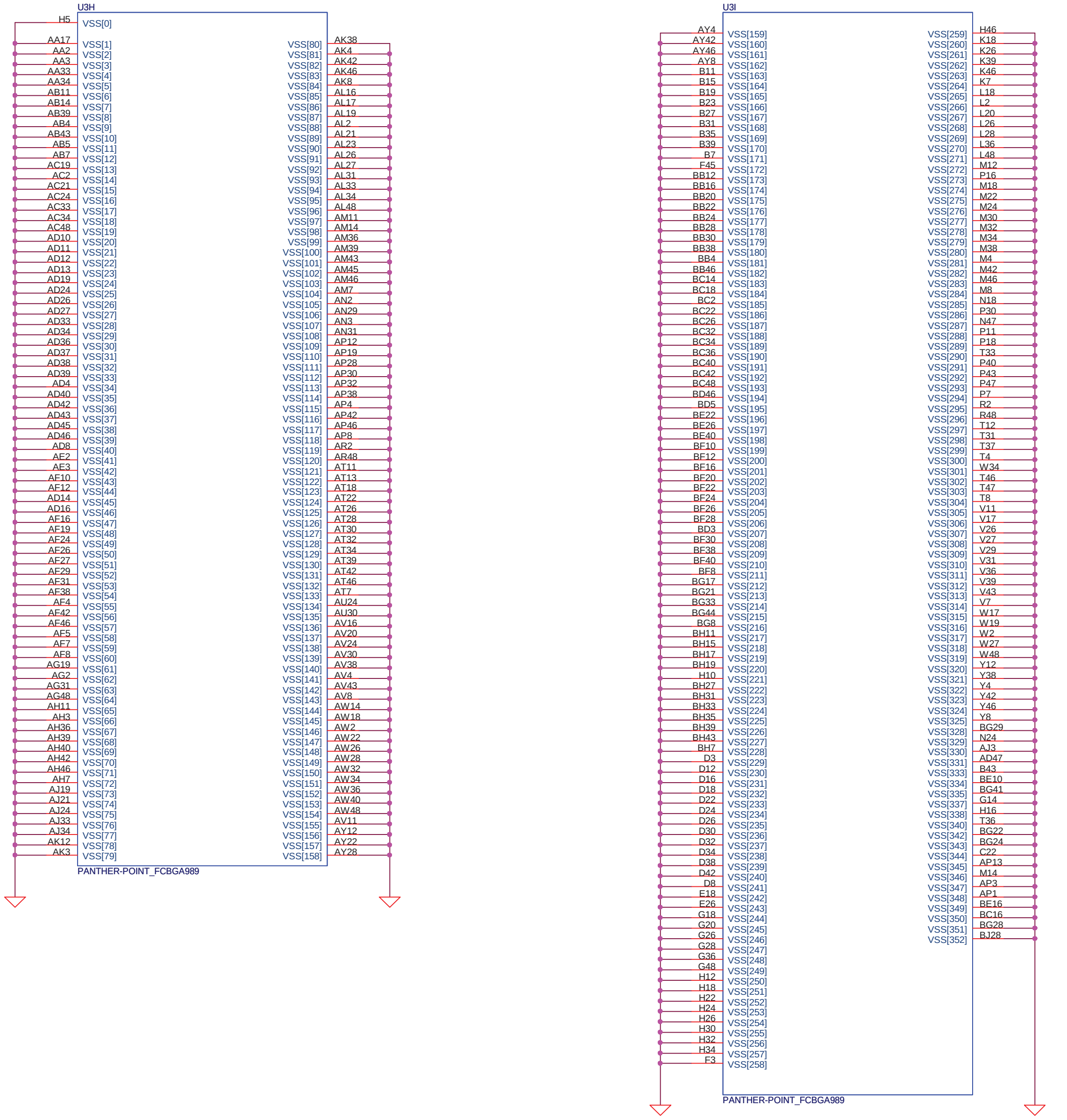
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PCH (8/9) PWR

Size Custom
Document Number LA-8131P
Rev 0.6

Date: Friday, January 06, 2012
Sheet 20 of 58



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

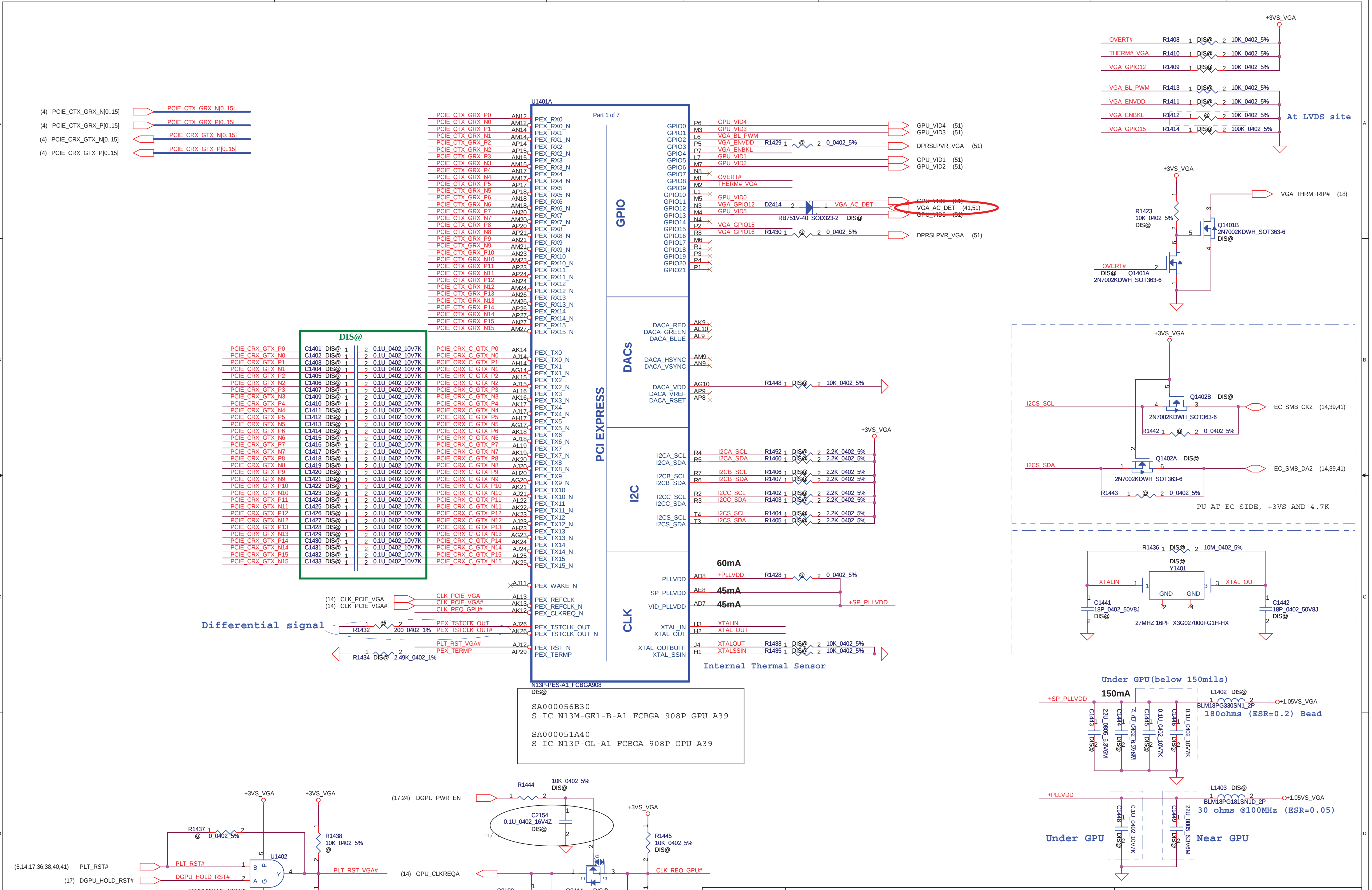
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PCH (9/9) VSS

Size: Custom
Document Number: **LA-8131P**
Rev: 0.6

Date: Friday, January 06, 2012
Sheet 21 of 58



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

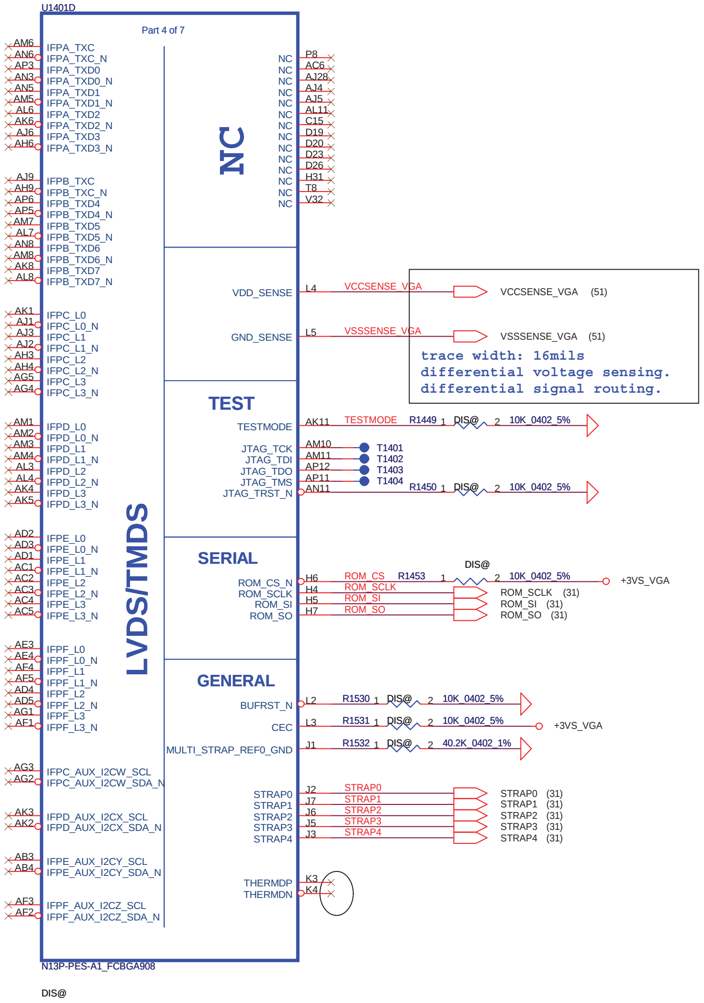
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
N13X-PCIE/DAC/GPIO

Size: Custom
Document Number: LA-8131P
Rev: 0.6

Date: Friday, January 06, 2012 Sheet 22 of 58



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

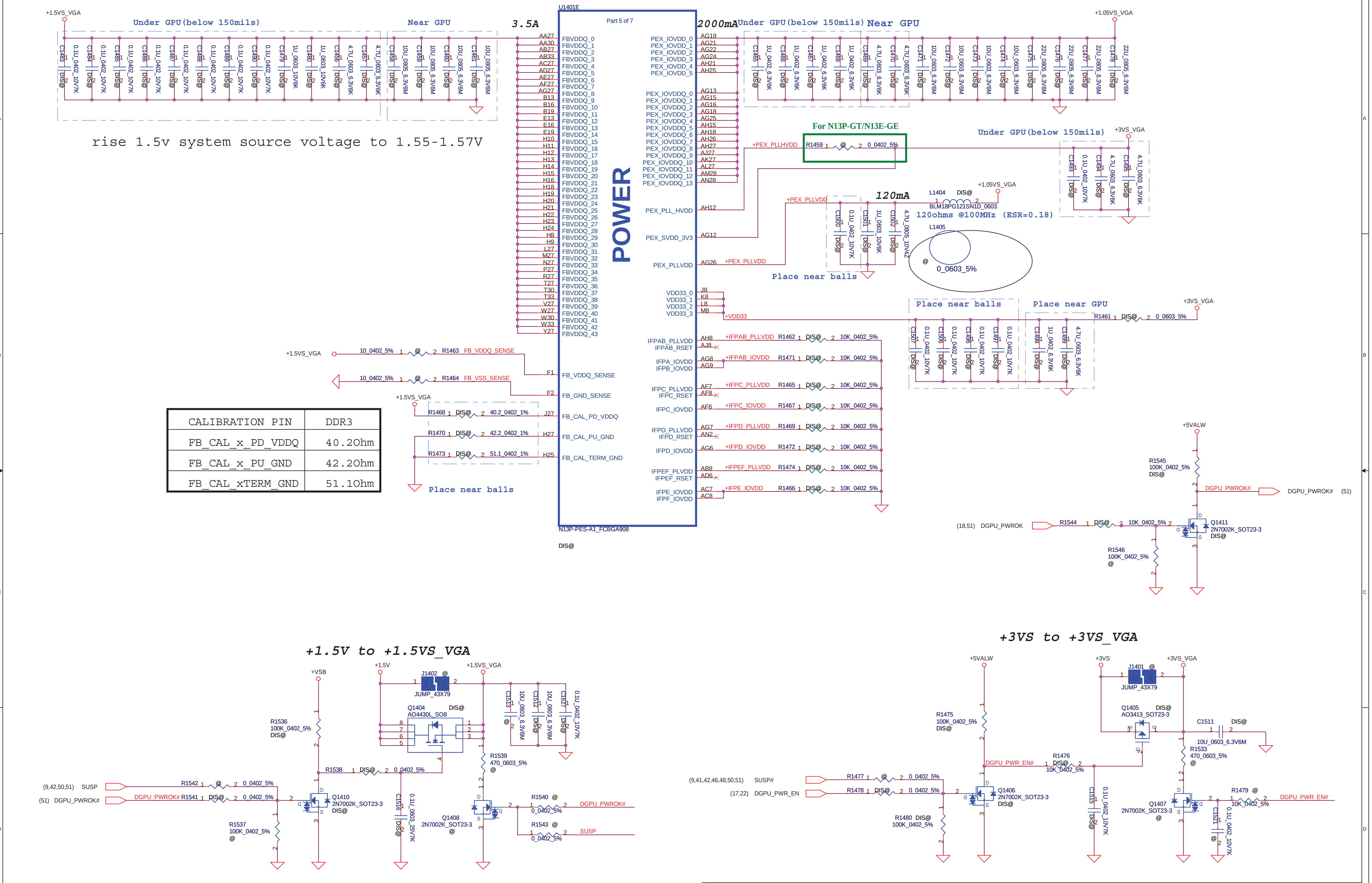
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
N13X-LVDS/HDMI/DP/THM

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Friday, January 06, 2012 Sheet 23 of 58



rise 1.5v system source voltage to 1.55-1.57V

CALIBRATION PIN	DDR3
FB_CAL_x_PD_VDDQ	40.2Ohm
FB_CAL_x_PU_GND	42.2Ohm
FB_CAL_xTERM_GND	51.1Ohm

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

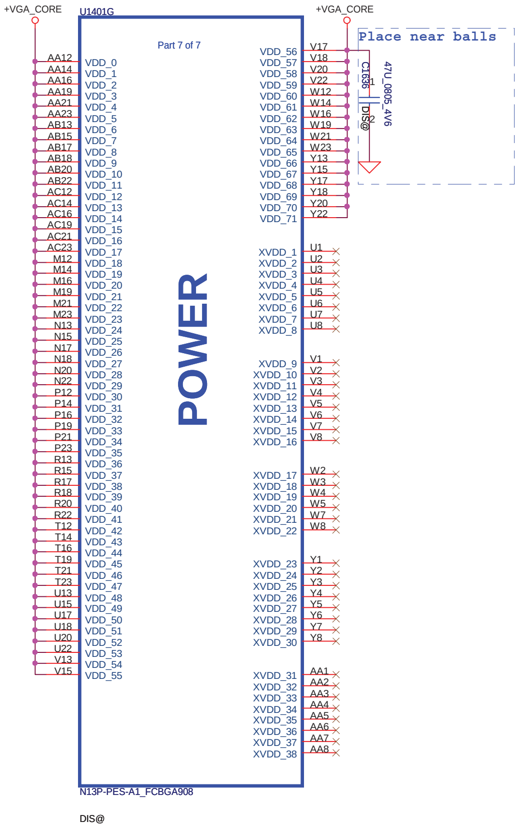
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

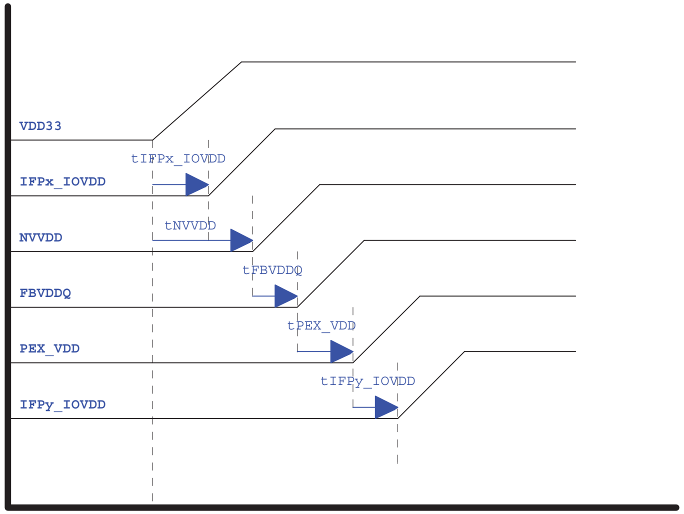
Compal Electronics, Inc.

Title
N13X-POWER

Size Custom
Document Number LA-8131P
Rev 0.6

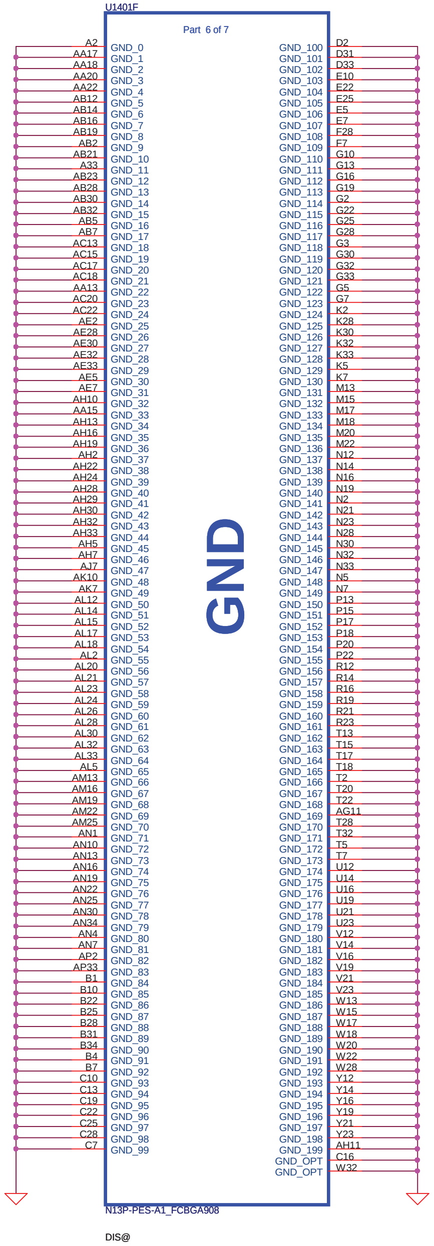
Date: Friday, January 06, 2012





NV Recommended Power On Sequencing Order

X=A and B
Y=C,D,E and F



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

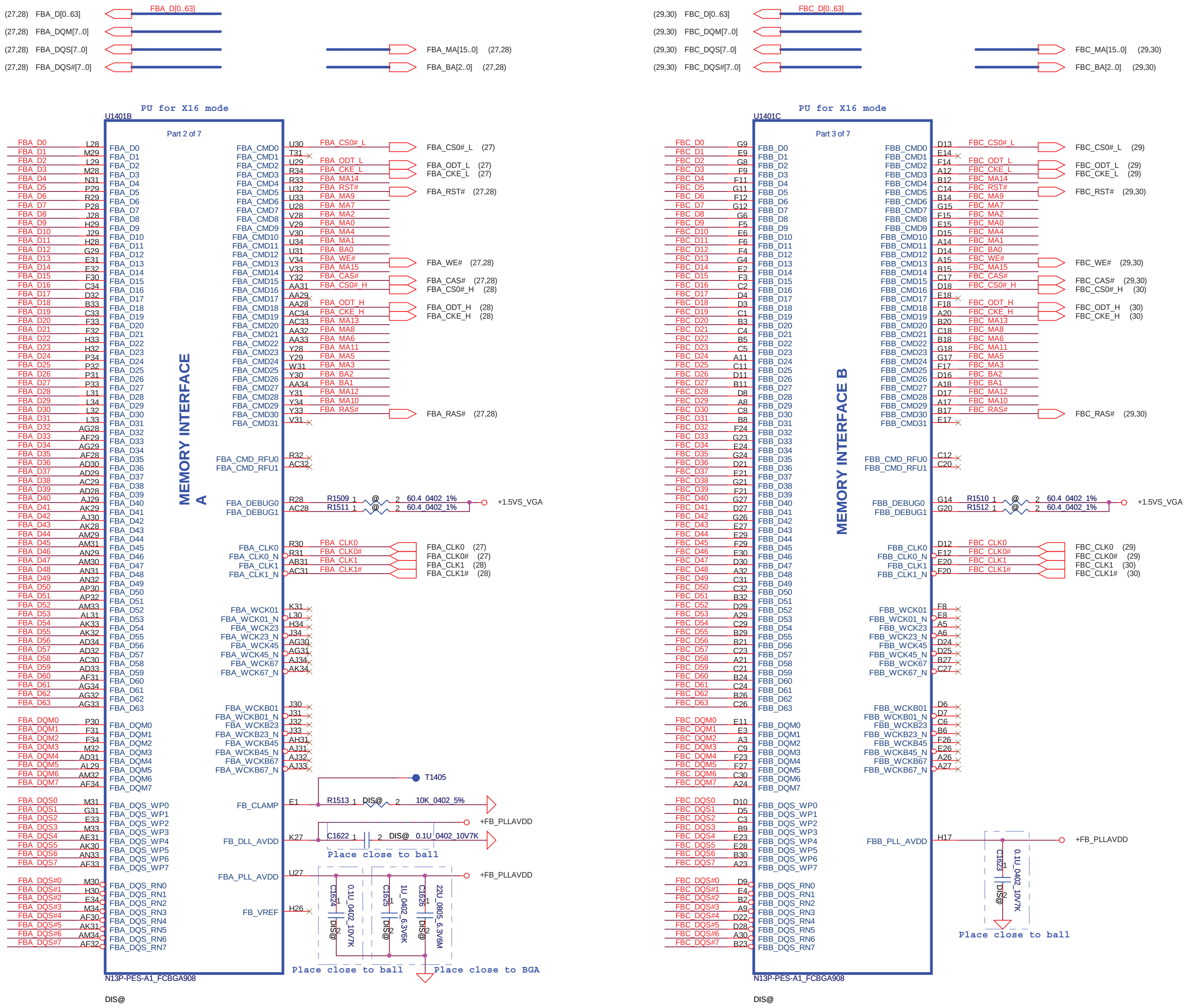
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

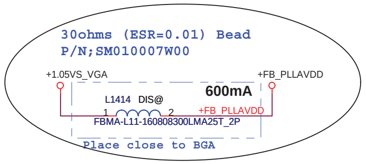
Compal Electronics, Inc.

Title
N13X-VGA CORE, GND

Size Custom
Document Number LA-8131P
Rev 0.6

Date: Friday, January 06, 2012
Sheet 25 of 58





Mode D - Mirror Mode Mapping

	DATA Bus	
Address	0..31	32..63
FBx_CMD0	CS0#_L	
FBx_CMD1		
FBx_CMD2	ODT_L	
FBx_CMD3	CKE_L	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE#	WE#
FBx_CMD14	A15	A15
FBx_CMD15	CAS#	CAS#
FBx_CMD16		CS0#_H
FBx_CMD17		
FBx_CMD18		ODT_H
FBx_CMD19		CKE_H
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
FBx_CMD27	BA1	BA1
FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

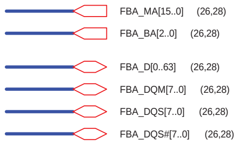
Compal Electronics, Inc.

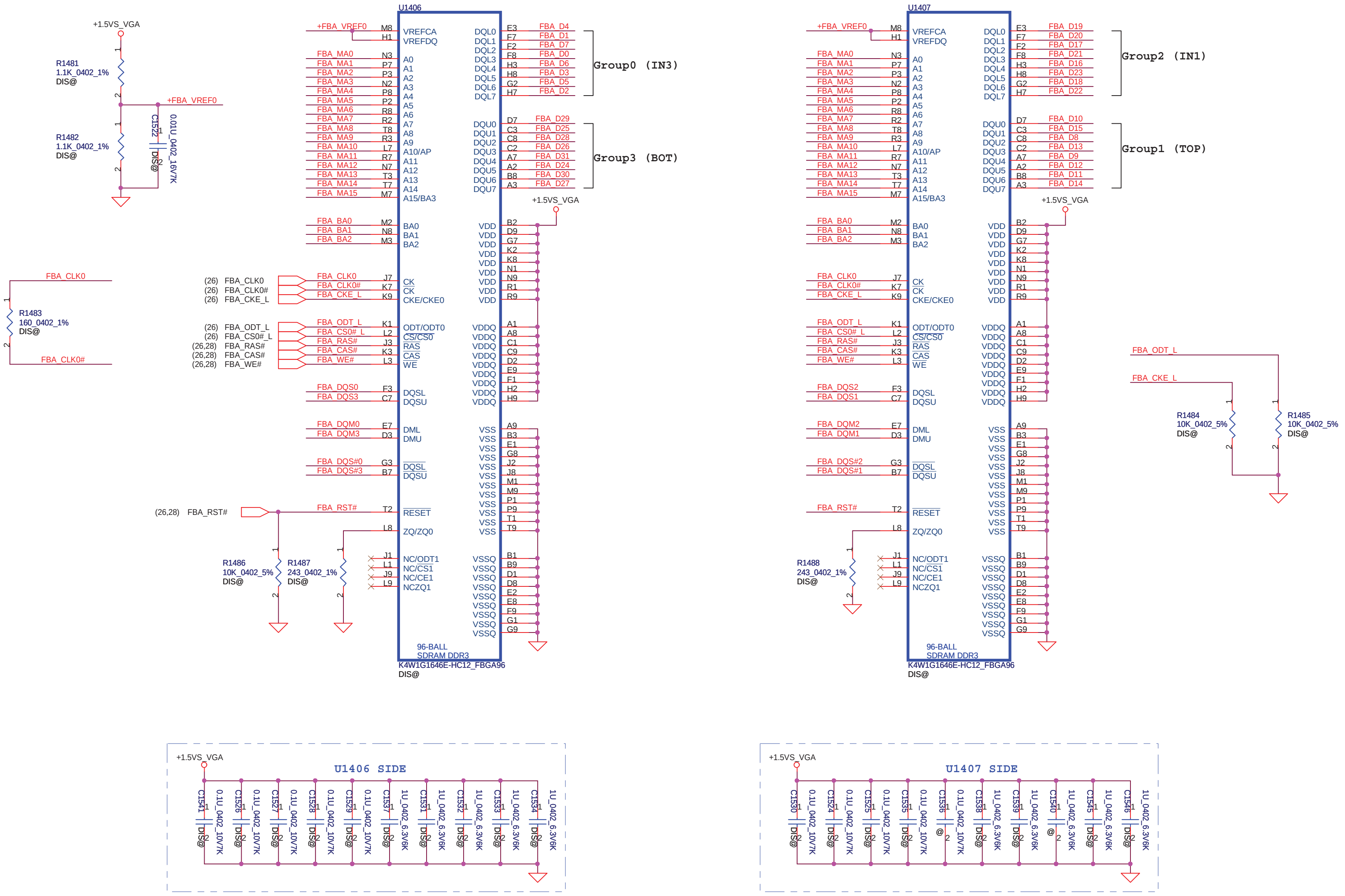
Title
N13X-MEM Interface

Size Custom
Document Number
LA-8131P
Rev
0.6

Date: Friday, January 06, 2012

Memory Partition A - Lower 32 bits





Mode D - Mirror Mode Mapping

	DATA Bus	
Address	0..31	32..63
FBx_CMD0	CS0#_L	
FBx_CMD1		
FBx_CMD2	ODT_L	
FBx_CMD3	CKE_L	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE#	WE#
FBx_CMD14	A15	A15
FBx_CMD15	CAS#	CAS#
FBx_CMD16		CS0#_H
FBx_CMD17		
FBx_CMD18		ODT_H
FBx_CMD19		CKE_H
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
FBx_CMD27	BA1	BA1
FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

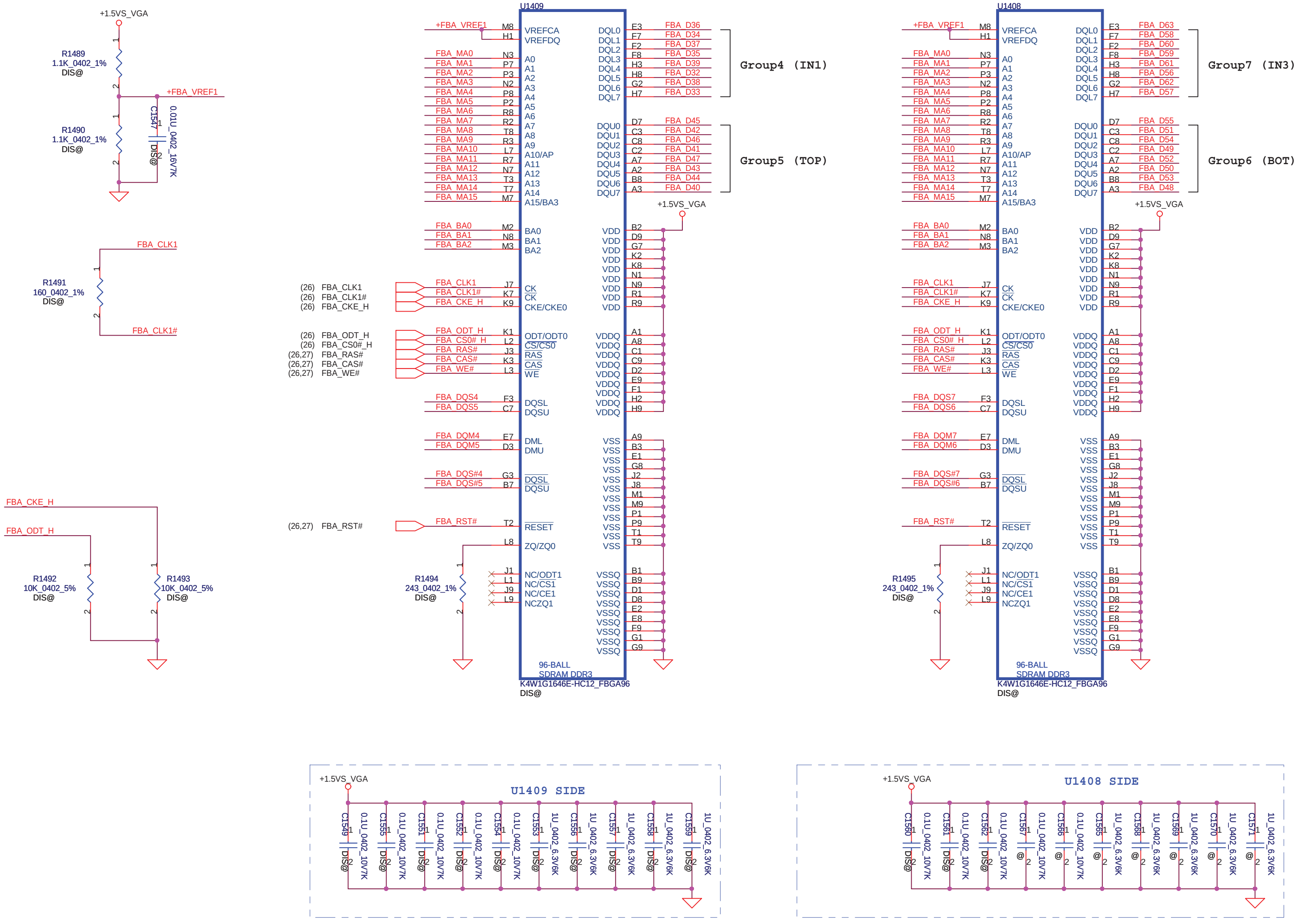
Compal Electronics, Inc.

Title
N13X-VRAM A Lower

Size Custom
Document Number
LA-8131P
Rev 0.6

Date: Friday, January 06, 2012
Sheet 27 of 58

Memory Partition A - Upper 32 bits


+1.5VS_VGA
R1489
1.1K_0402_1%
DIS@
R1490
1.1K_0402_1%
DIS@
+FBA_VREF1
C1547
0.01U_0402_16V7K
DIS@
FBA_CLK1
R1491
160_0402_1%
DIS@
FBA_CLK1#
FBA_CKE_H
FBA_ODT_H
R1492
10K_0402_5%
DIS@
R1493
10K_0402_5%
DIS@
(26) FBA_CLK1
(26) FBA_CLK1#
(26) FBA_CKE_H
(26) FBA_ODT_H
(26) FBA_CS0#_H
(26,27) FBA_RAS#
(26,27) FBA_CAS#
(26,27) FBA_WE#
(26,27) FBA_RST#
U1409
VREFCA
VREFDQ
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10/AP A11 A12 A13 A14 A15/BA3
BA0 BA1 BA2
CK CK CKE/CKE0
ODT/ODT0 CS/CS0 RAS CAS WE
DQSL DQSU
DML DMU
DQSL DQSU
RESET
ZQ/ZQ0
NC/ODT1 NC/CS1 NC/CE1 NCZQ1
DQL0 DQL1 DQL2 DQL3 DQL4 DQL5 DQL6 DQL7
DQU0 DQU1 DQU2 DQU3 DQU4 DQU5 DQU6 DQU7
VDD VDDQ VSS VSSQ
FBA_D36 FBA_D34 FBA_D37 FBA_D35 FBA_D39 FBA_D32 FBA_D38 FBA_D33
FBA_D45 FBA_D42 FBA_D46 FBA_D41 FBA_D47 FBA_D43 FBA_D44 FBA_D40
FBA_DQS4 FBA_DQS5 FBA_DQM4 FBA_DQM5 FBA_DQS#4 FBA_DQS#5 FBA_RST#
Group4 (IN1)
Group5 (TOP)
R1494
243_0402_1%
DIS@
96-BALL
SDRAM DDR3
K4W1G1646E-HC12_FBGA96
DIS@
U1408
FBA_D63 FBA_D58 FBA_D60 FBA_D59 FBA_D61 FBA_D56 FBA_D62 FBA_D57
FBA_D55 FBA_D51 FBA_D54 FBA_D49 FBA_D52 FBA_D50 FBA_D53 FBA_D48
FBA_DQS7 FBA_DQS6 FBA_DQM7 FBA_DQM6 FBA_DQS#7 FBA_DQS#6 FBA_RST#
Group7 (IN3)
Group6 (BOT)
R1495
243_0402_1%
DIS@
96-BALL
SDRAM DDR3
K4W1G1646E-HC12_FBGA96
DIS@
U1409 SIDE
C1549 C1555 C1551 C1552 C1554 C1553 C1556 C1557 C1558 C1559
0.1U_0402_10V7K
1U_0402_6.3V6K
U1408 SIDE
C1560 C1561 C1562 C1567 C1566 C1565 C1568 C1569 C1570 C1571
DIS@

FBA_D[0..63] (26,27)
FBA_MA[15..0] (26,27)
FBA_BA[2..0] (26,27)
FBA_DQM[7..0] (26,27)
FBA_DQS[7..0] (26,27)
FBA_DQS#[7..0] (26,27)

Mode D - Mirror Mode Mapping

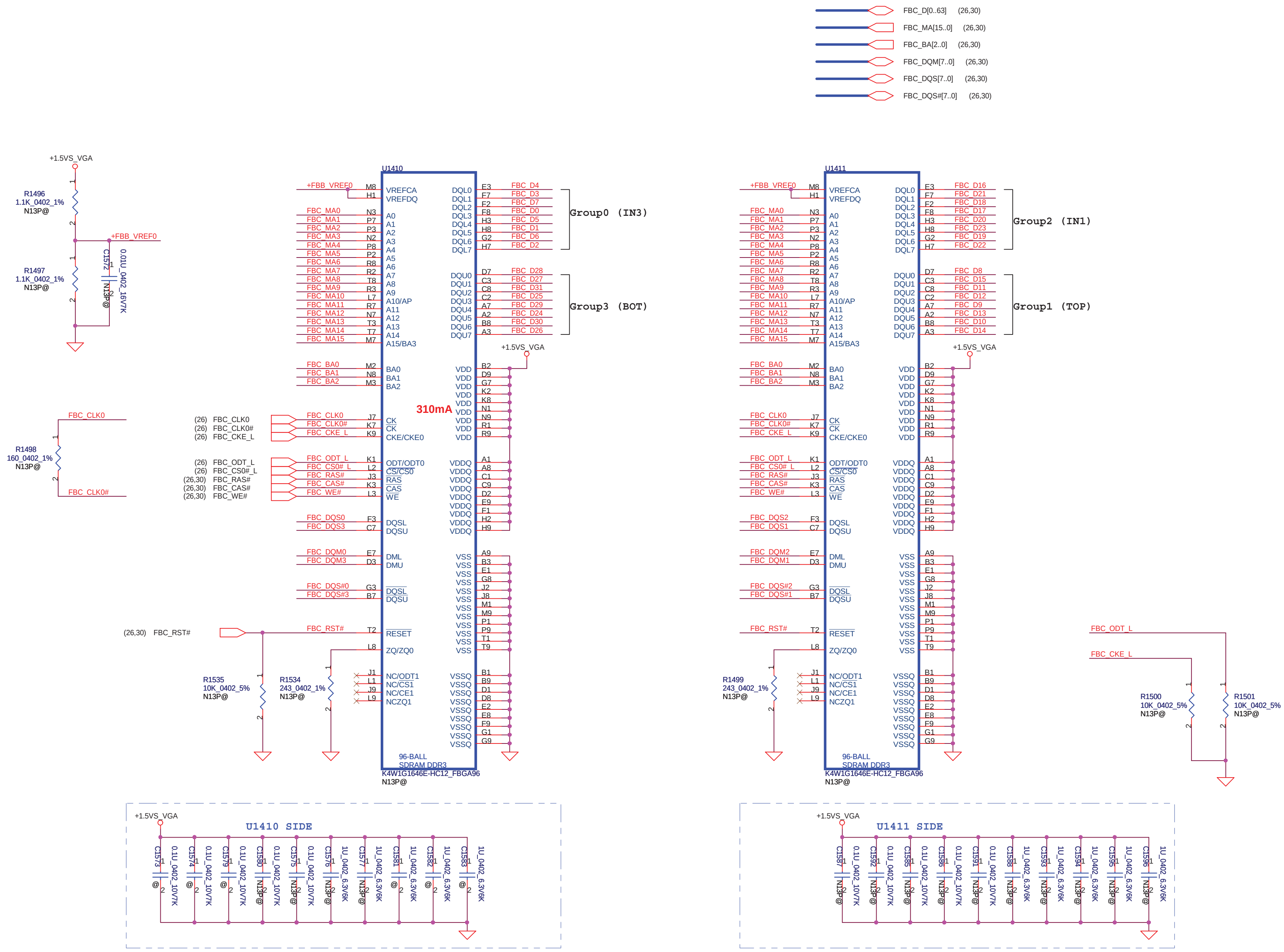
	DATA Bus	
Address	0..31	32..63
FBx_CMD0	CS0#_L	
FBx_CMD1		
FBx_CMD2	ODT_L	
FBx_CMD3	CKE_L	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE#	WE#
FBx_CMD14	A15	A15
FBx_CMD15	CAS#	CAS#
FBx_CMD16		CS0#_H
FBx_CMD17		
FBx_CMD18		ODT_H
FBx_CMD19		CKE_H
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
FBx_CMD27	BA1	BA1
FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#

Security Classification: Compal Secret Data
Issued Date: 2011/07/12
Deciphered Date: 2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.
Title: N13X-VRAM A Upper
Size: Custom
Document Number: LA-8131P
Rev: 0.6
Date: Friday, January 06, 2012

Memory Partition C - Lower 32 bits



Mode D - Mirror Mode Mapping

	DATA Bus	
Address	0..31	32..63
FBx_CMD0	CS0#_L	
FBx_CMD1		
FBx_CMD2	ODT_L	
FBx_CMD3	CKE_L	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE#	WE#
FBx_CMD14	A15	A15
FBx_CMD15	CAS#	CAS#
FBx_CMD16		CS0#_H
FBx_CMD17		
FBx_CMD18		ODT_H
FBx_CMD19		CKE_H
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
FBx_CMD27	BA1	BA1
FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

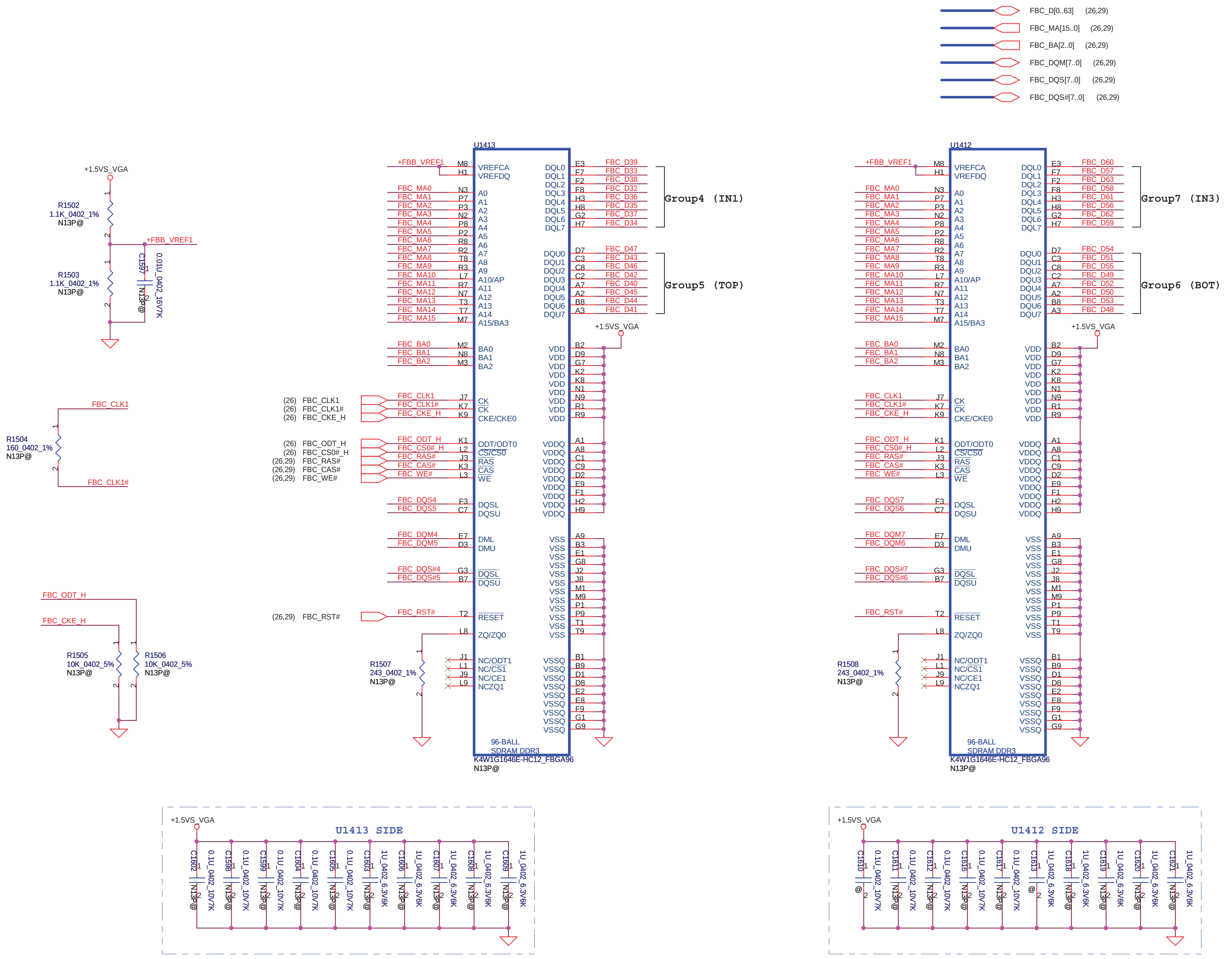
Compal Electronics, Inc.

Title
N13X-VRAM C Lower

Size Custom
Document Number LA-8131P
Rev 0.6

Date: Friday, January 06, 2012
Sheet 29 of 58

Memory Partition C - Upper 32 bits



Mode D - Mirror Mode Mapping

	DATA Bus	
Address	0..31	32..63
FBx_CMD0	CS0#_L	
FBx_CMD1		
FBx_CMD2	ODT_L	
FBx_CMD3	CKE_L	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE#	WE#
FBx_CMD14	A15	A15
FBx_CMD15	CAS#	CAS#
FBx_CMD16		CS0#_H
FBx_CMD17		
FBx_CMD18		ODT_H
FBx_CMD19		CKE_H
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
FBx_CMD27	BA1	BA1
FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

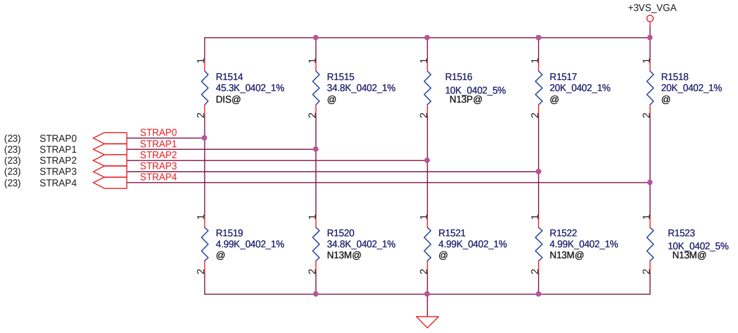
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

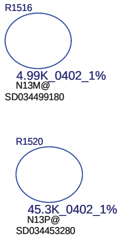
Compal Electronics, Inc.

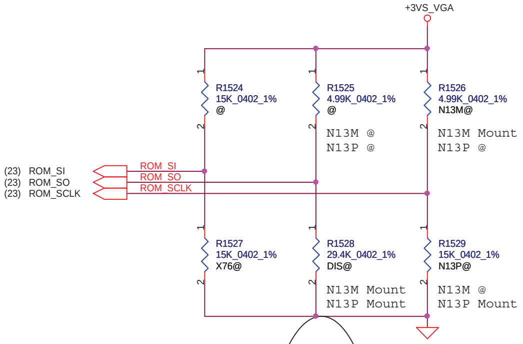
Title
N13X-VRAM C Upper

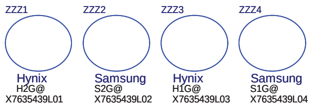
Size Custom
Document Number LA-8131P
Rev 0.6

Date: Friday, January 06, 2012









Physical Strapping pin	Power Rail	Logical Strapping Bit3	Logical Strapping Bit2	Logical Strapping Bit1	Logical Strapping Bit0
ROM_SCLK	+3VS_VGA	PCI_DEVID[4]	SUB_VENDOR	SLOT_CLK_CFG	PEX_PLL_EN_TERM
ROM_SI	+3VS_VGA	RAM_CFG[3]	RAM_CFG[2]	RAM_CFG[1]	RAM_CFG[0]
ROM_SO	+3VS_VGA	FB[1]	FB[0]	SMB_ALT_ADDR	VGA_DEVICE
STRAP0	+3VS_VGA	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	+3VS_VGA	3GIO_PAD_CFG_ADR[3]	3GIO_PAD_CFG_ADR[2]	3GIO_PAD_CFG_ADR[1]	3GIO_PAD_CFG_ADR[0]
STRAP2	+3VS_VGA	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
STRAP3	+3VS_VGA	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
STRAP4	+3VS_VGA	RESERVED	PCIE_SPEED_ CHANGE_GEN3	PCIE_MAX_SPEED	DP_PLL_VDD33V

Resistor Values	Pull-up to +3VS_VGA	Pull-down to Gnd
5K	1000	0000
10K	1001	0001
15K	1010	0010
20K	1011	0011
25K	1100	0100
30K	1101	0101
35K	1110	0110
45K	1111	0111

SUB_VENDOR	
0	No VBIOS ROM
1	BIOS ROM is present (Default)

3GIO_PADCFG	
3GIO_PADCFG[3:0]	
0110	Notebook Default

XCLK_417	
0	277MHz (Default)
1	Reserved

FB_0_BAR_SIZE	
0	Reserved
1	Reserved
2	256MB (Default)
3	Reserved

SLOT_CLK_CFG	
0	GPU and MCH don't share a common reference clock
1	GPU and MCH share a common reference clock (Default)

USER Straps	
User[3:0]	
1000-1100	Customer defined

SMBUS_ALT_ADDR	
0	0x9E (Default)
1	0x9C (Multi-GPU usage)

VGA_DEVICE	
0	3D Device (Class Code 302h)
1	VGA Device (Default)

PCIE_MAX_SPEED	
0	Limit to PCIE Gen1
1	PCIE Gen 2/3 Capable

PEX_PLL_EN_TERM	
0	Disable (Default)
1	Enable

GPU	FB Memory gDDR3		ROM_SO	ROM_SCLK	ROM_SI	STRAP0	STRAP1	STRAP2	STRAP3	STRAP4
N13P-GL	Samsung 900MHz	K4W1G1646G-BC11 64Mx16	PD 10K	PD 15K	PD 20K	PU 45K	PD 45K	PU 10K PU 45K(ES)	NC	NC
	Hynix 900MHz	H5TQ1G63DFR-11C 64Mx16	PD 10K	PD 15K	PD 15K	PU 45K	PD 45K	PU 10K PU 45K(ES)	NC	NC
	Samsung 900MHz	K4W2G1646C-HC11 128Mx16	PD 10K	PD 15K	PD 45K	PU 45K	PD 45K	PU 10K PU 45K(ES)	NC	NC
	Hynix 900MHz	H5TQ2G63BFR-11C 128Mx16	PD 10K	PD 15K	PD 35K	PU 45K	PD 45K	PU 10K PU 45K(ES)	NC	NC

X76

GPU	FB Memory gDDR3		ROM_SO	ROM_SCLK	ROM_SI	STRAP0	STRAP1	STRAP2	STRAP3	STRAP4
N13M-GE1	Samsung 900MHz	K4W1G1646G-BC11 64Mx16	PD 30K	PU 5K	PD 20K	PU 45K	PD 35K	PU 5K	PD 5K	PD 10K
	Hynix 900MHz	H5TQ1G63DFR-11C 64Mx16	PD 30K	PU 5K	PD 15K	PU 45K	PD 35K	PU 5K	PD 5K	PD 10K
	Samsung 900MHz	K4W2G1646C-HC11 128Mx16	PD 30K	PU 5K	PD 45K	PU 45K	PD 35K	PU 5K	PD 5K	PD 10K
	Hynix 900MHz	H5TQ2G63BFR-11C 128Mx16	PD 30K	PU 5K	PD 35K	PU 45K	PD 35K	PU 5K	PD 5K	PD 10K

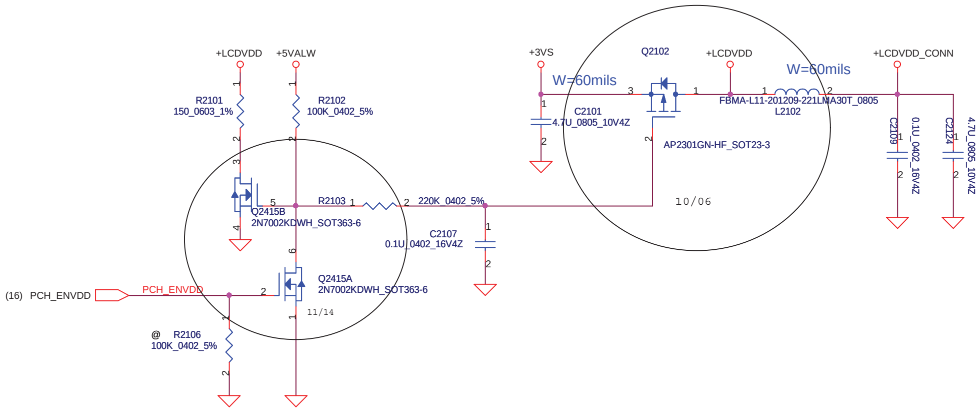
9/27
from 15K to 5K

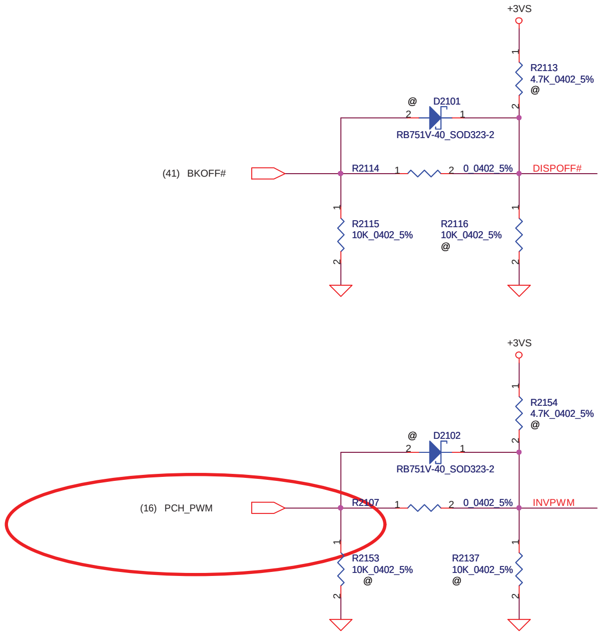
X76

Security Classification	Compal Secret Data			Compal Electronics, Inc.
Issued Date	2011/07/12	Deciphered Date	2012/07/01	Title N13X-MISC
				Size Custom Document Number LA-8131P Rev 0.6
				Date: Friday, January 06, 2012 Sheet 31 of 58

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

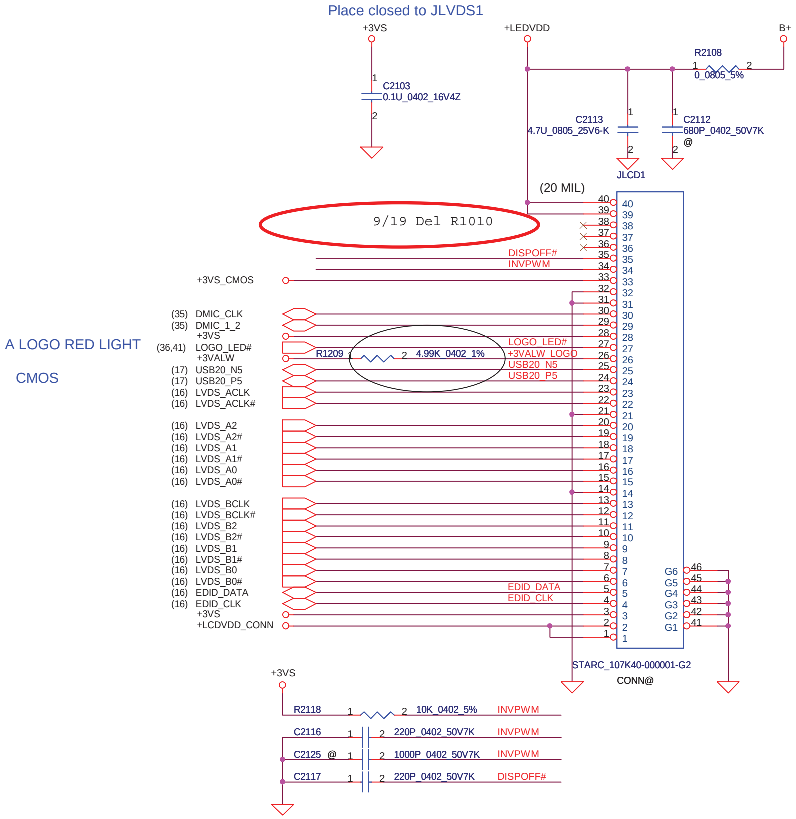
LCD POWER CIRCUIT



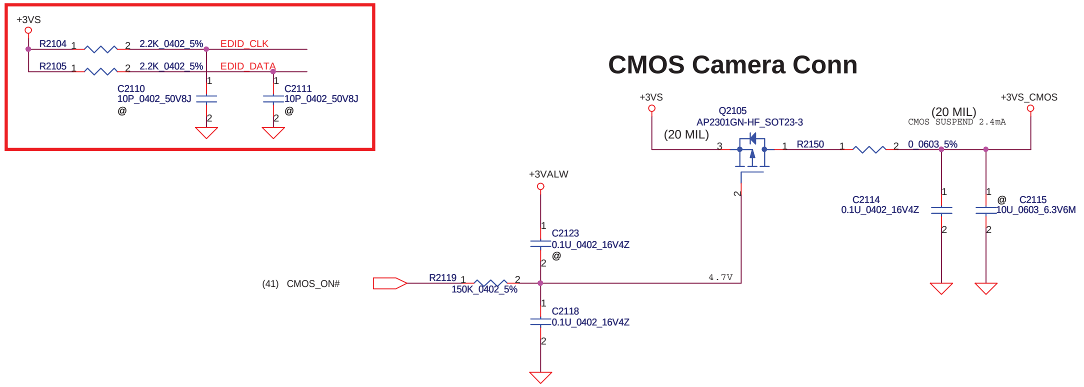


LCD/LED PANEL Conn.

PN:SP01000XE00



CMOS Camera Conn



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

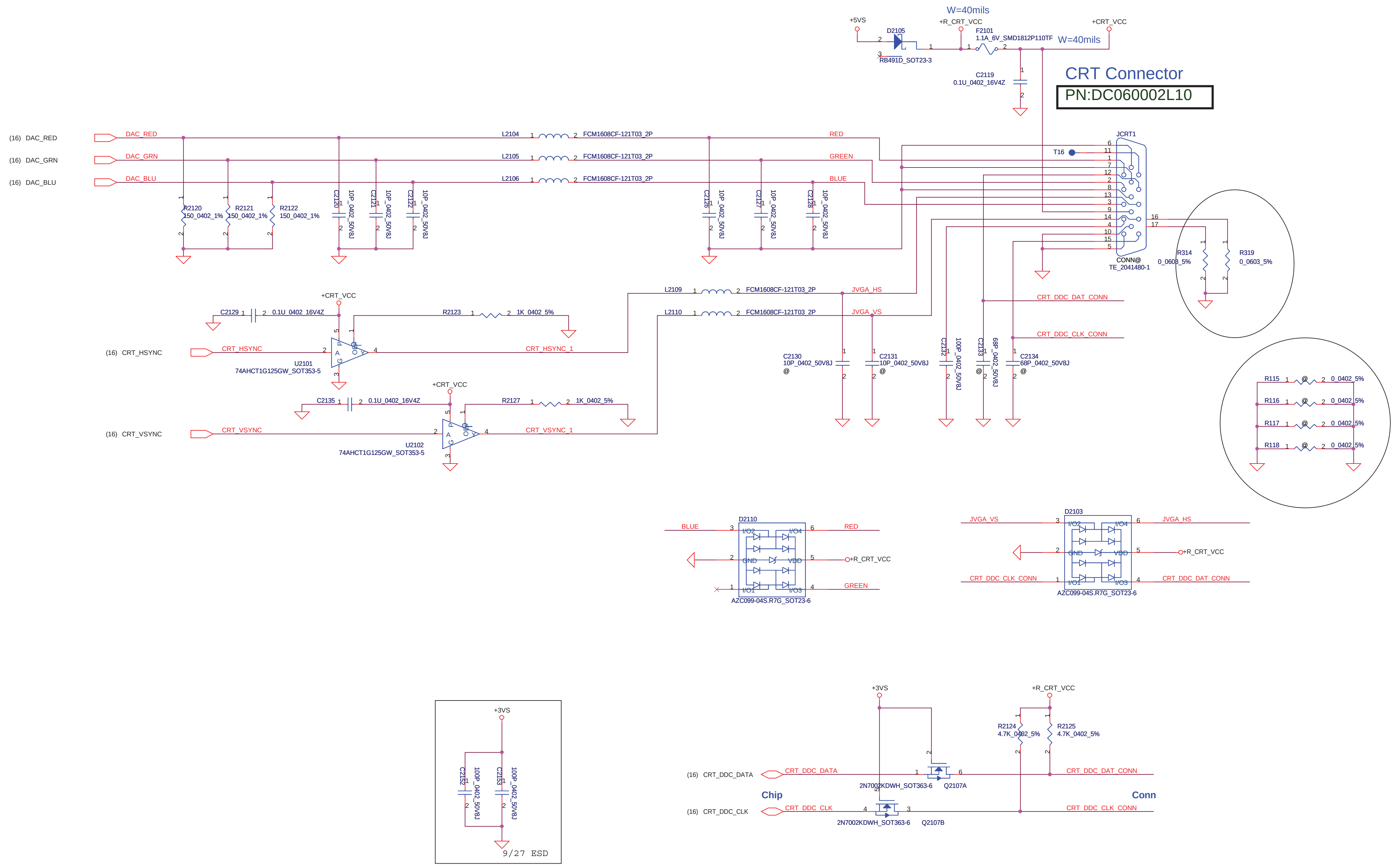
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
LVDS Connector

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Friday, January 06, 2012
Sheet 32 of 58



Security Classification | Compal Secret Data

Issued Date 2011/07/12 | Deciphered Date 2012/07/01

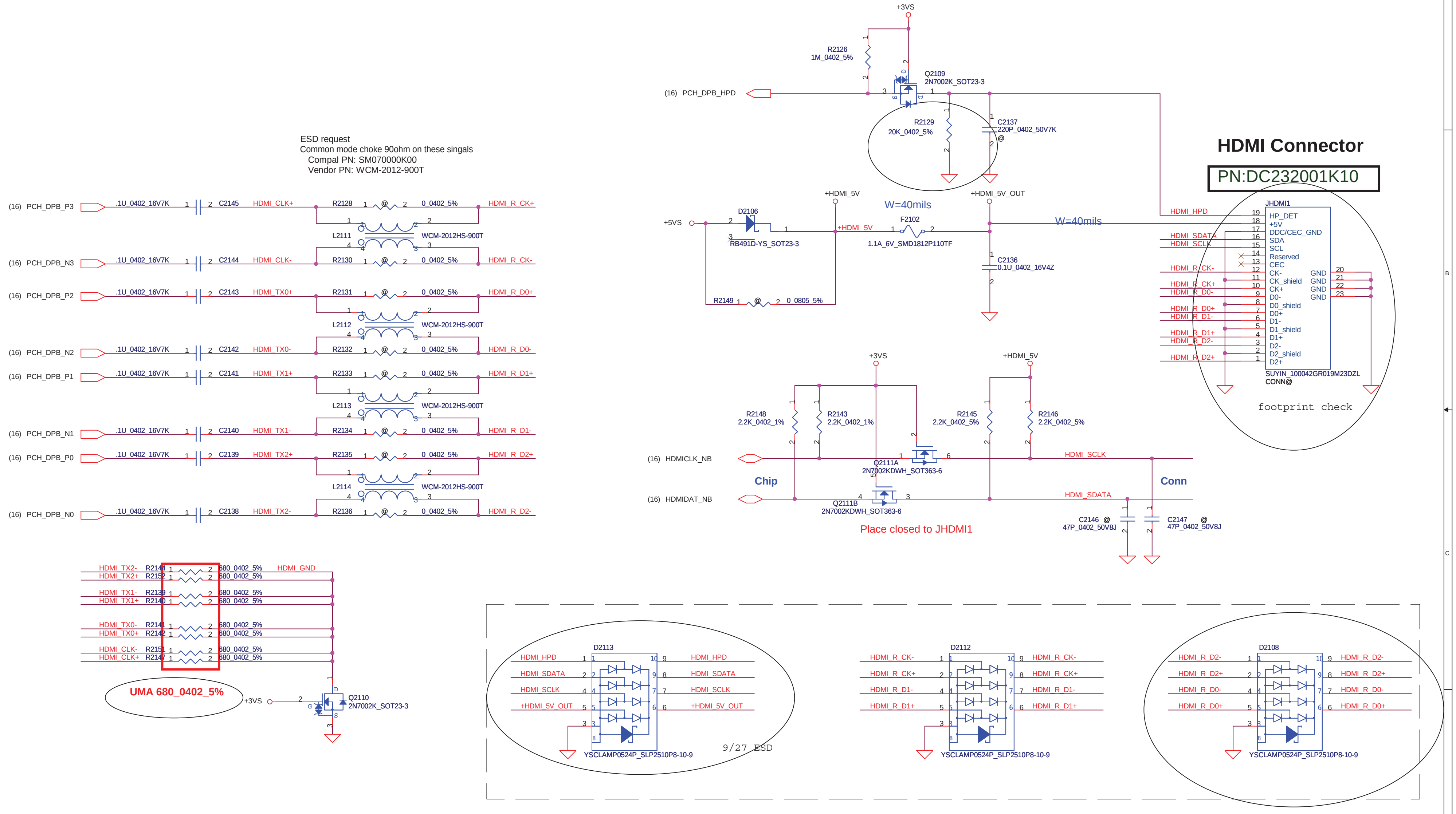
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
CRT Connector

Size Custom | Document Number **LA-8131P** | Rev 0.6

Date: Tuesday, January 10, 2012 | Sheet 33 of 58



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

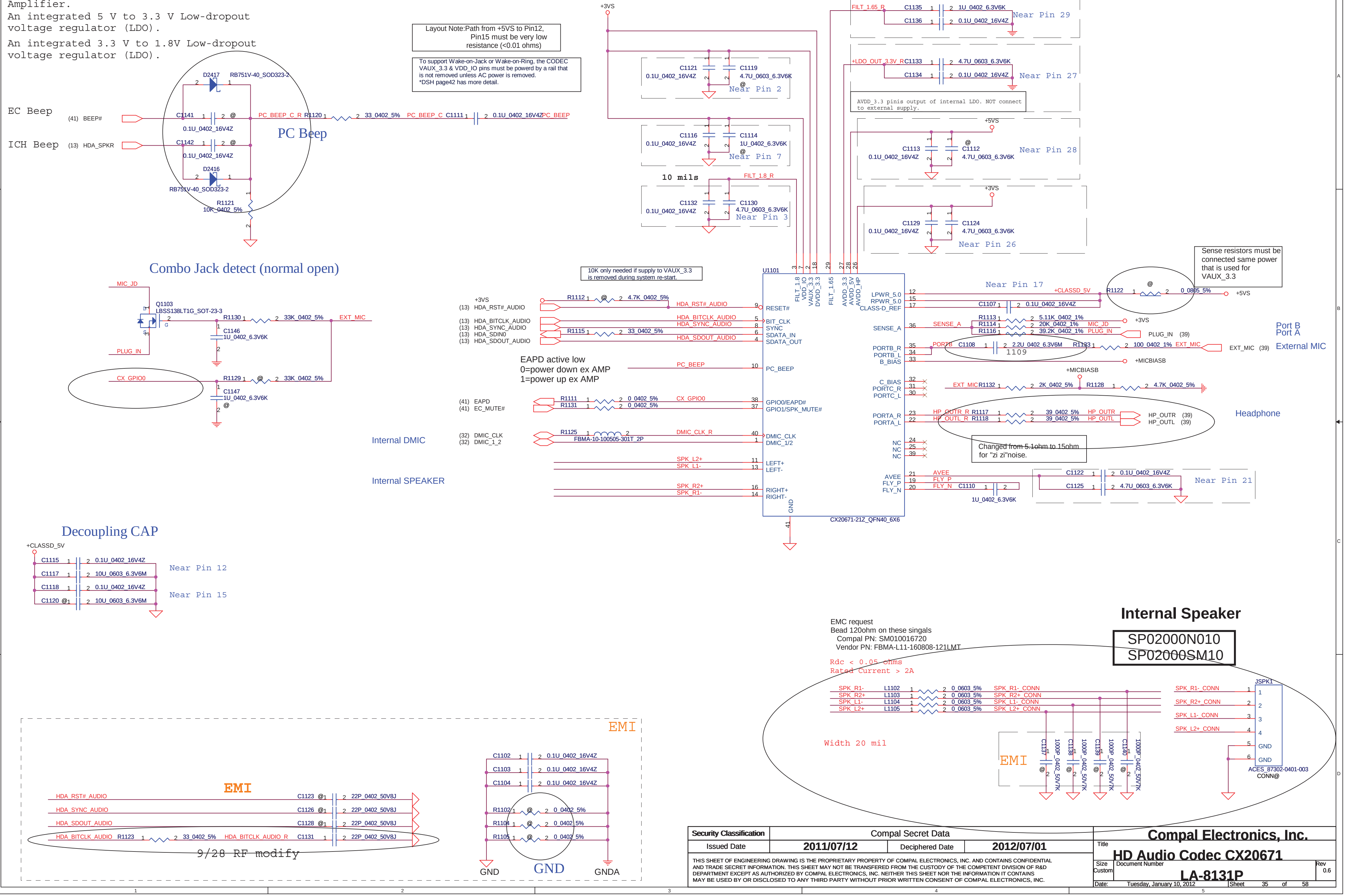
Compal Electronics, Inc.

Title
HDMI Connector

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Tuesday, January 10, 2012
Sheet 34 of 58

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).



Layout Note:Path from +5VS to Pin12, Pin15 must be very low resistance (<0.01 ohms)

To support Wake-on-Jack or Wake-on-Ring, the CODEC VAUX_3.3 & VDD_IO pins must be powerd by a rail that is not removed unless AC power is removed.
*DSH page42 has more detail.

AVDD_3.3 pinis output of internal LDO. NOT connect to external supply.

10K only needed if supply to VAUX_3.3 is removed during system re-start.

EAPD active low
0=power down ex AMP
1=power up ex AMP

Sense resistors must be connected same power that is used for VAUX_3.3

Changed from 5.1ohm to 15ohm for "zi zi"noise.

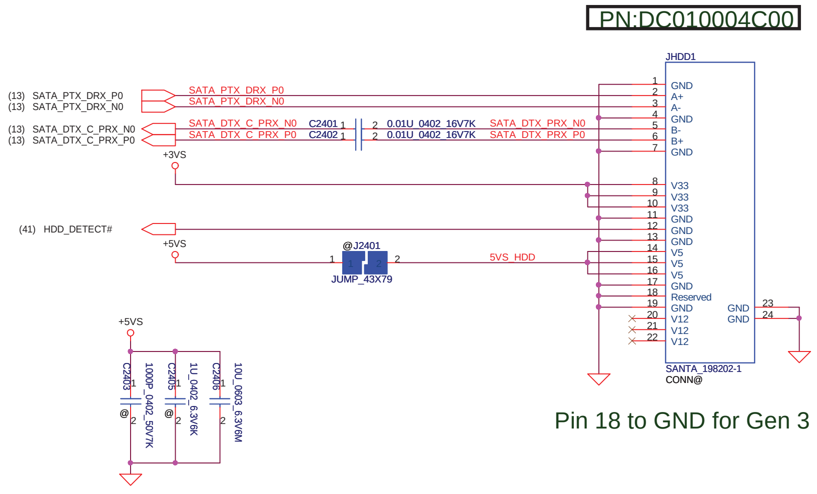
EMC request
Bead 120ohm on these singals
Compal PN: SM010016720
Vendor PN: FBMA-L11-160808-121LMT

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

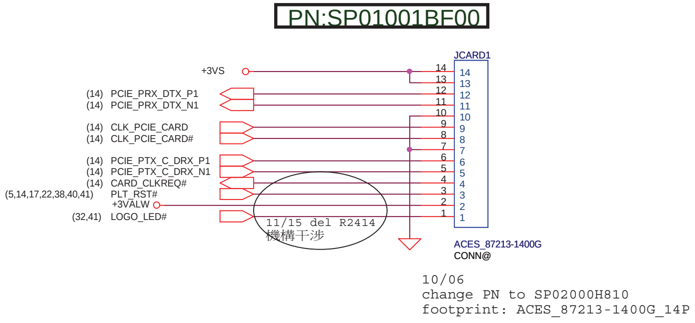
Compal Electronics, Inc.
Title
HD Audio Codec CX20671
Size Custom
Document Number **LA-8131P**
Rev 0.6
Date: Tuesday, January 10, 2012 Sheet 35 of 58

SATA HDD CONN.



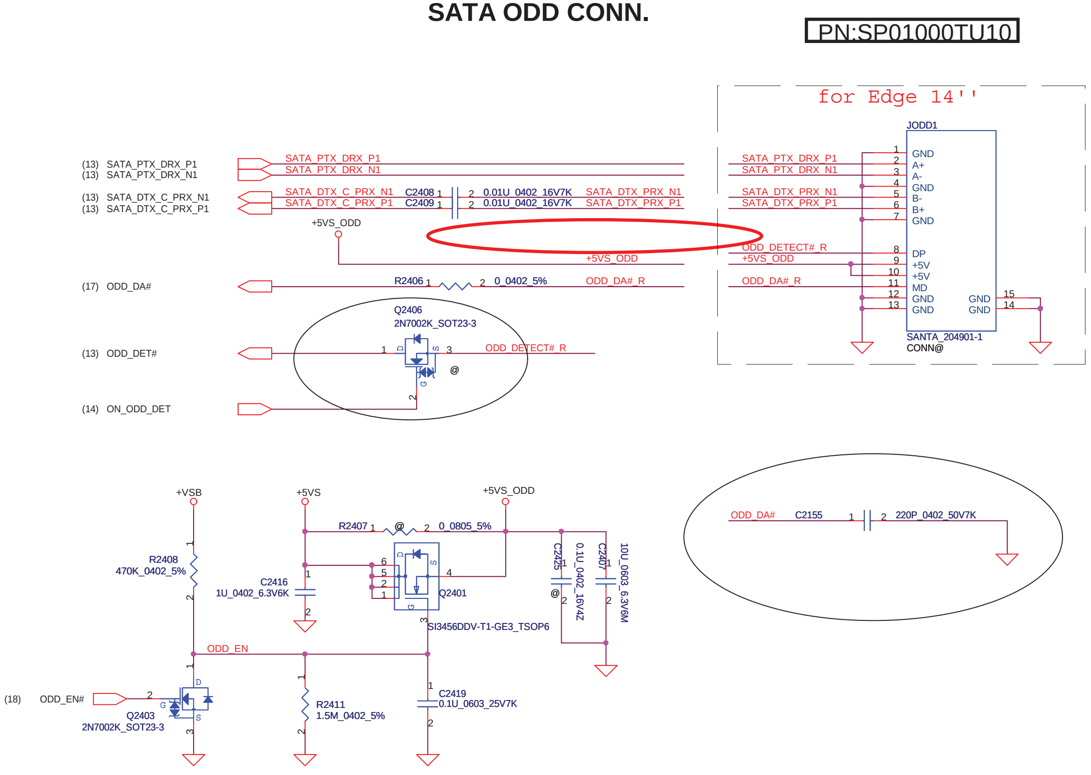
Pin 18 to GND for Gen 3

Card Reader CONN.

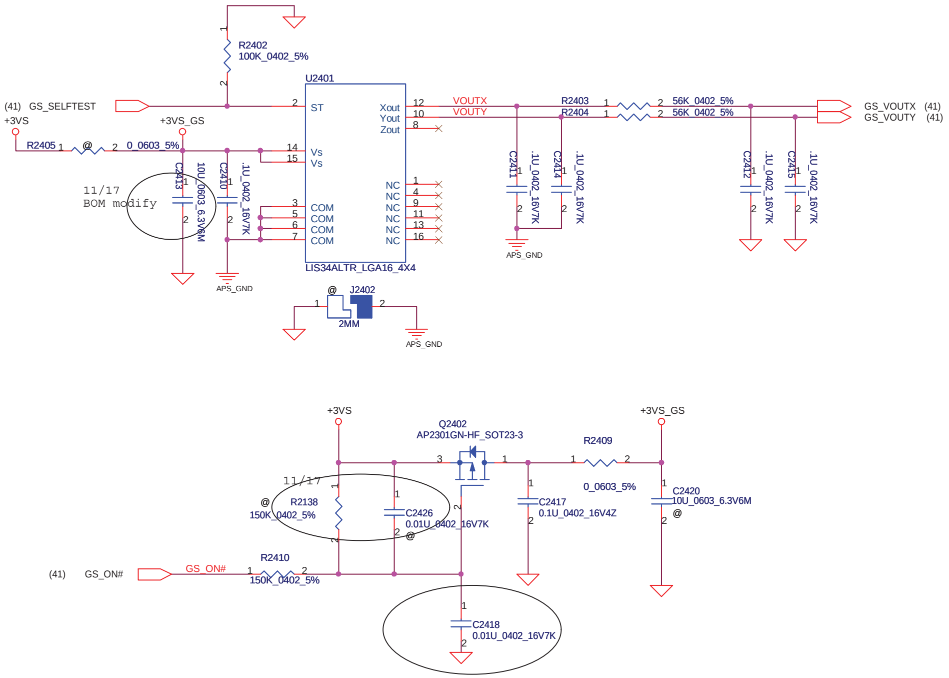


10/06
change PN to SP02000H810
footprint: ACES_87213-1400G_14P

SATA ODD CONN.



APS G-Sensor



Security Classification | Compal Secret Data
Issued Date 2011/07/12 | Deciphered Date 2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

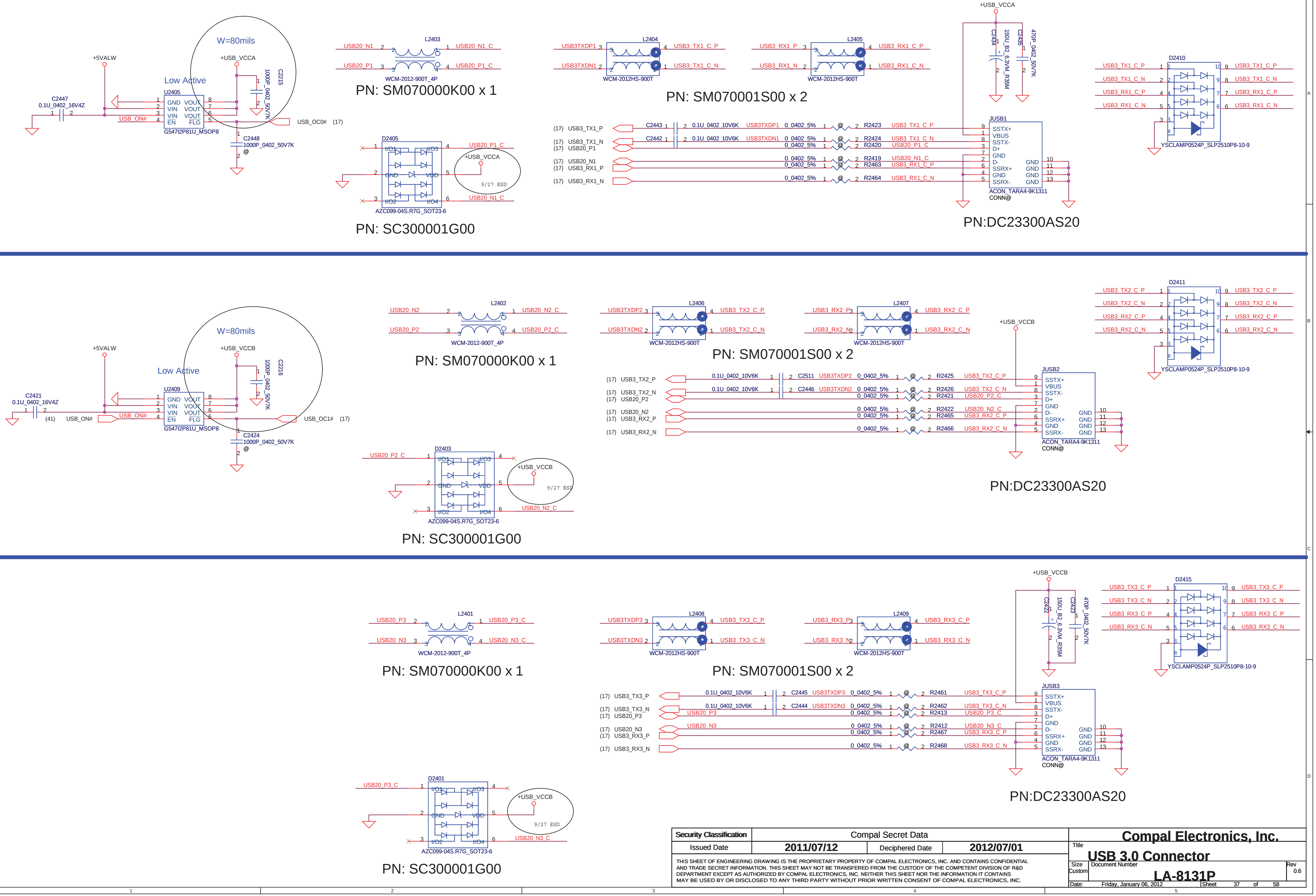
Compal Electronics, Inc.

Title
HDD/ODD/Card reader/G-Sensor

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Friday, January 06, 2012 Sheet 36 of 58

USB 3.0 Conn.



PN: SM070000K00 x 1

PN: SM070001S00 x 2

PN: SC300001G00

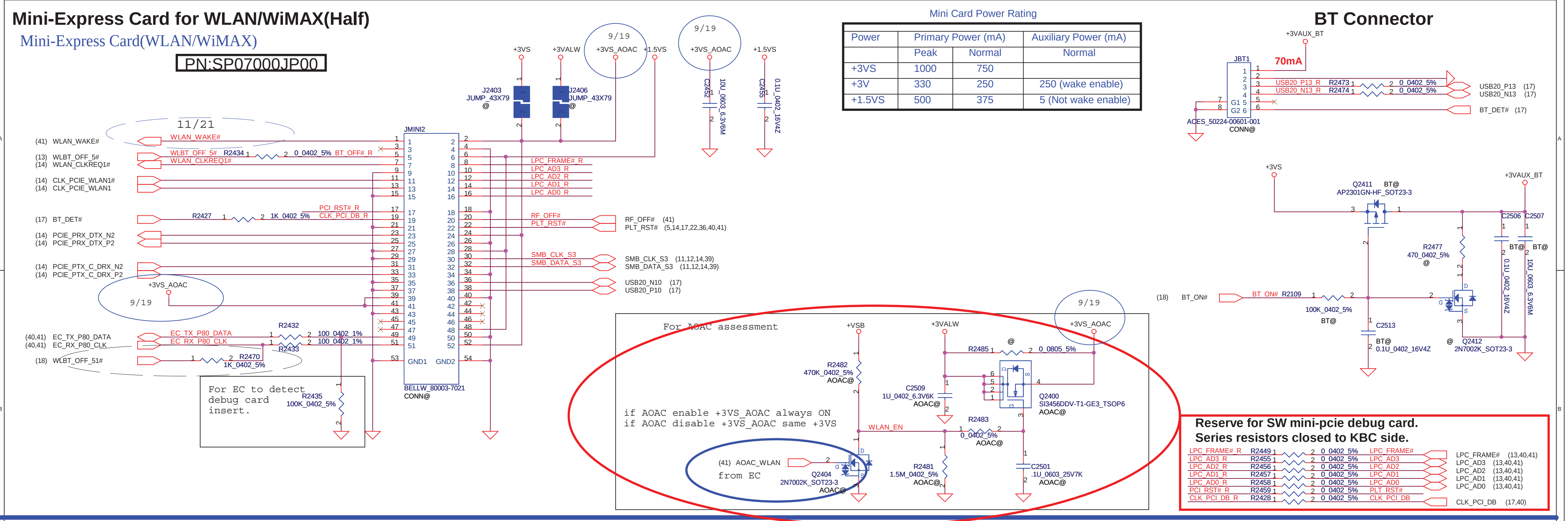
PN:DC23300AS20

Security Classification	Compal Secret Data			Compal Electronics, Inc.
Issued Date	2011/07/12	Deciphered Date	2012/07/01	Title USB 3.0 Connector
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size Custom Document Number LA-8131P Rev 0.6
				Date: Friday, January 06, 2012 Sheet 37 of 58

Mini-Express Card for WLAN/WiMAX(Half)

Mini-Express Card(WLAN/WiMAX)

PN:SP07000JP00



Mini Card Power Rating

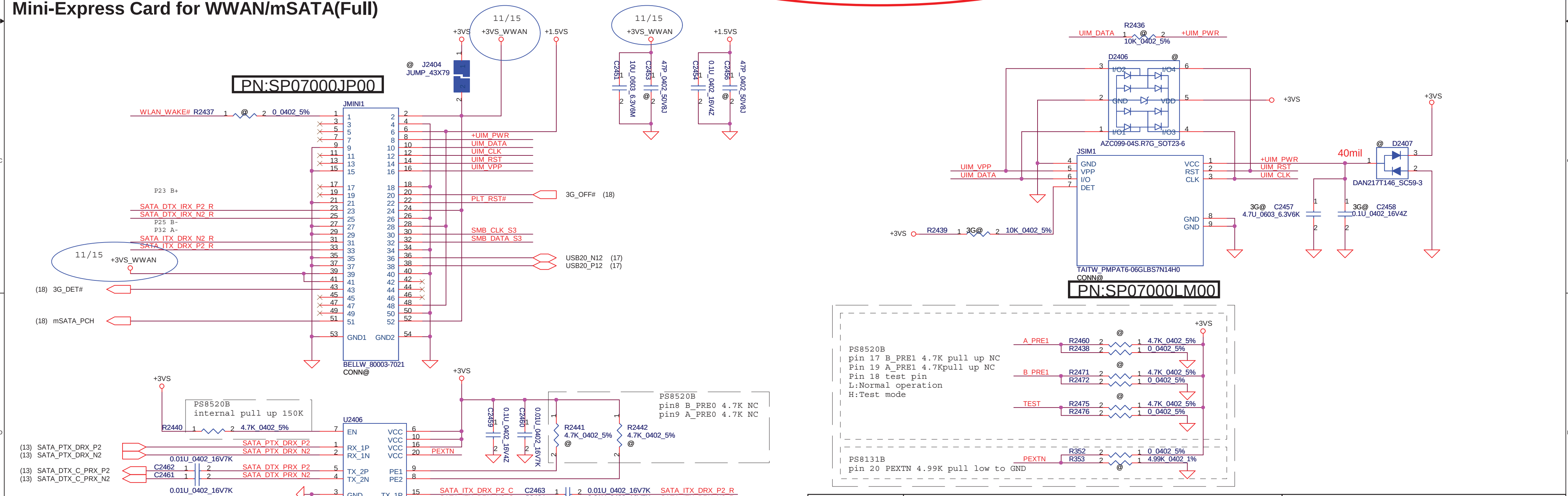
Power	Primary Power (mA)		Auxiliary Power (mA)
	Peak	Normal	Normal
+3VS	1000	750	
+3V	330	250	250 (wake enable)
+1.5VS	500	375	5 (Not wake enable)

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

Mini-Express Card for WWAN/mSATA(Full)

PN:SP07000JP00

PN:SP07000LM00



11/15
+3VS
+3VS_WWAN
+1.5VS
J2404 JUMP_43X79 @
C2451 10U_0603_6.3V6M
C2453 47P_0402_50V8J
C2454 0.1U_0402_16V4Z
C2456 47P_0402_50V8J
JMINI1
WLAN_WAKE# R2437 @ 0_0402_5%
+UIM_PWR
UIM_DATA
UIM_CLK
UIM_RST
UIM_VPP
PLT_RST#
3G_OFF# (18)
SMB_CLK_S3
SMB_DATA_S3
USB20_N12 (17)
USB20_P12 (17)
P23 B+
SATA_DTX_IRX_P2_R
SATA_DTX_IRX_N2_R
P25 B-
P32 A-
SATA_ITX_DRX_N2_R
SATA_ITX_DRX_P2_R
(18) 3G_DET#
(18) mSATA_PCH
GND1 GND2
BELLW_80003-7021
CONN@
+3VS
PS8520B internal pull up 150K
R2440 4.7K_0402_5%
U2406
EN VCC RX_1P RX_1N TX_2P TX_2N PE1 PE2 GND TX_1P TX_1N RX_2N RX_2P PAD
(13) SATA_PTX_DRX_P2
(13) SATA_PTX_DRX_N2
(13) SATA_DTX_C_PRX_P2
(13) SATA_DTX_C_PRX_N2
SATA_PTX_DRX_P2
SATA_PTX_DRX_N2
SATA_DTX_PRX_P2
SATA_DTX_PRX_N2
C2462 C2461 0.01U_0402_16V7K
PEXTN
B_PRE1
TEST
A_PRE1
SN75LVCP412ARTJR_QFN20_4X4
C2459 0.1U_0402_16V4Z
C2460 0.01U_0402_16V7K
R2441 4.7K_0402_5% @
R2442 4.7K_0402_5% @
PS8520B pin8 B_PRE0 4.7K NC pin9 A_PRE0 4.7K NC
SATA_ITX_DRX_P2_C C2463 0.01U_0402_16V7K SATA_ITX_DRX_P2_R
SATA_ITX_DRX_N2_C C2464 0.01U_0402_16V7K SATA_ITX_DRX_N2_R
SATA_DTX_IRX_N2_C C2466 0.01U_0402_16V7K SATA_DTX_IRX_N2_R
SATA_DTX_IRX_P2_C C2465 0.01U_0402_16V7K SATA_DTX_IRX_P2_R
UIM_DATA R2436 @ 10K_0402_5% +UIM_PWR
D2406 @
I/O2 I/O4 GND VDD I/O1 I/O3
AZC099-04S.R7G_SOT23-6
+3VS
JSIM1
GND VPP I/O DET VCC RST CLK GND GND
UIM_VPP
UIM_DATA
+UIM_PWR
UIM_RST
UIM_CLK
40mil
D2407 @
DAN217T146_SC59-3
3G@ C2457 4.7U_0603_6.3V6K
3G@ C2458 0.1U_0402_16V4Z
+3VS R2439 3G@ 10K_0402_5%
TAITW_PMPAT6-06GLBS7N14H0
CONN@
PS8520B
pin 17 B_PRE1 4.7K pull up NC
Pin 19 A_PRE1 4.7Kpull up NC
Pin 18 test pin
L:Normal operation
H:Test mode
A_PRE1 R2460 4.7K_0402_5% R2438 0_0402_5%
B_PRE1 R2471 4.7K_0402_5% R2472 0_0402_5%
TEST R2475 4.7K_0402_5% R2476 0_0402_5%
PS8131B
pin 20 PEXTN 4.99K pull low to GND
PEXTN R352 0_0402_5% R353 4.99K_0402_1%

PS8520B internal pull up 150K

PS8520B
pin8 B_PRE0 4.7K NC
pin9 A_PRE0 4.7K NC

PS8520B
pin 17 B_PRE1 4.7K pull up NC
Pin 19 A_PRE1 4.7Kpull up NC
Pin 18 test pin
L:Normal operation
H:Test mode

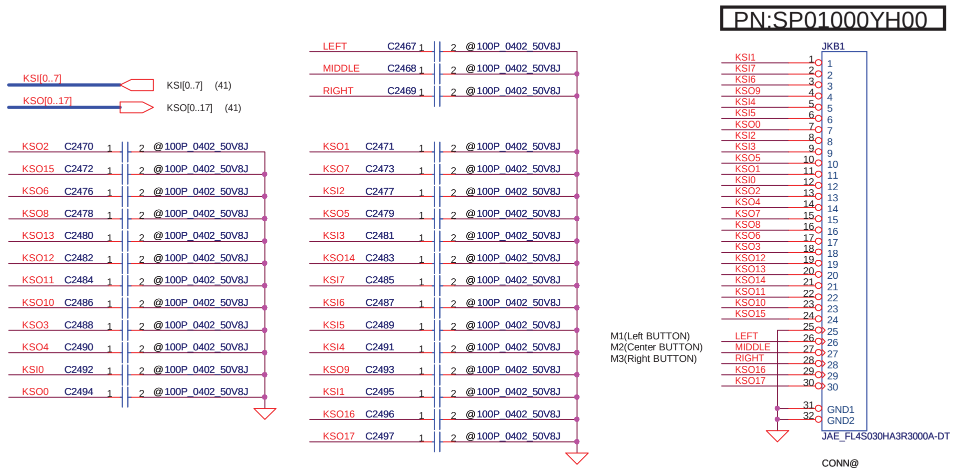
PS8131B
pin 20 PEXTN 4.99K pull low to GND

Security Classification	Compal Secret Data			Compal Electronics, Inc.
Issued Date	2011/07/12	Deciphered Date	2012/07/01	Title: WLAN and WWAN/mSATA
				Size: Custom; Document Number: LA-8131P; Rev 0.6
				Date: Tuesday, January 10, 2012; Sheet 38 of 58

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

INT_KBD Conn.

PN:SP01000YH00

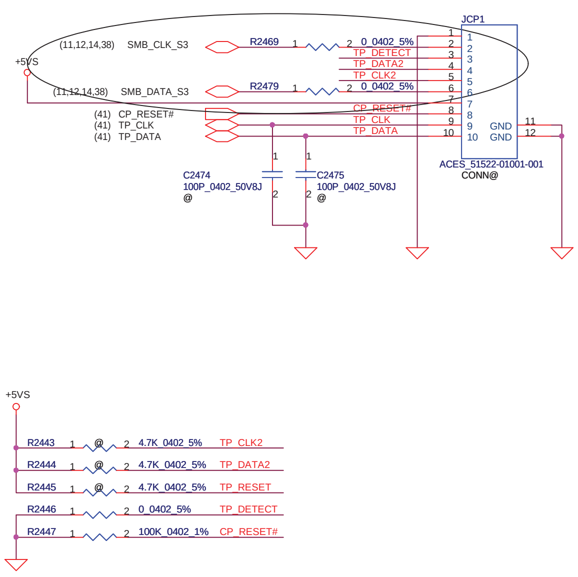


CONN PIN define need double check

Reserve for ESD.

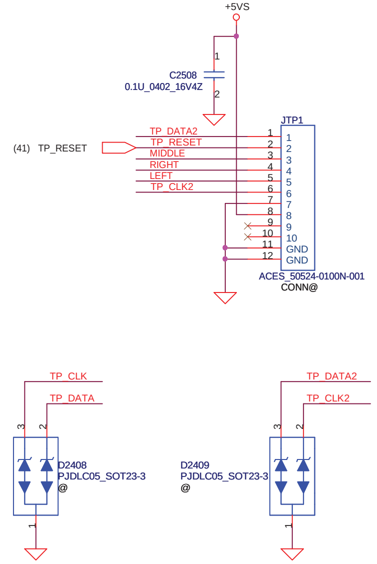
Click pad

PN:SP01001AL00



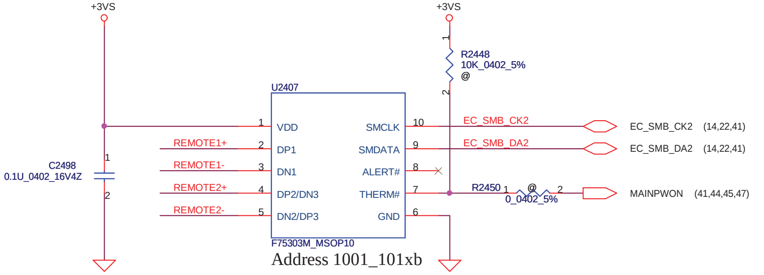
Track point

PN:SP01001CH00



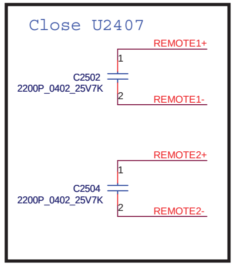
PN: SCA00000U10 X 2

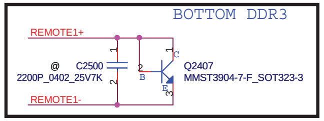
Fintek thermal sensor placed near by TOP DDR3

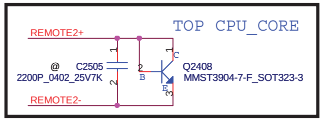


Address 1001_101xb

2nd source
SA000029210-->EMC1403-2-AIZL-TR

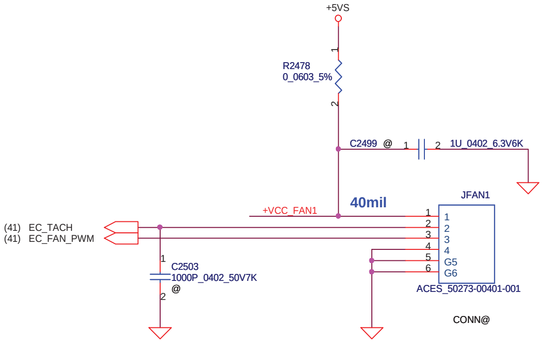






REMOTE1,2+/-:
Trace width/space:10/10 mil
Trace length:<8"

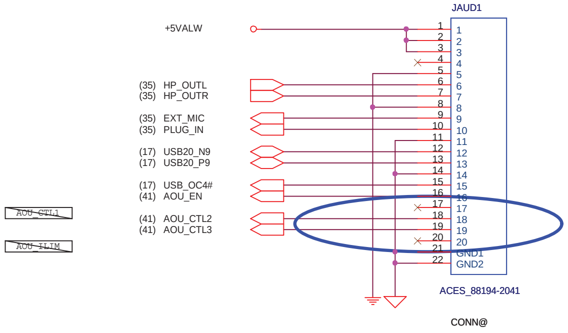
FAN CONN.



PN:SP02000U900

Audio Board

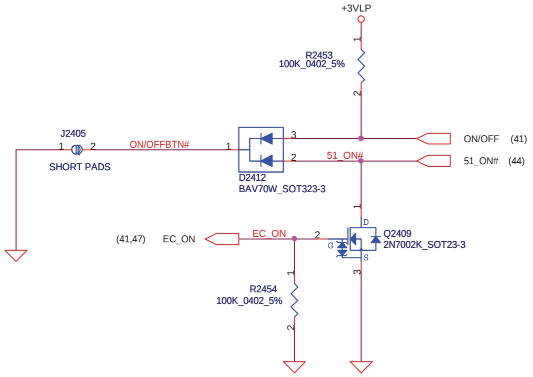
PN:SP011108040



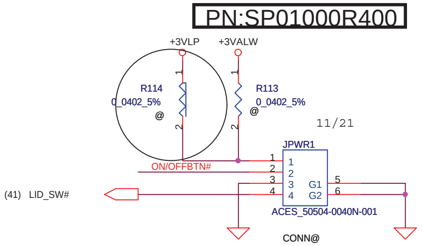
Security Classification	Compal Secret Data			Compal Electronics, Inc.
Issued Date	2011/07/12	Deciphered Date	2012/07/01	Title: KB/TP/Thermal Sensor/Audio
				Size: Custom; Document Number: LA-8131P; Rev 0.6
				Date: Friday, January 06, 2012; Sheet 39 of 58

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

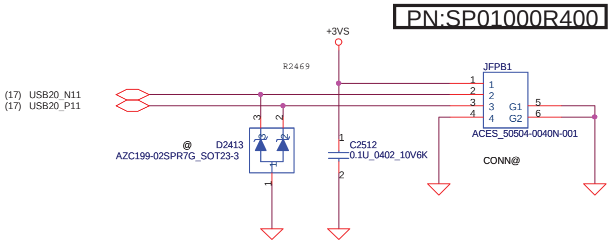
Power Button



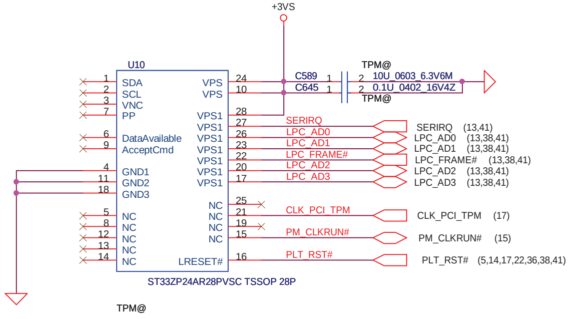
Power Button CONN.

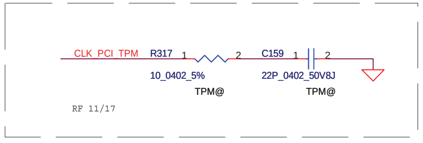


Finger Print Board

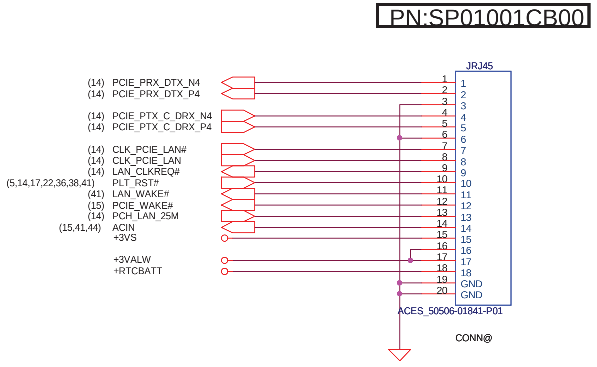


TPM

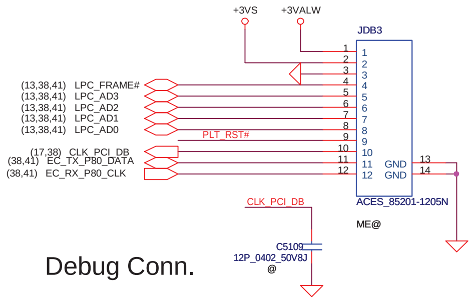




RJ45 Board



Debug Conn.



Security Classification	Compal Secret Data		
Issued Date	**2011/07/12**	Deciphered Date	**2012/07/01**

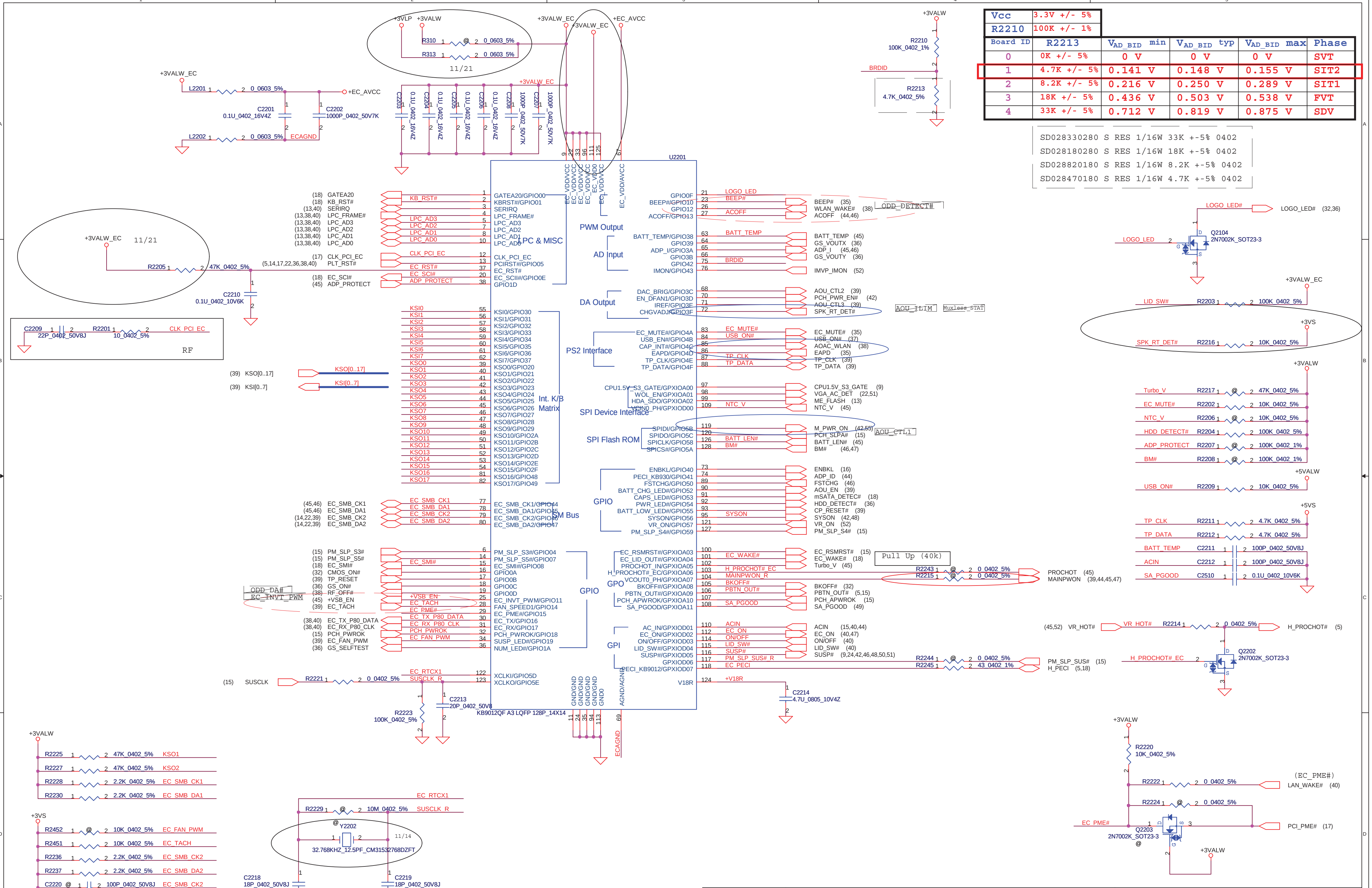
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PWR Button/Power OK/RJ45

Size	Document Number	Rev
Custom	**LA-8131P**	0.6

Date: Tuesday, January 10, 2012 Sheet 40 of 58



Vcc	3.3V +/- 5%
R2210	100K +/- 1%

Board ID	R2213	V_AD_BID min	V_AD_BID typ	V_AD_BID max	Phase
0	0K +/- 5%	0 V	0 V	0 V	SVT
1	4.7K +/- 5%	0.141 V	0.148 V	0.155 V	SIT2
2	8.2K +/- 5%	0.216 V	0.250 V	0.289 V	SIT1
3	18K +/- 5%	0.436 V	0.503 V	0.538 V	FVT
4	33K +/- 5%	0.712 V	0.819 V	0.875 V	SDV

SD028330280 S RES 1/16W 33K +-5% 0402
SD028180280 S RES 1/16W 18K +-5% 0402
SD028820180 S RES 1/16W 8.2K +-5% 0402
SD028470180 S RES 1/16W 4.7K +-5% 0402

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

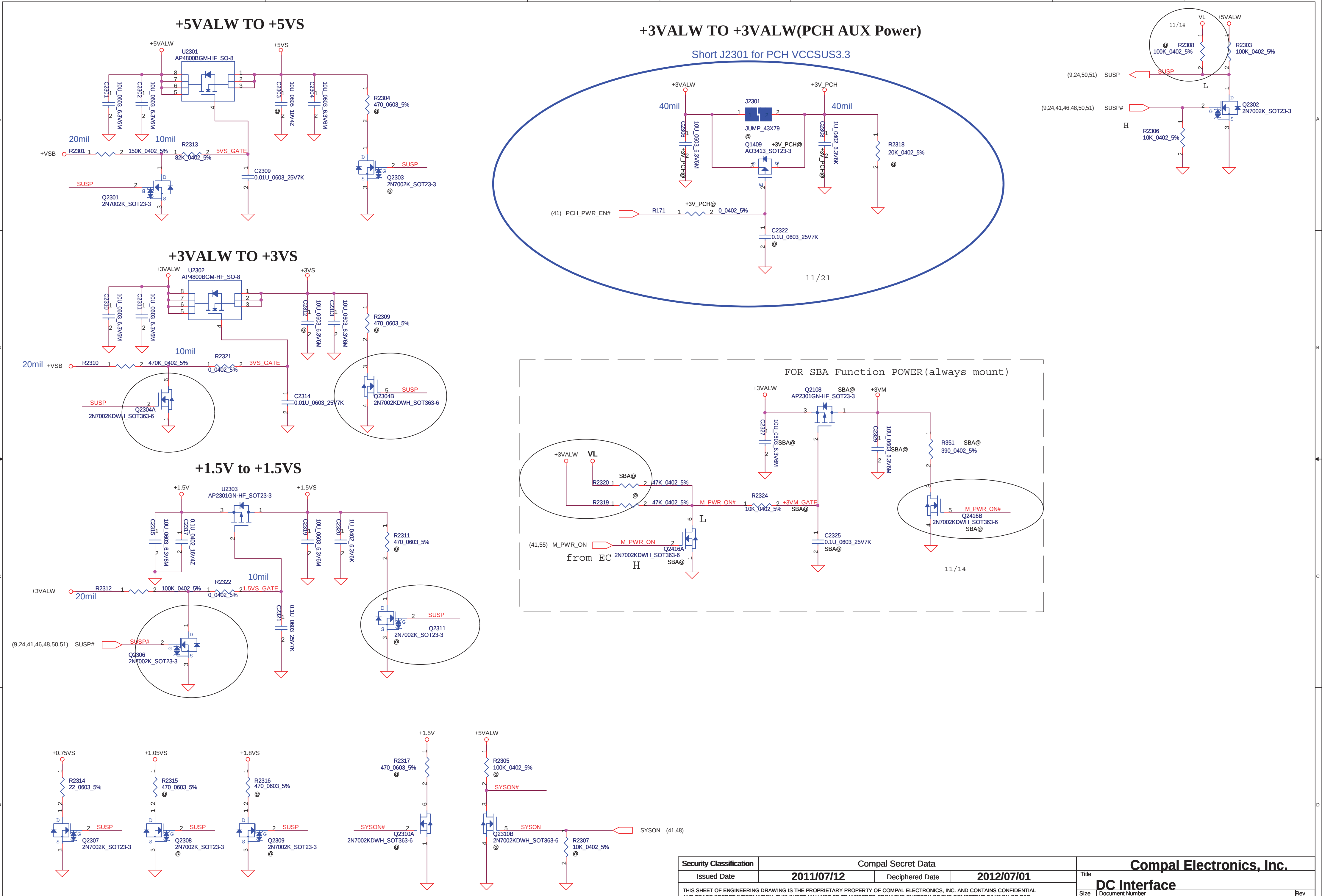
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
EC ENE-KB9012

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Friday, January 06, 2012



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

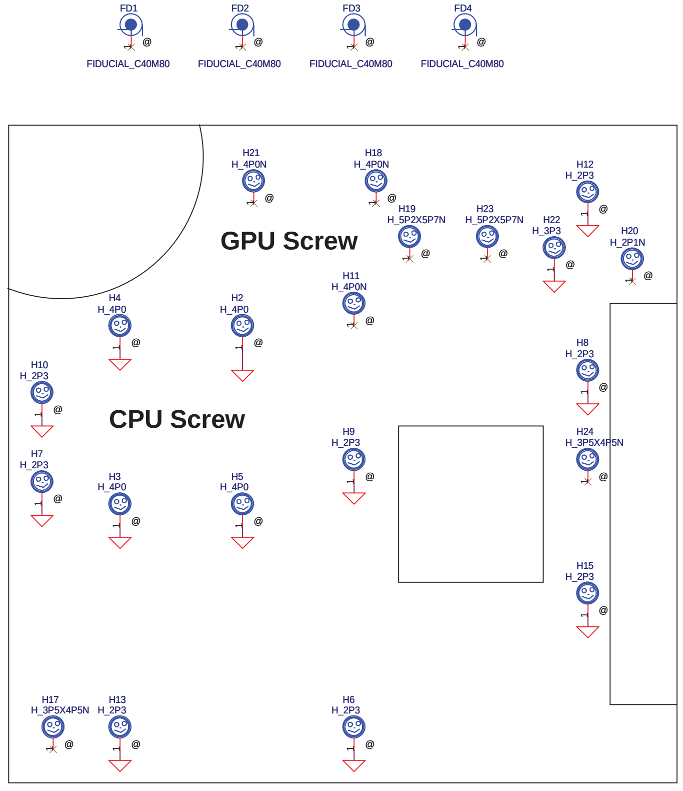
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

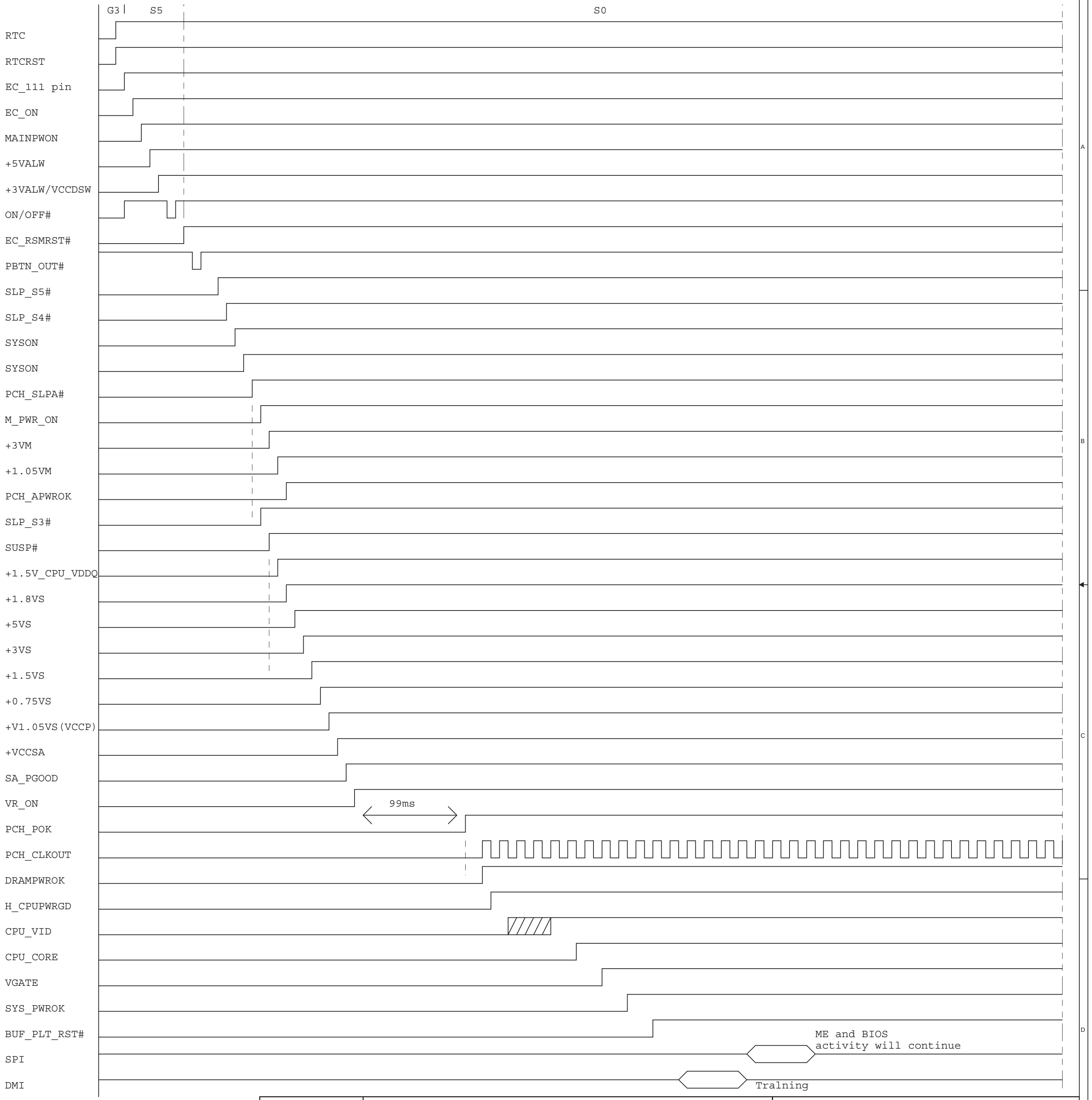
Compal Electronics, Inc.

Title
DC Interface

Size	Document Number	Rev
Custom	LA-8131P	0.6

Date: Tuesday, January 10, 2012 Sheet 42 of 58





Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

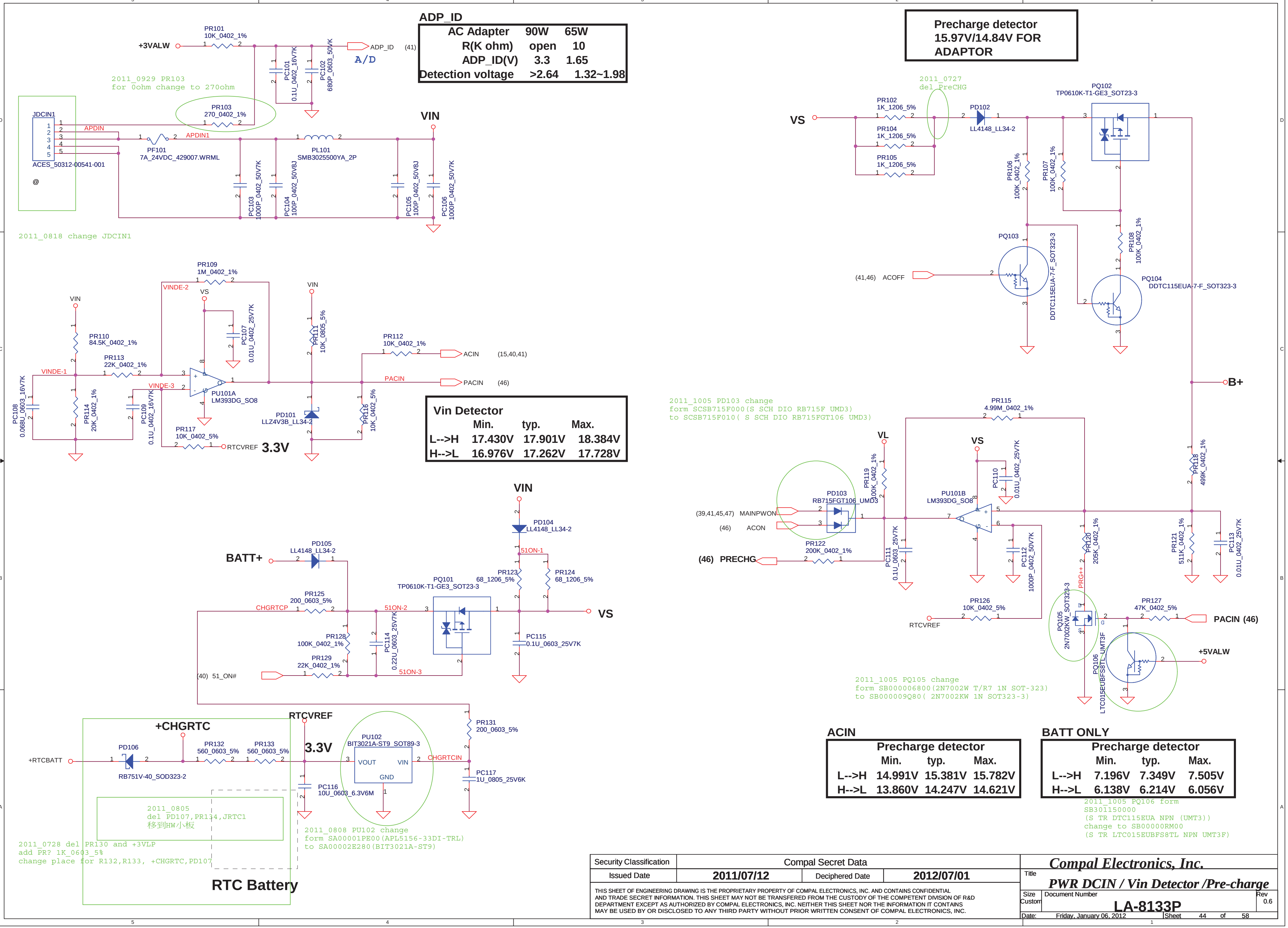
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
Screw Hole

Size Custom
Document Number **LA-8131P**
Rev 0.6

Date: Friday, January 06, 2012
Sheet 43 of 58



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

Precharge detector
15.97V/14.84V FOR
ADAPTOR

Vin Detector

	Min.	typ.	Max.
L-->H	17.430V	17.901V	18.384V
H-->L	16.976V	17.262V	17.728V

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	2011/07/12	Deciphered Date	2012/07/01

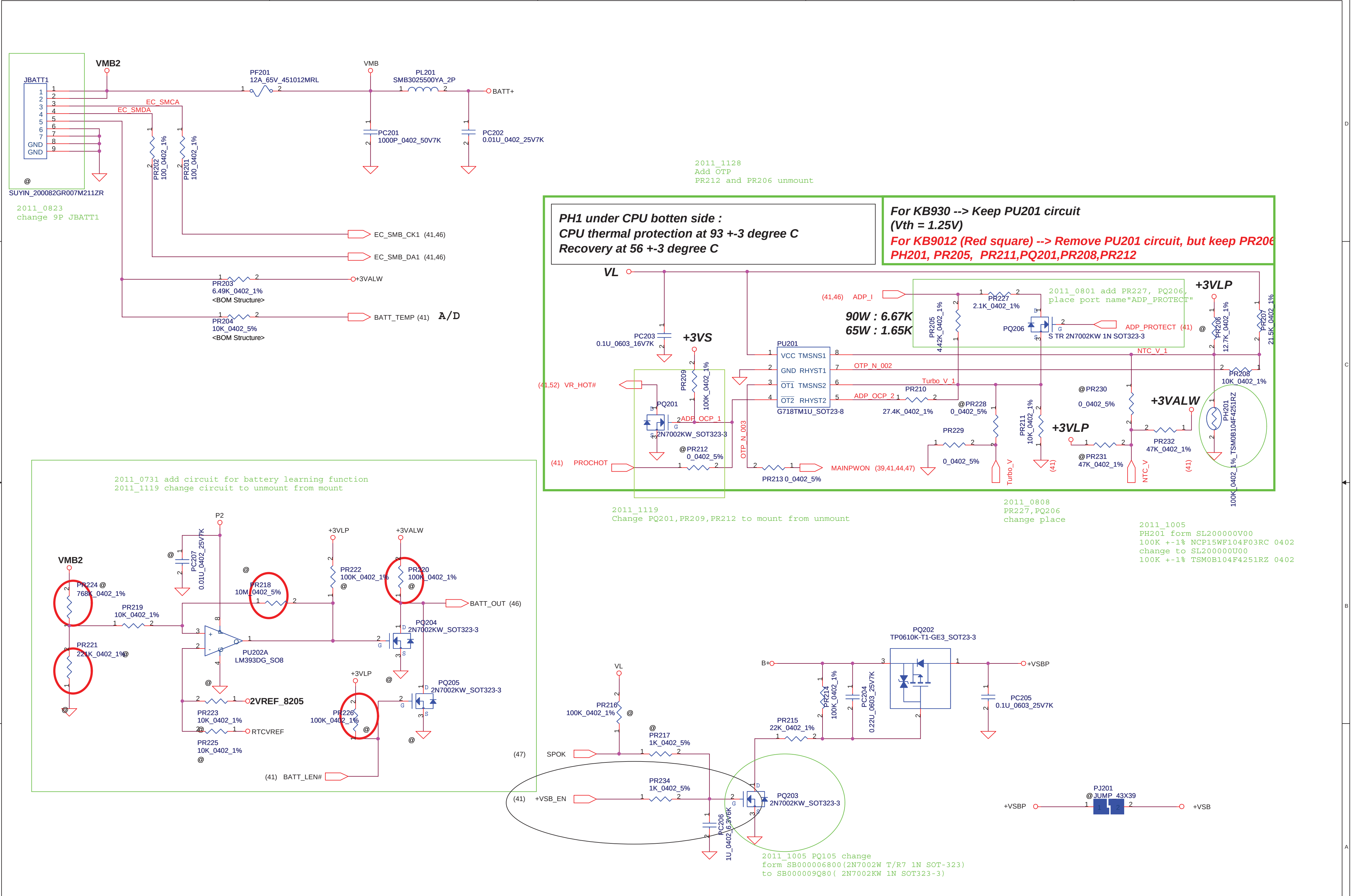
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PWR DCIN / Vin Detector /Pre-charge

Size Custom
Document Number LA-8133P
Rev 0.6

Date: Friday, January 06, 2012 Sheet 44 of 58



2011_0823
change 9P JBATT1

2011_1128
Add OTP
PR212 and PR206 unmount

PH1 under CPU botten side :
CPU thermal protection at 93 +-3 degree C
Recovery at 56 +-3 degree C

For KB930 --> Keep PU201 circuit
(Vth = 1.25V)
For KB9012 (Red square) --> Remove PU201 circuit, but keep PR206
PH201, PR205, PR211,PQ201,PR208,PR212

2011_0801 add PR227, PQ206,
place port name"ADP_PROTECT"

2011_0731 add circuit for battery learning function
2011_1119 change circuit to unmount from mount

2011_1119
Change PQ201,PR209,PR212 to mount from unmount

2011_0808
PR227,PQ206
change place

2011_1005
PH201 form SL200000V00
100K +-1% NCP15WF104F03RC 0402
change to SL200000U00
100K +-1% TSM0B104F4251RZ 0402

2011_1005 PQ105 change
form SB000006800(2N7002W T/R7 1N SOT-323)
to SB000009Q80(2N7002KW 1N SOT323-3)

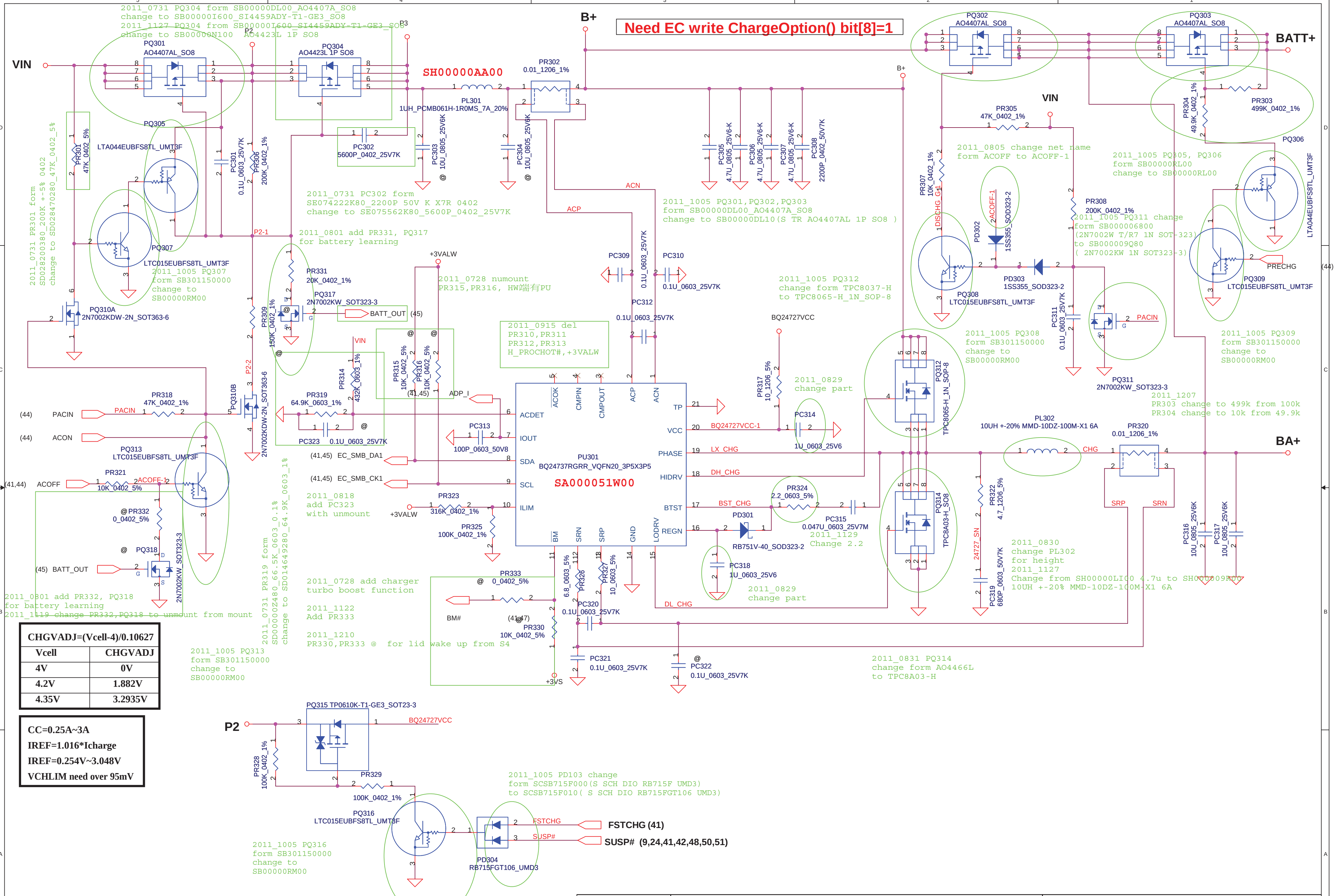
Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PWR-BATTERY CONN/OTP

Size Custom
Document Number
LA-8133P
Rev 0.6
Date: Tuesday, January 10, 2012
Sheet 45 of 58


Need EC write ChargeOption() bit[8]=1
VIN
B+
BATT+
BA+
P2
P3
SH00000AA00
SA000051W00
2011_0731 PQ304 form SB00000DL00_AO4407A_SO8
change to SB00000I600_SI4459ADY-T1-GE3_SO8
2011_1127 PQ304 from SB00000I600_SI4459ADY-T1-GE3_SO8
change to SB00000N100 AO4423L 1P SO8
PQ301 AO4407AL_SO8
PQ304 AO4423L 1P SO8
PR302 0.01_1206_1%
PL301 1UH_PCMB061H-1R0MS_7A_20%
PQ302 AO4407AL_SO8
PQ303 AO4407AL_SO8
PQ305 LTA044EUBFS8TL_UMT3F
PQ307 LTC015EUBFS8TL_UMT3F
PR301 47K_0402_5%
PC301 0.1U_0603_25V7K
PR306 200K_0402_1%
PC302 5600P_0402_25V7K
PC303 10U_0805_25V6K
PC304 10U_0805_25V6K
PC305 4.7U_0805_25V6-K
PC306 4.7U_0805_25V6-K
PC307 4.7U_0805_25V6-K
PC308 2200P_0402_50V7K
2011_0731 PR301 form SD028200380_200K +-5% 0402 change to SD028470280_47K_0402_5%
2011_0731 PC302 form SE074222K80_2200P 50V K X7R 0402 change to SE075562K80_5600P_0402_25V7K
2011_0801 add PR331, PQ317 for battery learning
2011_1005 PQ307 form SB301150000 change to SB00000RM00
2011_1005 PQ301,PQ302,PQ303 form SB00000DL00_AO4407A_SO8 change to SB00000DL10(S TR AO4407AL 1P SO8)
2011_0805 change net name form ACOFF to ACOFF-1
2011_1005 PQ305, PQ306 form SB00000RL00 change to SB00000RL00
PR305 47K_0402_1%
PR304 49.9K_0402_1%
PR303 499K_0402_1%
PQ306 LTA044EUBFS8TL_UMT3F
PR307 10K_0402_1%
PD302 1SS355_SOD323-2
PR308 200K_0402_1%
2011_1005 PQ311 change form SB000006800 (2N7002W T/R7 1N SOT-323) to SB000009Q80 (2N7002KW 1N SOT323-3)
PQ308 LTC015EUBFS8TL_UMT3F
PD303 1SS355_SOD323-2
PQ309 LTC015EUBFS8TL_UMT3F
PRECHG
PC311 0.1U_0603_25V7K
PQ311 2N7002KW_SOT323-3
PACIN
2011_1005 PQ312 change form TPC8037-H to TPC8065-H_1N_SOP-8
2011_1005 PQ308 form SB301150000 change to SB00000RM00
2011_1005 PQ309 form SB301150000 change to SB00000RM00
2011_1207 PR303 change to 499k from 100k PR304 change to 10k from 49.9k
PQ310A 2N7002KDW-2N_SOT363-6
PQ310B 2N7002KDW-2N_SOT363-6
PR331 20K_0402_1%
PQ317 2N7002KW_SOT323-3
BATT_OUT (45)
PR309 150K_0402_1%
+3VALW
2011_0728 numount PR315,PR316, HW端有PU
2011_0915 del PR310,PR311 PR312,PR313 H_PROCHOT#,+3VALW
PC309 0.1U_0603_25V7K
PC310 0.1U_0603_25V7K
PC312 0.1U_0603_25V7K
ACN
ACP
BQ24727VCC
PR317 10_1206_5%
2011_0829 change part
PQ312 TPC8065-H_1N_SOP-8
PR318 47K_0402_1%
(44) PACIN
(44) ACON
PR319 64.9K_0603_1%
PR314 432K_0603_1%
PR315 10K_0402_5%
PR316 10K_0402_5%
(41,45) ADP_I
PC323 0.1U_0603_25V7K
PC313 100P_0603_50V8
PQ313 LTC015EUBFS8TL_UMT3F
PR321 10K_0402_5%
(41,44) ACOFF ACOFF-1
PR332 0_0402_5%
PQ318 2N7002KW_SOT323-3
(45) BATT_OUT
2011_0801 add PR332, PQ318 for battery learning
2011_1119 change PR332,PQ318 to unmount from mount
(41,45) EC_SMB_DA1
(41,45) EC_SMB_CK1
PR323 316K_0402_1%
PR325 100K_0402_1%
2011_0818 add PC323 with unmount
PU301 BQ24737RGRR_VQFN20_3P5X3P5
ACDET IOUT SDA SCL ILIM ACOK CMPIN CMPOUT ACP ACN TP VCC PHASE HIDRV BTST REGN LODRV GND SRP SRN BM
BQ24727VCC-1
LX_CHG
DH_CHG
BST_CHG
DL_CHG
PC314 1U_0603_25V6
PR324 2.2_0603_5%
PC315 0.047U_0603_25V7M
2011_1129 Change 2.2
PD301 RB751V-40_SOD323-2
PC318 1U_0603_25V6
2011_0829 change part
PQ314 TPC8A03-H_SO8
PL302 10UH +-20% MMD-10DZ-100M-X1 6A
PR320 0.01_1206_1%
CHG
SRP SRN
PR322 4.7_1206_5%
PC319 680P_0603_50V7K
24727_SN
PC316 10U_0805_25V6K
PC317 10U_0805_25V6K
2011_0830 change PL302 for height
2011_1127 Change from SH00000LI00 4.7u to SH00009RK00 10UH +-20% MMD-10DZ-100M-X1 6A
2011_0731 PR319 form SD000002480 66.5K_0603_0.1% change to SD014649280_64.9K_0603_1%
2011_0728 add charger turbo boost function
2011_1122 Add PR333
2011_1210 PR330,PR333 @ for lid wake up from S4
PR333 0_0402_5%
BM# (41,47)
PR330 10K_0402_5%
+3VS
PR326 6.8_0603_5%
PR327 10_0603_5%
PC320 0.1U_0603_25V7K
PC321 0.1U_0603_25V7K
PC322 0.1U_0603_25V7K
2011_0831 PQ314 change form AO4466L to TPC8A03-H
2011_1005 PQ313 form SB301150000 change to SB00000RM00
PQ315 TP0610K-T1-GE3_SOT23-3
BQ24727VCC
PR328 100K_0402_1%
PR329 100K_0402_1%
PQ316 LTC015EUBFS8TL_UMT3F
2011_1005 PD103 change form SCSB715F000(S SCH DIO RB715F UMD3) to SCSB715F010(S SCH DIO RB715FGT106 UMD3)
FSTCHG (41)
SUSP# (9,24,41,42,48,50,51)
PD304 RB715FGT106_UMD3
2011_1005 PQ316 form SB301150000 change to SB00000RM00

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

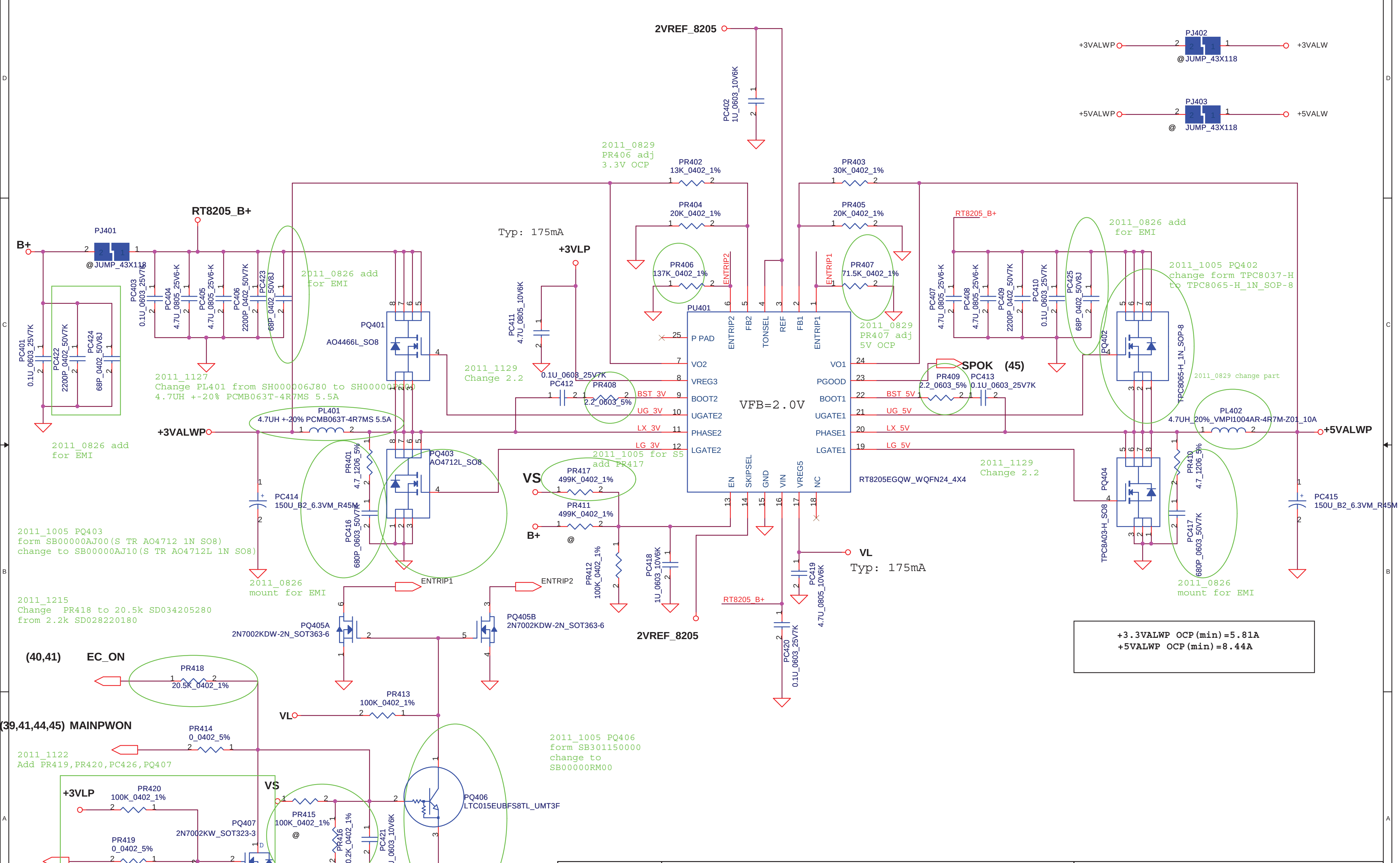
Security Classification	Compal Secret Data			Compal Electronics, Inc.
Issued Date	2011/07/12	Deciphered Date	2012/07/01	Title: CHARGER

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Size: Document Number: LA-8133P Rev 0.6

Date: Friday, January 06, 2012 Sheet 46 of 58

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



+3.3VALWP OCP(min)=5.81A
+5VALWP OCP(min)=8.44A

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

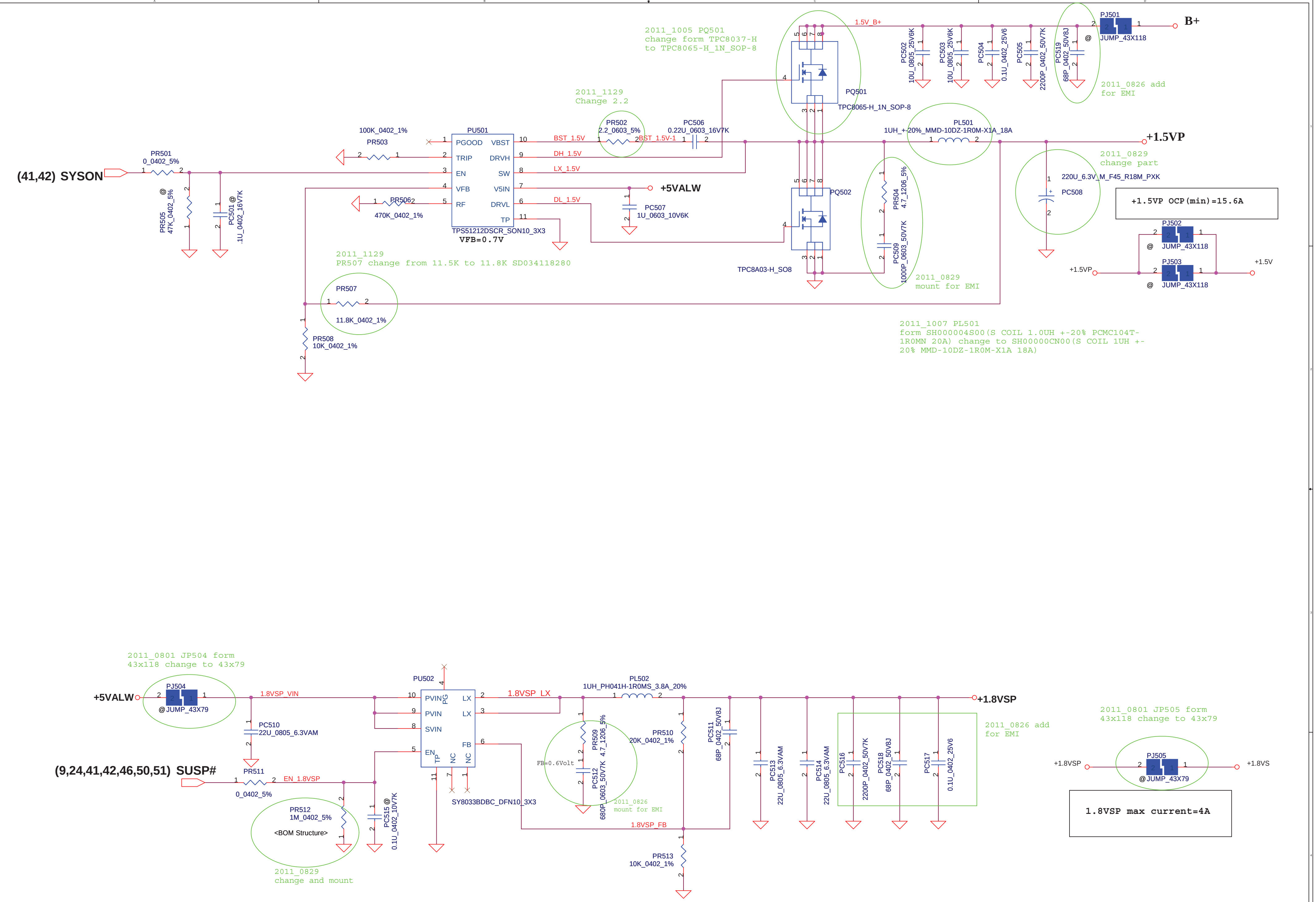
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
3VALWP/5VALWP

Size Custom
Document Number LA-8133P
Rev 0.6

Date: Friday, January 06, 2012
Sheet 47 of 58



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title

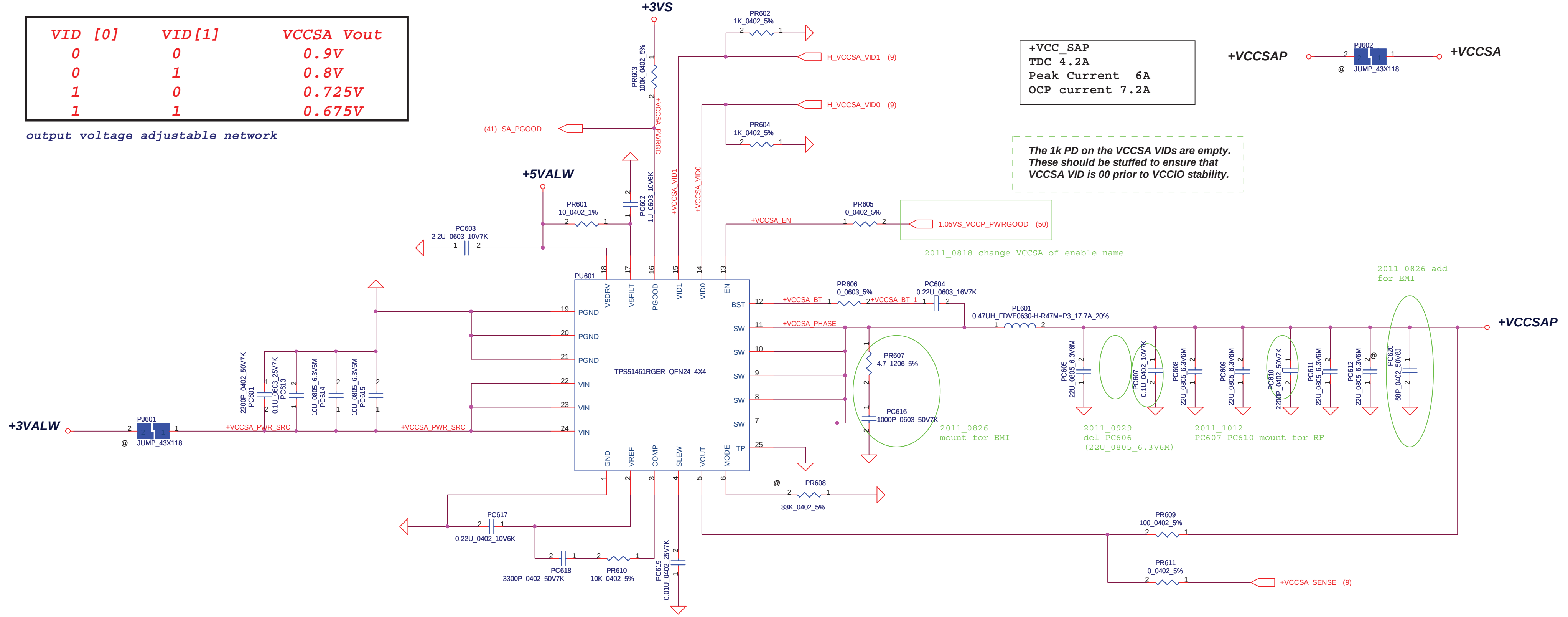
PWR-+1.5VP/+1.8VSP

Size Custom
Document Number
LA-8133P
Rev 0.6

Date: Friday, January 06, 2012 Sheet 48 of 58

VID [0]	VID[1]	VCCSA Vout
0	0	0.9V
0	1	0.8V
1	0	0.725V
1	1	0.675V

output voltage adjustable network



+VCC_SAP
TDC 4.2A
Peak Current 6A
OCP current 7.2A

The 1k PD on the VCCSA VIDs are empty. These should be stuffed to ensure that VCCSA VID is 00 prior to VCCIO stability.

2011_0801 del +V1.05S_VCCPP circuit

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

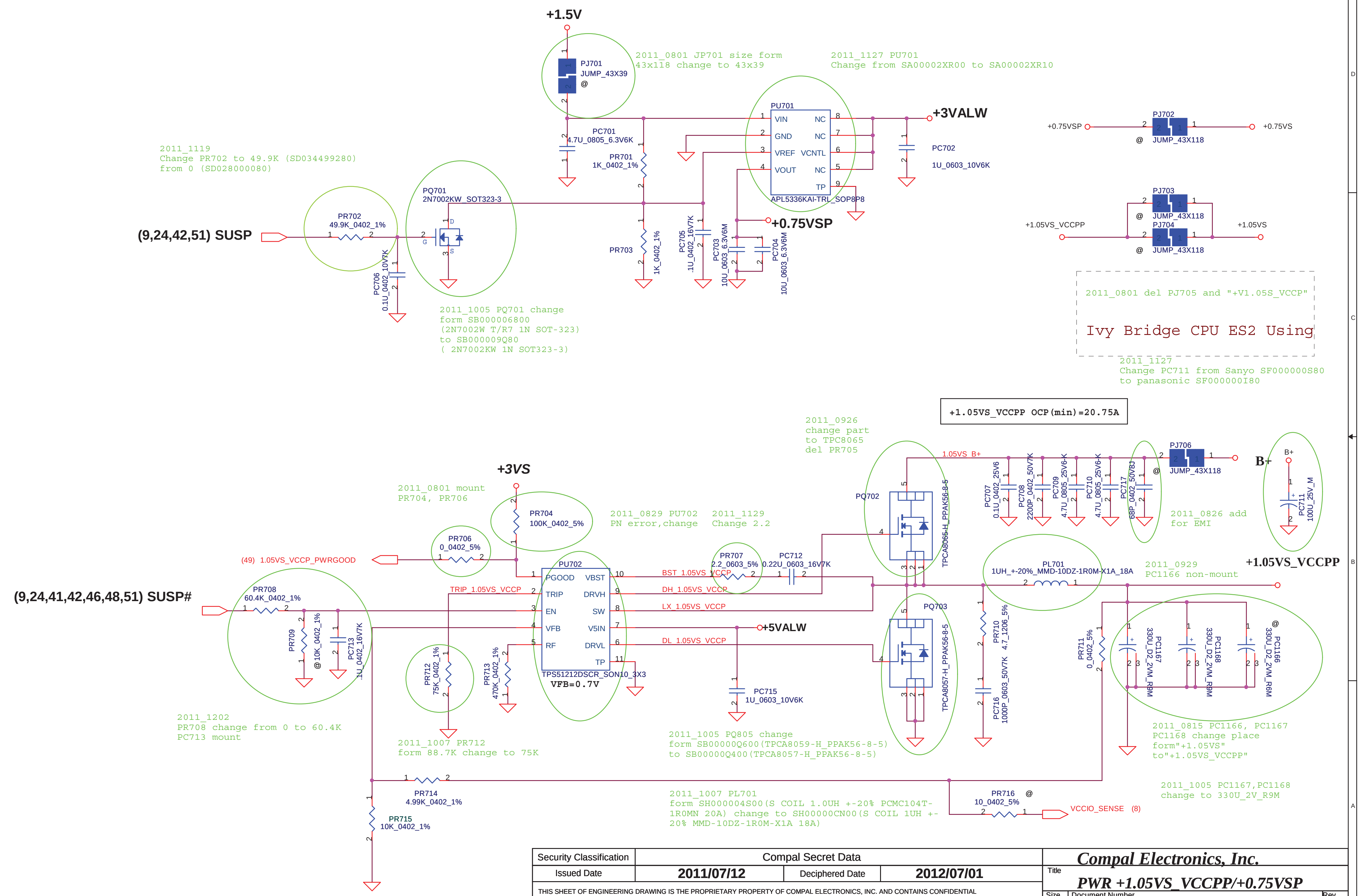
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PWR +VCCSAP/1.0

Size C
Document Number LA-8133P
Rev 0.6

Date: Friday, January 06, 2012
Sheet 49 of 58



2011_0801 JP701 size form
43x118 change to 43x39

2011_1127 PU701
Change from SA00002XR00 to SA00002XR10

2011_1119
Change PR702 to 49.9K (SD034499280)
from 0 (SD028000080)

2011_1005 PQ701 change
form SB000006800
(2N7002W T/R7 1N SOT-323)
to SB000009Q80
(2N7002KW 1N SOT323-3)

2011_0801 del PJ705 and "+V1.05S_VCCP"

Ivy Bridge CPU ES2 Using

2011_1127
Change PC711 from Sanyo SF000000S80
to panasonic SF000000I80

2011_0926
change part
to TPC8065
del PR705

2011_0801 mount
PR704, PR706

2011_0829 PU702
PN error,change

2011_1129
Change 2.2

2011_0826 add
for EMI

2011_0929
PC1166 non-mount

2011_1202
PR708 change from 0 to 60.4K
PC713 mount

2011_1007 PR712
form 88.7K change to 75K

2011_1005 PQ805 change
form SB00000Q600(TPCA8059-H_PPAK56-8-5)
to SB00000Q400(TPCA8057-H_PPAK56-8-5)

2011_0815 PC1166, PC1167
PC1168 change place
form"+1.05VS"
to"+1.05VS_VCCPP"

2011_1005 PC1167,PC1168
change to 330U_2V_R9M

2011_1007 PL701
form SH000004S00(S COIL 1.0UH +-20% PCMC104T-1R0MN 20A) change to SH00000CN00(S COIL 1UH +-20% MMD-10DZ-1R0M-X1A 18A)

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

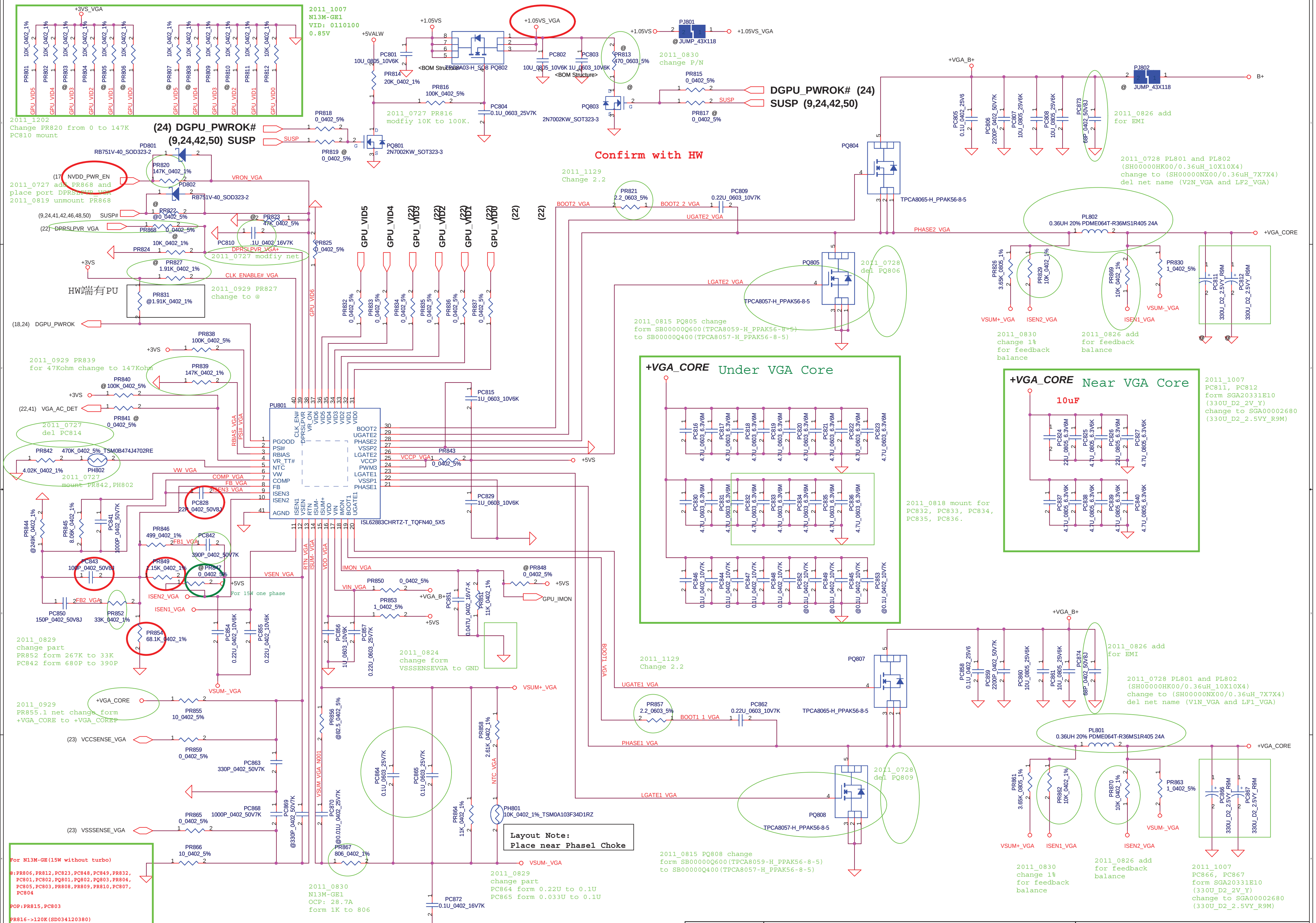
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PWR +1.05VS_VCCPP/+0.75VSP

Size: Custom
Document Number: LA-8133P
Rev: 0.6

Date: Friday, January 06, 2012
Sheet 50 of 58



2011_1007
N13M-GE1
VID: 0110100
0.85V

2011_0830
change P/N

2011_1202
Change PR820 from 0 to 147K
PC810 mount

2011_0727 PR816
modfiy 10K to 100K.

Confirm with HW

2011_0727 add PR868 and
place port DPRSLPVR_VGA
2011_0819 unmount PR868

2011_0727 modfiy net

2011_1129
Change 2.2

2011_0929 PR827
change to @

2011_0929 PR839
for 47Kohm change to 147Kohm

2011_0727
del PC814

2011_0727
mount PR842,PH802

For 15W one phase

2011_0829
change part
PR852 form 267K to 33K
PC842 form 680P to 390P

2011_0929
PR855.1 net change form
+VGA_CORE to +VGA_COREP

2011_0824
change form
VSSSENSEVGA to GND

2011_0830
N13M-GE1
OCP: 28.7A
form 1K to 806

2011_0829
change part
PC864 form 0.22U to 0.1U
PC865 form 0.033U to 0.1U

Layout Note:
Place near Phase1 Choke

2011_0826 add
for EMI

2011_0728 PL801 and PL802
(SH00000HK00/0.36uH_10X10X4)
change to (SH00000NX00/0.36uH_7X7X4)
del net name (V2N_VGA and LF2_VGA)

2011_0728
del PQ806

2011_0815 PQ805 change
form SB00000Q600(TPCA8059-H_PPAK56-8-5)
to SB00000Q400(TPCA8057-H_PPAK56-8-5)

2011_0830
change 1%
for feedback
balance

2011_0826 add
for feedback
balance

2011_1007
PC811, PC812
form SGA20331E10
(330U_D2_2V_Y)
change to SGA00002680
(330U_D2_2.5VY_R9M)

2011_0818 mount for
PC832, PC833, PC834,
PC835, PC836.

2011_1129
Change 2.2

2011_0826 add
for EMI

2011_0728 PL801 and PL802
(SH00000HK00/0.36uH_10X10X4)
change to (SH00000NX00/0.36uH_7X7X4)
del net name (V1N_VGA and LF1_VGA)

2011_0728
del PQ809

2011_0815 PQ808 change
form SB00000Q600(TPCA8059-H_PPAK56-8-5)
to SB00000Q400(TPCA8057-H_PPAK56-8-5)

2011_0830
change 1%
for feedback
balance

2011_0826 add
for feedback
balance

2011_1007
PC866, PC867
form SGA20331E10
(330U_D2_2V_Y)
change to SGA00002680
(330U_D2_2.5VY_R9M)

For N13M-GE(15W without turbo)

@:PR806,PR812,PC823,PC848,PC849,PR832,
PC801,PC802,PQ801,PQ802,PQ803,PR804,
PC805,PC803,PR808,PR809,PR810,PC807,
PC804

POP:PR815,PC803

PR816->120K(SD034120380)
PR820->1.69K(SD00000JB80)
PR822->22K(SD034220280)
PR837->866(SD034866080)
PC858->0.1uF(SE026104M80)
PC859->0.068uF(SE026683K80)
PR850->22.1K(SD034221280)

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

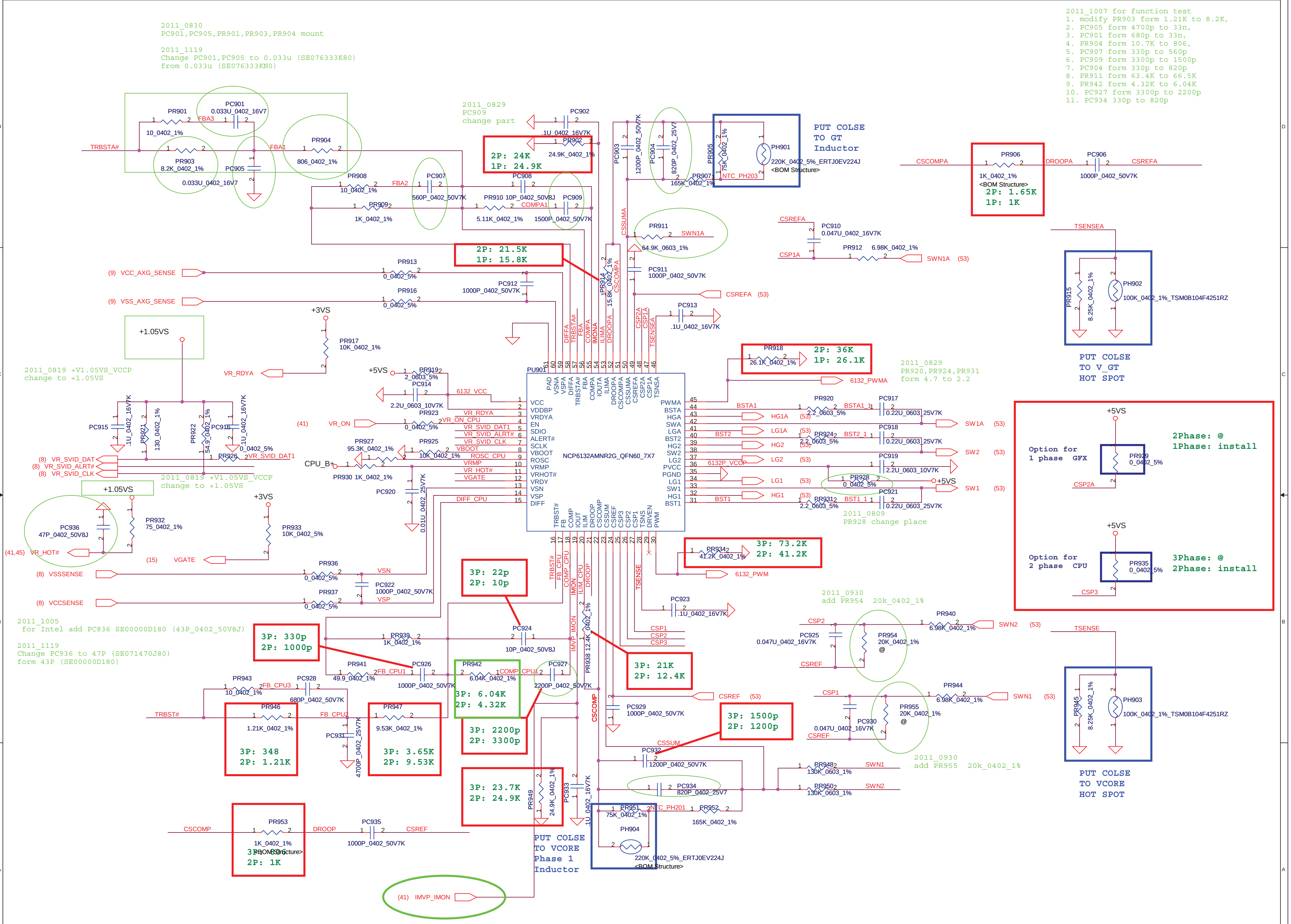
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PWR - VGA_COREP

Size
Document Number
LA-8131P
Rev
0.6

Date: Friday, January 06, 2012
Sheet 51 of 58



2011_0830
PC901,PC905,PR901,PR903,PR904 mount

2011_1119
Change PC901,PC905 to 0.033u (SE076333K80)
from 0.033u (SE076333KN0)

2011_0829
PC909
change part

2P: 24K
1P: 24.9K

PUT COLSE
TO GT
Inductor

2011_1007 for function test
1. modify PR903 form 1.21K to 8.2K,
2. PC905 form 4700p to 33n,
3. PC901 form 680p to 33n,
4. PR904 form 10.7K to 806,
5. PC907 form 330p to 560p
6. PC909 form 3300p to 1500p
7. PC904 form 330p to 820p
8. PR911 form 63.4K to 66.5K
9. PR942 form 4.32K to 6.04K
10. PC927 form 3300p to 2200p
11. PC934 330p to 820p

2P: 1.65K
1P: 1K

2P: 21.5K
1P: 15.8K

PUT COLSE
TO V_GT
HOT SPOT

2P: 36K
1P: 26.1K

2011_0829
PR920,PR924,PR931
form 4.7 to 2.2

2011_0819 +V1.05VS_VCCP
change to +1.05VS

2011_0819 +V1.05VS_VCCP
change to +1.05VS

Option for
1 phase GFX

2Phase: @
1Phase: install

Option for
2 phase CPU

3Phase: @
2Phase: install

2011_0809
PR928 change place

3P: 73.2K
2P: 41.2K

3P: 22p
2P: 10p

2011_0930
add PR954 20k_0402_1%

2011_1005
for Intel add PC836 SE00000D180 (43P_0402_50V8J)

2011_1119
Change PC936 to 47P (SE071470J80)
form 43P (SE00000D180)

3P: 330p
2P: 1000p

3P: 6.04K
2P: 4.32K

3P: 21K
2P: 12.4K

3P: 348
2P: 1.21K

3P: 3.65K
2P: 9.53K

3P: 2200p
2P: 3300p

3P: 1500p
2P: 1200p

2011_0930
add PR955 20k_0402_1%

PUT COLSE
TO VCORE
HOT SPOT

3P: 23.7K
2P: 24.9K

PUT COLSE
TO VCORE
Phase 1
Inductor

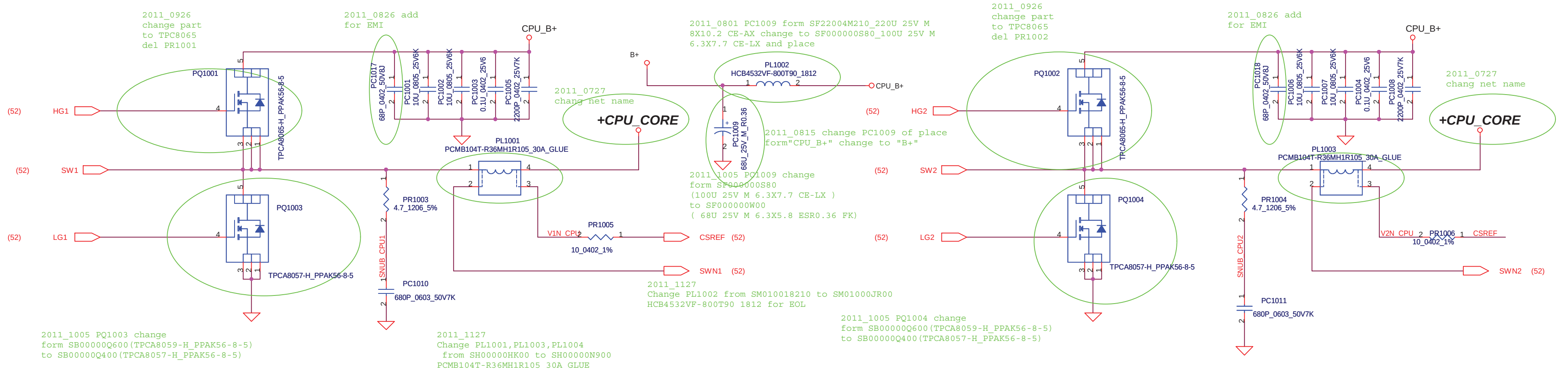
3P: 806
2P: 1K

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

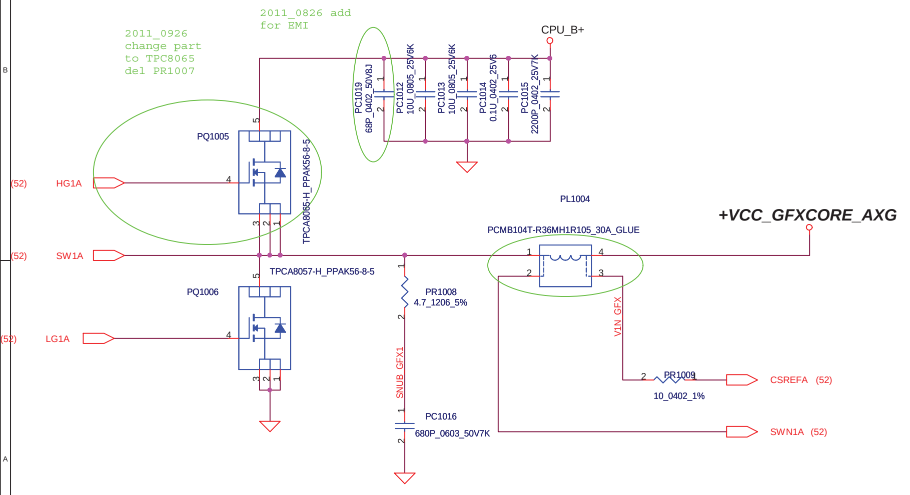
Compal Electronics, Inc.

Title	***PWR-CPU_CORE1***	
Size Custom	Document Number ***LA-8133P***	Rev 0.6
Date: Friday, January 06, 2012	Sheet 52 of 58	



QC 45W CPU
VID1=0.9V
IccMax=94A
Icc_Dyn=66A
Icc_TDC=52A
R_LL=1.9m ohm
OCP~110A

DC 35W CPU
VID1=1.05V
IccMax=53A
Icc_Dyn=43A
Icc_TDC=36A
R_LL=1.9m ohm
OCP~65A

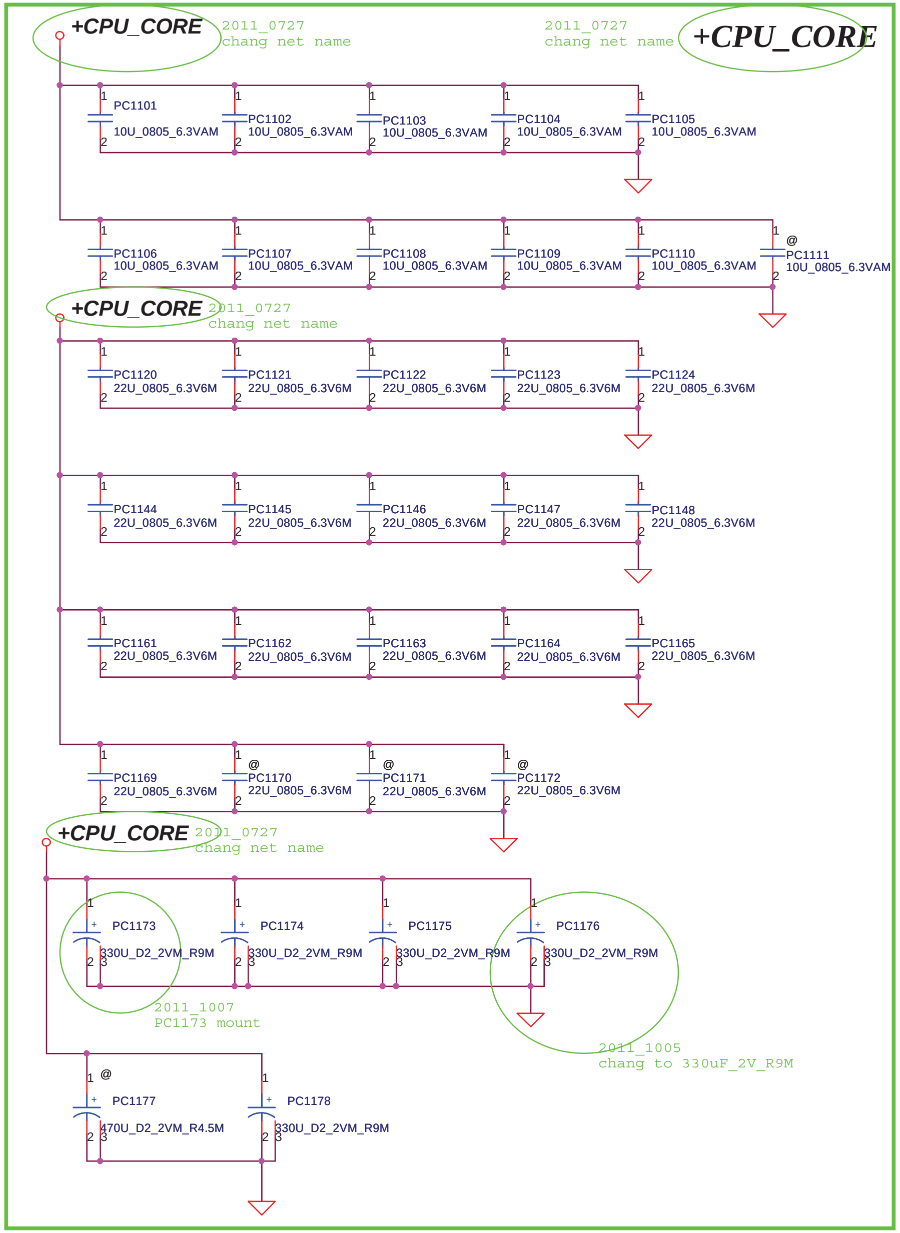


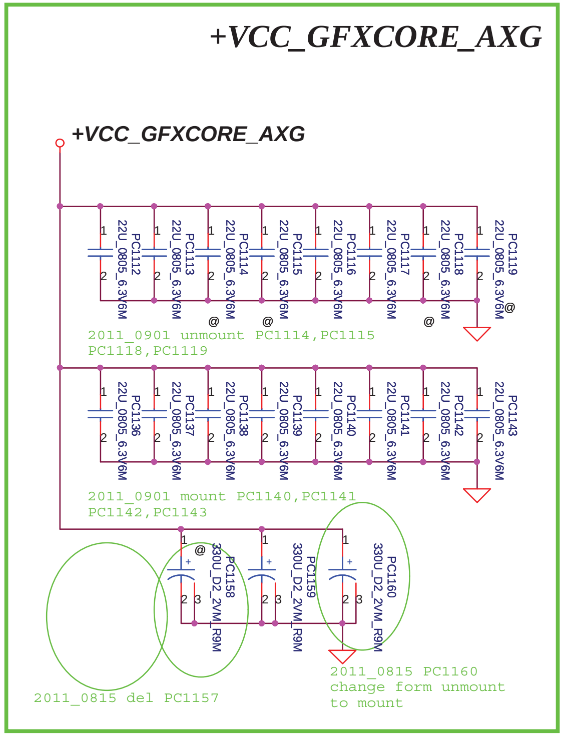
QC 45W GT2
VID1=1.23V
IccMax=46A
Icc_Dyn=37A
Icc_TDC=38A
R_LL=3.9m ohm
OCP~55A

DC 35W GT2
VID1=1.23V
IccMax=33A
Icc_Dyn=20.2A
Icc_TDC=21.5A
R_LL=3.9m ohm
OCP~40A

Security Classification	Compal Secret Data			Compal Electronics, Inc.
Issued Date	**2011/07/12**	Deciphered Date	2012/07/01	Title PWR-CPU_CORE2
				Size C · Document Number LA-8133P · Rev 0.6
				Date: Friday, January 06, 2012 · Sheet 53 of 58

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

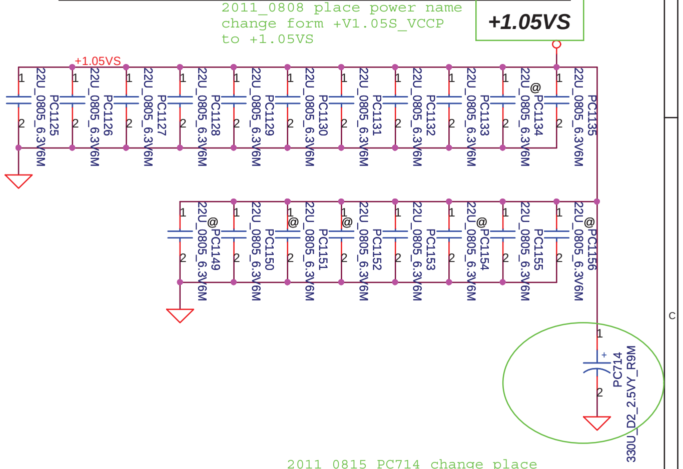




2011_07929
PC1158 non-mount

Below is 458544_CRV_PDDG_0.5 Table 5-8.

Socket Bottom	5 x 22 µF (0805) 5 x (0805) no-stuff sites
Socket Top	7 x 22 µF (0805) 2 x (0805) no-stuff sites



2011_0815 PC714 change place
form "+1.05VS_VCCPP" to "+1.05VS"

2011_1005 PC714 change to
330uF_2V_R9M

2011_1007
PC714
form SGA00001Q802
(S POLY C 330U 2V M X LESR6M SX H1.9)
change to SGA00002680
(330U_D2_2.5VY_R9M)

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

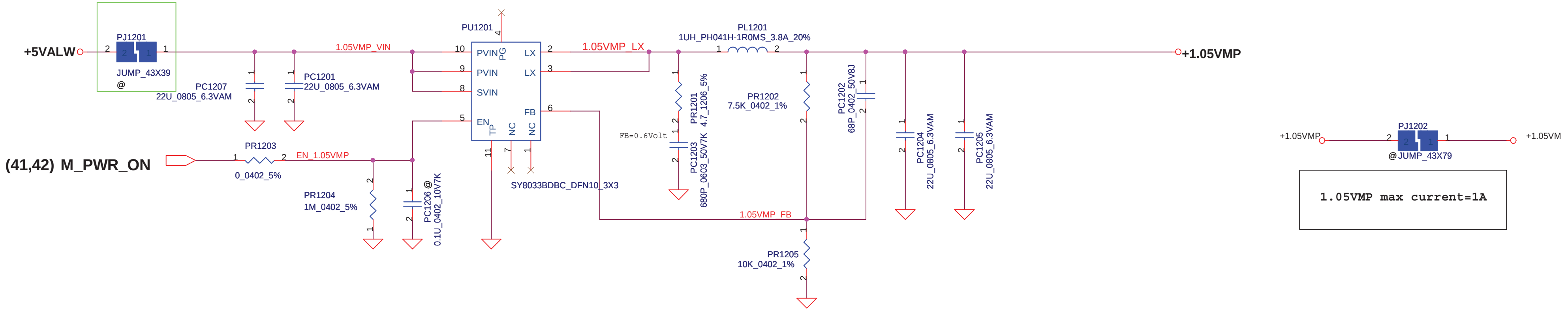
Compal Electronics, Inc.

Title
PWR - PROCESSOR DECOUPLING

Size
Document Number
LA-8131P
Rev
0.6

Date: Friday, January 06, 2012
Sheet 54 of 58

2011_0923 JUMP form 43X79 change to 43X79



Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PWR-+1.05VMP

Size	Document Number	Rev
Custom	LA-8133P	0.6

Date: Friday, January 06, 2012 Sheet 55 of 58

Security Classification	Compal Secret Data		
Issued Date	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PWR-Thermal Protect

Size
Document Number
LA-8131P

Rev
0.6

Date: Friday, January 06, 2012
Sheet 56 of 58

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

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	2011/07/12	Deciphered Date	2012/07/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title
PIR (PWR)

Size Custom
Document Number LA-8133P
Rev 0.6

Date: Friday, January 06, 2012
Sheet 57 of 58

Version Change List (P.I.R. List)

Phase	Date	No.	BOM	Sch	Layout	Description	function
	2011/09/13	No1		V	V	Add C2325,C2326,C2327,C2328,C2329,R2319,R2324,Q2312	Add SBA function (+3VM) power
	2011/09/15	No2		V		Del Q2305	Del SYSYON#
	2011/09/15	No3		V		Add EC pin 119(M_PWR_ON) for SBA function	Add SBA function
	2011/09/15	No4		V		Add EC pin 120(PCH_SLPA#) from PCH to EC for SBA function	Add SBA function
	2011/09/15	No5		V		Add EC pin72 (Muxless_STAT) for GPU STAT	Add Muxless_STAT function
	2011/09/15	No6		V		Del PR310, PR311, PR312, PR313, net name:"H_PROCHOT#", +3VALW.	PWR-CHARGER-BQ24727
	2011/09/15	No7	V			mount PC832	
	2011/09/15	No8		V	V	Add R2482,Q2404,C2509,R2481,R2485,Q2400,R2483,C2501	AOAC Function
	2011/09/15	No9		V	V	change net name BT_OFF# to BT_ON# and change PCH EN GPIO from GPIO34 to GPIO36 R280 from @ to mount,R282 from mount to @	BT Function
	2011/09/15	No10		V	V	change net name(Mini-Express) from BT_OFF# to WLBT_OFF# PCH EN GPIO change to GPIO34	BT Function
	2011/09/19	No11		V	V	change +3VS_WLAN net name to +3VS_AOAC change +3VS_WWAN net name to +3VS_AOAC	AOAC Function
	2011/09/19	No12		V	V	Del R1010 for LVDS CONN plug high voltage	LVDS CONN
	2011/09/19	No13		V	V	R1102,R1104,R1105 from @ to mount fix MIC(ECR97236)issue	MIC function
	2011/09/19	No14		V	V	Add R2470 for 80 port function	80 port function
	2011/09/19	No15		V	V	Del R2476 Add Q2405	BT Function
	2011/09/20	No16		V	V	Add power schematic 9/15 again modify RF PC423, PC425, PC519, PC620, PC717, PC873, PC874, PC424, PC518 PC1017, PC1018, PC1019, PC422, PC516, PC517 modify POWER在VGA的PWM IC 加的零件PR869, PR870	
	2011/09/22	No17		V	V	Add U10,C589,C645 for TPM function	TPM function
	2011/09/22	No18		V	V	Add R110,R112 for SPI POWER choose(SBA function)	
	2011/09/23	No19		V	V	modify power page 44~57(PJ1201 JUMP form 43X79 change to 43X79)	
	2011/09/26	No20		V	V	change CPU footprint from TYCO_2013620-2_989P-T to TYCO_2013620-2_989P-T-A39 change PCH footprint from PANTHER-POINT_FCBGA_989P-T to PANTHER-POINT_FCBGA_989P-T-A39 change GPU footprint N13P-PES-A1_FCBGA_908P to N13P-PES-A1_FCBGA_908P-A39 change VRAM footprint K4W1G1646E-HC12_FBGA_96P to K4W1G1646E-HC12_FBGA_96P-A39	
	2011/09/26	No21		V	V	change PCH_GPIO24(R288) pull up to +3V_PCH	
	2011/09/26	No22		V		change P18 (R311,R330,R286,R329) for UMA and Optimus memon	
	2011/09/26	No23		V		change net name PCH_THRMTRIP#_R to VGA_THRMTRIP#	
	2011/09/26	No24		V	V	PQ702 change to TPC8065,Del PR705 PQ1001,PQ1002,PQ1005 change to TOC8065,Del PR1001,PR1002,PR1007	
	2011/09/26	No25		V	V	p43 change Q2304 dual channel 2n7002 to single channel Q2304,Q2305(Q2305 @) p43 change Q2306 dual channel 2n7002 to single channel Q2306,Q2311(Q2311 @)	
	2011/09/27	No27	V			modify EC Board ID R2213 to 18K	
	2011/09/27	No28		V	V	net name CX_GPIO0 connect to U1101 pin 38	
	2011/09/27	No29		V	V	Add C2152,C2153,D2113 for ESD	
	2011/09/27	No30		V	V	change NVIDIA N13M ROM_SCLK from 15K PU to 5K PU	
	2011/09/27	No31		V	V	change ESD part D2401,D2403,D2405 power from +5VALW to +USB VCCA	
	2011/09/27	No32		V	V	Add C2108 for GPU_CLKREQA	
	2011/09/27	No33				Add Q2406 , modify R2401,Change PCH_GPIO19 to ODD_DET#,for zero power ODD	
	2011/09/27	No34				change WLBT_OFF# to PCH_GPIO34	
	2011/09/27	No35				change PCH_GPIO34 to WLBT_OFF#(mini card pin5)	
	2011/09/27	No36				change BT_ON# connect to WLBT_OFF#(mini card pin51)	
	2011/09/28	No37				C76 , R1123 , c1131 , R2201,C2209 C84,C85 from @ to mount for RF team	
	2011/09/29	No38				R1529 change to 15K	
	2011/09/29	No39				Add CONN JDB3 fo debug	
	2011/09/29	No40				Add R2460,R2438,R2471,R2472,R2475,R2476 for PS8520B	
	2011/09/29	No41				change D2403 ,D2401 power to +USB_VCCB,and del D2403 ,D2401,D2405 Pin3 net	
	2011/09/29	No42				change power schematic	
	2011/09/29	No43				del PC606 (22U_0805_6.3V6M) PR855.1 net change form +VGA_CORE to +VGA_COREP PR827 mount change to @(non-mount) PR839 for 47Kohm change to 147Kohm PR103 for 0ohm change to 270ohm PC1166 non-mount,PC1173 non-mount,PC1158 non-mount	
	2011/09/29	No44				Add Q2313,C2305,C2306,C2307,C2308,R2318,R2320,R2320,C2322 for +3V_PCH	

	2011/09/29	No45				change CRT CONN to DC061109231(footprint pin modify)
						Add PR954,PR955
						Add H16,H27
						change Q2304.Q2305 to Q2304
						modify PTH H11,H18 ,H21
						Del T10 for SUS_STAT(SLP_S3# 走不出來)	

	2011/10/04	No46				reserve R352,R353 for SATA re-drive PS-8131B change net name fron WLBT_OFF to WLBT_OFF_5# modify PCH_GPIO34 connect to BT_ON# for BT module modify PCH_GPIO36 from BT_ON# connect to WLBT_OFF_51# for mini card BT combo module changr Q2301 to 2N7002	
	2011/10/05	No47				Del R2469,T49,T45,T41,T37,T36,T28,T26 for ME 限高0 changer power net +3VS_FP to +3VS update power schematics P44~P57	
	2011/10/06	No48				change Q1202 part to SB000007H10. change JCARD1 PN to SP02000H810 footprint: ACES_87213-1400G_14P change some CONN part NO. for ME CONN list Add D2416	

Security Classification	Compal Secret Data			Compal Electronics, Inc.
Issued Date	2011/07/12	Deciphered Date	2012/07/01	Title PIR (EE)
				Size Custom · Document Number LA-8133P · Rev 0.6
				Date: Friday, January 06, 2012 · Sheet 58 of 58

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.