MODEL NAME: *NAP10*
PCB NAME: *LA-5812P MB*
COMPAL P/N:

Dell/Compal confidential

Schematics Document

Phantom Calpella

Arrandale ULV BGA + Ibex PCH

DISCRETE VGA N11P-GS1 (Switchable Graphics)

2010-04-19

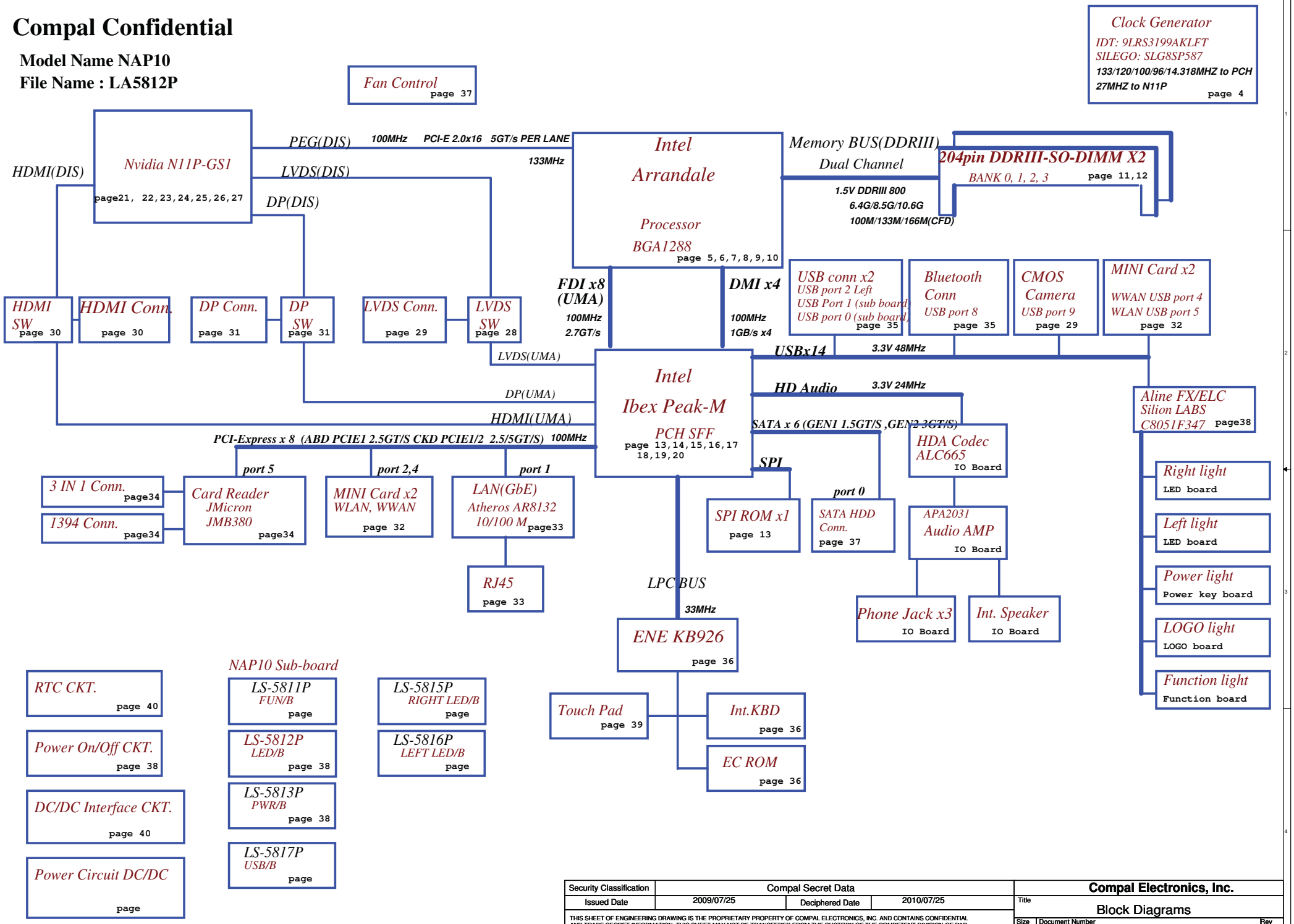
Rev: 1.0

Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.		
Title: *Cover Sheet*		
Size: Custom	Document Number: *LA-5812P*	Rev: 1.0
Date: Monday, May 10, 2010	Sheet 1 of 55	

Compal Confidential

Model Name NAP10
File Name : LA5812P



Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.			
Title: Block Diagrams			
Size: B	Document Number: LA-5812P		Rev: 1.0
Date: Monday, May 10, 2010	Sheet 2 of 55		

Voltage Rails

(O MEANS ON X MEANS OFF)

power plane / State	B+	+5VALW +3VALW VL	+1.5V	+5VS +3VS +0.75VS +1.05VS +1.05VS_VTT +VCC_CORE +VCC_GFXCORE +1.5V_CPU_VDDQ +1.8VS +3VS_DELAY +1.8VSDGPU +1.05VSDGPU +1.5VSDGPU +VGA_CORE
S0	O	O	O	O
S1	O	O	O	O
S3	O	O	O	X
S5 S4/AC	O	O	X	X
S5 S4/ Battery only	O	X	X	X
S5 S4/AC & Battery don't exist	X	X	X	X

Symbol Note :

: means Digital Ground

: means Analog Ground

@ : means just reserve , no build
CONN@ : means ME part.
45@ : means install after SMT.

I2C / SMBUS ADDRESSING

	DEVICE	HEX	ADDRESS
EC_SMB_CK1 EC_SMB_DA1	Battery	16	0 0 0 1 0 1 1 0
EC_SMB_CK2 EC_SMB_DA2	CPU THERMAL SENSOR (EMC1412A-1-ACZL)	F8	1 1 1 1 1 0 0 0
	CPU(PCH)INTERNAL THERMAL SENSOR	96	1 0 0 1 0 1 1 0
	CPU(PCH)INTERNAL THERMAL SENSOR	98	1 0 0 1 1 0 0 0
(PCH_SML1BCLK) (PCH_SML1DATA)	GPU THERMAL SENSOR (ADM1032ARMZ)	9A	1 0 0 1 1 0 1 0
	GPU INTERNAL THERMAL SENSOR	9E	1 0 0 1 1 1 1 0
	WWAN		
	WLAN		
PCH_SMBCLK PCH_SMBDATA	CLOCK GENERATOR (EXT.)	D2	1 1 0 1 0 0 1 0
	DDR Memory		
	Free Fall sensor	38	0 0 1 1 1 0 0 0

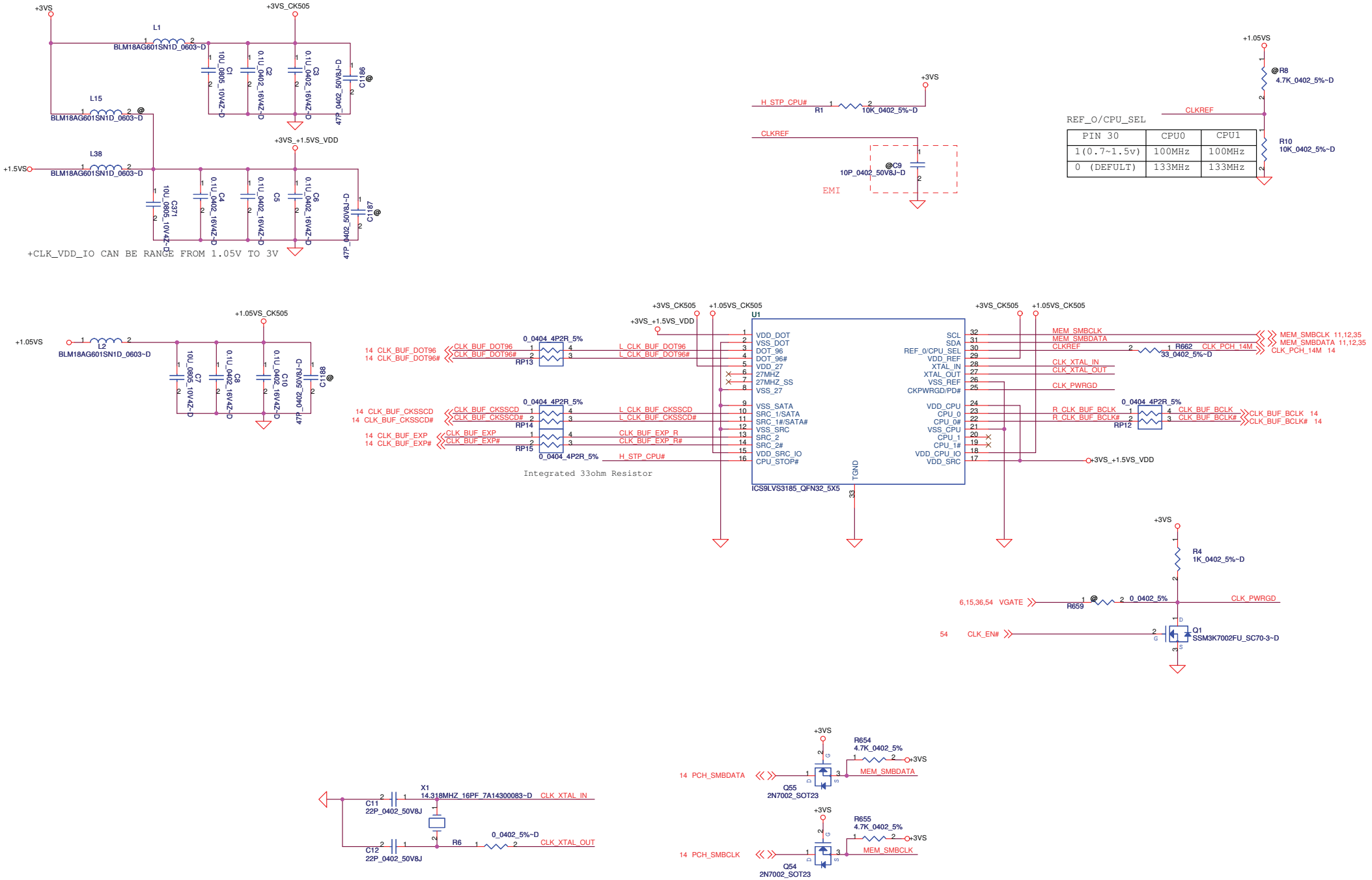
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.

Title: Notes List

Size: Custom | Document Number: LA-5812P | Rev: 1.0

Date: Monday, May 10, 2010 | Sheet 3 of 55



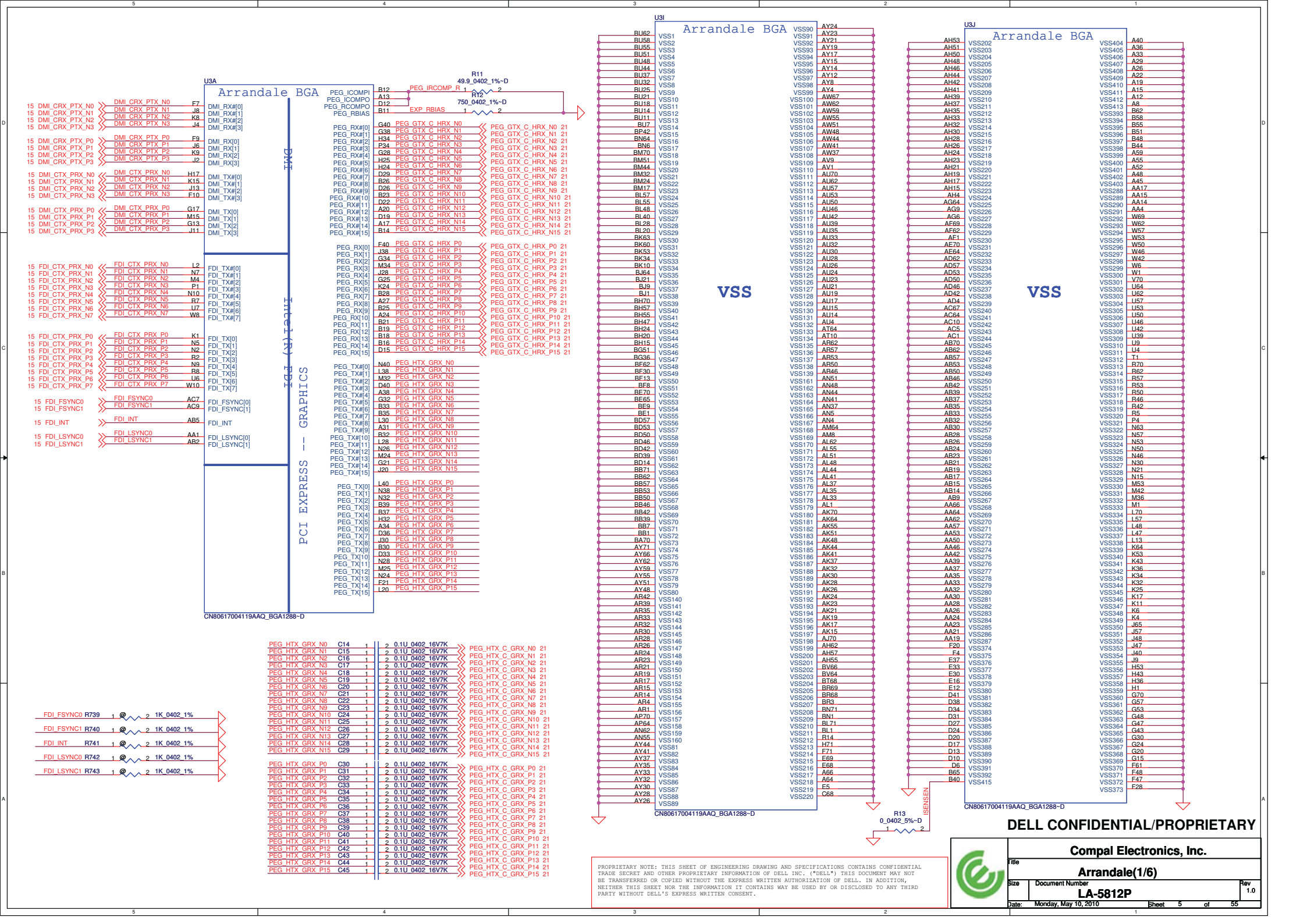
DELL CONFIDENTIAL/PROPRIETARY

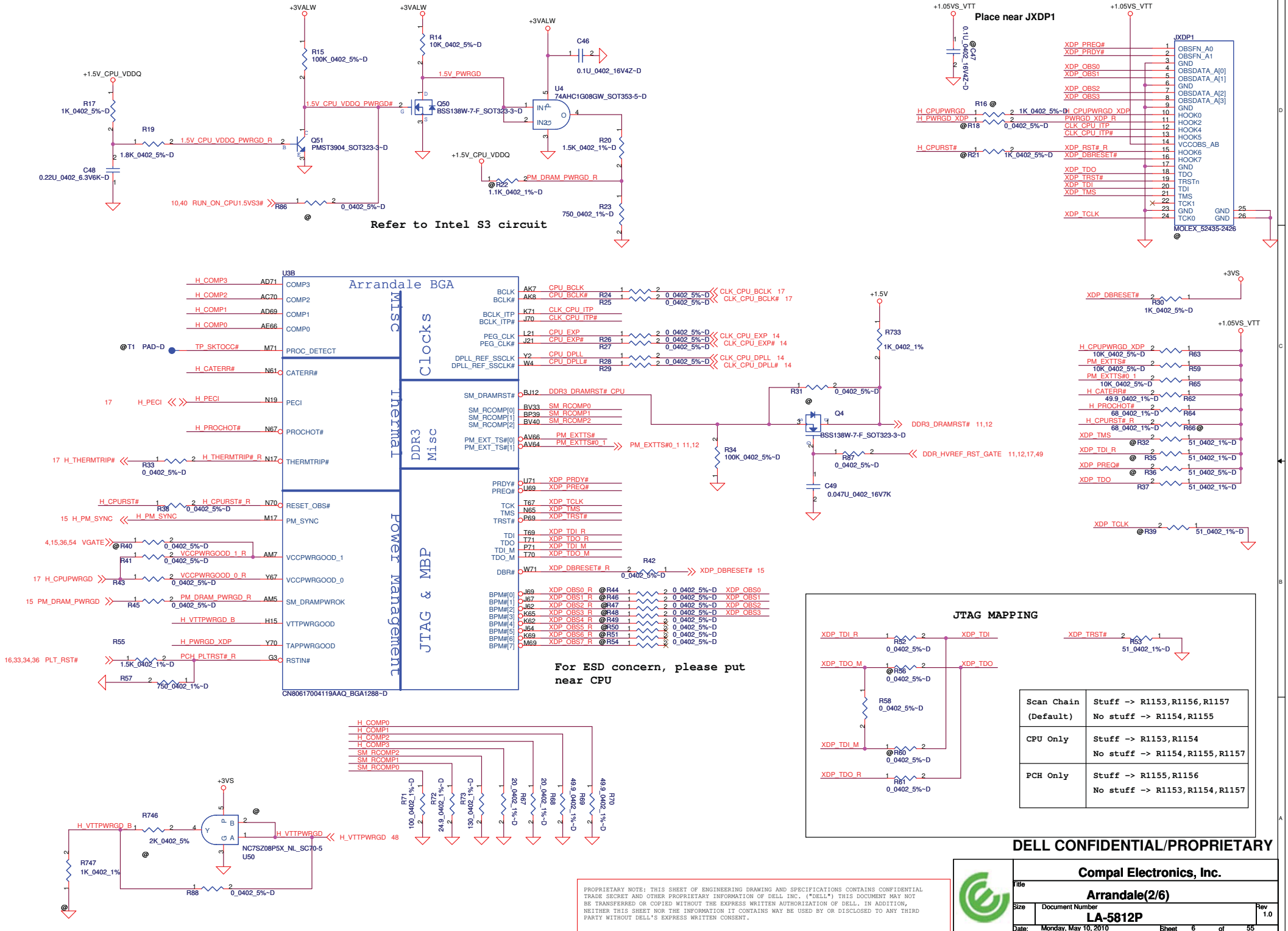
Compal Electronics, Inc.

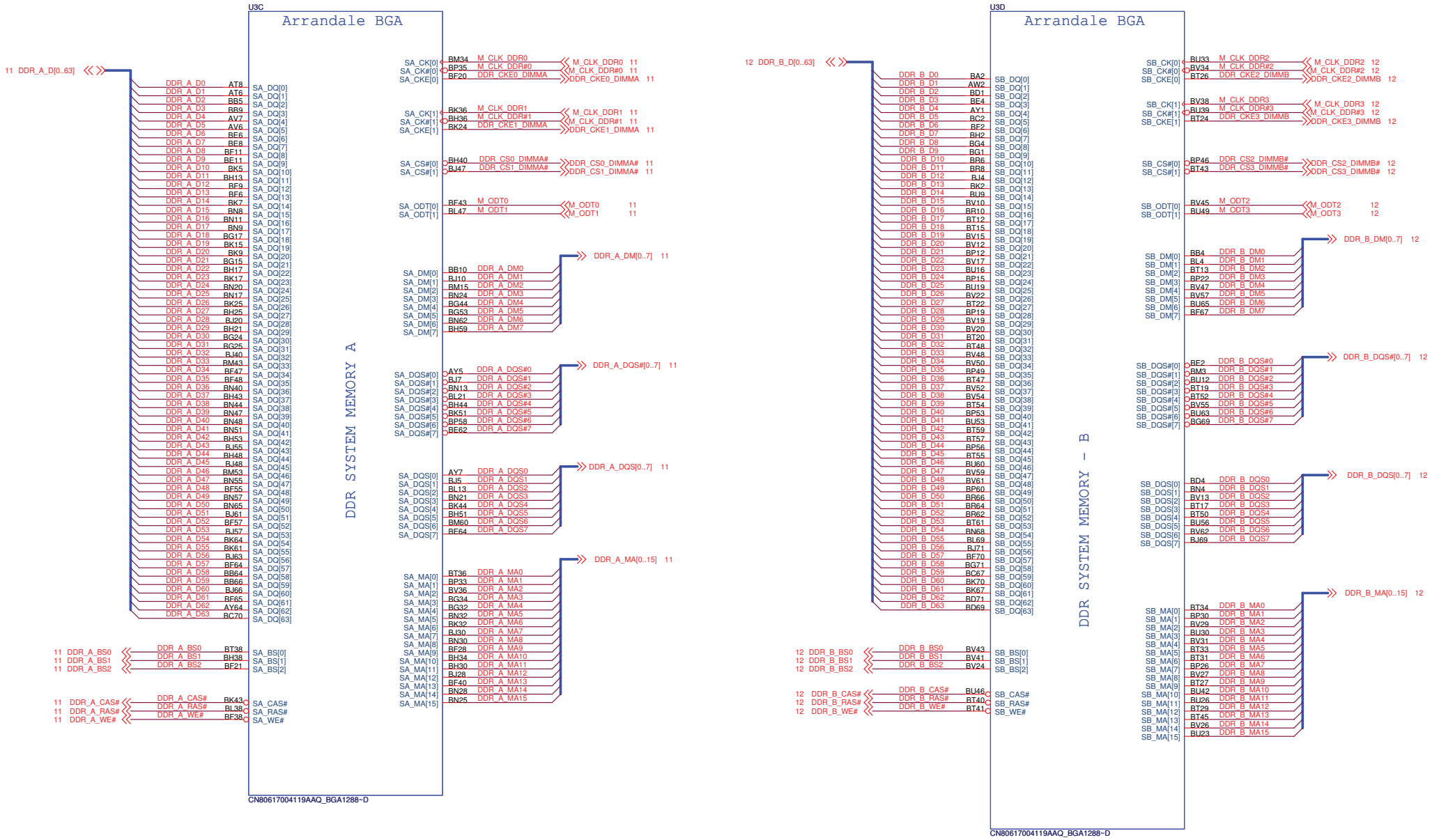
Title: Clock Generator

Size | Document Number: LA-5812P | Rev: 1.0

Date: Monday, May 10, 2010 | Sheet 4 of 55


U3A
Arrandale BGA
DMI
PCI EXPRESS -- GRAPHICS
Intel(R) PEG
CN80617004119AAQ_BGA1288~D
U3I
Arrandale BGA
VSS
CN80617004119AAQ_BGA1288~D
U3J
Arrandale BGA
VSS
CN80617004119AAQ_BGA1288~D
R11 49.9_0402_1%~D
R12 750_0402_1%~D
R13 0_0402_5%~D
SENSEN
FDI_FSYNC0 R739 1K_0402_1%
FDI_FSYNC1 R740 1K_0402_1%
FDI_INT R741 1K_0402_1%
FDI_LSYNC0 R742 1K_0402_1%
FDI_LSYNC1 R743 1K_0402_1%
DELL CONFIDENTIAL/PROPRIETARY
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.
Compal Electronics, Inc.
Title
Arrandale(1/6)
Size
Document Number
LA-5812P
Rev
1.0
Date: Monday, May 10, 2010
Sheet 5 of 55


Refer to Intel S3 circuit
Place near JXDP1
Arrandale BGA
Misc
Clocks
Internal
DDR3 Misc
JTAG & MBP
Power Management
For ESD concern, please put near CPU
JTAG MAPPING
Scan Chain (Default) | Stuff -> R1153,R1156,R1157 No stuff -> R1154,R1155
CPU Only | Stuff -> R1153,R1154 No stuff -> R1154,R1155,R1157
PCH Only | Stuff -> R1155,R1156 No stuff -> R1153,R1154,R1157
DELL CONFIDENTIAL/PROPRIETARY
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS CONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS WAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.
Compal Electronics, Inc.
Arrandale(2/6)
LA-5812P
Rev 1.0
Monday, May 10, 2010
Sheet 6 of 55

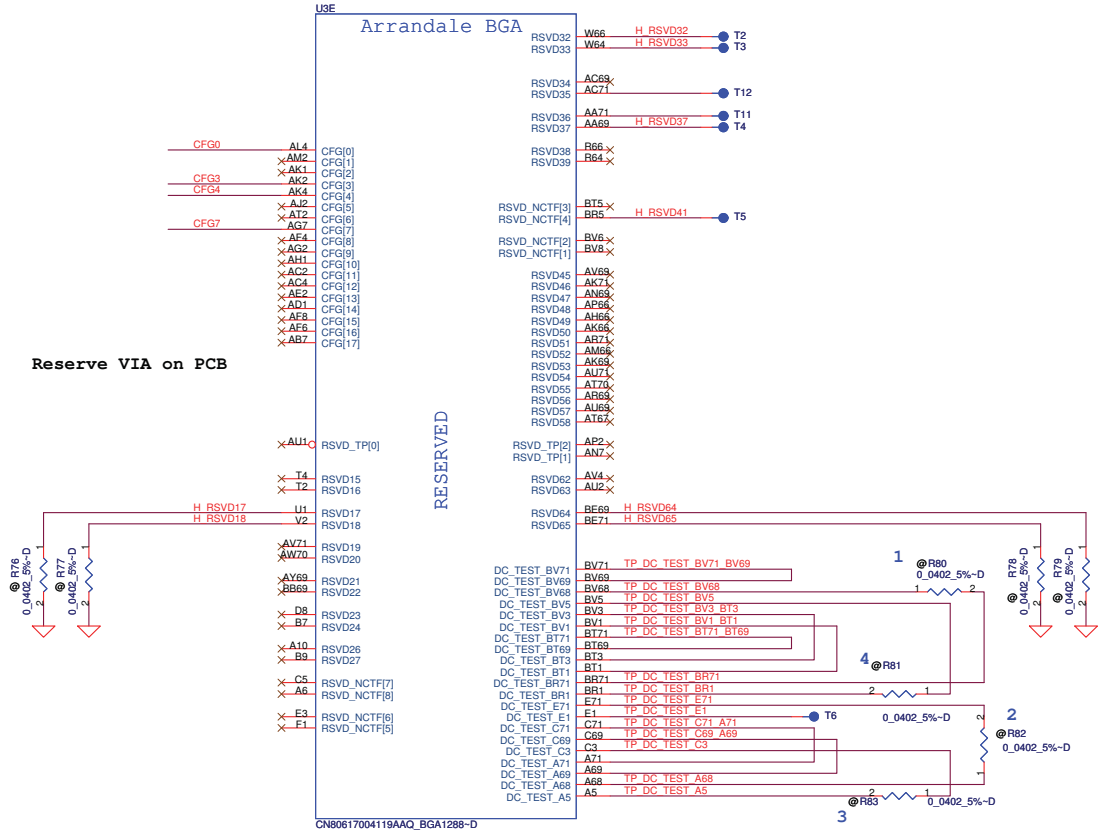


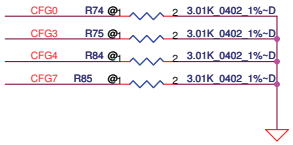
Compal Electronics, Inc.

Title: Arrandale(3/6)

Size | Document Number: LA-5812P | Rev: 1.0

Date: Monday, May 10, 2010 | Sheet 7 of 55





Margaux Intel review change to 3.3K ohm

PCI-Express Configuration Select	
CFG0	1 : Single PEG 0 : Bifurcation enable

PCI-Express Static Lane Reversal	
CFG3	1 : Normal Operation 0 : Lane Number Reversed 15->0, 14->1 ...

Display Port Presence	
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

Package Daisy Chain:

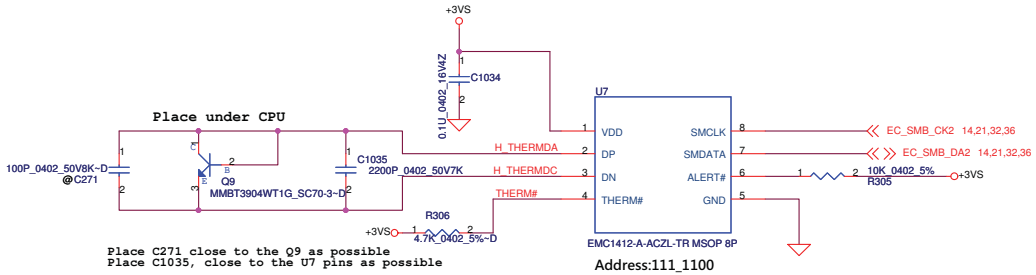
1: BR71 - pkg - BT71- board - BT69 - pkg - BV71 - board - BV69 - pkg - BV68

2: A68 - pkg - A69 - board - C69 - pkg - A71 - board - C71 - pkg - E71

3: A5 - pkg - C3

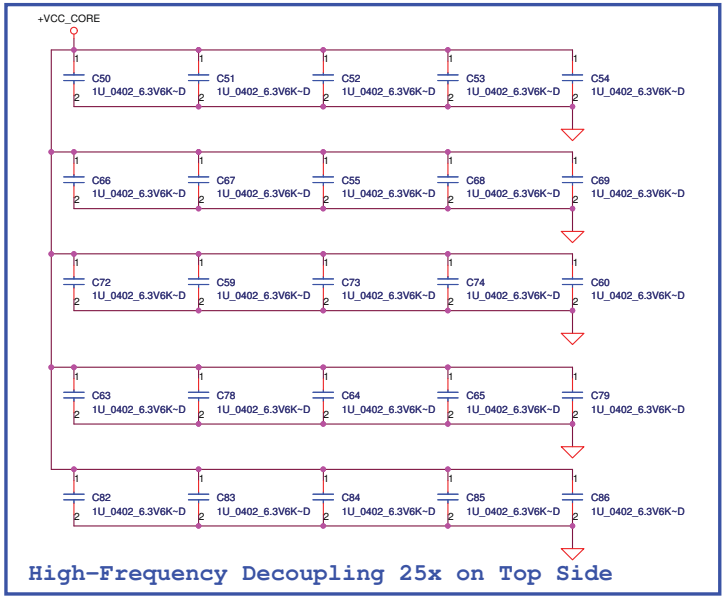
4: BR1 - pkg - BT1 - board - BV1 - pkg - BT3 - board - BV3 - pkg - BV5

CPU Thermal Sensor ADM1032ARMZ

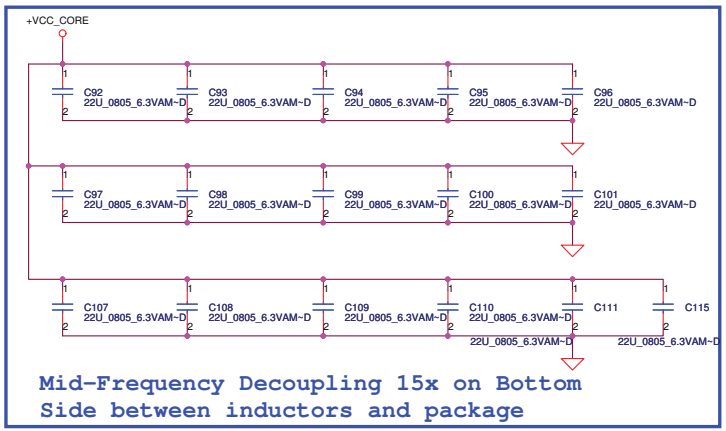


DELL CONFIDENTIAL/PROPRIETARY

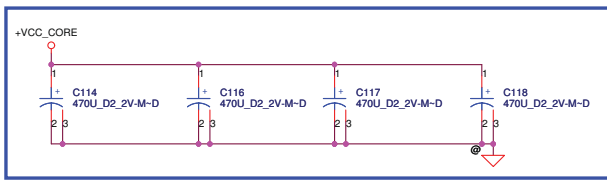
Compal Electronics, Inc.			
Title: Arrandale(4/6)			
Size	Document Number: LA-5812P		Rev: 1.0
Date: Monday, May 10, 2010	Sheet 8 of 55		



High-Frequency Decoupling 25x on Top Side

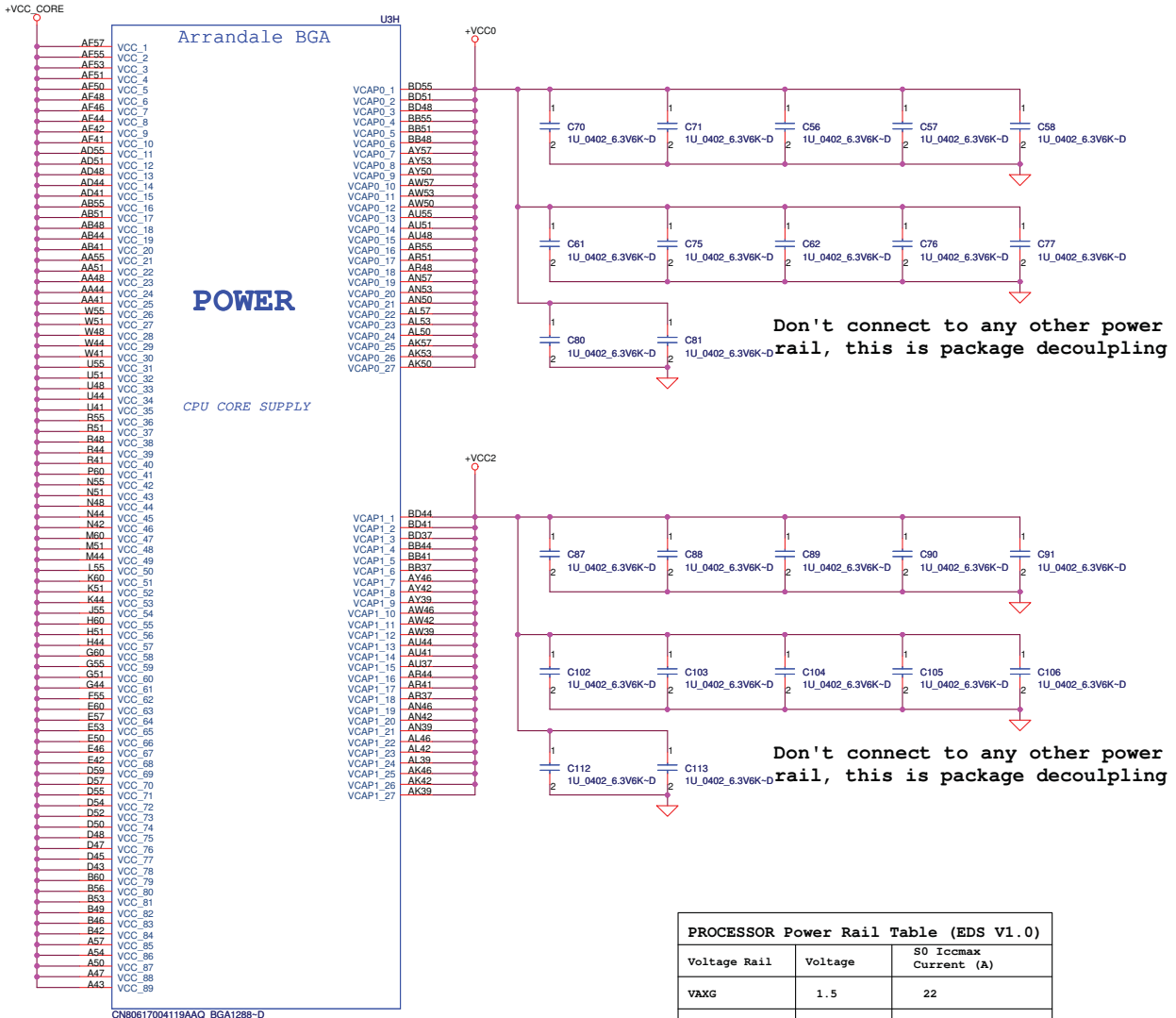


Mid-Frequency Decoupling 15x on Bottom Side between inductors and package



Low-Frequency Bulk 4x on Bottom Side, 1x on Top

Current =48A



Don't connect to any other power rail, this is package decoulpling

Don't connect to any other power rail, this is package decoulpling

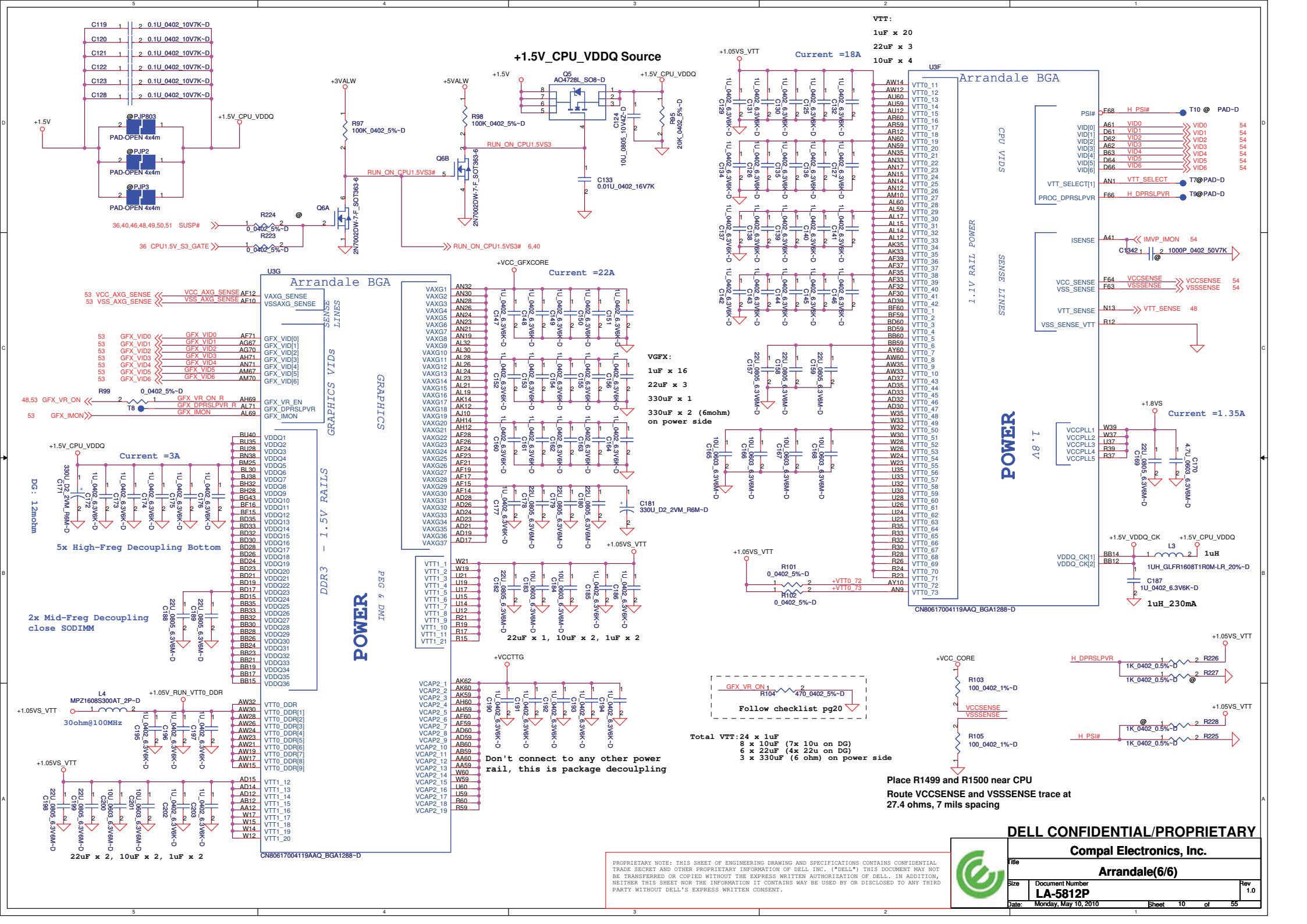
PROCESSOR Power Rail Table (EDS V1.0)		
Voltage Rail	Voltage	S0 Iccmax Current (A)
VAXG	1.5	22
VccPLL	1.8	1.35
VCORE	0.75	48
VDDR	1.5	3
VTT	1.05	18

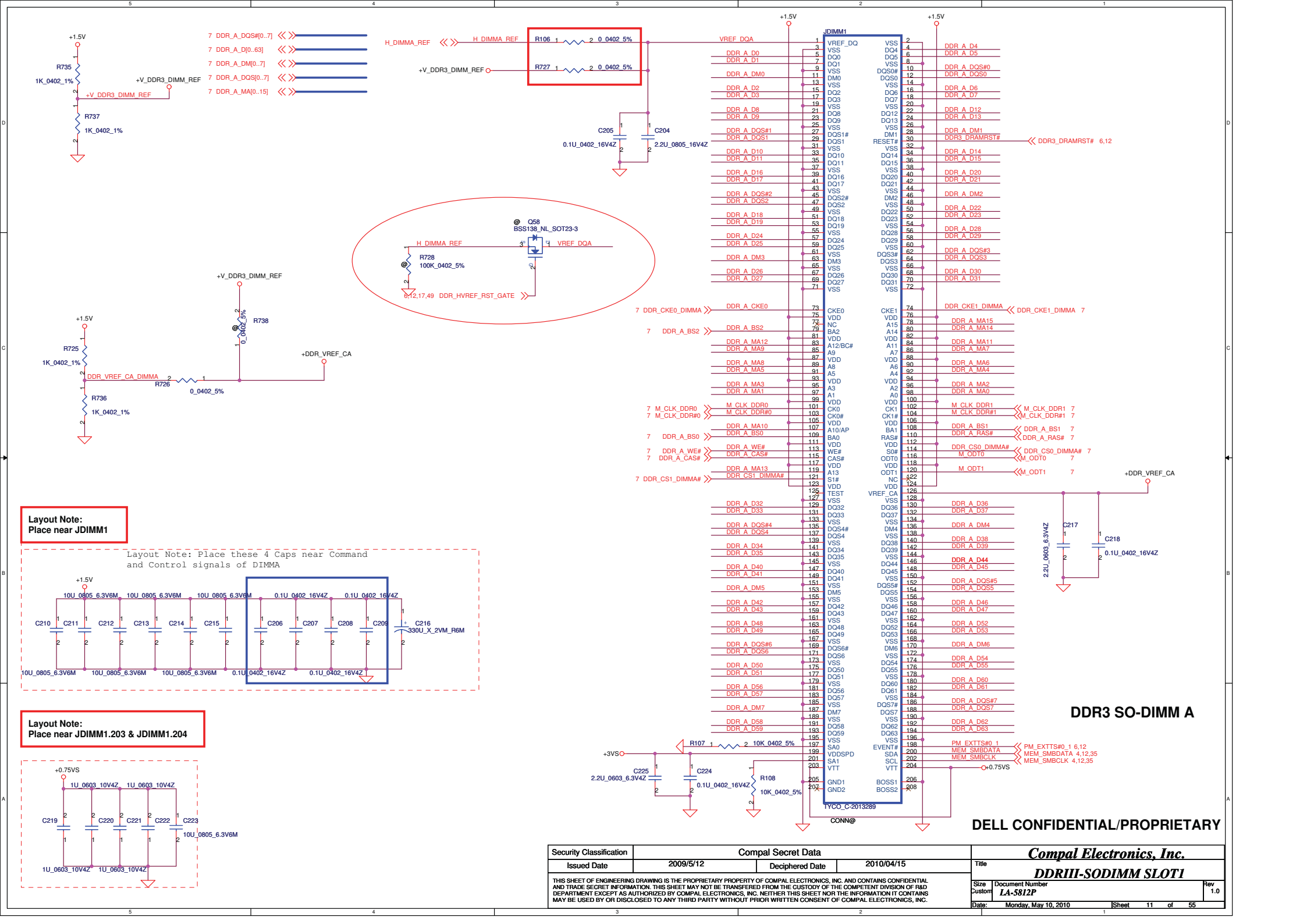
Compal Electronics, Inc.

Title: Arrandale(5/6)

Size: | Document Number: LA-5812P | Rev: 1.0

Date: Monday, May 10, 2010 | Sheet 9 of 55


+1.5V_CPU_VDDQ Source
Arrandale BGA
U3G
U3F
POWER
DDR3 - 1.5V RAILS
GRAPHICS VIDS
SENSE LINES
PEG & DMI
CPU VIDS
1.1V RAIL POWER
1.8V
Current =3A
Current =22A
Current =18A
Current =1.35A
5x High-Freg Decoupling Bottom
2x Mid-Freg Decoupling close SODIMM
22uF x 2, 10uF x 2, 1uF x 2
22uF x 1, 10uF x 2, 1uF x 2
VGFX:
1uF x 16
22uF x 3
330uF x 1
330uF x 2 (6mohm) on power side
VTT:
1uF x 20
22uF x 3
10uF x 4
Total VTT:24 x 1uF
8 x 10uF (7x 10u on DG)
6 x 22uF (4x 22u on DG)
3 x 330uF (6 ohm) on power side
Follow checklist pg20
Don't connect to any other power rail, this is package decoulpling
Place R1499 and R1500 near CPU
Route VCCSENSE and VSSSENSE trace at 27.4 ohms, 7 mils spacing
CN80617004119AAQ_BGA1288~D
DG: 12mohm
30ohm@100MHz
1uH_230mA
DELL CONFIDENTIAL/PROPRIETARY
Compal Electronics, Inc.
Arrandale(6/6)
LA-5812P
Rev 1.0
Monday, May 10, 2010
Sheet 10 of 55



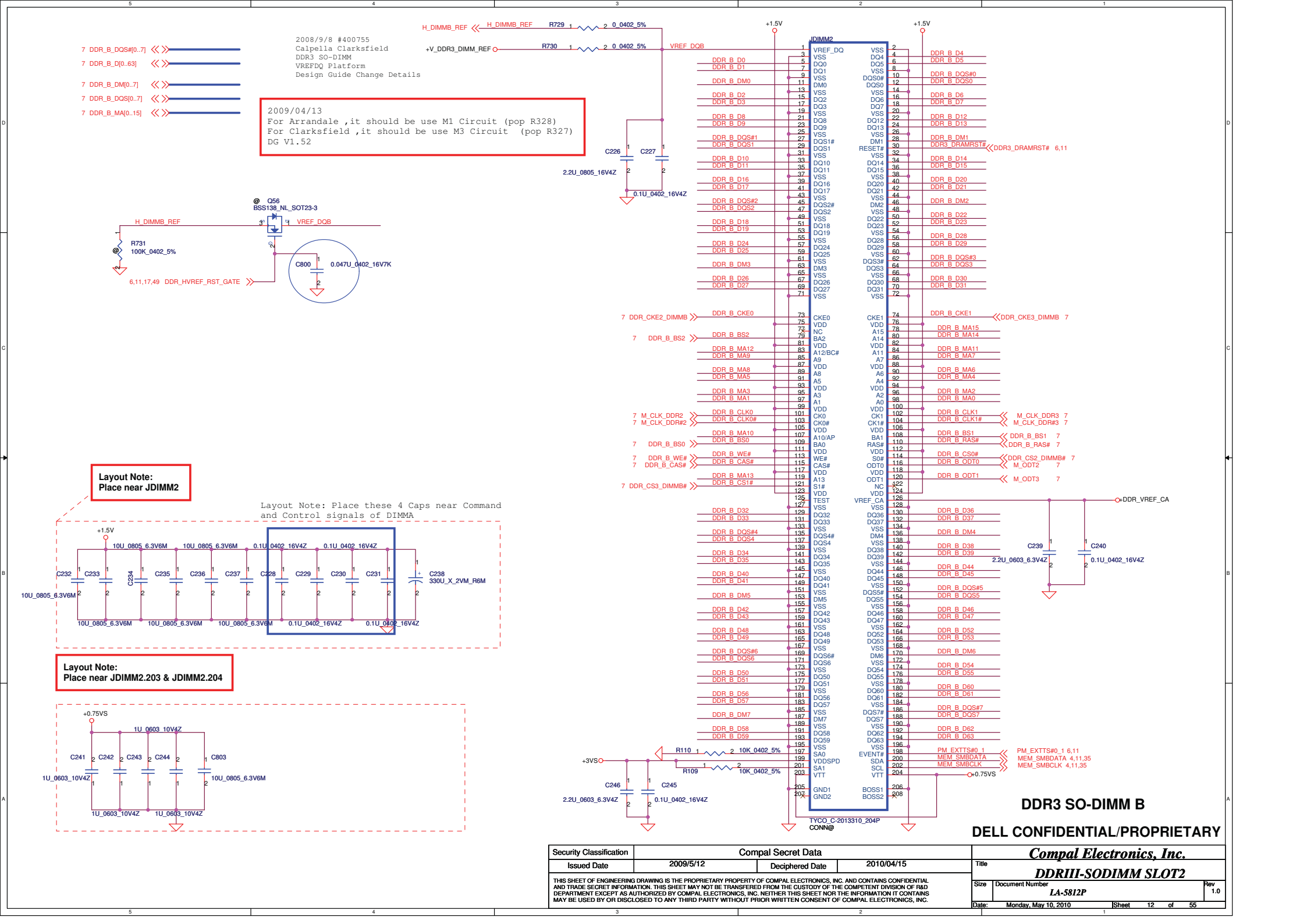
Security Classification	Compal Secret Data		
Issued Date	2009/5/12	Deciphered Date	2010/04/15

Compal Electronics, Inc.

Title: DDRIII-SODIMM SLOT1

Size	Document Number	Rev
Custom	LA-5812P	1.0

Date: Monday, May 10, 2010 Sheet 11 of 55



Security Classification	Compal Secret Data		
Issued Date	2009/5/12	Deciphered Date	2010/04/15

Compal Electronics, Inc.			
Title: DDRIII-SODIMM SLOT2			
Size	Document Number: LA-5812P		Rev: 1.0
Date: Monday, May 10, 2010	Sheet 12 of 55		

CMOS_CLR1	CMOS setting
Shunt	Clear CMOS
Open	Keep CMOS

ME_CLR1	TPM setting
Shunt	Clear ME RTC Registers
Open	Keep ME RTC Registers

INTVRMEN- Integrated SUS 1.1V VRM Enable
High - Enable Internal VRs

On Die PLL VR is supplied by 1.5V when sampled high, 1.8 V when sampled low

No Reboot Strap	
SPKR	Low = Default
	High = No Reboot

RC Delay 18~25mS

CMOS place near DIMM

200 MIL SO8
32Mb Flash ROM

Change to W25Q32 on ST??

		PCH JTAG Enable		PCH JTAG Disable		Production
PCH Pin	Ref.	ES1	ES2	ES1	ES2	All
TDO	R149	No Stuff	200 ohm	No Stuff	No Stuff	51 ohm
	R151	No Stuff	100 ohm	No Stuff	No Stuff	No Stuff
TMS	R139	200 ohm	200 ohm	No Stuff	No Stuff	51 ohm
	R140	100 ohm	100 ohm	No Stuff	No Stuff	No Stuff
TDI	R145	200 ohm	200 ohm	20K ohm	No Stuff	51 ohm
	R146	100 ohm	100 ohm	10K ohm	No Stuff	No Stuff
TCK	R153	51 ohm	51 ohm	51 ohm	51 ohm	51 ohm
TRST#		20K ohm	20K ohm	No Stuff	No Stuff	
		10K ohm	10K ohm	No Stuff	No Stuff	

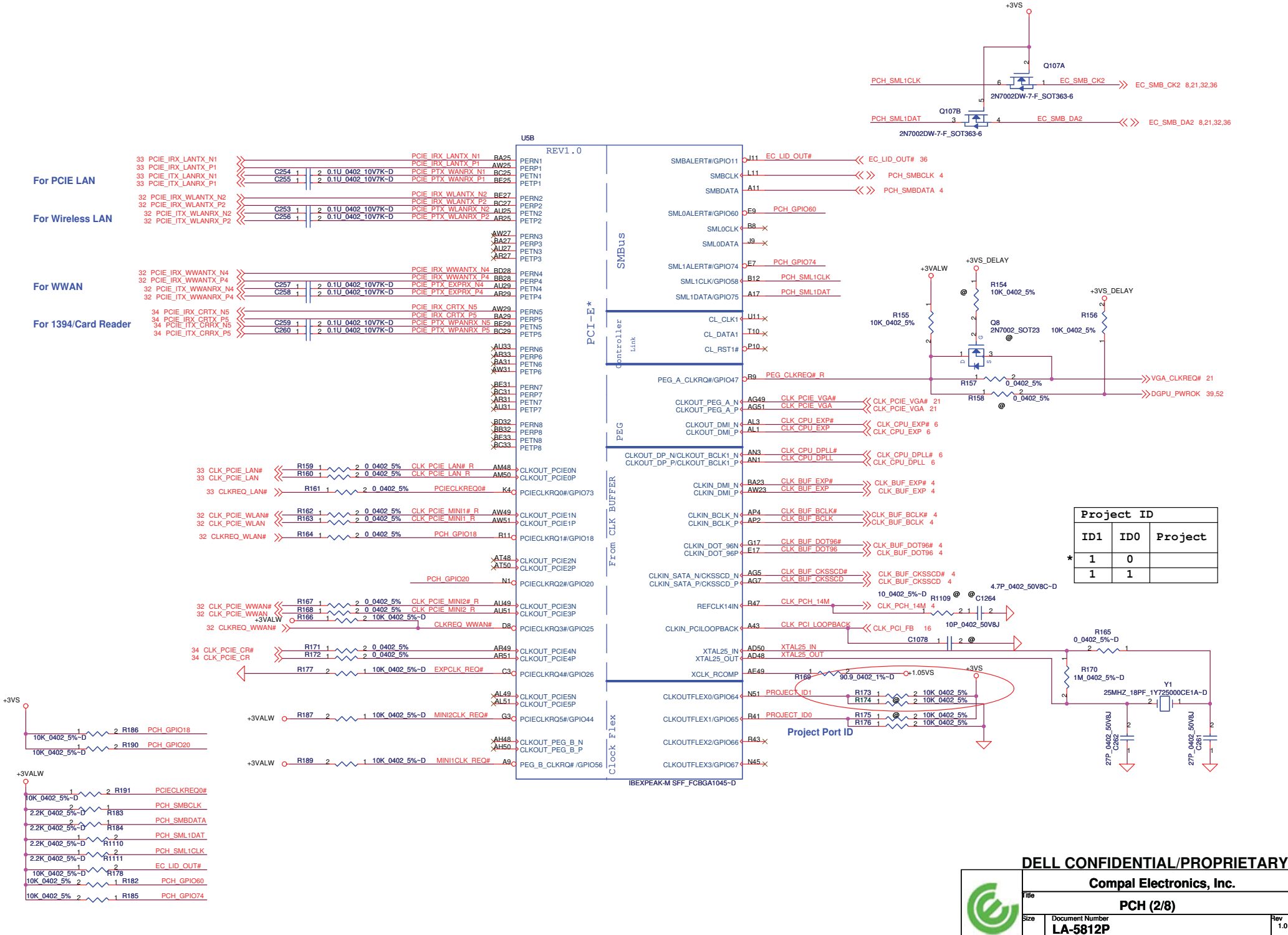
DELL CONFIDENTIAL/PROPRIETARY

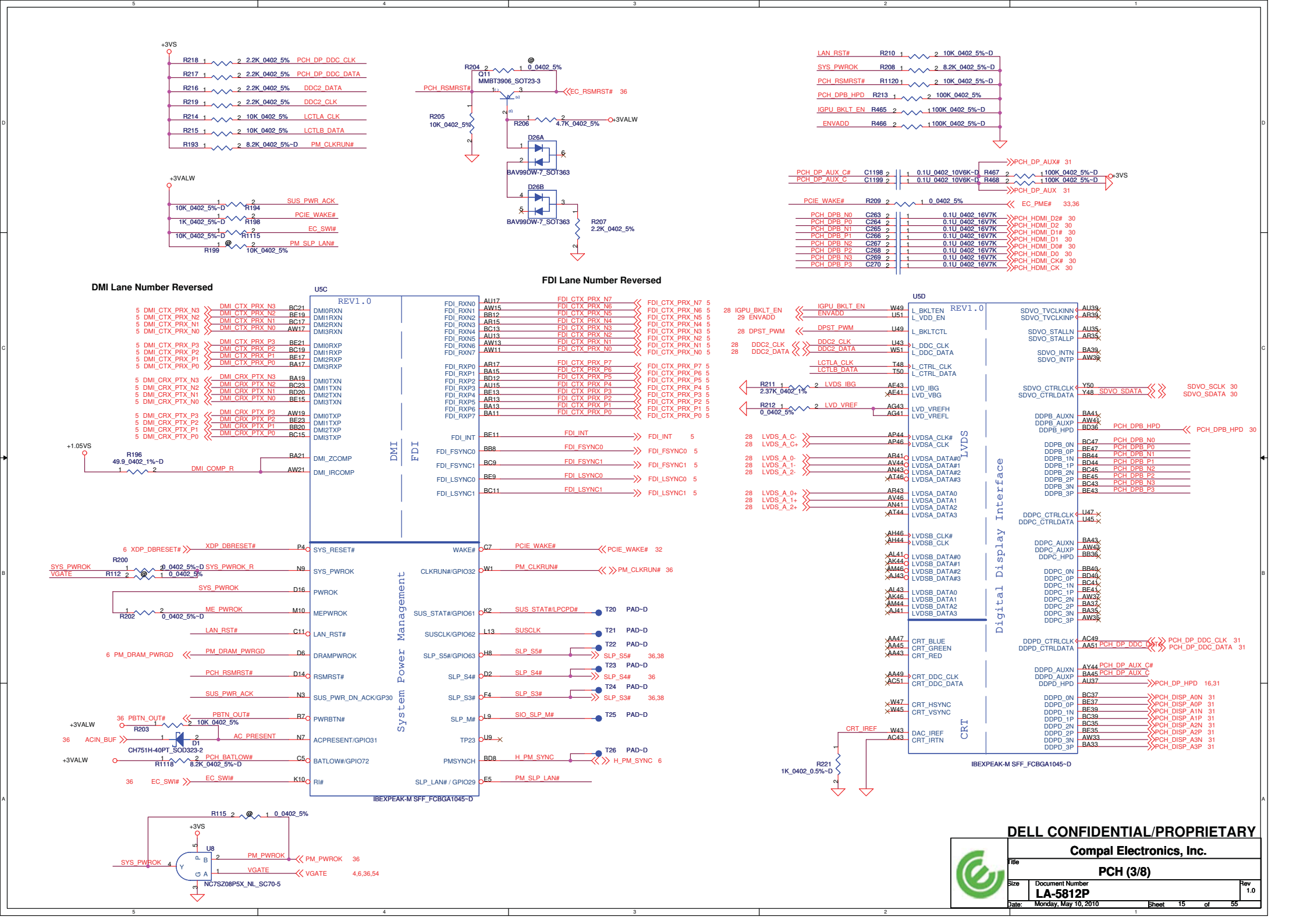
Compal Electronics, Inc.

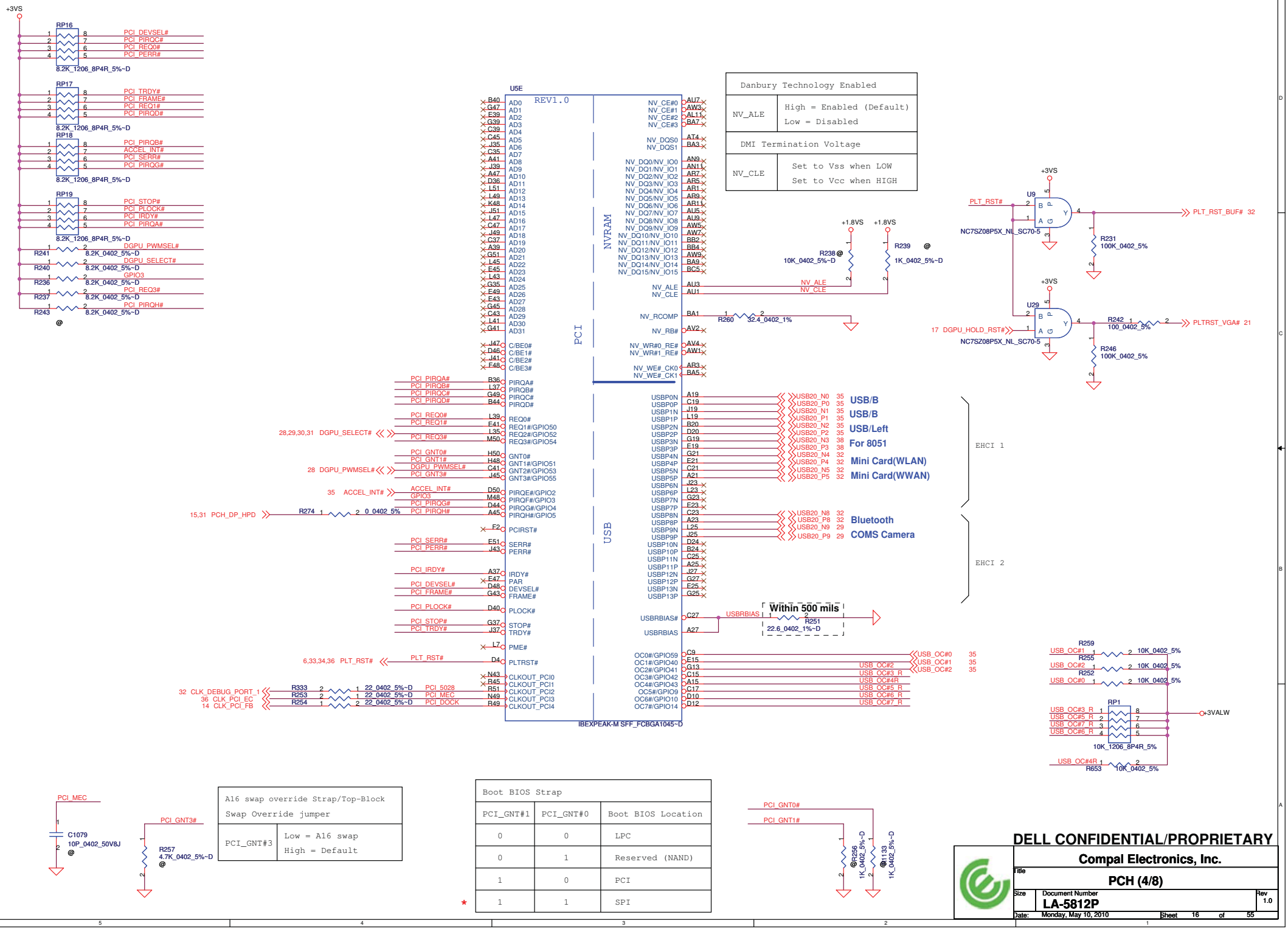
Title: PCH (1/8)

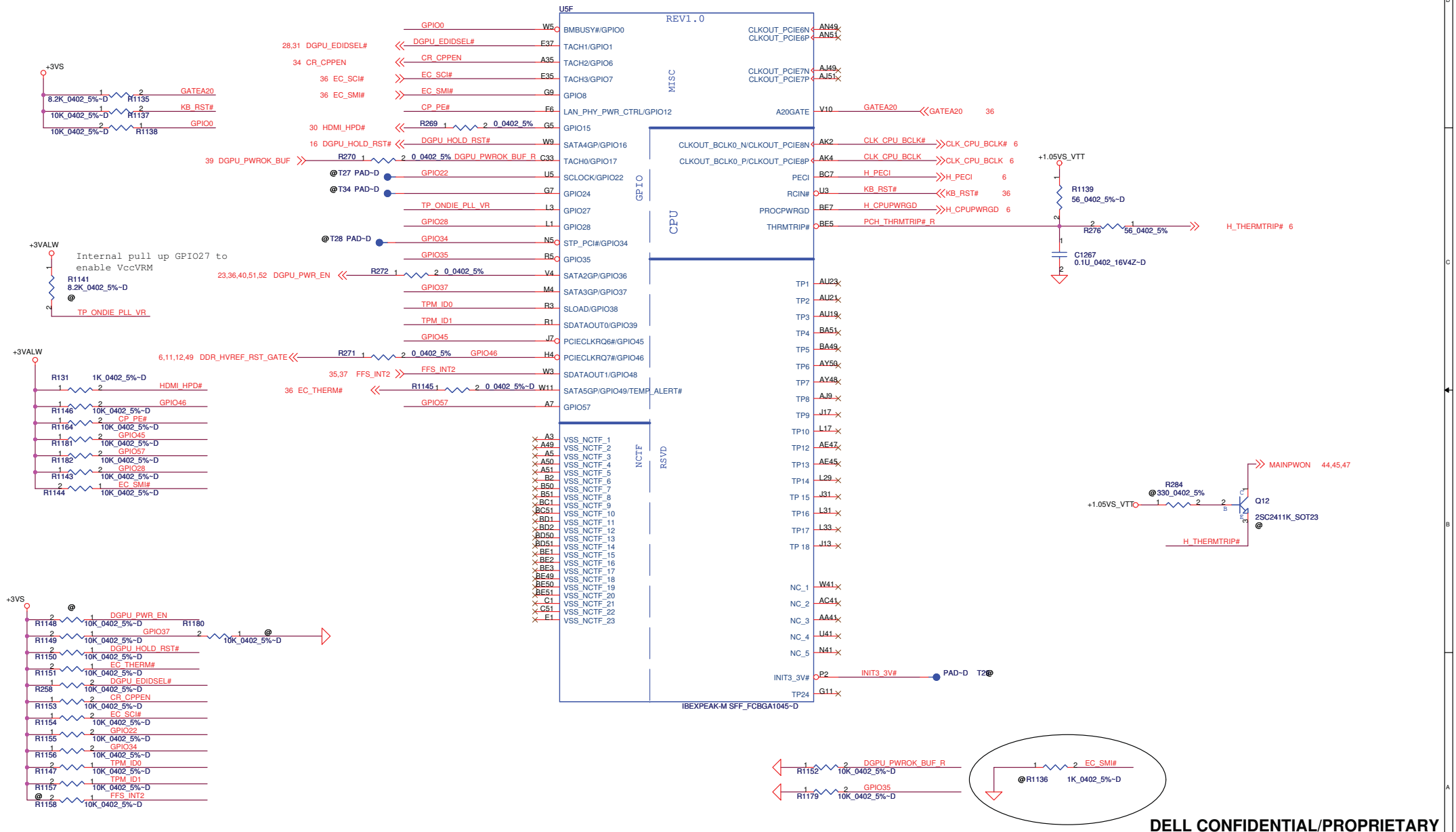
Size | Document Number: LA-5812P | Rev: 1.0

Date: Monday, May 10, 2010 | Sheet 13 of 55


For PCIE LAN
For Wireless LAN
For WWAN
For 1394/Card Reader
U5B
REV1.0
PCI-E*
SMBus
PEG
From CLK BUFFER
Clock Flex
IBEXPEAK-M SFF_FCBGA1045~D
Q107A
Q107B
2N7002DW-7-F_SOT363-6
Q8
2N7002_SOT23
+3VS
+3VALW
+3VS_DELAY
Project Port ID
Project ID
ID1
ID0
Project
DELL CONFIDENTIAL/PROPRIETARY
Compal Electronics, Inc.
PCH (2/8)
LA-5812P
Rev 1.0
Monday, May 10, 2010
Sheet 14 of 55


DMI Lane Number Reversed
FDI Lane Number Reversed
U5C
REV1.0
DMI
FDI
System Power Management
IBEXPEAK-M SFF_FCBGA1045~D
U5D
LVDS
Digital Display Interface
CRT
IBEXPEAK-M SFF_FCBGA1045~D
U8
NC7SZ08P5X_NL_SC70-5
DELL CONFIDENTIAL/PROPRIETARY
Compal Electronics, Inc.
PCH (3/8)
LA-5812P
Rev 1.0
Monday, May 10, 2010
Sheet 15 of 55


+3VS
RP16
PCI_DEVSEL#
PCI_PIRQC#
PCI_REQ0#
PCI_PERR#
8.2K_1206_8P4R_5%~D
RP17
PCI_TRDY#
PCI_FRAME#
PCI_REQ1#
PCI_PIRQD#
8.2K_1206_8P4R_5%~D
RP18
PCI_PIRQB#
ACCEL_INT#
PCI_SERR#
PCI_PIRQG#
8.2K_1206_8P4R_5%~D
RP19
PCI_STOP#
PCI_PLOCK#
PCI_IRDY#
PCI_PIRQA#
8.2K_1206_8P4R_5%~D
R241 DGPU_PWMSEL#
R240 DGPU_SELECT#
R236 GPIO3
R237 PCI_REQ3#
R243 PCI_PIRQH#
8.2K_0402_5%~D
@
U5E
REV1.0
PCI
NVRAM
USB
AD0 AD1 AD2 AD3 AD4 AD5 AD6 AD7 AD8 AD9 AD10 AD11 AD12 AD13 AD14 AD15 AD16 AD17 AD18 AD19 AD20 AD21 AD22 AD23 AD24 AD25 AD26 AD27 AD28 AD29 AD30 AD31
C/BE0# C/BE1# C/BE2# C/BE3#
PIRQA# PIRQB# PIRQC# PIRQD#
REQ0# REQ1#/GPIO50 REQ2#/GPIO52 REQ3#/GPIO54
GNT0# GNT1#/GPIO51 GNT2#/GPIO53 GNT3#/GPIO55
PIRQE#/GPIO2 PIRQF#/GPIO3 PIRQG#/GPIO4 PIRQH#/GPIO5
PCIRST#
SERR# PERR#
IRDY# PAR DEVSEL# FRAME#
PLOCK#
STOP# TRDY#
PME#
PLTRST#
CLKOUT_PCI0 CLKOUT_PCI1 CLKOUT_PCI2 CLKOUT_PCI3 CLKOUT_PCI4
NV_CE#0 NV_CE#1 NV_CE#2 NV_CE#3
NV_DQS0 NV_DQS1
NV_DQ0/NV_IO0 NV_DQ1/NV_IO1 NV_DQ2/NV_IO2 NV_DQ3/NV_IO3 NV_DQ4/NV_IO4 NV_DQ5/NV_IO5 NV_DQ6/NV_IO6 NV_DQ7/NV_IO7 NV_DQ8/NV_IO8 NV_DQ9/NV_IO9 NV_DQ10/NV_IO10 NV_DQ11/NV_IO11 NV_DQ12/NV_IO12 NV_DQ13/NV_IO13 NV_DQ14/NV_IO14 NV_DQ15/NV_IO15
NV_ALE NV_CLE
NV_RCOMP
NV_RB#
NV_WR#0_RE# NV_WR#1_RE#
NV_WE#_CK0 NV_WE#_CK1
USBP0N USBP0P USBP1N USBP1P USBP2N USBP2P USBP3N USBP3P USBP4N USBP4P USBP5N USBP5P USBP6N USBP6P USBP7N USBP7P USBP8N USBP8P USBP9N USBP9P USBP10N USBP10P USBP11N USBP11P USBP12N USBP12P USBP13N USBP13P
USBRBIAS# USBRBIAS
OC0#/GPIO59 OC1#/GPIO40 OC2#/GPIO41 OC3#/GPIO42 OC4#/GPIO43 OC5#/GPIO9 OC6#/GPIO10 OC7#/GPIO14
IBEXPEAK-M SFF_FCBGA1045~D
Danbury Technology Enabled
NV_ALE: High = Enabled (Default); Low = Disabled
DMI Termination Voltage
NV_CLE: Set to Vss when LOW; Set to Vcc when HIGH
+1.8VS
R238 @ 10K_0402_5%~D
R239 @ 1K_0402_5%~D
R260 32.4_0402_1%
USB/B
USB/B
USB/Left
For 8051
Mini Card(WLAN)
Mini Card(WWAN)
Bluetooth
COMS Camera
EHCI 1
EHCI 2
Within 500 mils
R251 22.6_0402_1%~D
USB_OC#0 USB_OC#1 USB_OC#2 USB_OC#3_R USB_OC#4R USB_OC#5_R USB_OC#6_R USB_OC#7_R
U9
U29
NC7SZ08P5X_NL_SC70-5
PLT_RST#
PLT_RST_BUF# 32
R231 100K_0402_5%
17 DGPU_HOLD_RST#
PLTRST_VGA# 21
R242 100_0402_5%
R246 100K_0402_5%
R259 USB_OC#1 10K_0402_5%
R255 USB_OC#2 10K_0402_5%
R252 USB_OC#0 10K_0402_5%
RP1 10K_1206_8P4R_5%
+3VALW
R653 USB_OC#4R 10K_0402_5%
28,29,30,31 DGPU_SELECT#
28 DGPU_PWMSEL#
35 ACCEL_INT#
15,31 PCH_DP_HPD
R274 0_0402_5%
6,33,34,36 PLT_RST#
32 CLK_DEBUG_PORT_1
36 CLK_PCI_EC
14 CLK_PCI_FB
R333 22_0402_5%~D PCI_5028
R253 22_0402_5%~D PCI_MEC
R254 22_0402_5%~D PCI_DOCK
PCI_MEC
C1079 10P_0402_50V8J @
PCI_GNT3#
R257 4.7K_0402_5%~D @
A16 swap override Strap/Top-Block
Swap Override jumper
PCI_GNT#3: Low = A16 swap; High = Default
Boot BIOS Strap
PCI_GNT#1 | PCI_GNT#0 | Boot BIOS Location
0 | 0 | LPC
0 | 1 | Reserved (NAND)
1 | 0 | PCI
1 | 1 | SPI
PCI_GNT0#
PCI_GNT1#
R256 @ 1K_0402_5%~D
R1133 @ 1K_0402_5%~D
DELL CONFIDENTIAL/PROPRIETARY
Compal Electronics, Inc.
Title: PCH (4/8)
Size: Document Number: LA-5812P
Rev: 1.0
Date: Monday, May 10, 2010
Sheet 16 of 55



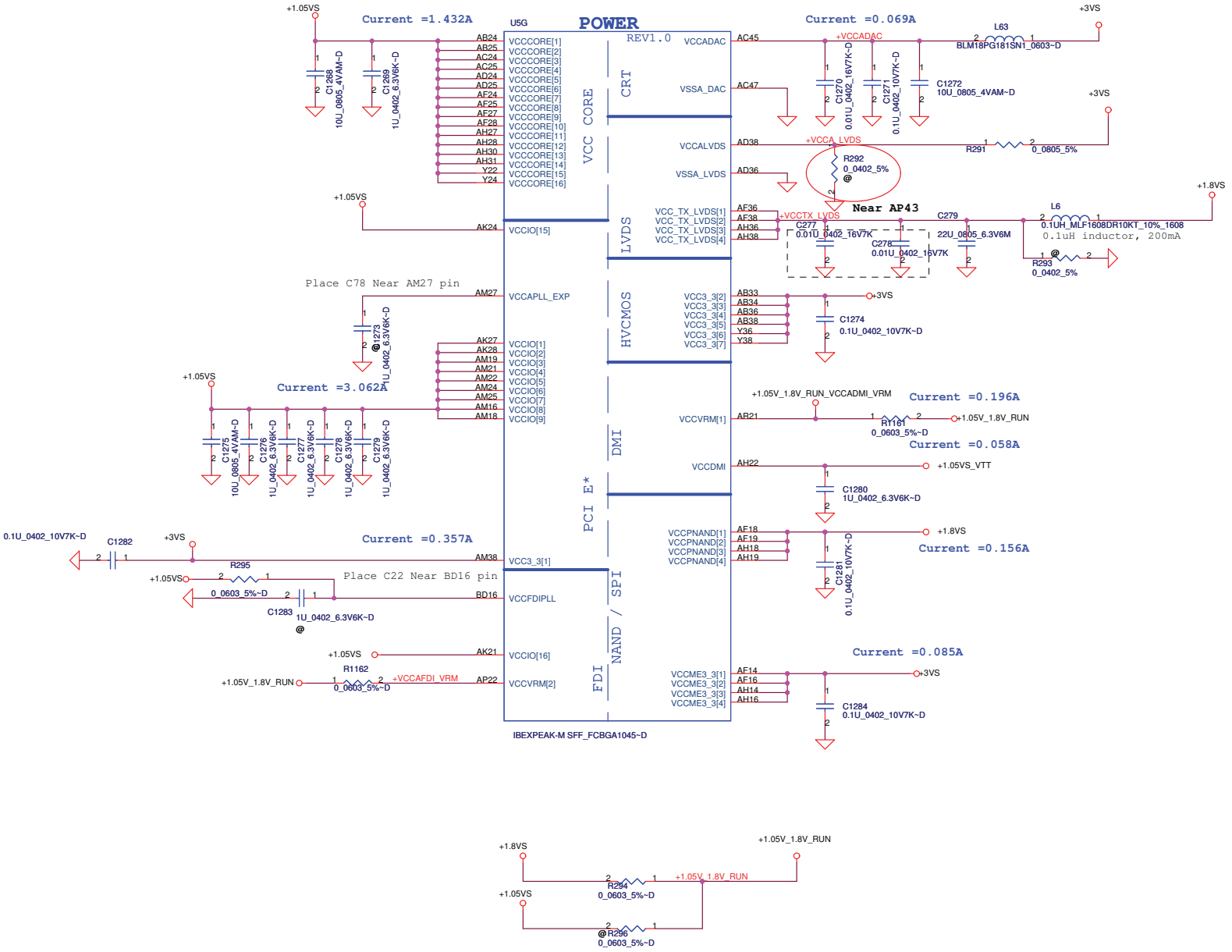
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title: PCH (5/8)

Size: | Document Number: LA-5812P | Rev: 1.0

Date: Monday, May 10, 2010 | Sheet 17 of 55



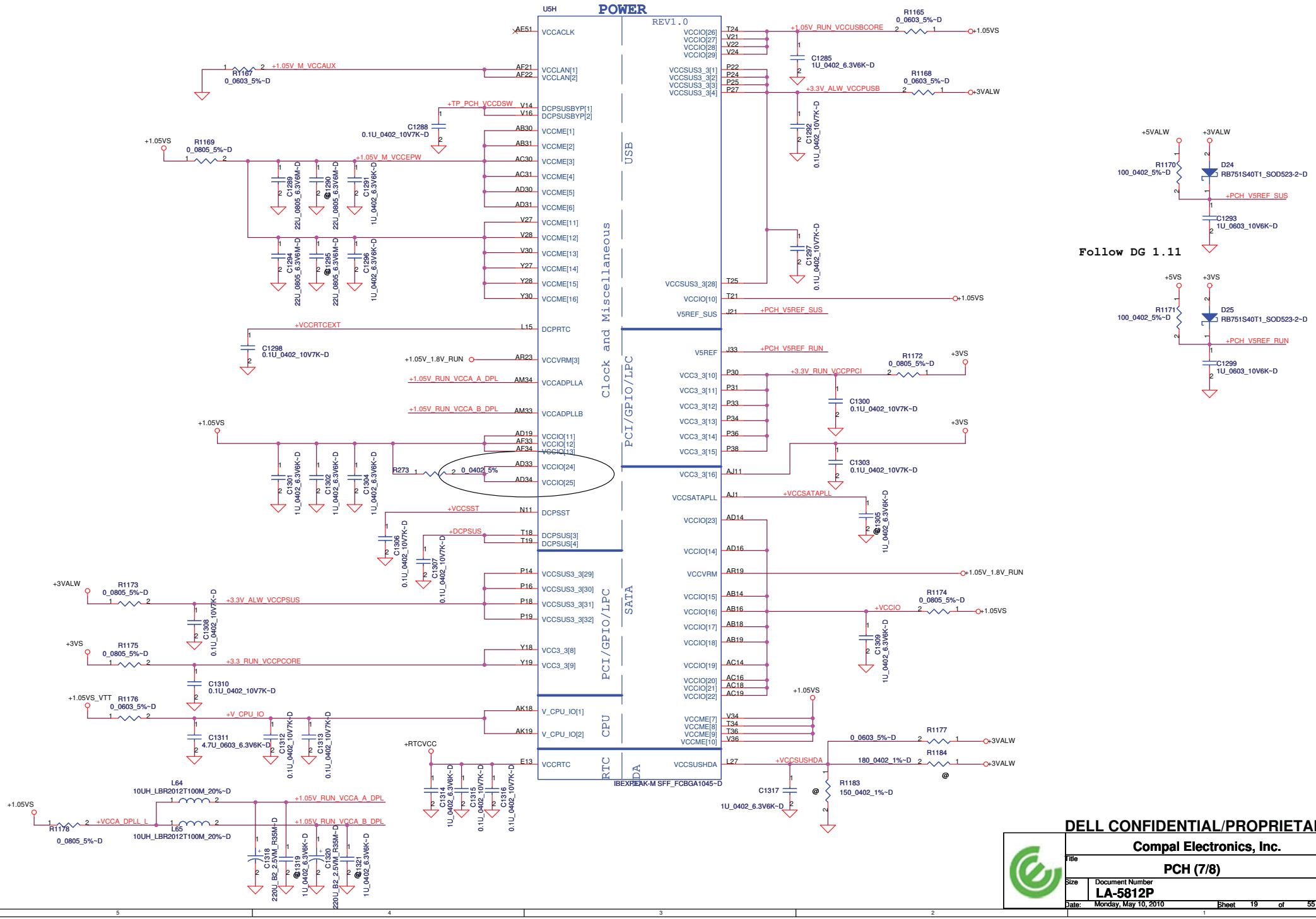
PCH Power Rail Table		
Voltage Rail	Voltage	S0 Iccmax Current (A)
V_CPU_IO	1.1/1.05	< 1 (mA)
V5REF	5	< 1 (mA)
V5REF_Sus	5	< 1 (mA)
Vcc3_3	3.3	0.357
VccAClk	1.1	0.052
VccADAC	3.3	0.069
VccADPLLA	1.1	0.068
VccADPLLB	1.1	0.069
VccapllEXP	1.1	0.04
VccCore	1.1	1.432
VccDMI	1.1	0.058
VccDMI	1.1	0.061
VccFDIPLL	1.1	0.037
VccIO	1.1	3.062
VccLAN	1.1	0.32
VccME	1.1	1.849
VccME3_3	3.3	0.085
VccpNAND	1.8	0.156
VccRTC	3.3	2 (mA)
VccSATAPLL	1.1	0.031
VccSus3_3	3.3	0.163
VccSusHDA	3.3	0.006
VccVRM	1.8 / 1.5	0.196
VccVRM	11	< 1 (mA)
VccALVDS	3.3	< 1 (mA)
VccTX_LVDS	1.8	0.059

Compal Electronics, Inc.

Title: PCH (6/8)

Size | Document Number: LA-5812P | Rev: 1.0

Date: Monday, May 10, 2010 | Sheet 18 of 55

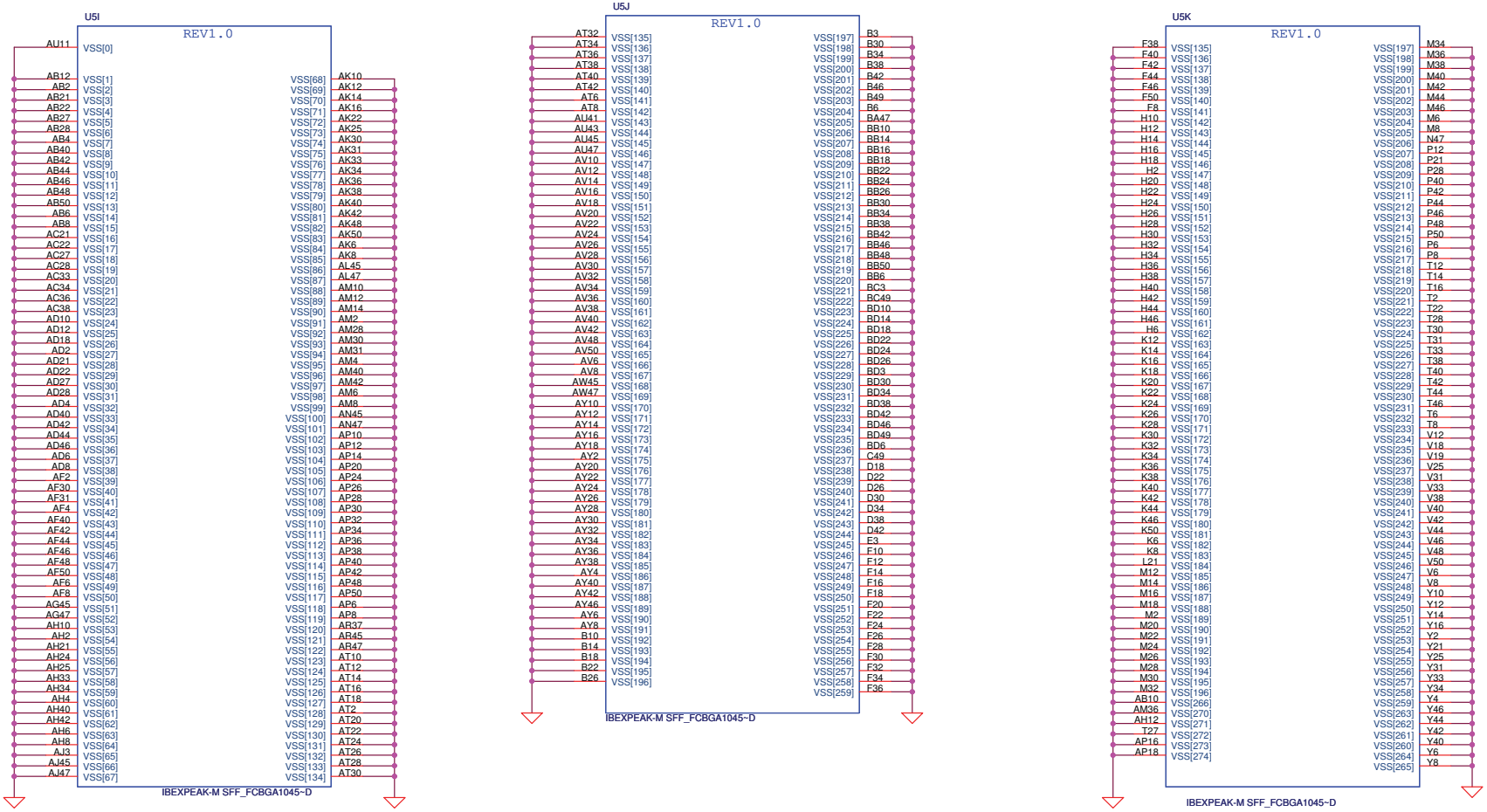


Compal Electronics, Inc.

Title: PCH (7/8)

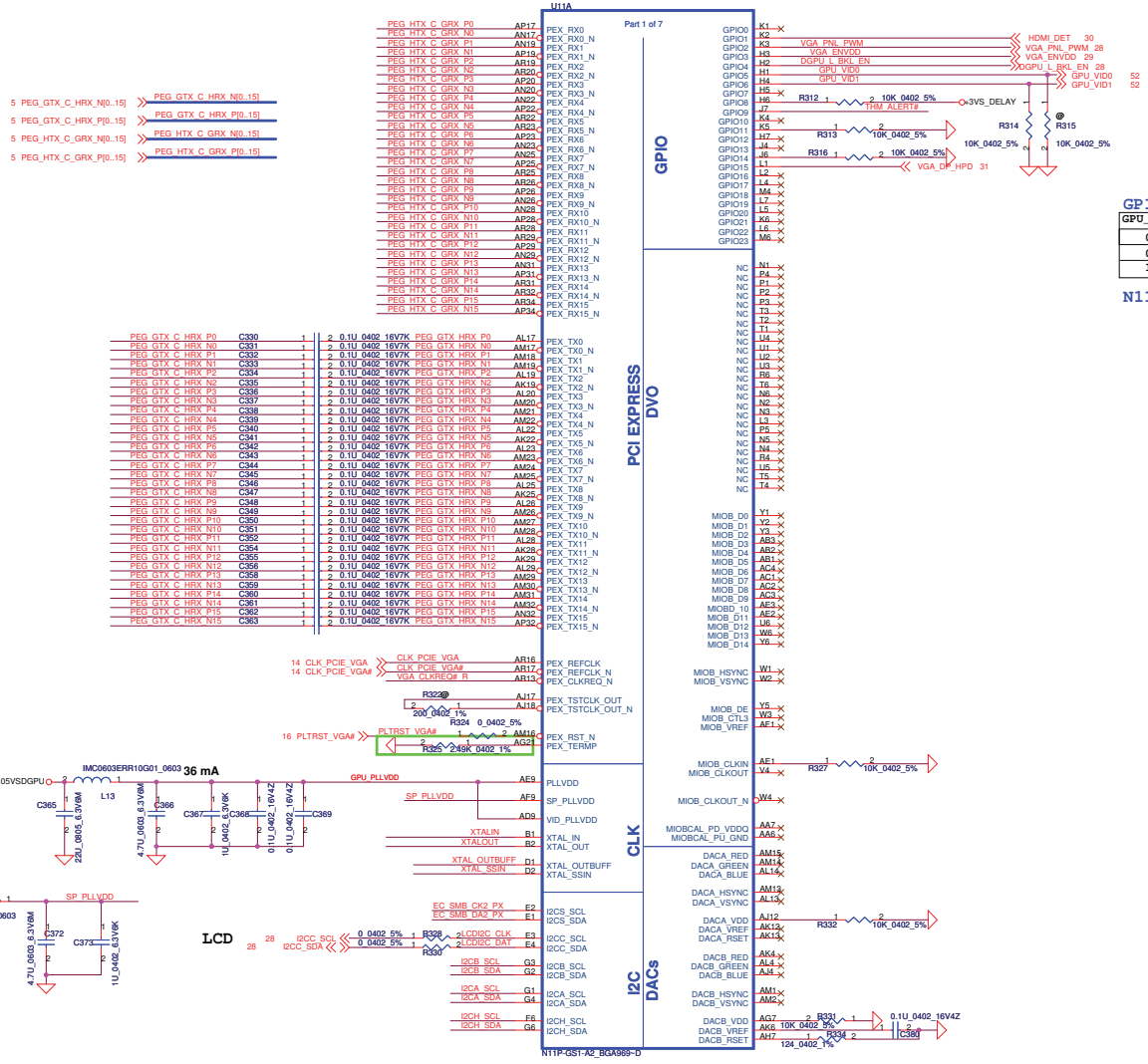
Size | Document Number: LA-5812P | Rev: 1.0

Date: Monday, May 10, 2010 | Sheet 19 of 55



DELL CONFIDENTIAL/PROPRIETARY

	Compal Electronics, Inc.	
Title	PCH (8/8)	
Size	Document Number LA-5812P	Rev 1.0
Date: Monday, May 10, 2010	Sheet 20 of 55	



GPIO	I/O	ACTIVE	USAGE
GPIO0	IN	H	N/A
GPIO1	IN	H	HDMI Hot-plug
GPIO2	OUT	H	VGA_PNL_PWM
GPIO3	OUT	H	ENVDD
GPIO4	OUT	H	VGA_BKL_EN
GPIO5	OUT	N/A	NVVDD VID0
GPIO6	OUT	N/A	NVVDD VID1
GPIO7	IN	L	N/A
GPIO8	IN	L	N/A
GPIO9	IN	L	THM_ALERT#
GPIO10	OUT	N/A	N/A
GPIO11	OUT	N/A	N/A
GPIO12	IN	N/A	N/A
GPIO13	OUT	N/A	N/A
GPIO14	OUT	N/A	N/A
GPIO15	IN	H	DP Hot-plug

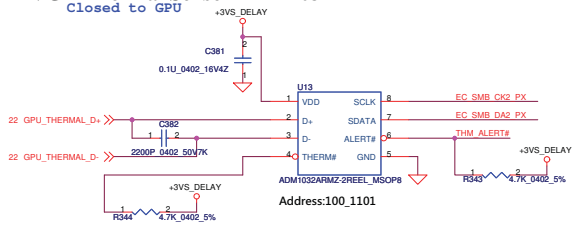
GPIO6 GPIO5

GPU_VID1	GPU_VID0	VGA_CORE
0	0	0.8V
0	1	0.85V
1	1	0.95V

N11P-GS1

VGA Thermal Sensor ADM1032ARMZ

Closed to GPU



DELL CONFIDENTIAL/PROPRIETARY

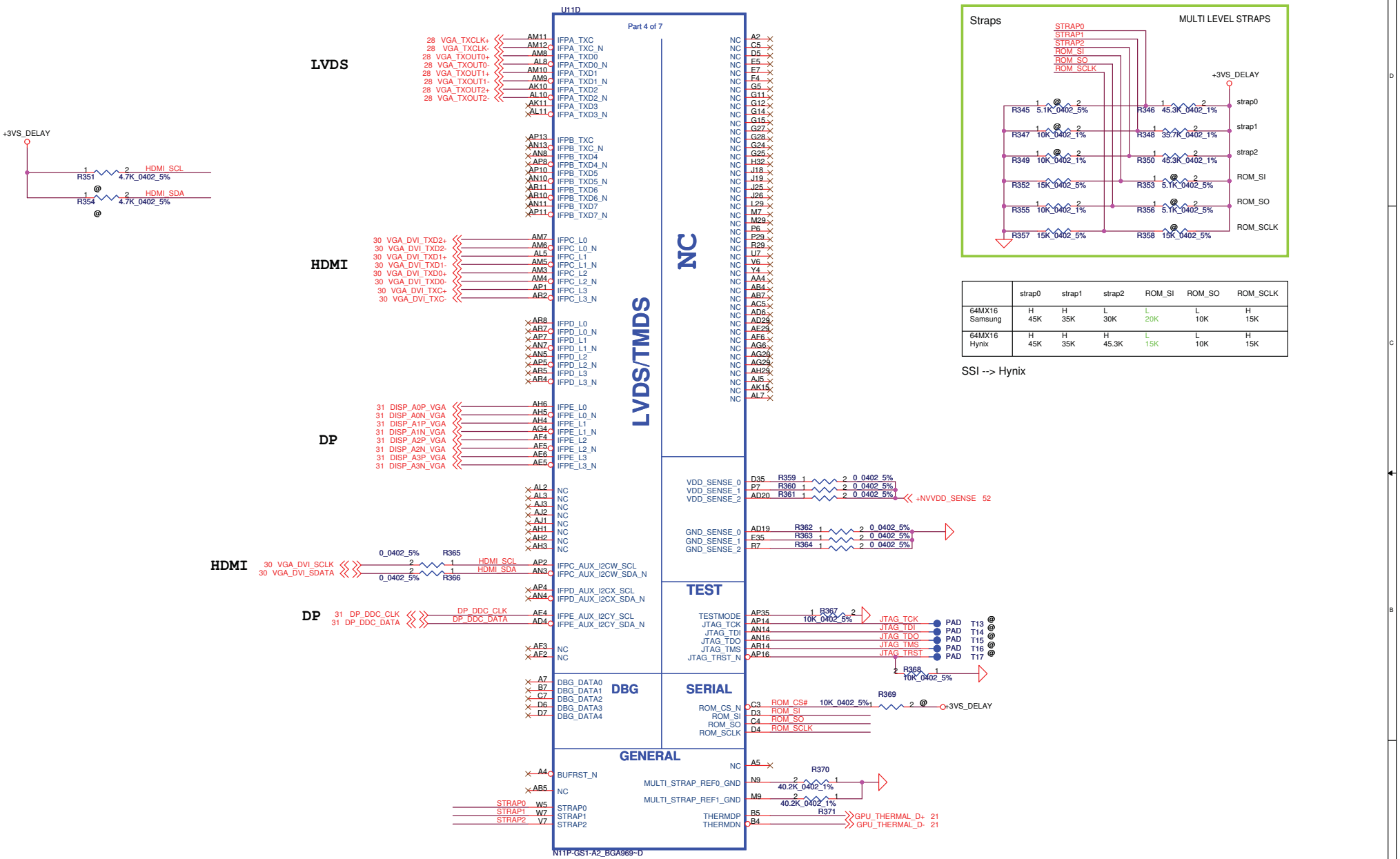
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.

Title: *N11P-GS1(1/5)PCIE/STRAPS/THERM*

Size	Document Number	Rev
	LA-5812P	1.0

Date: Monday, May 10, 2010 | Sheet 21 of 55



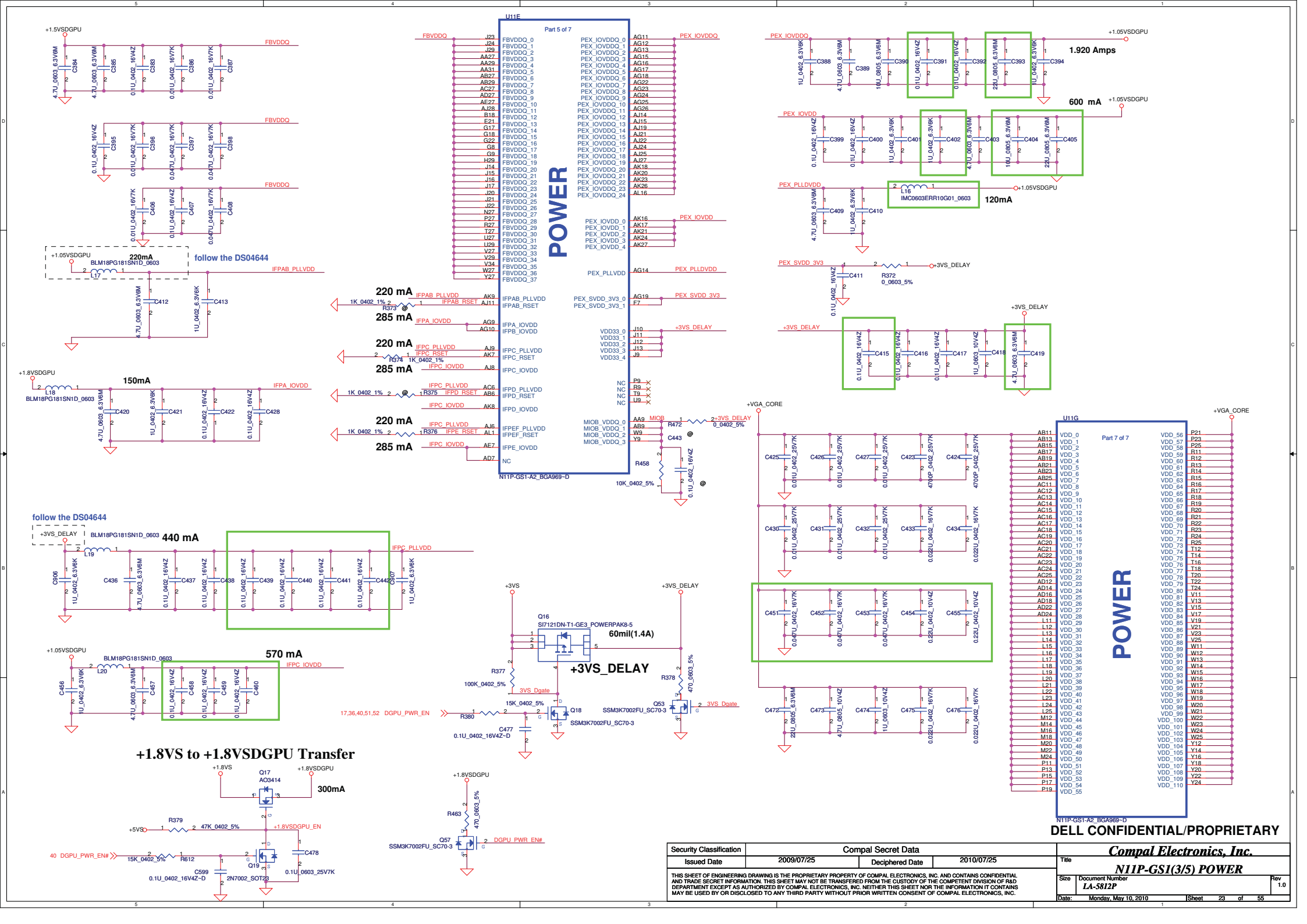
	strap0	strap1	strap2	ROM_SI	ROM_SO	ROM_SCLK
64MX16 Samsung	H 45K	H 35K	L 30K	L 20K	L 10K	H 15K
64MX16 Hynix	H 45K	H 35K	H 45.3K	L 15K	L 10K	H 15K

SSI --> Hynix

DELL CONFIDENTIAL/PROPRIETARY

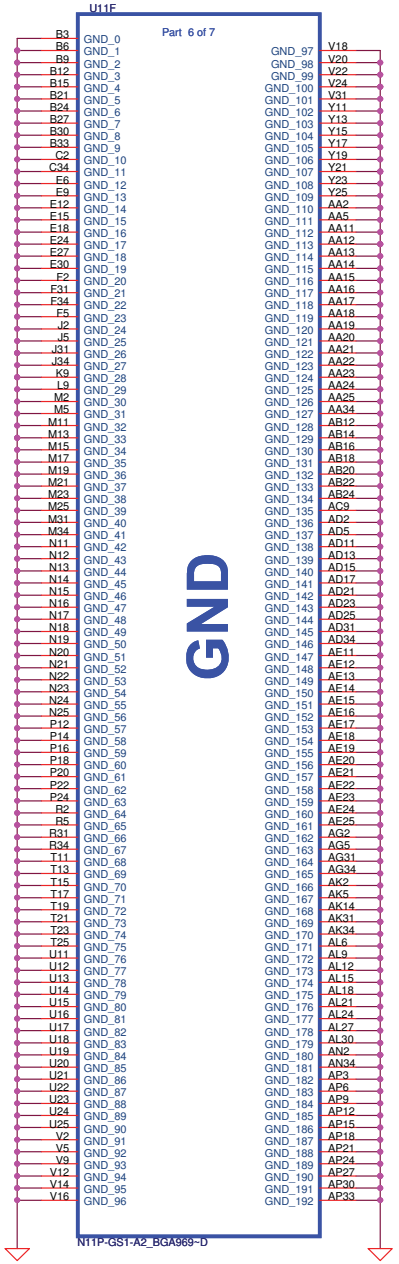
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.			
Title: N11P-GS1(2/5) IO			
Size	Document Number: LA-5812P		Rev: 1.0
Date: Monday, May 10, 2010	Sheet 22 of 55		



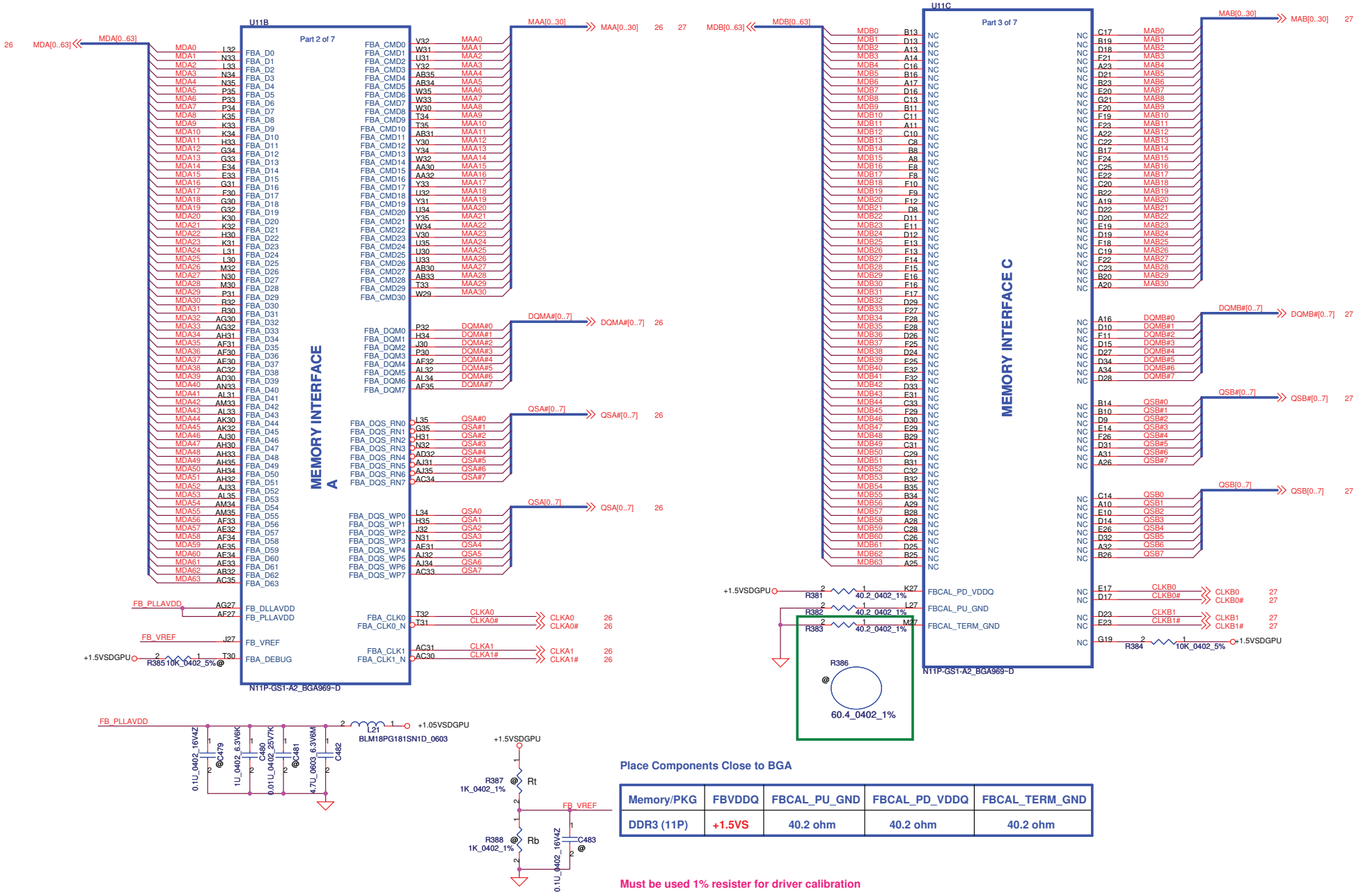
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.			
Title	N11P-GS1(3/5) POWER		
Size	Document Number		Rev
	LA-5812P		1.0
Date:	Monday, May 10, 2010	Sheet	23 of 55



Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.		
Title	N11P-GS1(4/5) GND	
Size	Document Number LA-5812P	Rev 1.0
Date: Monday, May 10, 2010	Sheet 24 of 55	



Place Components Close to BGA

Memory/PKG	FBVDDQ	FBCAL_PU_GND	FBCAL_PD_VDDQ	FBCAL_TERM_GND
DDR3 (11P)	+1.5VS	40.2 ohm	40.2 ohm	40.2 ohm

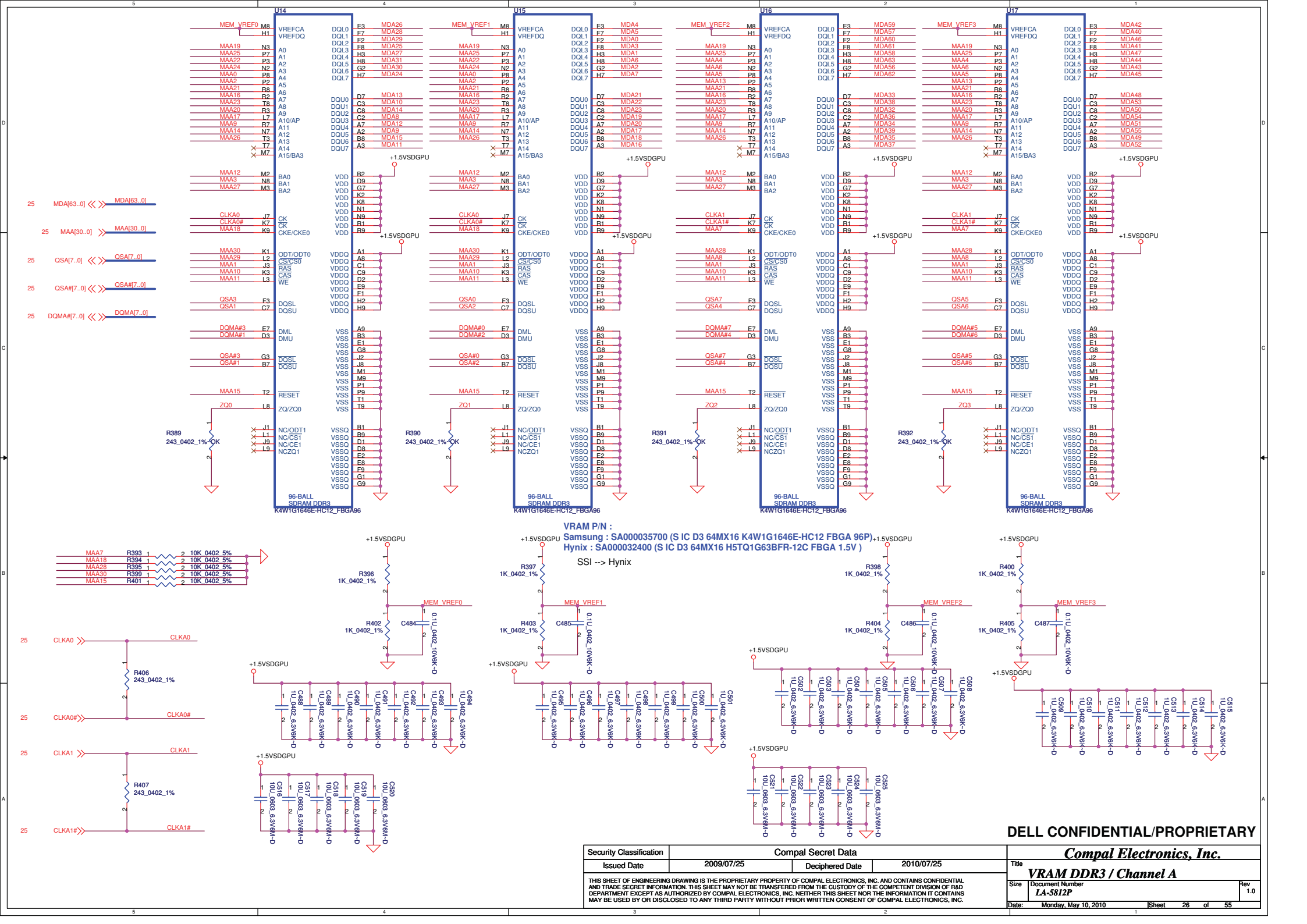
Must be used 1% resister for driver calibration

Compal Electronics, Inc.

Title: N11P-GS1(5/5) MEMORY

Size: | Document Number: LA-5812P | Rev: 1.0

Date: Monday, May 10, 2010 | Sheet 25 of 55



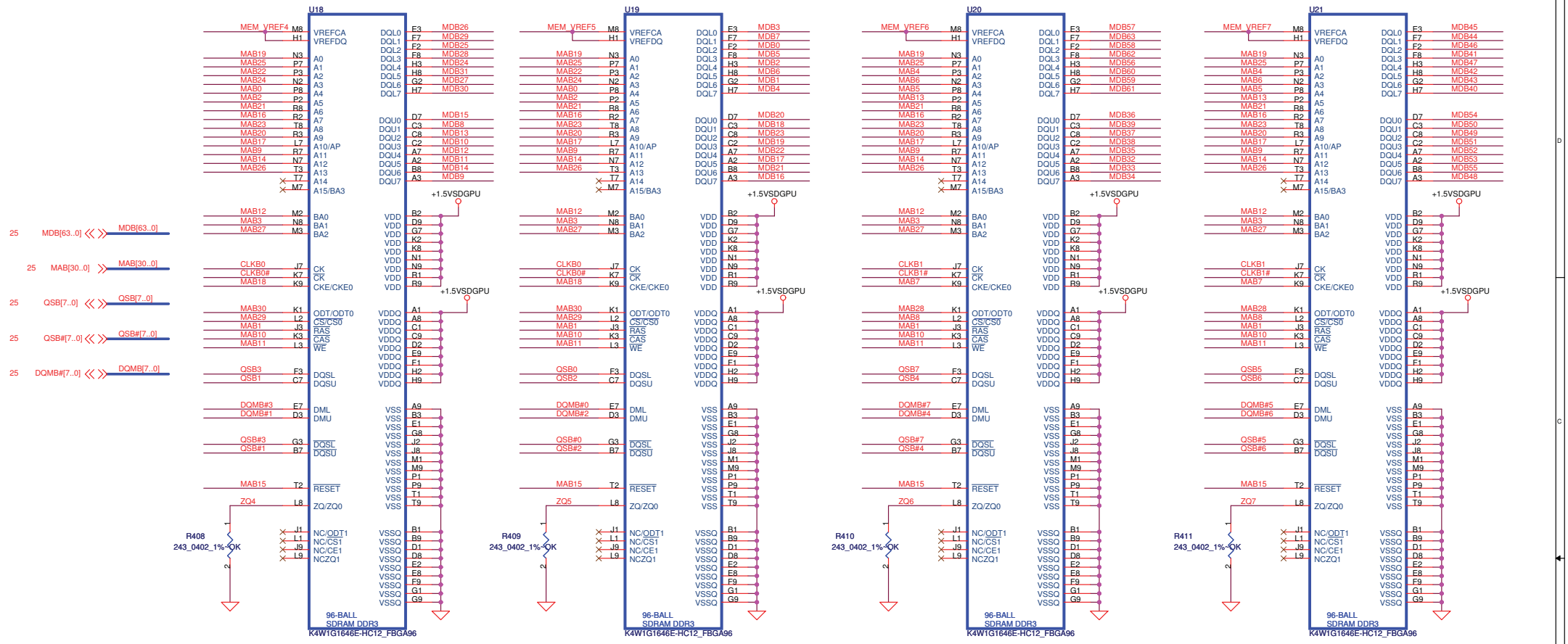
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.

Title: VRAM DDR3 / Channel A

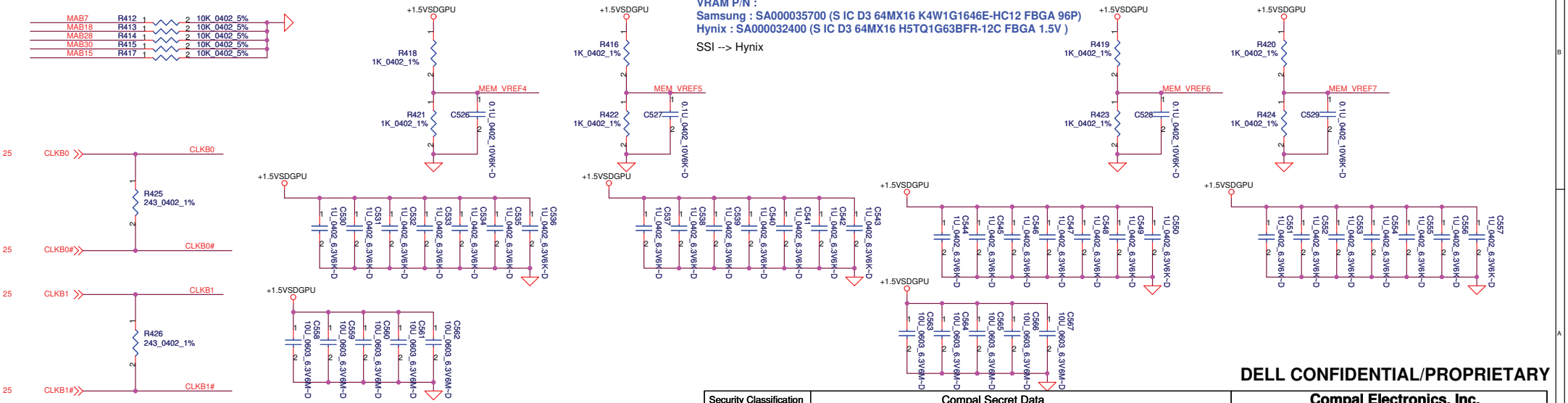
Size	Document Number	Rev
	LA-5812P	1.0

Date: Monday, May 10, 2010 Sheet 26 of 55



VRAM P/N :
Samsung : SA000035700 (S IC D3 64MX16 K4W1G1646E-HC12 FBGA 96P)
Hynix : SA000032400 (S IC D3 64MX16 H5TQ1G63BFR-12C FBGA 1.5V)

SSI --> Hynix



DELL CONFIDENTIAL/PROPRIETARY

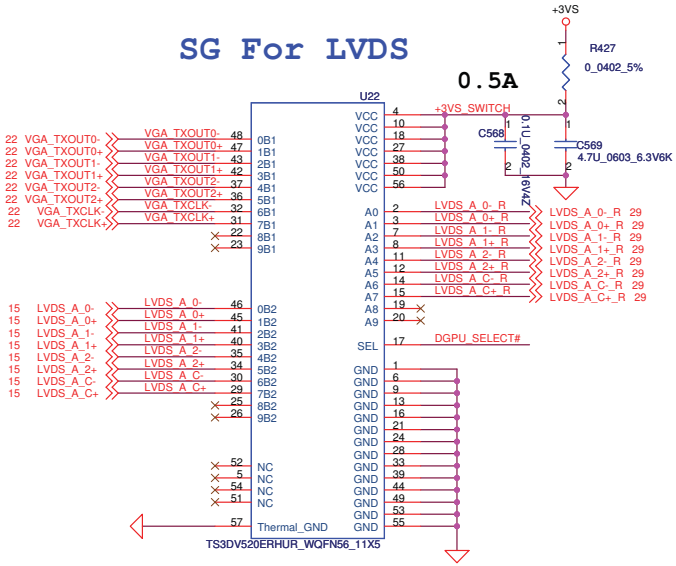
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.

Title: **VRAM DDR3 / Channel B**

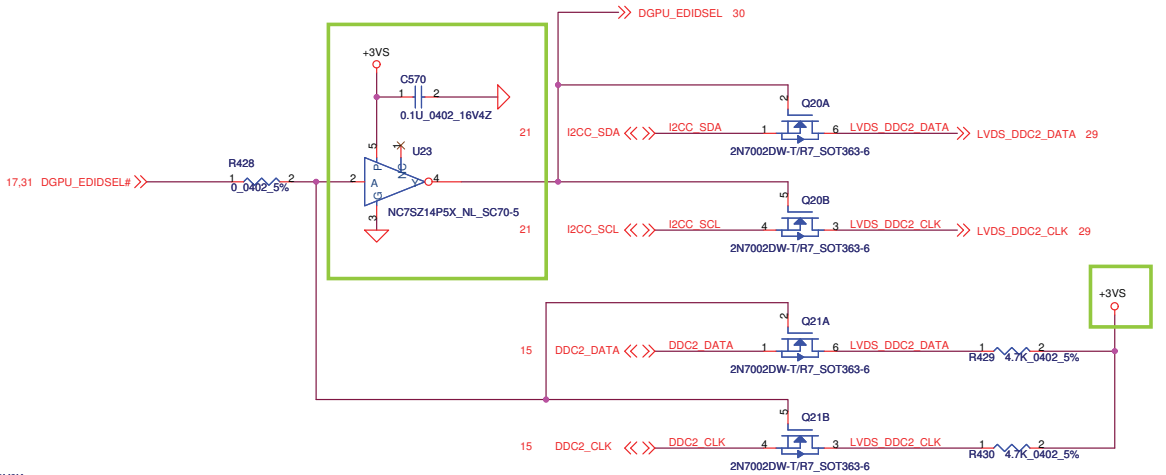
Size	Document Number	Rev
Custom	LA-5812P	1.0

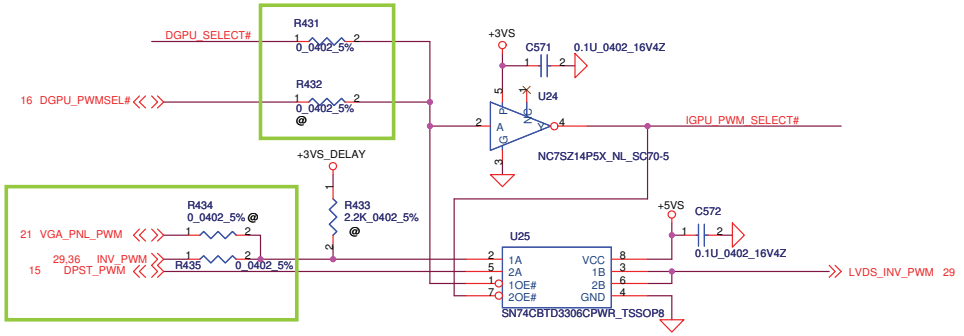
Date: Monday, May 10, 2010 | Sheet 27 of 55

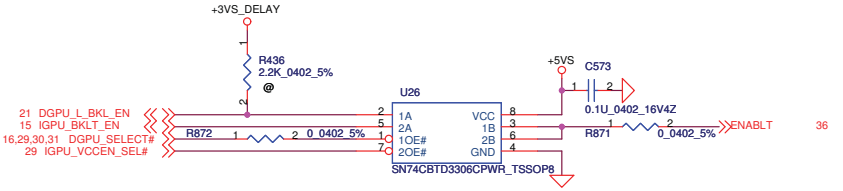


For SSI shortage issue

P/N from SA00001RM00 change to SA00001RM0L

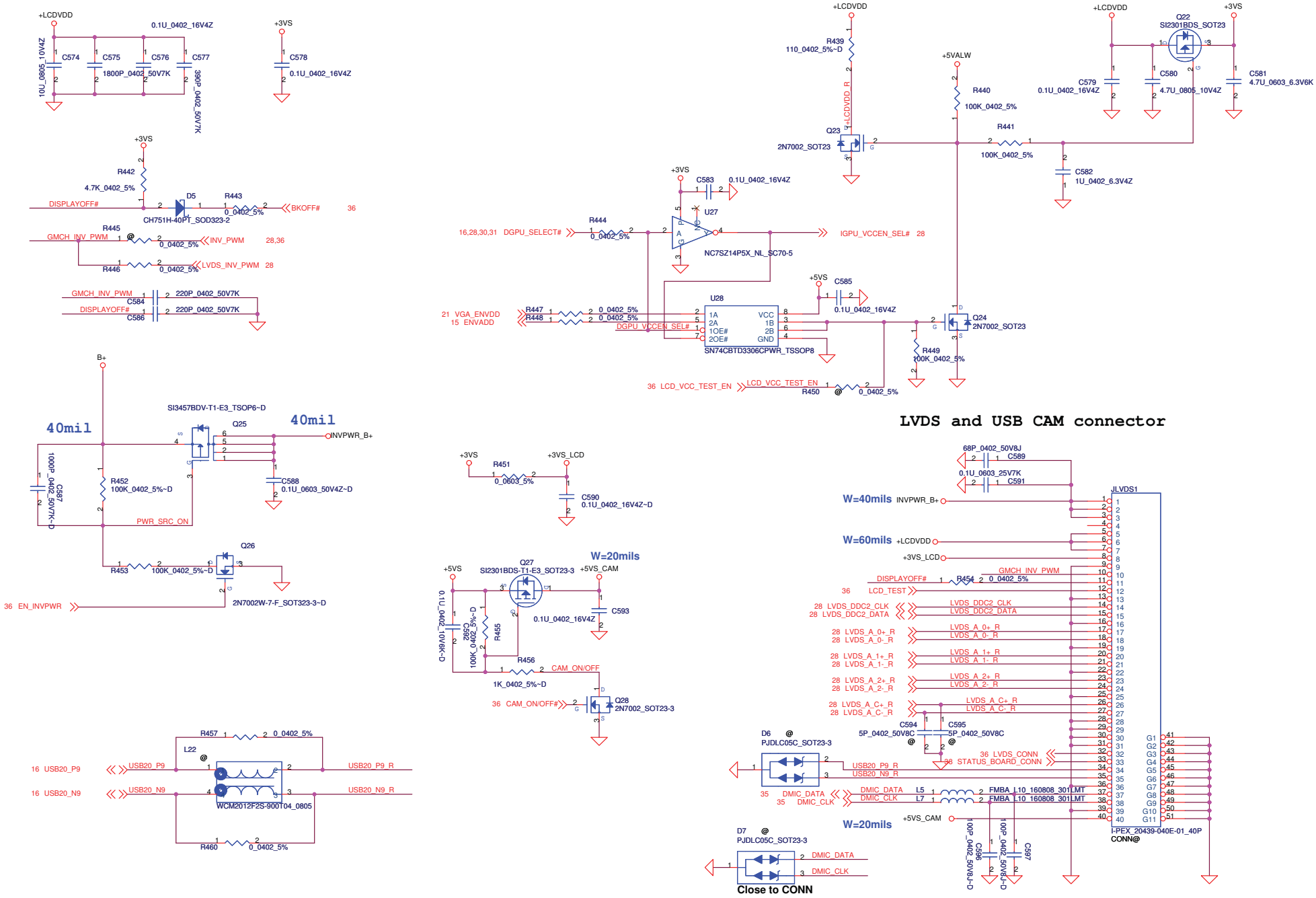






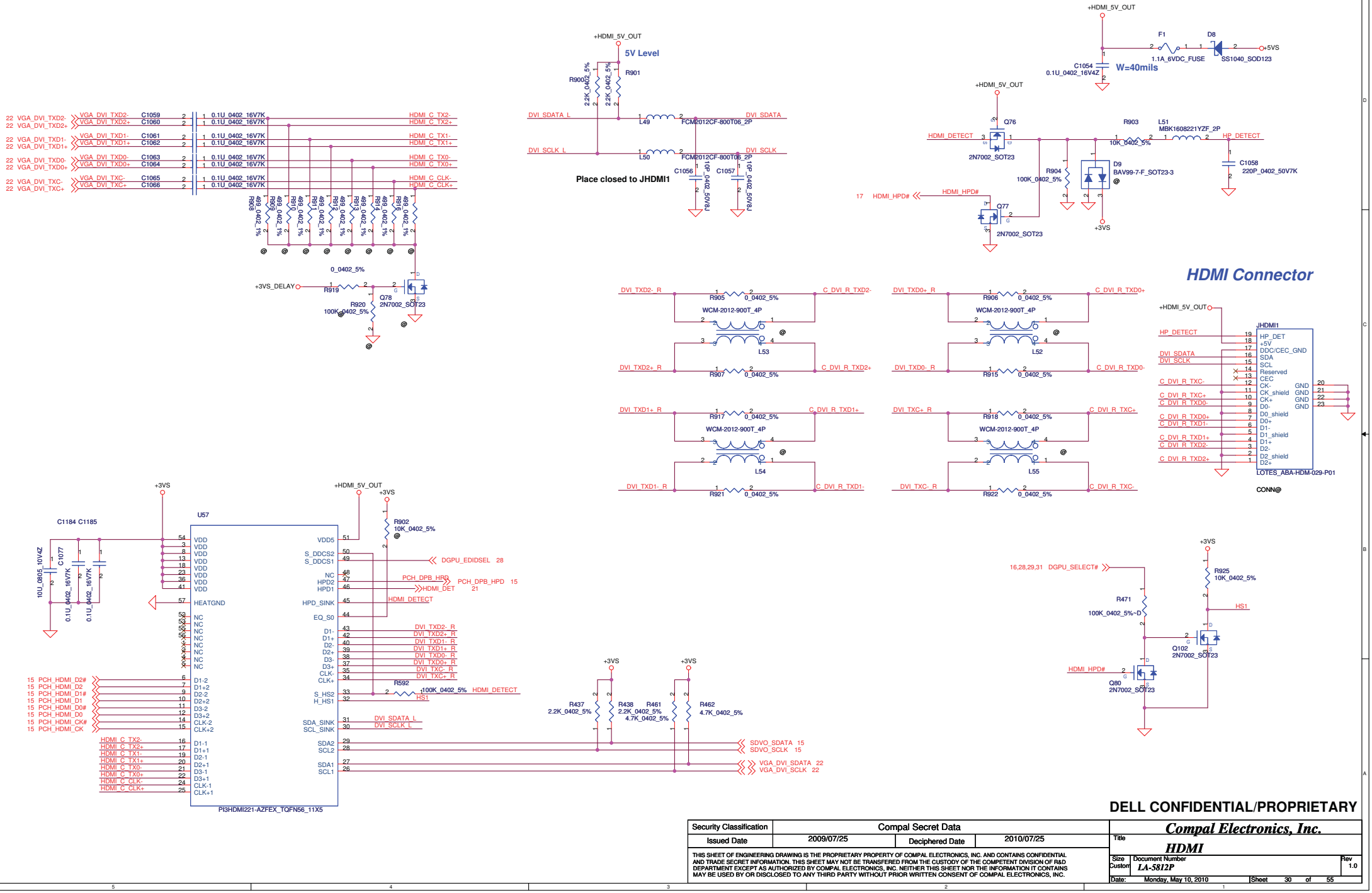
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.			
Title: LVDS Switch			
Size: Custom	Document Number: LA-5812P		Rev: 1.0
Date: Monday, May 10, 2010	Sheet 28 of 55		

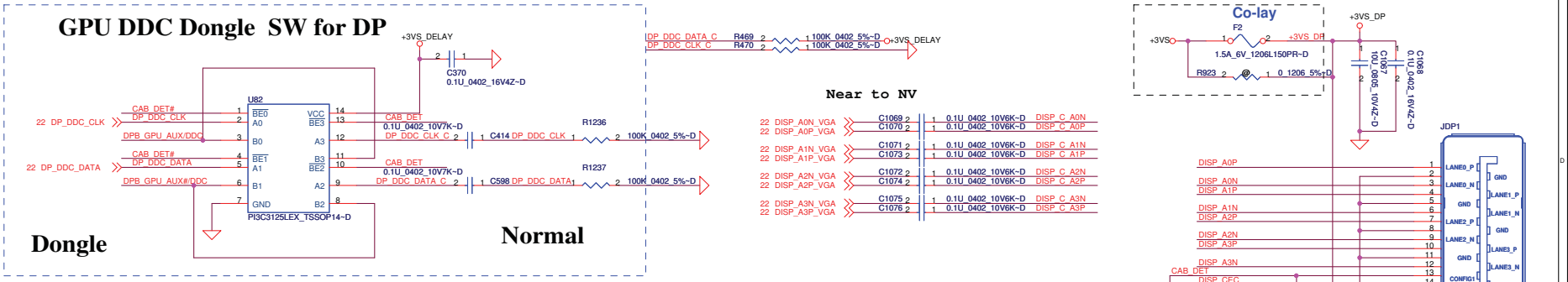


Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.			
Title: LCD CONN			
Size	Document Number: LA-5812P		Rev: 1.0
Date: Monday, May 10, 2010		Sheet 29 of 55	


HDMI Connector
5V Level
Place closed to JHDMI1
W=40mils
CONN@
PI3HDMI221-AZFEX_TQFN56_11X5
DELL CONFIDENTIAL/PROPRIETARY
Compal Secret Data
Issued Date 2009/07/25
Deciphered Date 2010/07/25
Compal Electronics, Inc.
HDMI
LA-5812P
Rev 1.0
Monday, May 10, 2010
Sheet 30 of 55

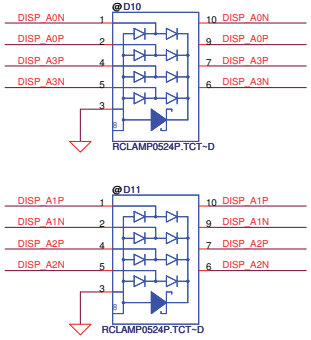
GPU DDC Dongle SW for DP

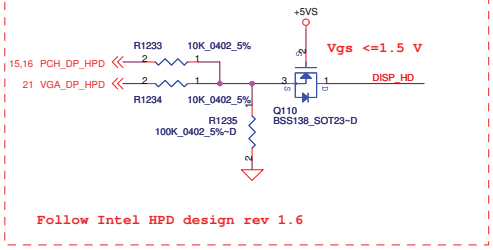


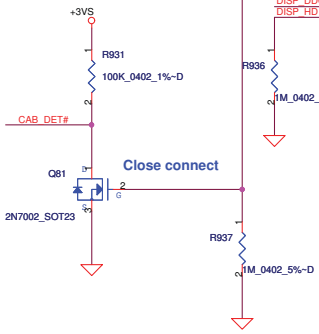
Near to NV

Co-lay

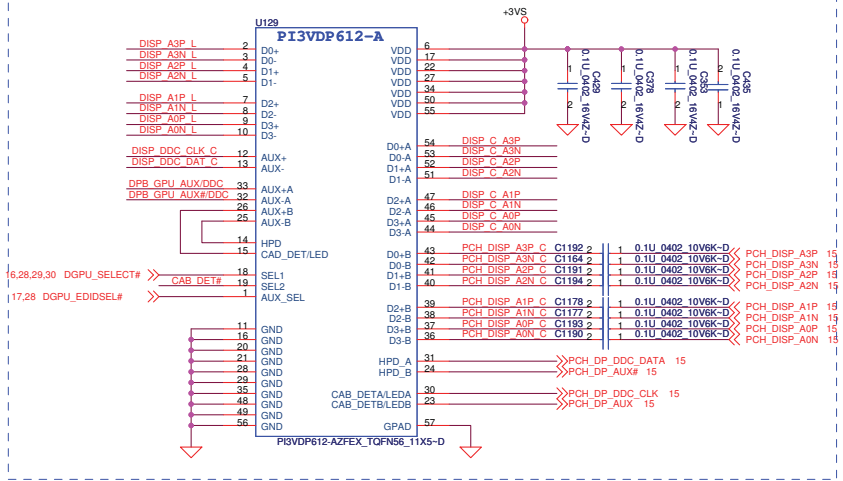
Place close JDP1

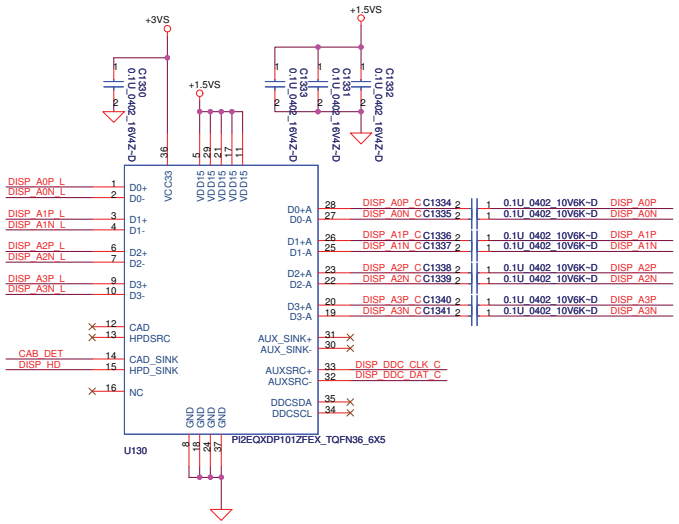






PCH/GPU AUX&LANE SW for DPB





Truth Table (SEL control)

Function	SEL 1/SEL2/AUX_SEL
Port A is active	L
Port B is active	H

Notes:
SEL1 is only for DP lanes
SEL2 is only for HPD/CAB_DET signals
AUX_SEL is only for AUX path

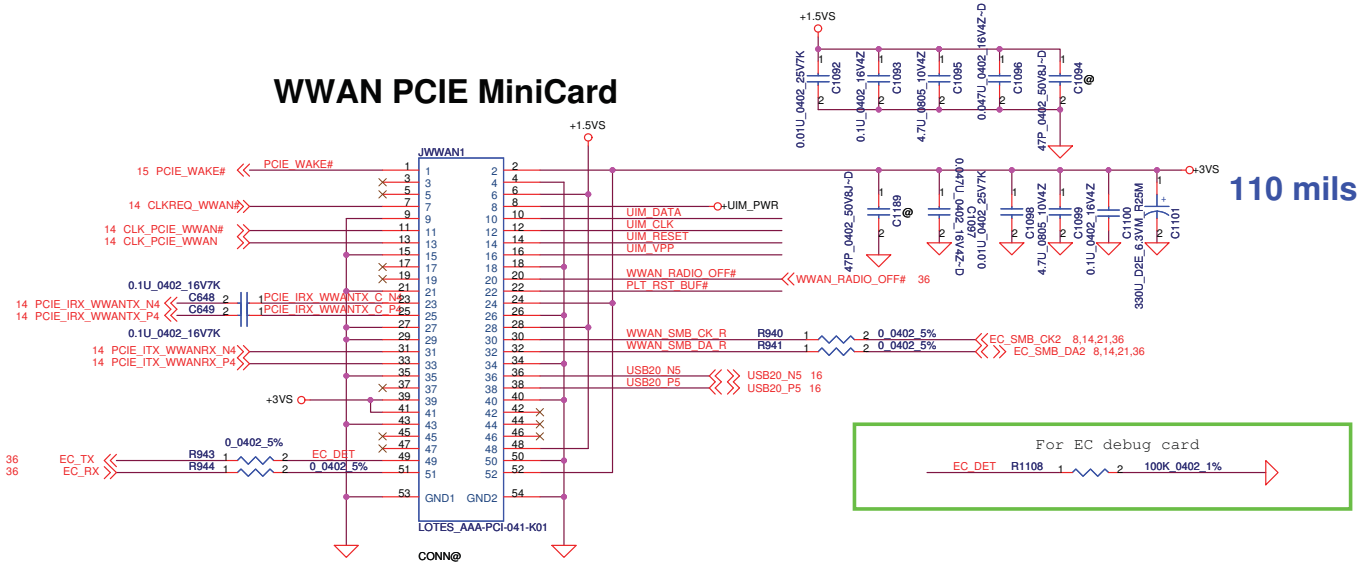
Compal Electronics, Inc.

Title: DP/FAN/HDD

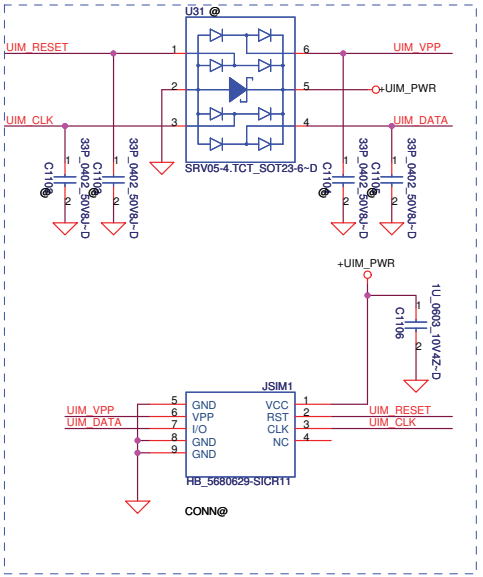
Size	Document Number	Rev
Custom	LA-5812P	1.0

Date: Monday, May 10, 2010 | Sheet 31 of 55

WWAN PCIE MiniCard

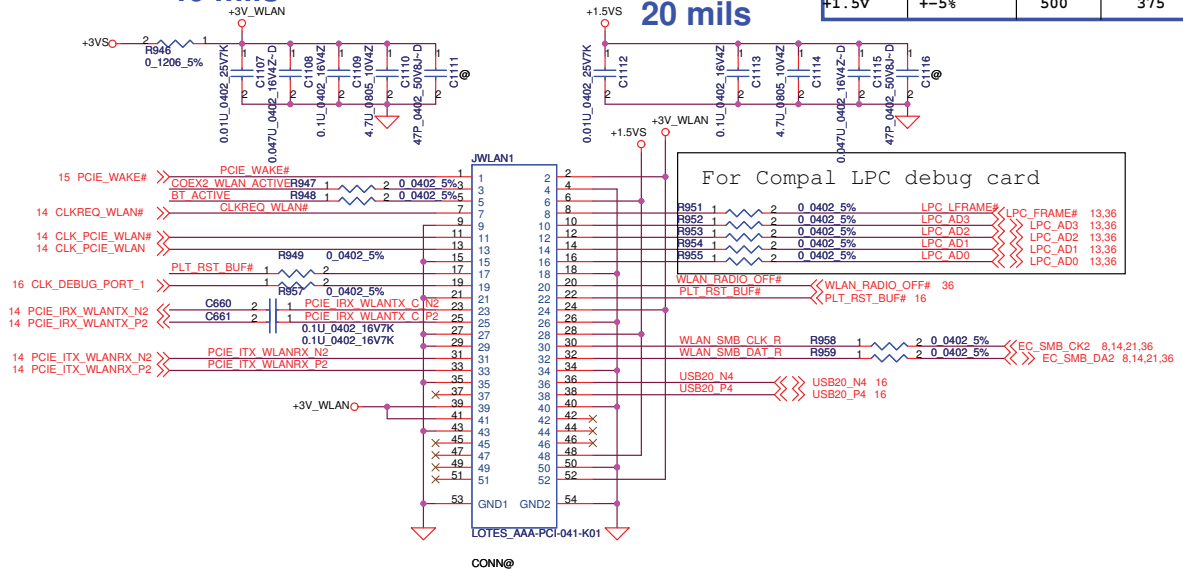


SIM Card

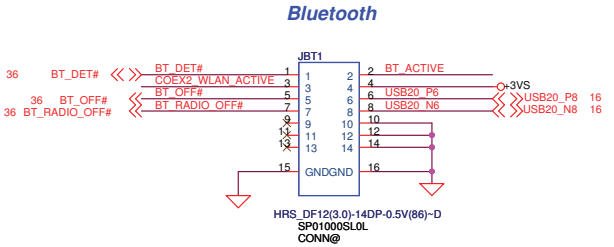


PWR Rail	Voltage Tolerance	Primary Power		Aux Power
		Peak	Normal	Normal
+3.3V	+-9%	1000	750	
+3.3Vaux	+-9%	330	250	250 (Wake enable) 5 (Not wake enable)
+1.5V	+-5%	500	375	NA

WLAN/WIMAX PCIE Mini Card



Bluetooth



DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.			
Title: WLAN/WWAN/SIM/BT			
Size: Custom	Document Number: LA-5812P		Rev: 1.0
Date: Monday, May 10, 2010	Sheet 32 of 55		

C1117, C1118, L59 Close to pin 1 60mil

20mil

30mil

R967 close to TR1

the common mode voltage of the input pcie clock must be lower than 0.5V

pin5 connect to pin15

Place Close to Chip

Atheros

AR8132 10/100 LAN

SA000036Y00

AR8132-AL1E_QFN48_6X6

All Cap close to TR1

SP050001210

Pull down circuit:
more power saving in no-overclocking mode
vendor suggestion

C1153 close to Pin5

C1130 close to Pin8

Place C1132 close to Pin19

Place Close to U32

Layout Notice : Place as close c hip U32 PIN5

Place C1127 close to Pin11

Place C1131 close to Pin42

If overclocking, R970 stuffed and R969 removed.
If not overclocking, R969 suffed and R970 removed.
AR8132:C72=0.1uF.

Place C1138 close to Pin8. C1139,C1141,C1140,C1197close to Pin16, Pin36, Pin39,Pin22

Place C1144 close to Pin46. C1143,C1145,C1146 close to Pin45, Pin28, Pin32

Place C1148 close to Pin15, C1149 close to Pin25

C1322, C1325 close to JLAN1

TYCO_2041633-1
CONN@

DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

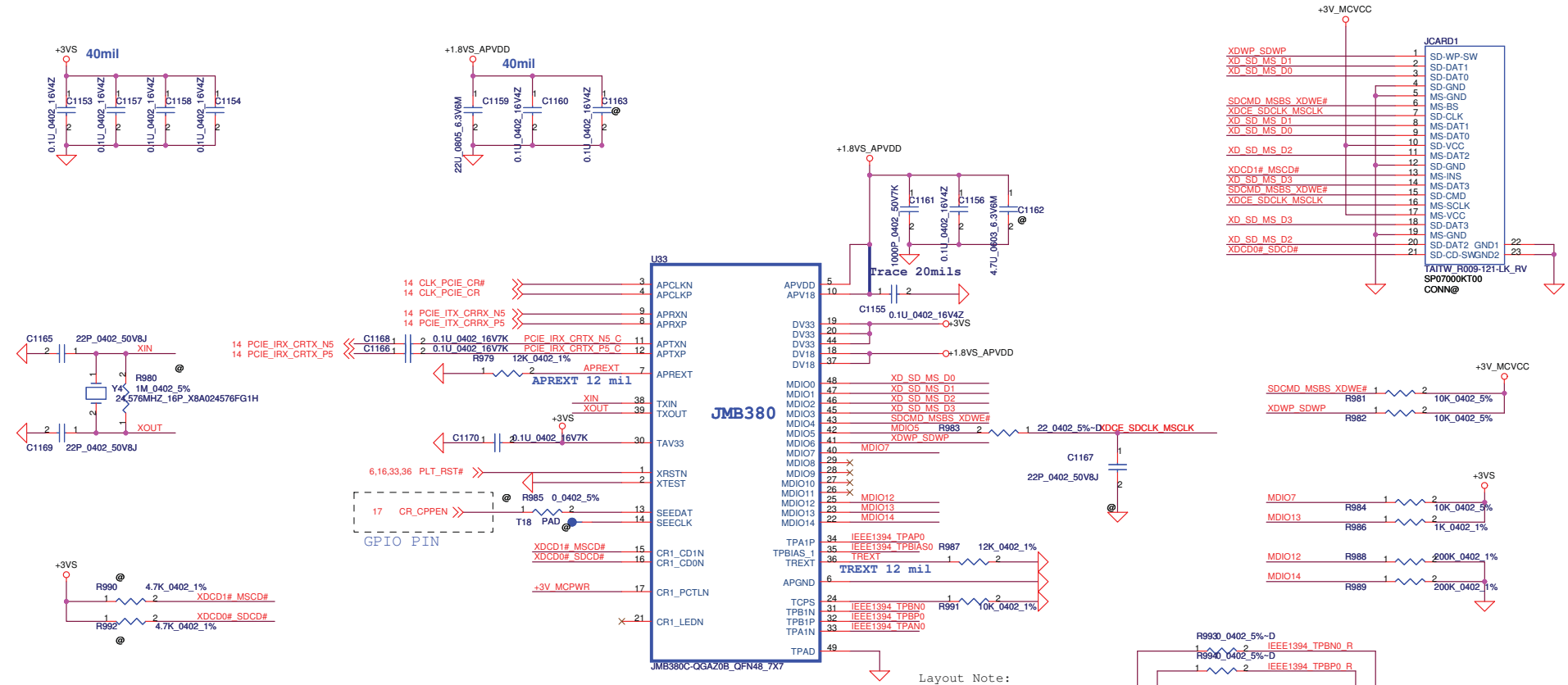
Compal Electronics, Inc.

Title: LAN

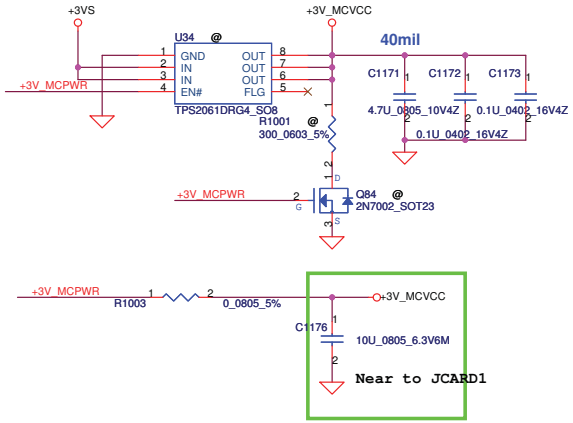
Size	Document Number	Rev
Custom	LA-5812P	1.0

Date: Monday, May 10, 2010 Sheet 33 of 55

3 in 1 Card Reader CONN



Memory Card Power Switch



DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

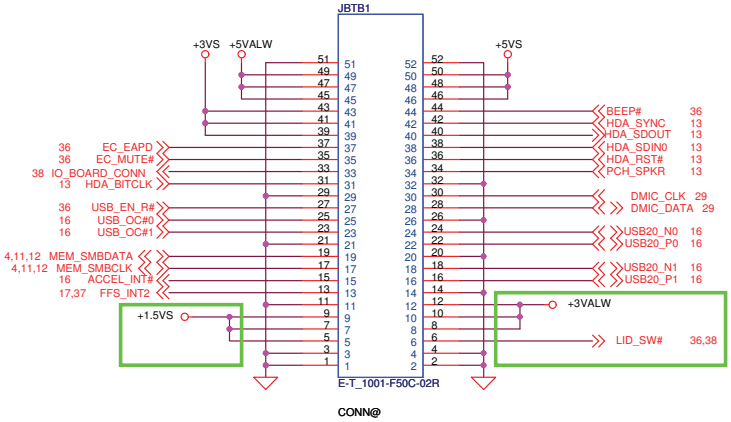
Compal Electronics, Inc.

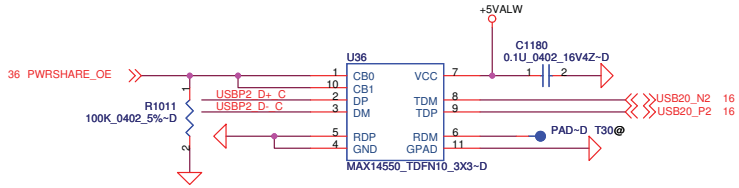
Title: CARD READER/1394

Size	Document Number	Rev
Custom	LA-5812P	1.0

Date: Monday, May 10, 2010 Sheet 34 of 55

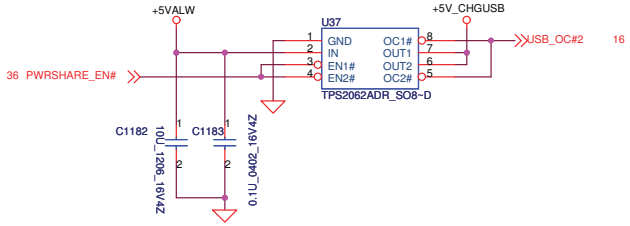
IO Board CONN

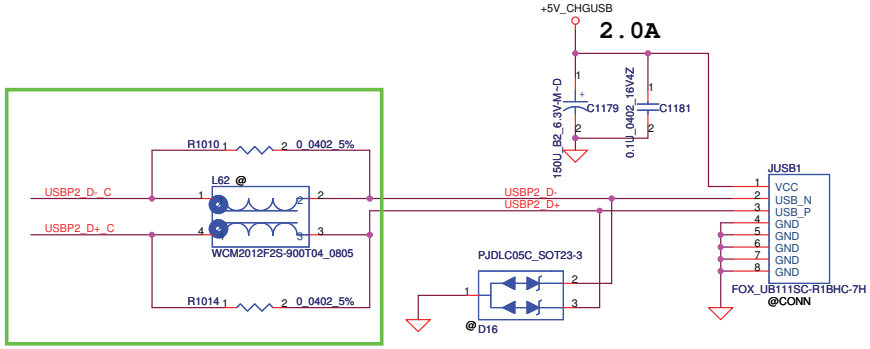




Powershare

2.0A

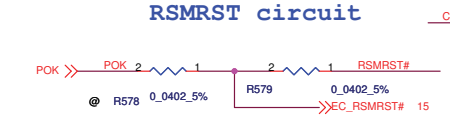




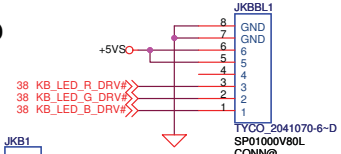
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

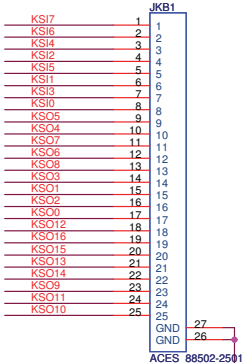
Compal Electronics, Inc.			
Title: USB/LID SW/IO CONN			
Size: Custom	Document Number: LA-5812P		Rev: 1.0
Date: Monday, May 10, 2010		Sheet 35 of 55	

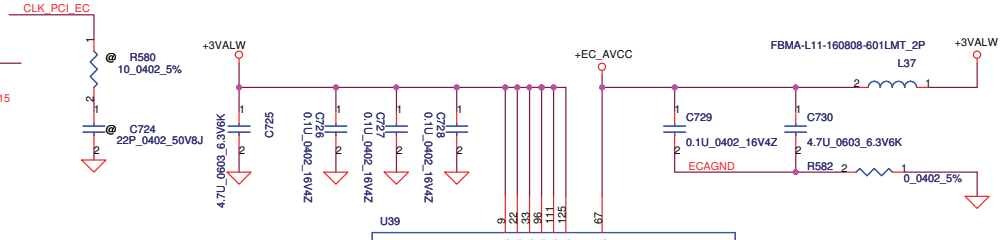
RSMRST circuit

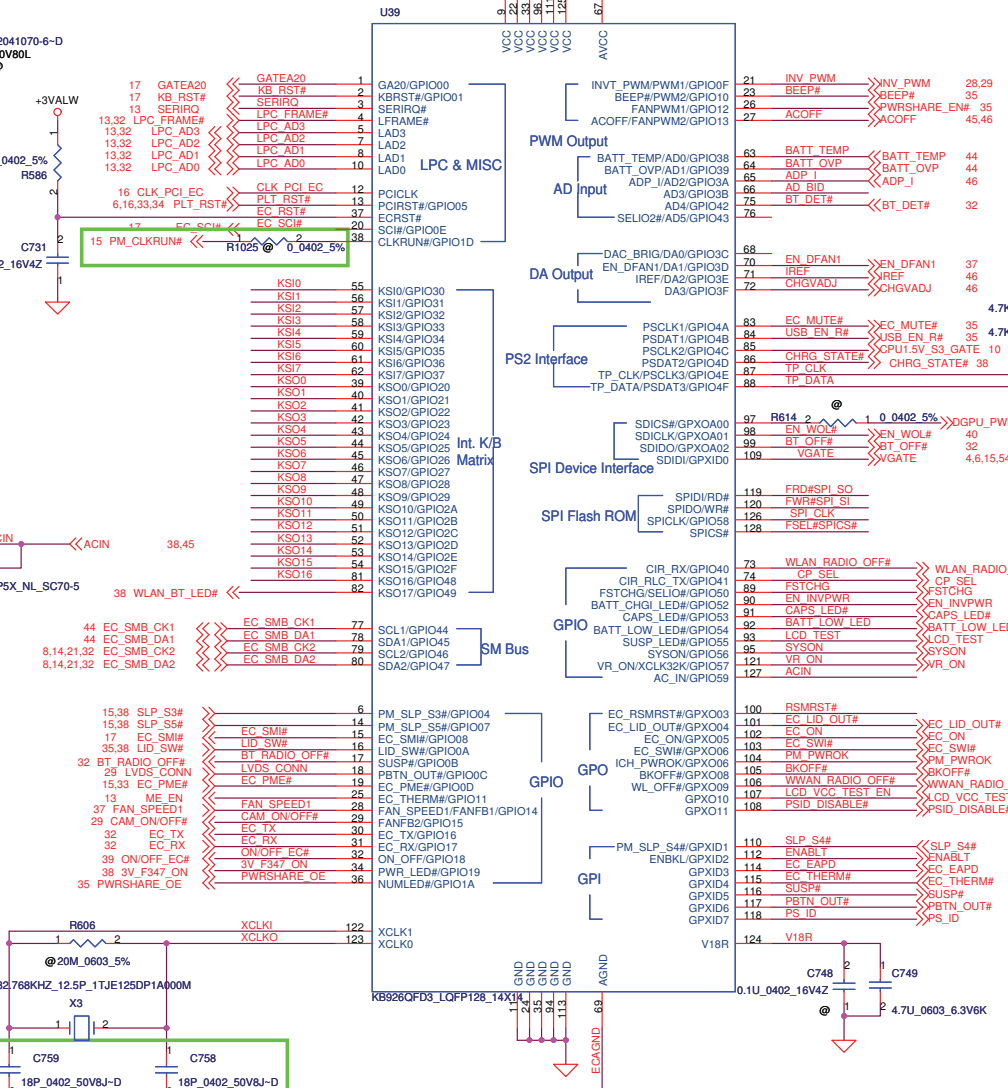


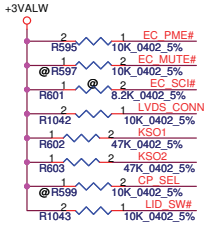
KEYBOARD CONN.

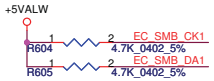


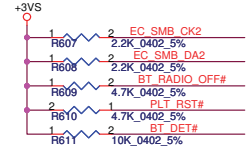


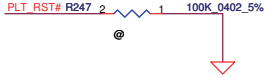




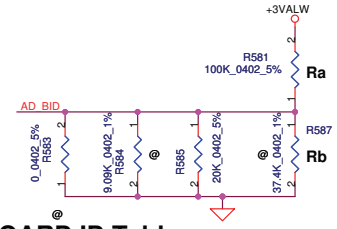






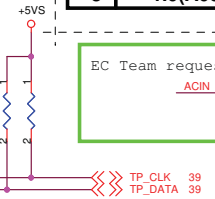


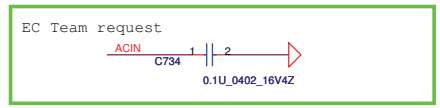
Board ID



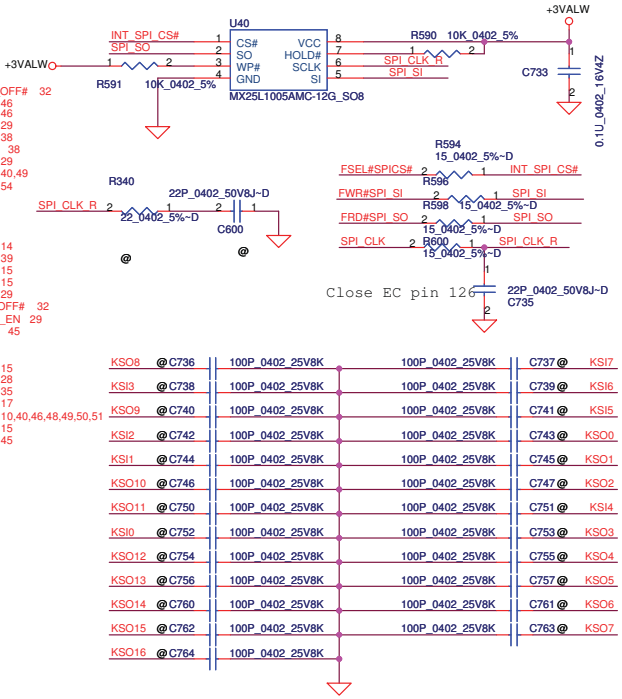
BOARD ID Table

ID	BOARD ID	Ra	Rb	Vab	
0	0.1(X00)	NC	0	0V	*
1	0.2(X01)	100K	9.09K	0.25V	
2	0.3(X02)	100K	20K	0.50V	
3	1.0(A00)	100K	37.4K	0.82V	





System SPI Flash ROM (1Mb)



Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

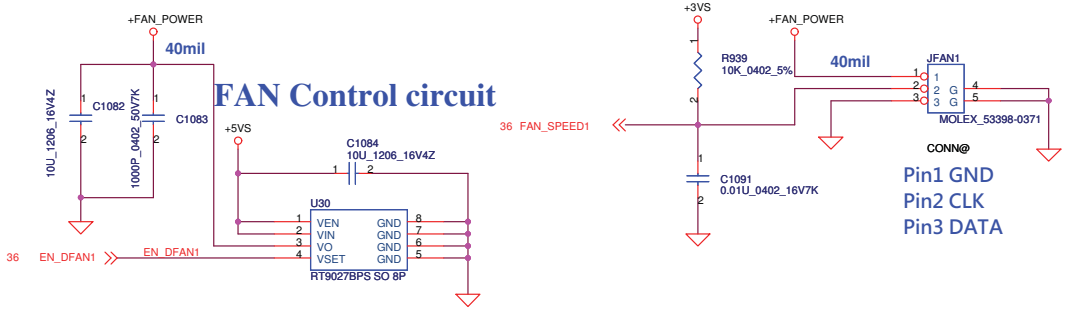
Compal Electronics, Inc.

Title: EC/KB CONN

Size: Custom | Document Number: LA-5812P | Rev: 1.0

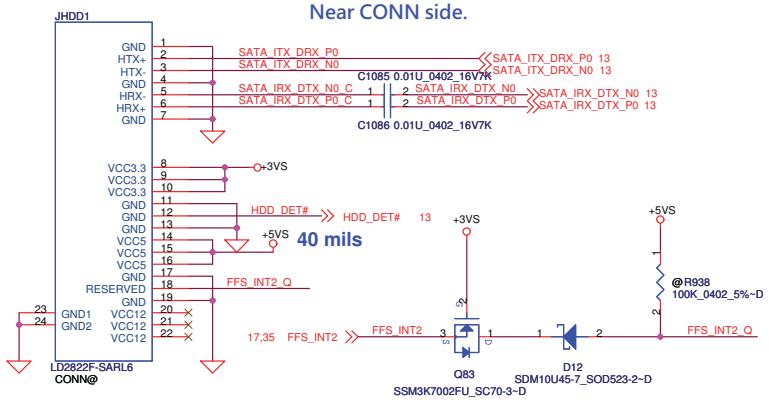
Date: Monday, May 10, 2010 | Sheet 36 of 55

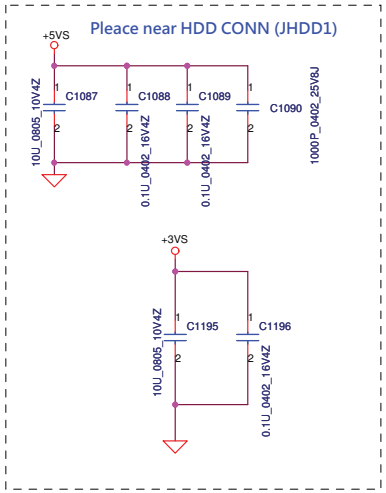
FAN Control circuit



HDD Connector

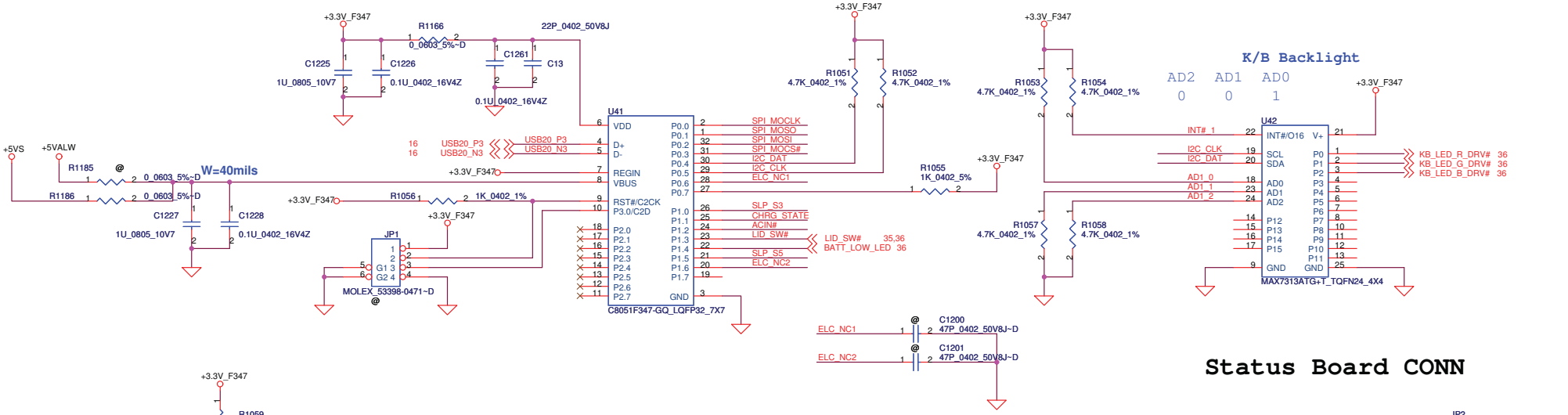
Near CONN side.



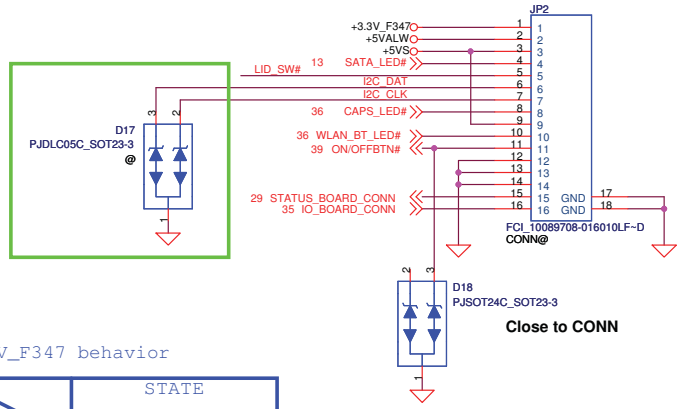


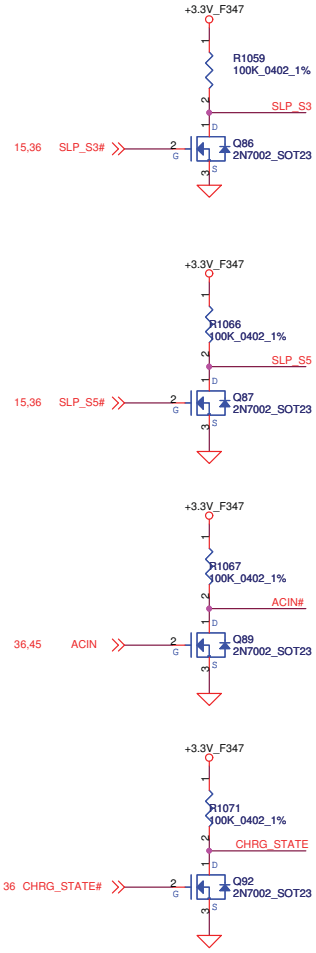
DELL CONFIDENTIAL/PROPRIETARY

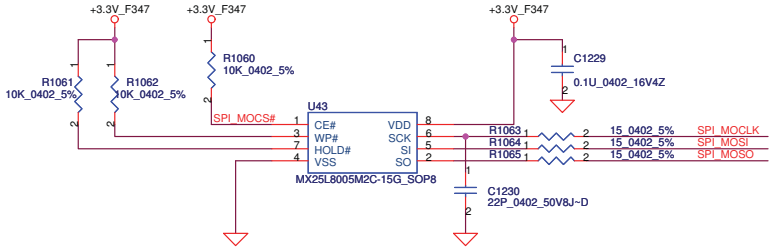
Compal Electronics, Inc.	
Title	FAN & Thermal Sensor
Size	Document Number: LA-5812P — Rev: 1.0
Date: Monday, May 10, 2010	Sheet 37 of 55

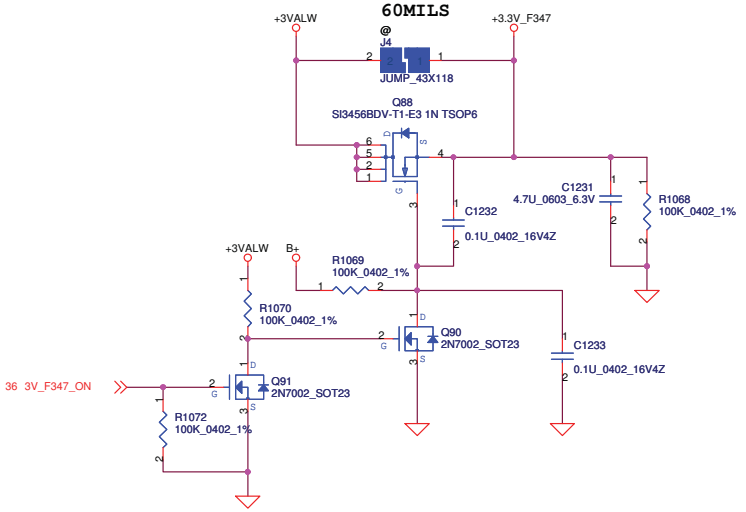


Status Board CONN









+3.3V_F347 behavior

	STATE			
	S0	S3	S4	S5
AC IN	ON	ON	ON	ON
BAT only	ON	ON	OFF	OFF

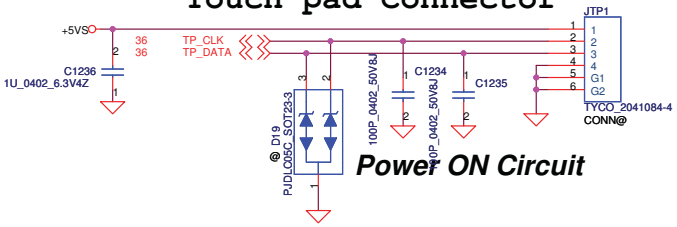
DEVICE	SMBUS ADDRESS
MAXIM - LED	0100 000b
MAXIM - GPIO	0100 001b
I2C EEPROM	1010 000b

Reference	AD2	AD1	AD0	MAX7313
DB	0	1	0	L/R Headlight , Logo
DB	0	1	1	CAP , Wireless Power Button , Eyes/Rim
U6	0	0	1	K/B Backlight

Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

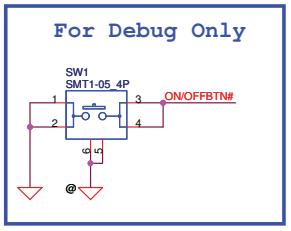
Compal Electronics, Inc.	
Title	ELC/STATUS CONN
Size: Custom	Document Number: LA-5812P
Rev	1.0
Date: Monday, May 10, 2010	Sheet 38 of 55

Touch pad Connector

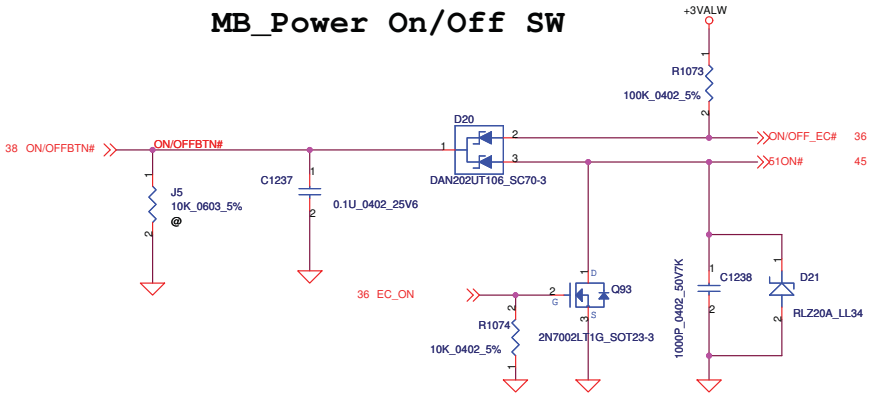


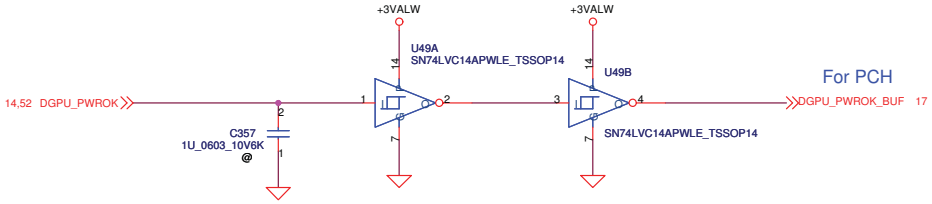
Power ON Circuit

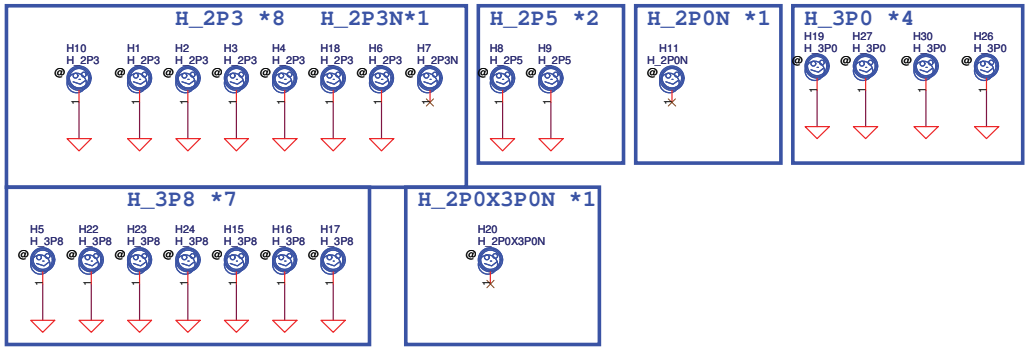
For Debug Only



MB_Power On/Off SW







Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

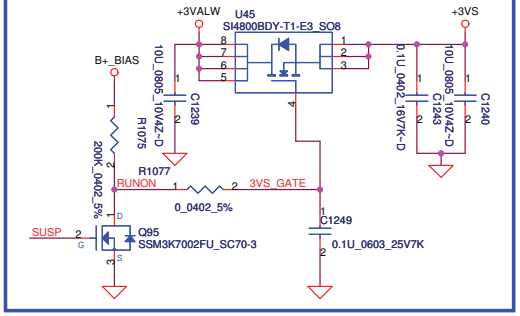
Compal Electronics, Inc.

Title: **SW/TP/SCREW**

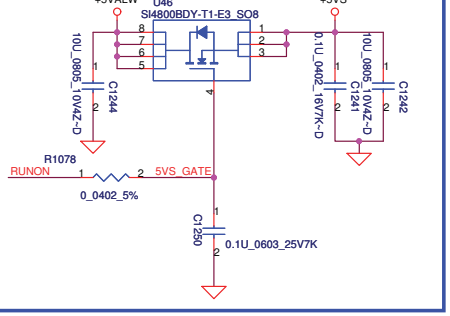
Size	Document Number	Rev
Custom	LA-5812P	1.0

Date: Monday, May 10, 2010 Sheet 39 of 55

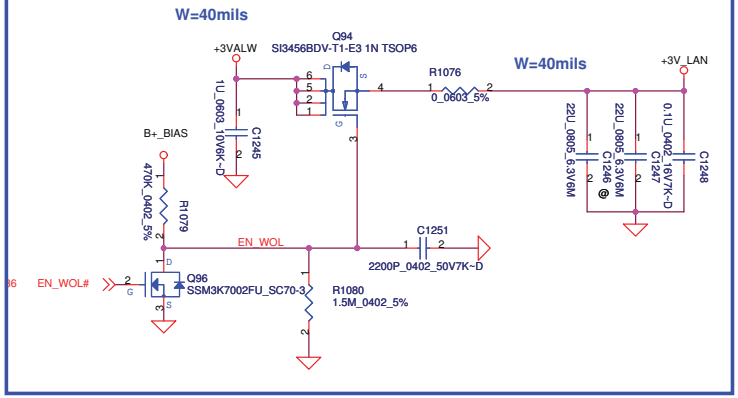
+3VALW to +3VS Transfer



+5VALW to +5VS Transfer

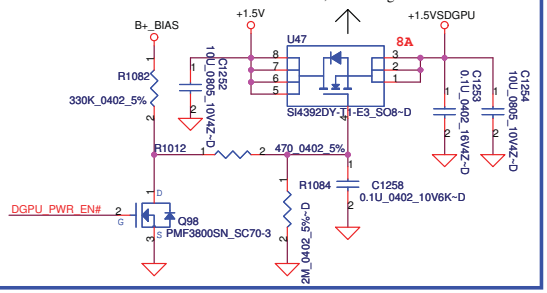


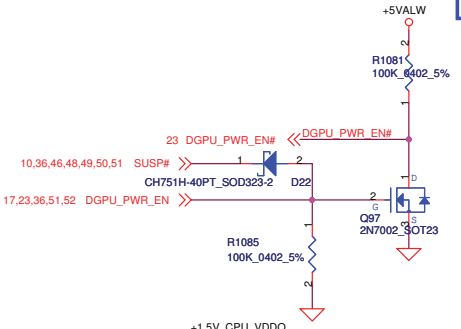
+3VALW to +3LAN Transfer



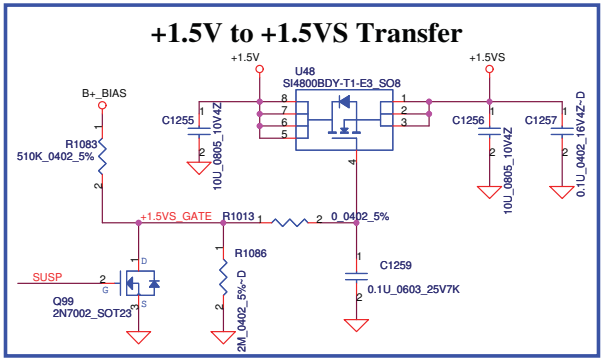
+1.5V to +1.5VSDGPU Transfer

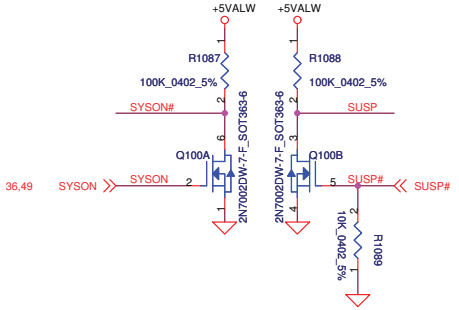
SB54392008L EOL, P/N change to SB54800038L

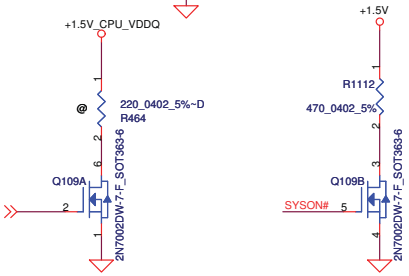


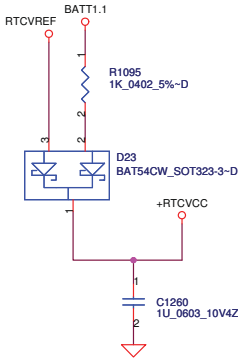


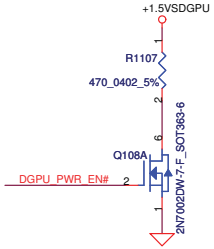
+1.5V to +1.5VS Transfer

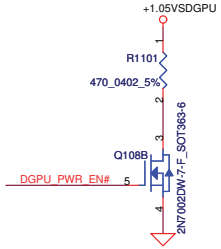


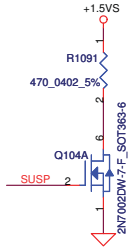


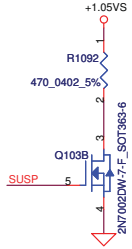


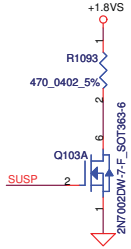


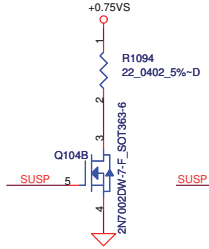


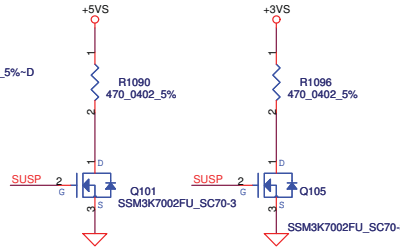












Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.

Title: **DC/DC INTERFACE**

Size	Document Number	Rev
Custom	LA-5812P	1.0

Date: Monday, May 10, 2010 Sheet 40 of 55

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

EE section

Item	Reason for change	PG#	Modify List	Date	Phase
1	The S3 status power +3VS leakage	17	Change C1151 to +3VS	2009/12/17	PT
2	The NV vender request	23	Add R472 to link +3VS_Delay and U11 pin AA9,AB9,W9,Y9	2009/12/17	PT
3	The NV vender request	23	Add C443	2009/12/17	PT
4	The power +VCC_CORE can't up	10	Add R226,R227 H_DPRSLPVR Pull up,Pull down	2009/12/17	PT
5	The power +VCC_CORE can't up	10	Add R225,R228 H_PSI# Pull up,Pull down	2009/12/17	PT
6	The EA LVDS Part	29	Change BOM R439 from 330ohm to 110ohm	2009/12/21	PT
7	The DGPU_PWR_EN signal to PCH	36	Add R614 to U39	2009/12/21	PT
8	WLAN can't detect	14	Change BOM R186 from 10Kohm to reserve	2009/12/21	PT
9	Audio can't detect	19	Add R1184,R1183	2009/12/21	PT
10	Signal GFX_VR_ON spike noise	10	Change BOM R104 from 10Kohm to 470ohm	2009/12/21	PT
11	The power request MAINPWON del EC control	36	Del MAINPWON FOR EC Command	2009/12/21	PT
12	Add CP_SEL Function decter for 65W or 90W adapter	36	Add CP_SEL link to U39	2009/12/21	PT
13	Intel request 10uf need to 16 pice	9	Add C115	2009/12/21	PT
14	SUS_PWR_ACK signal double Pull high	15	Del R195	2009/12/21	PT
15	DP power change +3vs_delay	31	Change +3vs_delay to R469 pin1 ,U82 Pin14	2009/12/21	PT
16	Intel request PCH check list need to pull high	15	ADD R218 for PCH_DP_DDC_CLK Signal,	2009/12/24	PT
17	Intel request PCH check list need to pull high	15	ADD R219 for DDC2_CLK signal	2009/12/24	PT
18	Intel request PCH check list DP solution	15	Change R467 to +3vs ,R468 to GND	2009/12/24	PT
19	PCH Check list TPM_ID0,TPM_ID1 pull high to +3ALW -->+3VS	17	Change R1147 pin 2 ,R1157 to +3VS	2009/12/24	PT
20	Modify screw H5,H10,H27,H30,H19,H26,H18,H25,H31,H32 for ME request	39	change H5,H10,H27,H30,H19,H26,H18,H25,H32,H31	2009/12/24	PT
21	The power +1.5V_CPU_VDDQ change to EC control	6	Change 0ohm from R223 to R224	2009/12/24	PT
22	The signal VGA_CLKREQ# double control	12	Change BOM R154,Q8 to reserve	2009/12/24	PT
23	The DP vendor request	31	Add R1236,R1237	2009/12/24	PT
24	The EC_SMI# signal double pull up	36	Del R599	2009/12/24	PT
25	The VGA_CLKREQ#_R signal double pull up	11	Del R339	2009/12/24	PT
26	The PCH_RSMRST# Signal double diod	15	Del D2 change to D26	2009/12/24	PT
27	The discharge +1.8VS and +1.5vs change	40	Change Q103A and Q104A location	2009/12/24	PT
28	The ACIN function leakage	36	Del R613,D3	2009/12/24	PT
29	The ACIN function leakage	36	Add Q10	2009/12/24	PT
30	The RF request	4	Add C1186,C1187,C1188 for 47PF to CLK power	2009/12/30	PT
31	The RF request	14	Add C1078 10PF to CLK_PCI_FB signal	2009/12/30	PT
32	The RF request	16	Add C1079 10PF to PCI_MEC(CLK_PCI_EC) signal	2009/12/30	PT
33	The RF request	32	Add C1189 for 47PF to +3VS JWWAN1,but notice to JWWAN1 connector space	2009/12/30	PT
34	The RF request	38	Add C1200,C1201 to U41 Dummy pin	2009/12/30	PT
35	The BIOS request	36	Add R1113 for PCH GPIO33 to EC pin25	2009/12/30	PT
36	The EA SPI Fail	13	Change R593 15ohm for PCH_SPI_CLK	2009/12/30	PT
37	The EMI request	29	Change R458,R459 to L5,L7 SM010017710	2009/12/30	PT
38	ADD R599 to CP_SEL signal pull high	36	ADD R599 to CP_SEL signal	2010/01/04	PT
39	The NV vender request	23	ADD R458 pull down	2010/01/04	PT
40	The NAP10 request	38	The ELC chip U41 pin8 select +5vs and +5VALW ADD R1185,R1186	2010/01/04	PT
41	The EC part need board ID	36	Change BOM R581 to 100Kohm	2010/01/04	PT
42	The EC part need board ID	36	Change BOM R584 to 9.09Kohm	2010/01/04	PT
43	The EC part need board ID	36	Change BOM R583 from 0ohm to reserve	2010/01/04	PT
44	The power +VCC_CORE add bulk for power request	10	Change BOM C117 add 470uF	2010/01/04	PT
45	The power +VCC_GFXCORE add bulk for power request	9	Change BOM C181 add 330uF	2010/01/04	PT
46	Audio S3/S4 resum fail	13	Change BOM C1262 from 27PF to reserve	2010/01/04	PT
47	H_VTTPWRGD_B Signal	6	add R88,Change R747 connection ,and R746,R747 Change BOM reserve	2010/01/24	PT
48	Leakage +3vs	33	Change BOM R966 to reserve	2010/02/02	PT
49	The EC part need board ID	36	Change BOM R584 to reserve	2010/02/05	PT
50	The EC part need board ID	36	Change BOM R585 to 20Kohm	2010/02/05	PT
51	Signal DGPU_PWR_EN two level	17	Change BOM R1148 to reserve	2010/02/10	ST
52	Signal EC_SCI# Pull high	36	Change BOM R601 to reserve	2010/02/10	ST
53	Signal GPIO0 dual Pull high	17	Remove R1163	2010/02/10	ST
54	HDMI EA TEST	30	Change BOM D8 SCS00004000	2010/02/10	ST
				2010/02/22	ST

Compal Electronics, Inc.

Title: HW Changed-List History-1

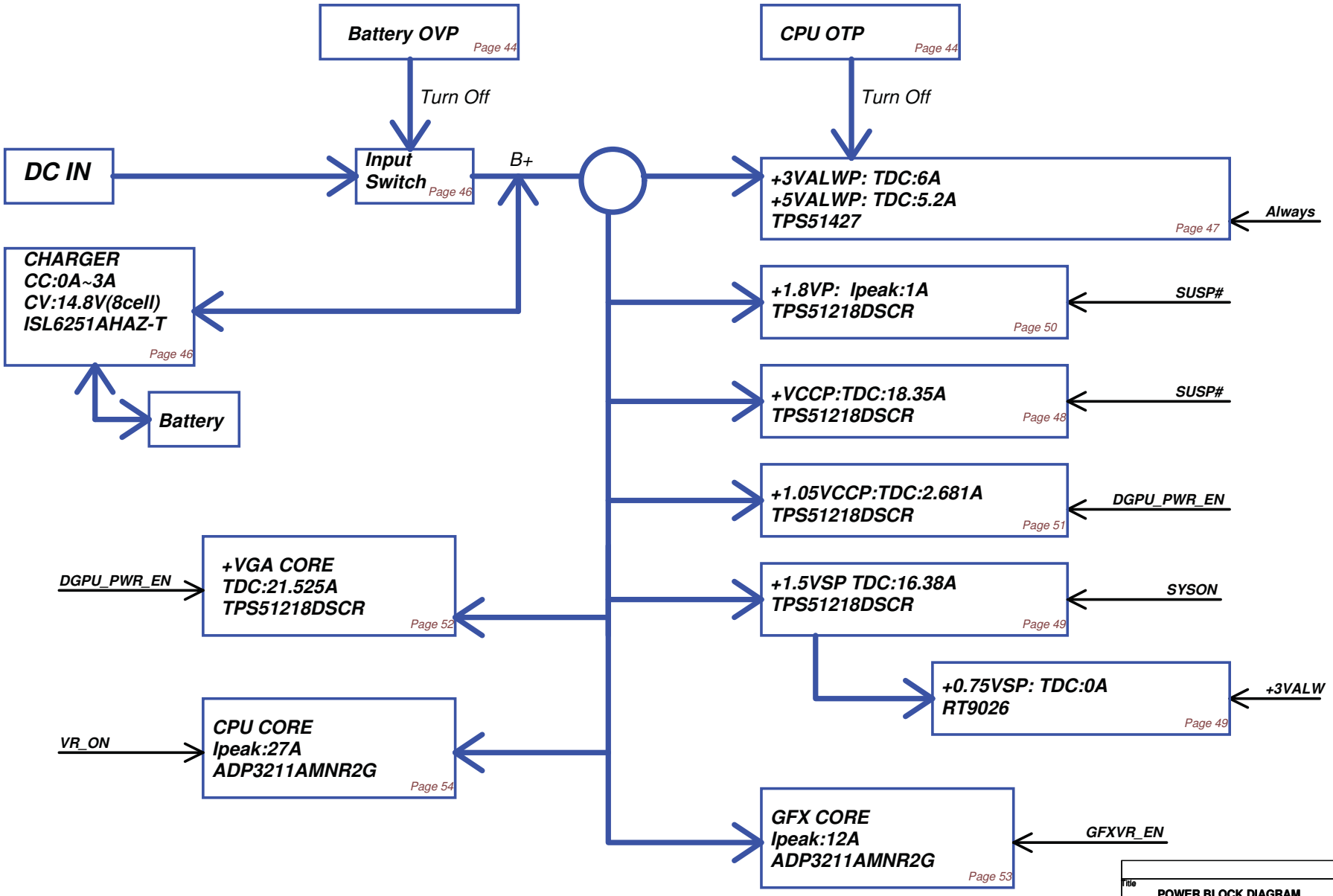
Size: | Document Number: LA-5812P | Rev: 1.0

Date: Monday, May 10, 2010 | Sheet 41 of 55

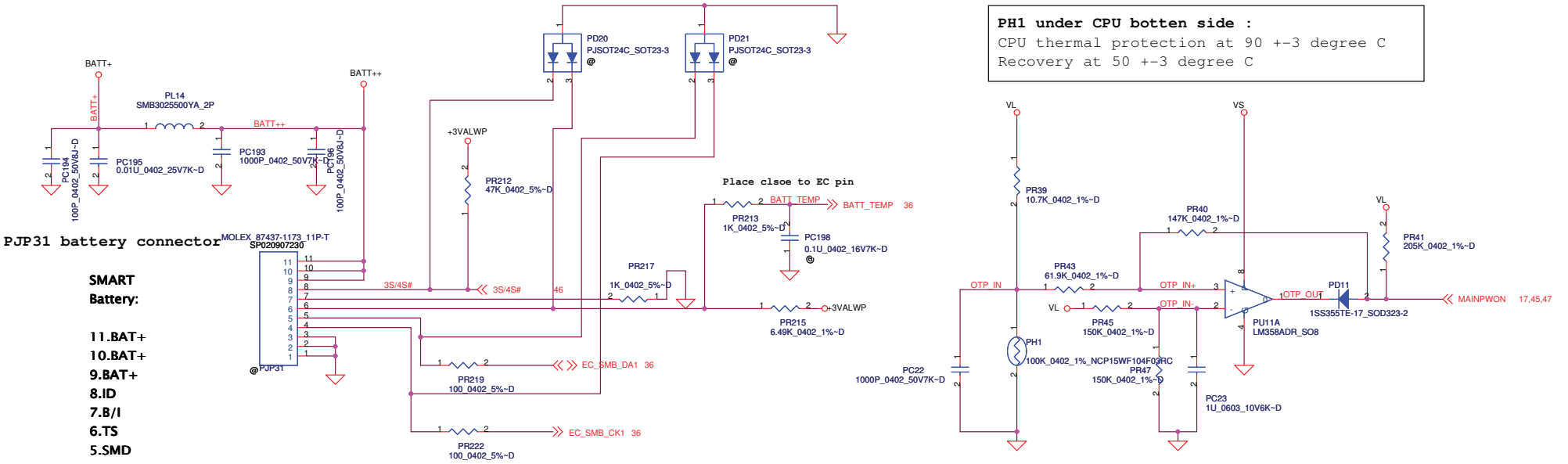
Item	Reason for change	PG#	Modify List	Date	Phase
55	HDMI detector low	17	Add R131 1Kohm	2010/02/22	ST
56	The 1394 and card reader function change to JMB380C	34	Change BOM U33 to SA000023A20	2010/02/23	ST
57	The 1394 and card reader function change to JMB380C	34	Change BOM R980,R990,R992 to reserve	2010/02/23	ST
58	The 1394 and card reader function change to JMB380C	34	Change BOM R979 from 8.2k to 12k	2010/02/23	ST
59	SMBUS Address conflict	8	Change BOM U7 to SA00003YA0L	2010/02/26	ST
60	SMBUS Address conflict	8	Change BOM R306 to 4.7Kohm	2010/02/26	ST
61	Add Power jump to open door	39	Add J5	2010/03/01	ST
62	Detect DP type	16	Add R274	2010/03/01	ST
63	Detect DP type	16	Change BOM 243 to reserve	2010/03/02	ST
64	FFS_INT2 pull up	17	Add R1158	2010/03/03	ST
65	Cost issue	33	Del C1150,C1151	2010/03/04	ST
66	Deep Green	14	Change BOM R186 to 10K	2010/03/09	ST
67	Change Q16 to SI7121DN for +3VS_DELAY 1380mA	23	Change Q16 from SB9230100020 to SB00000KI00	2010/04/15	X-build
68	NV Timming	23	Change R380 from SD028000080 to SD028150280	2010/05/10	X-build
69	NV Timming	23	Change C477 to SE070104Z8L	2010/05/10	X-build
70	NV Timming	23	Change R612 from SD028100180 to SD028150280	2010/05/10	X-build

Compal Electronics, Inc.	
Title	HW Changed-List History-2
Size	Document Number: LA-5812P — Rev: 1.0
Date: Monday, May 10, 2010	Sheet 42 of 55

Power block

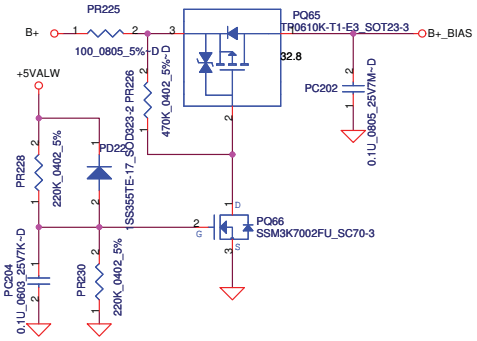


Title	POWER BLOCK DIAGRAM	
Size	Document Number	Rev
Date: Monday, May 10, 2010	Sheet 43 of 55	

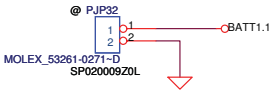


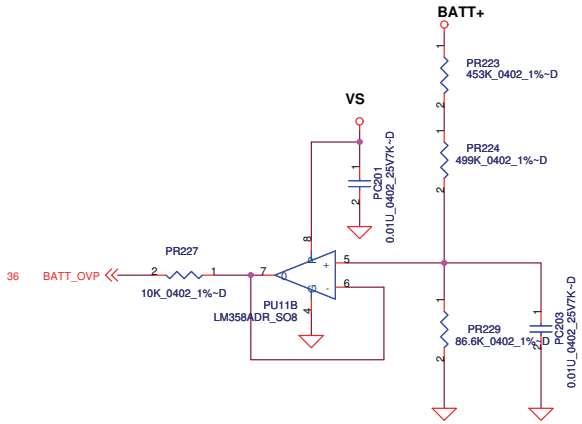
CPU OTP

PH1 under CPU botten side :
CPU thermal protection at 90 +-3 degree C
Recovery at 50 +-3 degree C



COIN RTC Battery

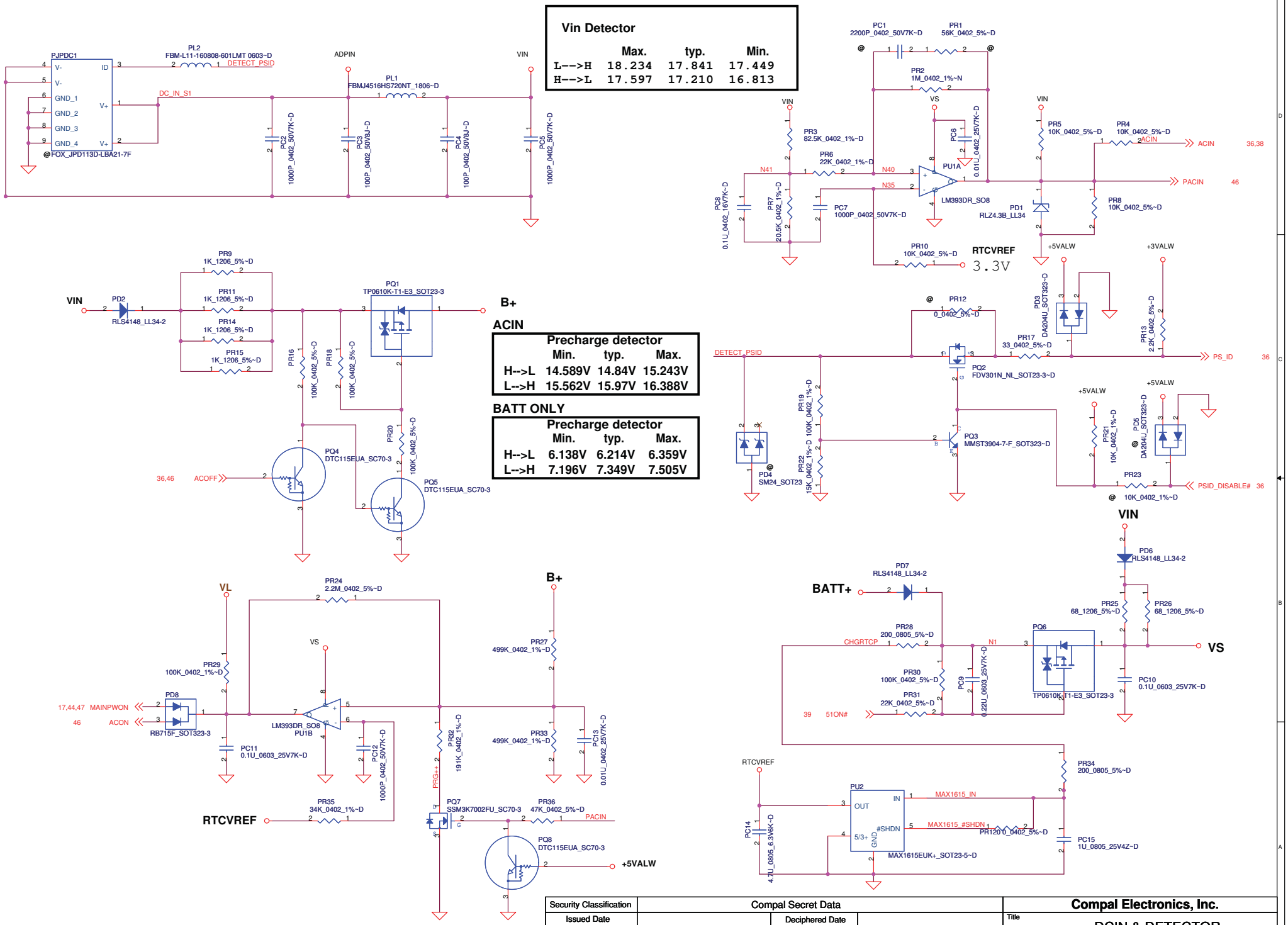


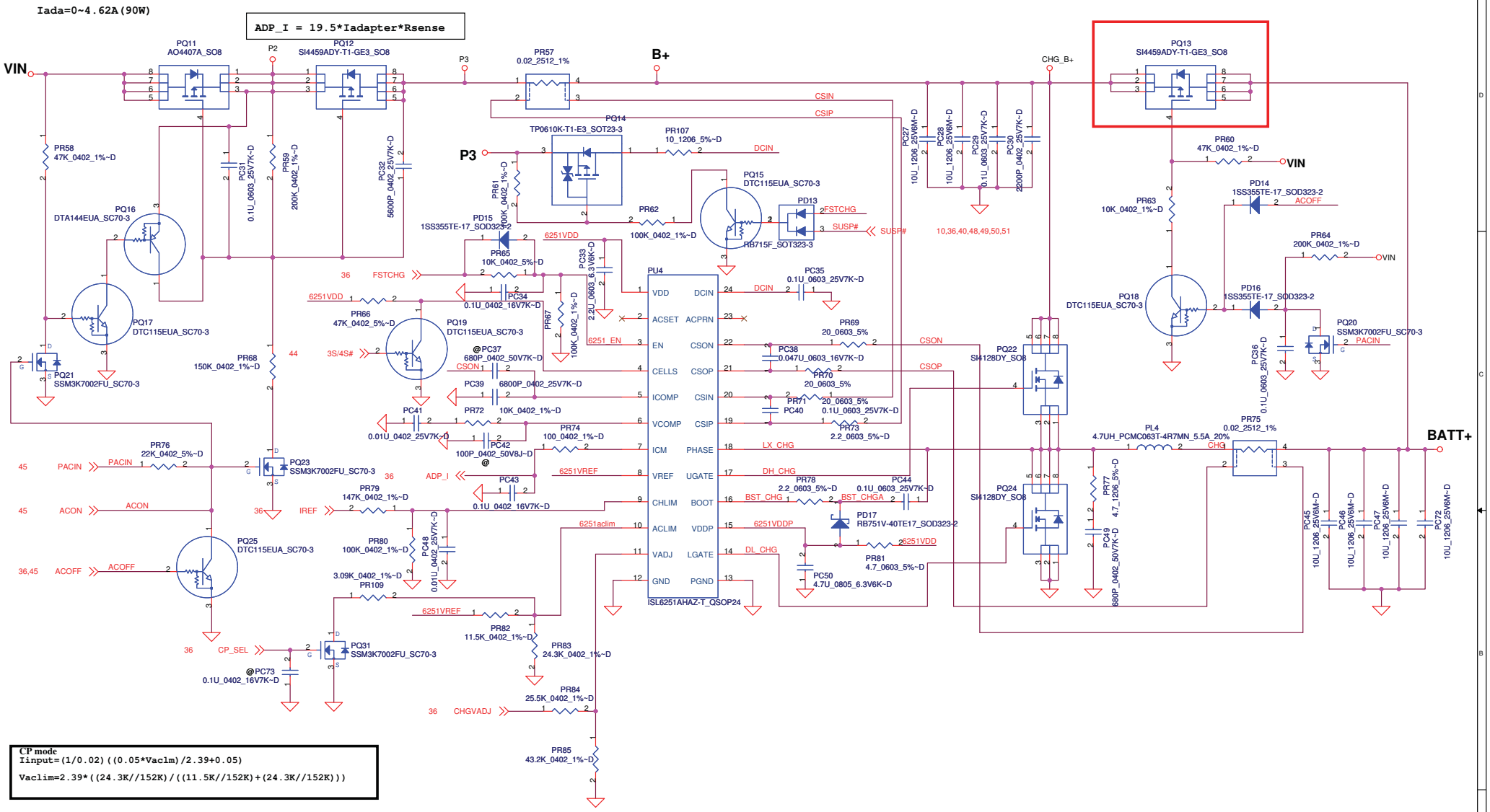


LI-3S :13.5V----BATT-OVP=1.126V
LI-4S :18V----BATT-OVP=1.5V
BATT-OVP=0.08338*BATT+

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date		Deciphered Date	Title: BATTERY CONN/OTP

Size: Custom	Document Number		Rev
Date: Monday, May 10, 2010	Sheet 44 of 55		


Vin Detector
Max. typ. Min.
L-->H 18.234 17.841 17.449
H-->L 17.597 17.210 16.813
PJPDC1
@FOX_JPD113D-LBA21-7F
PL2
FBM-L11-160808-601LMT 0603~D
DETECT_PSID
DC_IN_S1
ADPIN
PL1
FBMJ4516HS720NT_1806~D
VIN
PC1
2200P_0402_50V7K~D
PR1
56K_0402_5%~D
PR2
1M_0402_1%~N
PR3
82.5K_0402_1%~D
PR6
22K_0402_1%~D
PU1A
LM393DR_SO8
PR5
10K_0402_5%~D
PR4
10K_0402_5%~D
ACIN
PACIN
PR8
10K_0402_5%~D
PD1
RLZ4.3B_LL34
PR10
10K_0402_5%~D
RTCVREF
3.3V
+5VALW
+3VALW
PR9
1K_1206_5%~D
PR11
1K_1206_5%~D
PR14
1K_1206_5%~D
PR15
1K_1206_5%~D
PD2
RLS4148_LL34-2
PQ1
TP0610K-T1-E3_SOT23-3
B+
ACIN
Precharge detector
Min. typ. Max.
H-->L 14.589V 14.84V 15.243V
L-->H 15.562V 15.97V 16.388V
BATT ONLY
Precharge detector
Min. typ. Max.
H-->L 6.138V 6.214V 6.359V
L-->H 7.196V 7.349V 7.505V
PR16
100K_0402_5%~D
PR18
100K_0402_5%~D
PR20
100K_0402_5%~D
PQ4
DTC115EUA_SC70-3
PQ5
DTC115EUA_SC70-3
ACOFF
PR12
0_0402_5%~D
PR17
33_0402_5%~D
PQ2
FDV301N_NL_SOT23-3~D
PD3
DA204U_SOT323~D
PR13
2.2K_0402_5%~D
PS_ID
PD4
SM24_SOT23
PR19
100K_0402_1%~D
PR22
15K_0402_1%~D
PQ3
MMST3904-7-F_SOT323~D
PR21
10K_0402_1%~D
PD5
DA204U_SOT323~D
PR23
10K_0402_1%~D
PSID_DISABLE#
VL
PR24
2.2M_0402_5%~D
PR29
100K_0402_1%~D
PD8
RB715F_SOT323-3
MAINPWON
ACON
PU1B
LM393DR_SO8
PC11
0.1U_0603_25V7K~D
PC12
1000P_0402_50V7K~D
PR27
499K_0402_1%~D
PR32
191K_0402_1%~D
PR33
499K_0402_1%~D
PC13
0.01U_0402_25V7K~D
PRG++
PR35
34K_0402_1%~D
RTCVREF
PQ7
SSM3K7002FU_SC70-3
PR36
47K_0402_5%~D
PACIN
PQ8
DTC115EUA_SC70-3
+5VALW
PD6
RLS4148_LL34-2
PD7
RLS4148_LL34-2
BATT+
PR25
68_1206_5%~D
PR26
68_1206_5%~D
PR28
200_0805_5%~D
CHGRTCP
N1
PQ6
TP0610K-T1-E3_SOT23-3
VS
PR30
100K_0402_5%~D
PR31
22K_0402_5%~D
51ON#
PC9
0.22U_0603_25V7K~D
PC10
0.1U_0603_25V7K~D
PR34
200_0805_5%~D
PU2
MAX1615EUK+_SOT23-5~D
MAX1615_IN
MAX1615_#SHDN
PR120
0_0402_5%~D
PC14
4.7U_0805_6.3V6K~D
PC15
1U_0805_25V4Z~D
Security Classification
Compal Secret Data
Issued Date
Deciphered Date
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
DCIN & DETECTOR
Size Custom
Document Number
Rev
Date: Monday, May 10, 2010
Sheet 45 of 55



CP mode

Iinput=(1/0.02)((0.05*Vaclm)/2.39+0.05)

Vaclim=2.39*((24.3K//152K)/((11.5K//152K)+(24.3K//152K)))

CC=3.3A

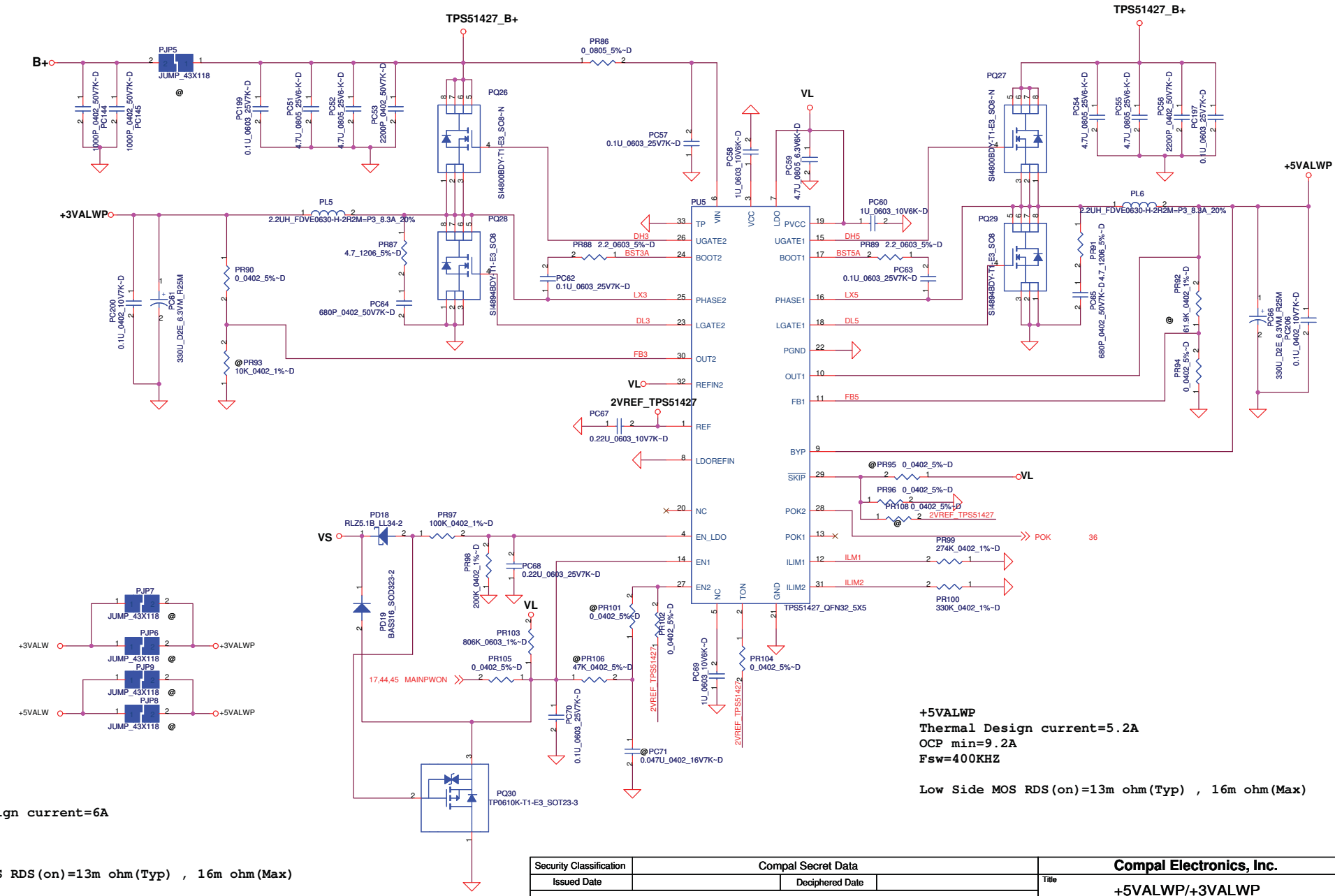
IREF=1*Icharge

IREF=0.25V~3.3V

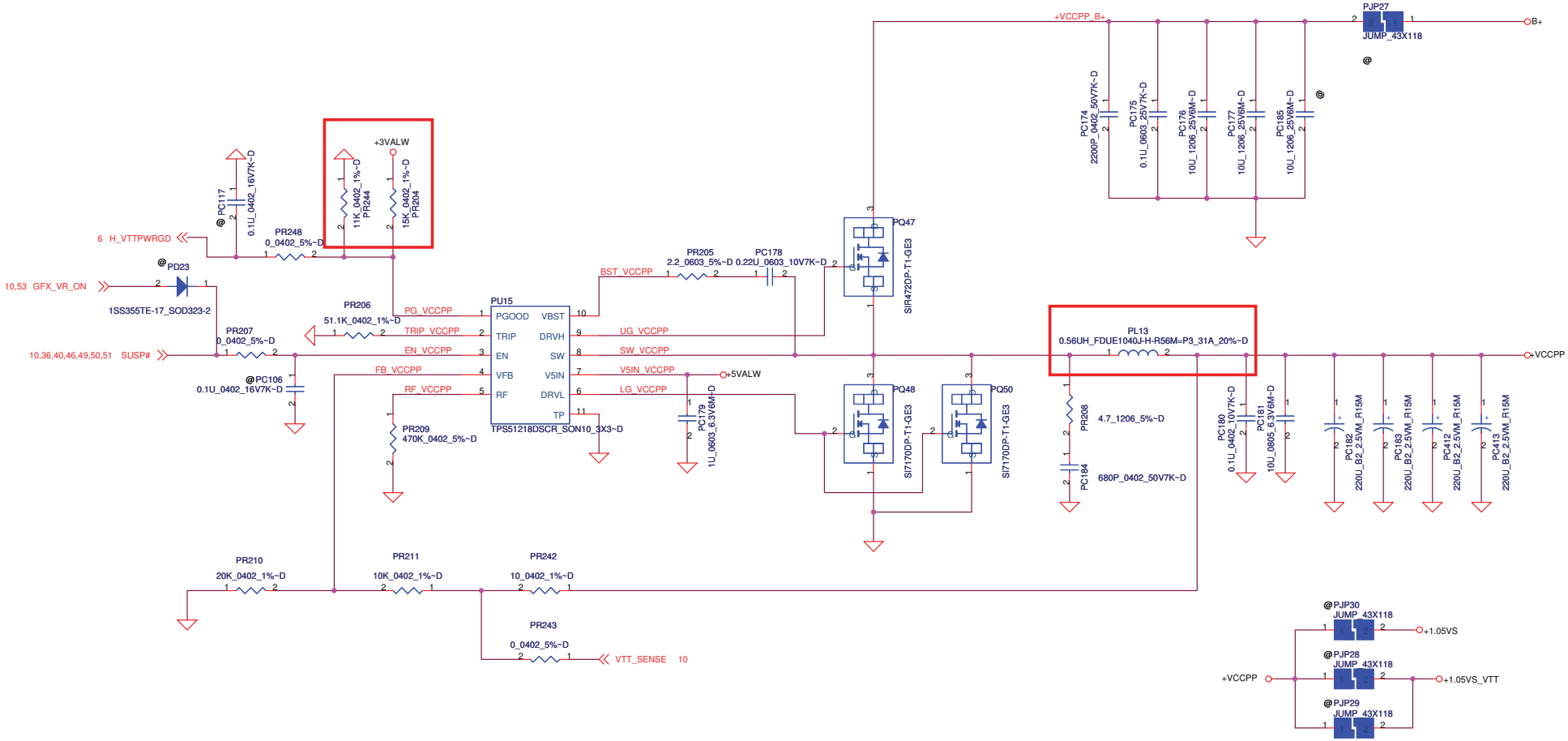
CHGVADJ	CV mode
0V	3.99V per cell
1.93V	4.2V per cell
3.3V	4.35V per cell

-

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date		Deciphered Date	Title: CHARGER
Size	Document Number		Rev
Date: Monday, May 10, 2010		Sheet 46 of 55	



Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date		Deciphered Date	Title: +5VALWP/+3VALWP
Size: Custom	Document Number		Rev
Date: Monday, May 10, 2010	Sheet 47 of 55		



+VCCPP
Thermal Design current=18.35A
OCPmin=27.5A
Fsw=290KHZ

Low Side MOS RDS(on)=1.8m ohm(Typ) , 2.25m ohm(Max)

Security Classification	Compal Secret Data		
Issued Date		Deciphered Date	

Compal Electronics, Inc.

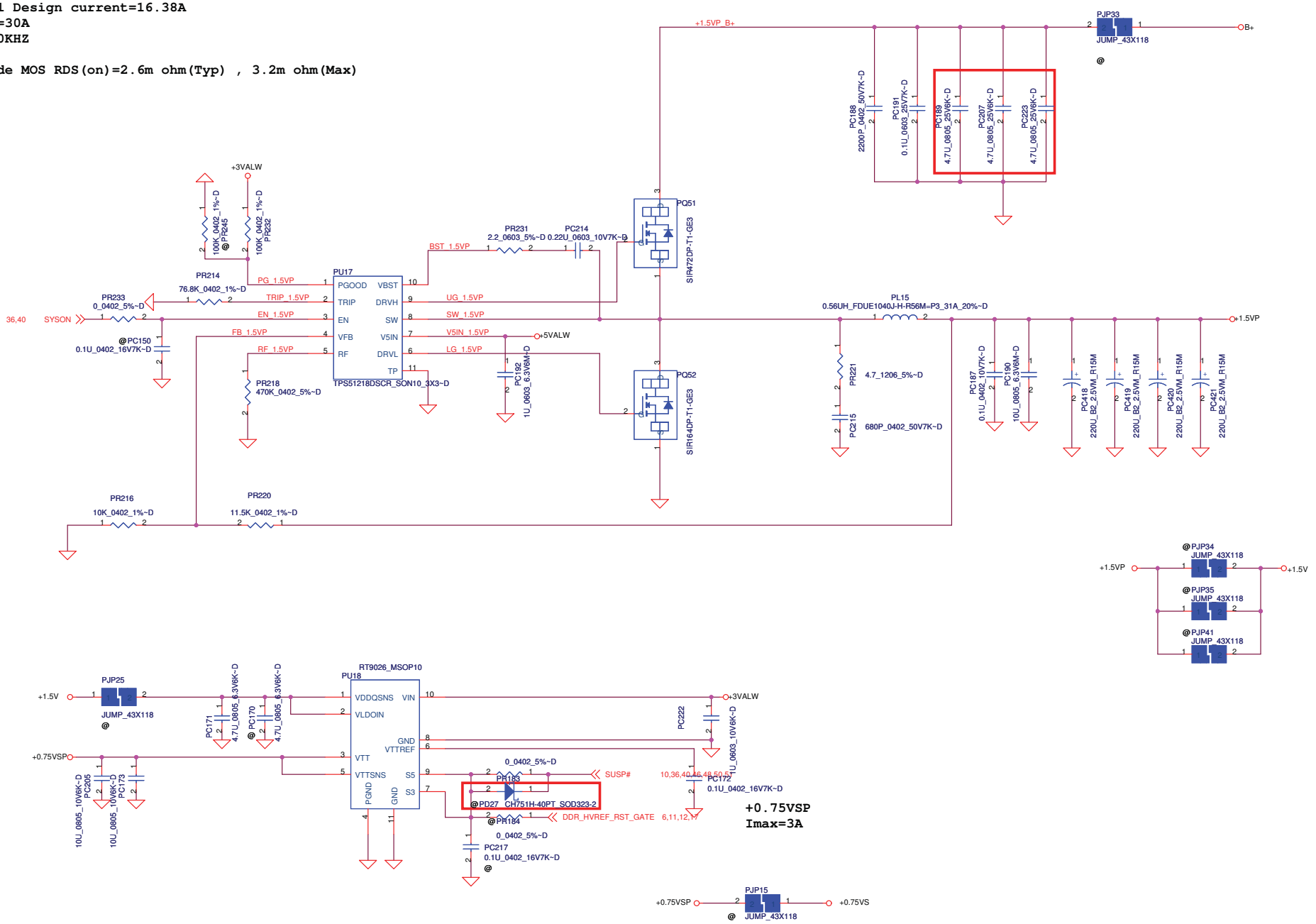
Title: +VCCPP

Size: Custom | Document Number | Rev

Date: Monday, May 10, 2010 | Sheet 48 of 55

+1.5VP
Thermal Design current=16.38A
OCPmin=30A
Fsw=290KHZ

Low Side MOS RDS(on)=2.6m ohm(Typ) , 3.2m ohm(Max)



Security Classification	Compal Secret Data		
Issued Date		Deciphered Date	

Compal Electronics, Inc.

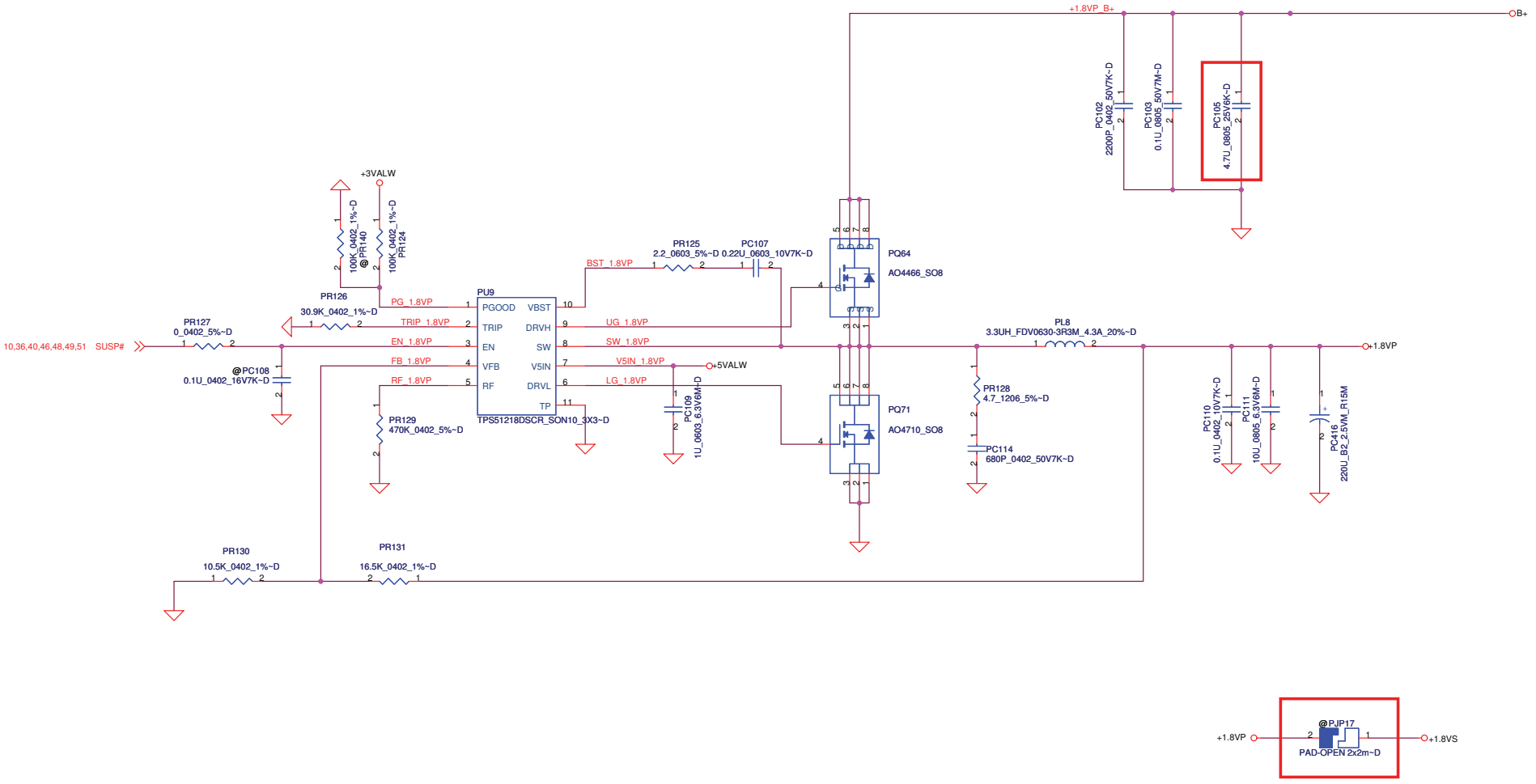
Title: +1.5VP/+0.75VSP

Size	Document Number	Rev
Custom		

Date: Monday, May 10, 2010 Sheet 49 of 55

+1.8VP
Thermal Design current=1A
OCPmin=3A
Fsw=290KHZ

Low Side MOS RDS(on)=11.7m ohm(Typ) , 14.2m ohm(Max)

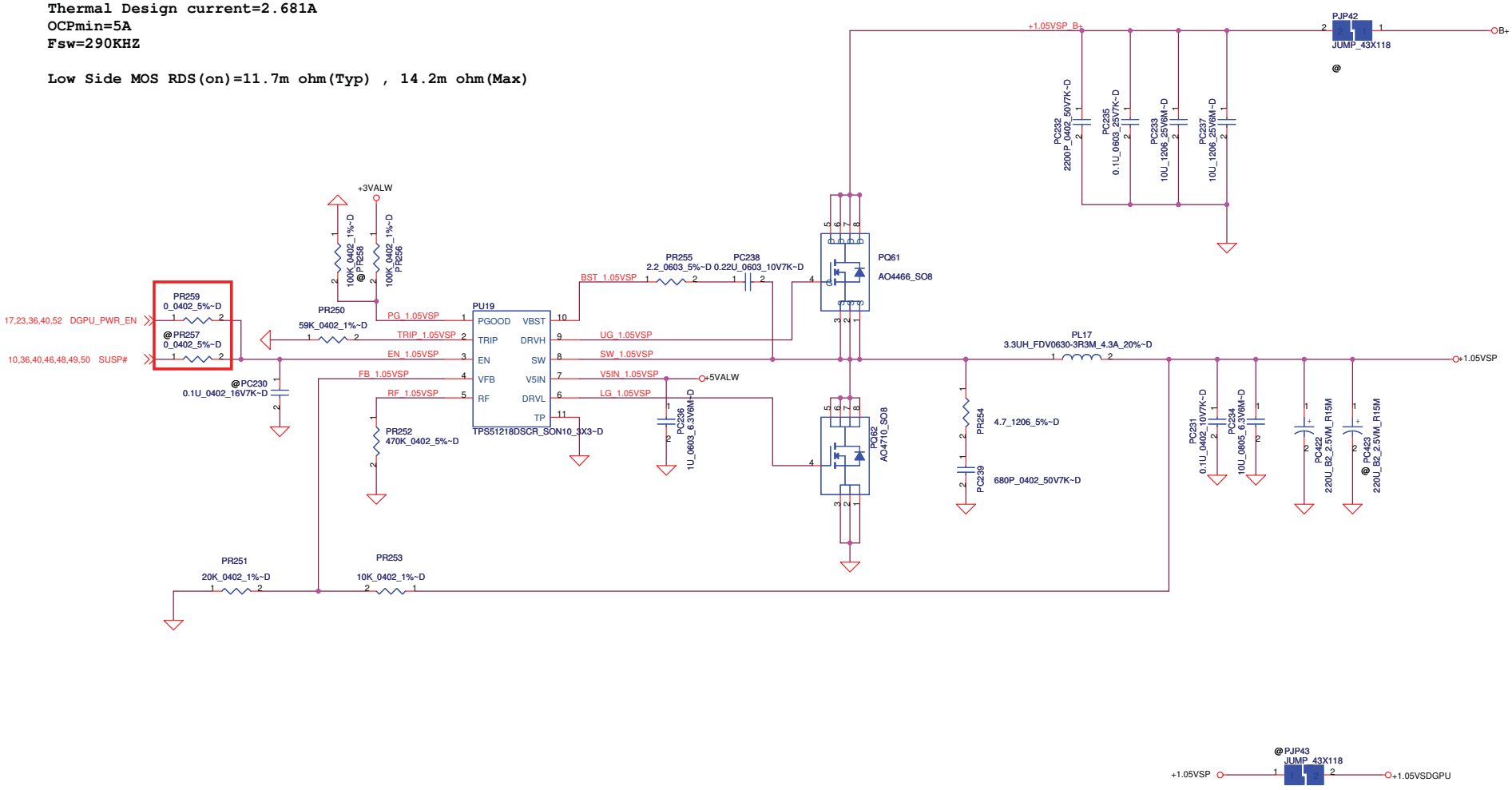


Security Classification	Compal Secret Data		
Issued Date		Deciphered Date	

Compal Electronics, Inc.		
Title: +1.8VP		
Size: Custom	Document Number	Rev
Date: Monday, May 10, 2010	Sheet 50 of 55	

+1.05VSP
Thermal Design current=2.681A
OCPmin=5A
Fsw=290KHZ

Low Side MOS RDS(on)=11.7m ohm(Typ) , 14.2m ohm(Max)



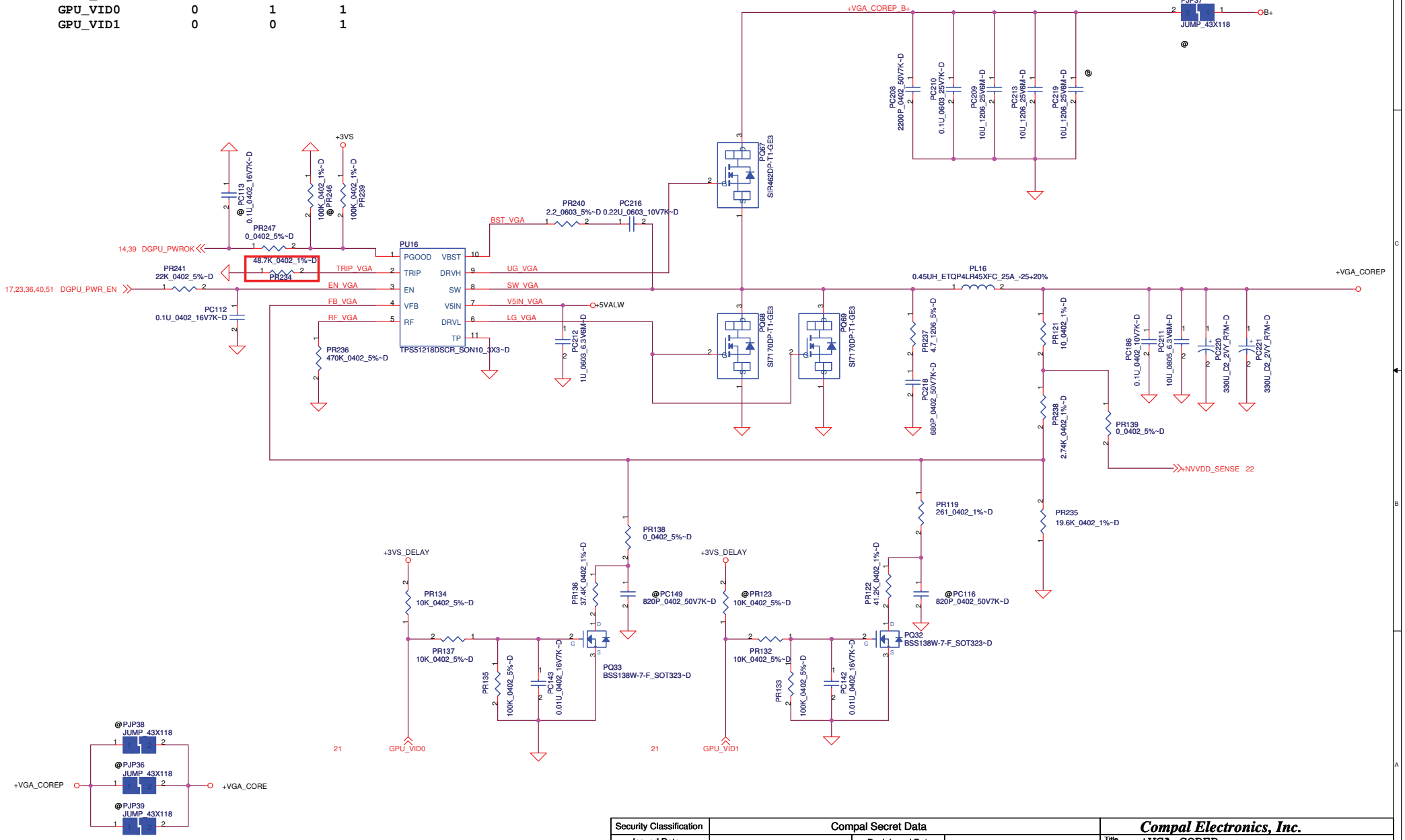
Security Classification	Compal Secret Data		
Issued Date		Deciphered Date	

Compal Electronics, Inc.			
Title: +1.05VSP			
Size: Custom	Document Number		Rev
Date: Monday, May 10, 2010		Sheet 51 of 55	

+VGA_COREP
ThermalDesigncurrent=21.525A
OCPmin=36.9A
Fsw=290KHZ
Low Side MOS RDS(on)=1.8m ohm(Typ) , 2.25m ohm(Max)

+VGA_COREP(N11P_GS1) PR122=41.2K ohm

+VGA_COREP	0.8V	0.85V	0.9V
GPU_VID0	0	1	1
GPU_VID1	0	0	1



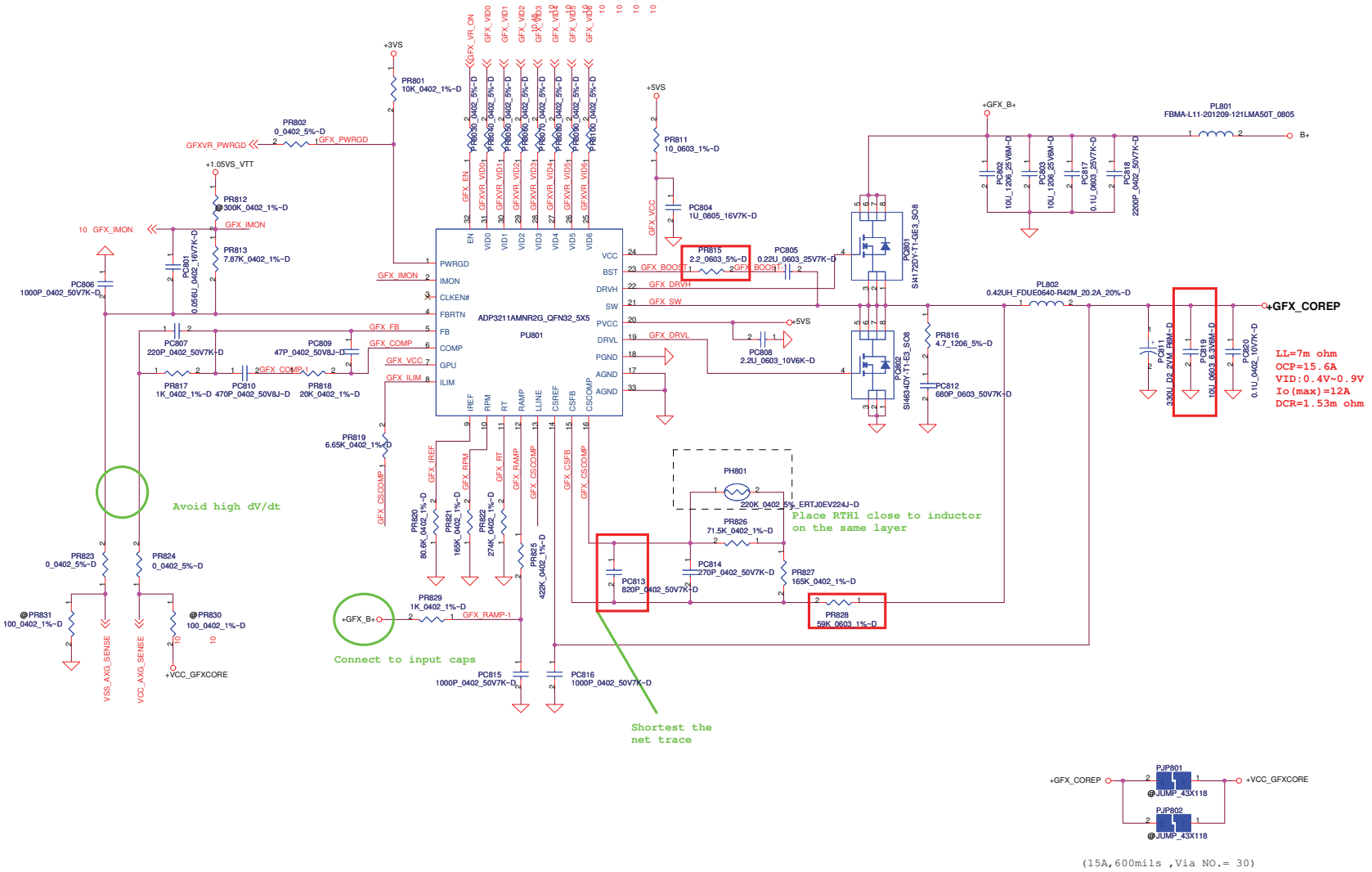
Security Classification	Compal Secret Data		
Issued Date		Deciphered Date	

Compal Electronics, Inc.

Title: +VGA_COREP

Size: Custom | Document Number | Rev

Date: Monday, May 10, 2010 | Sheet 52 of 55



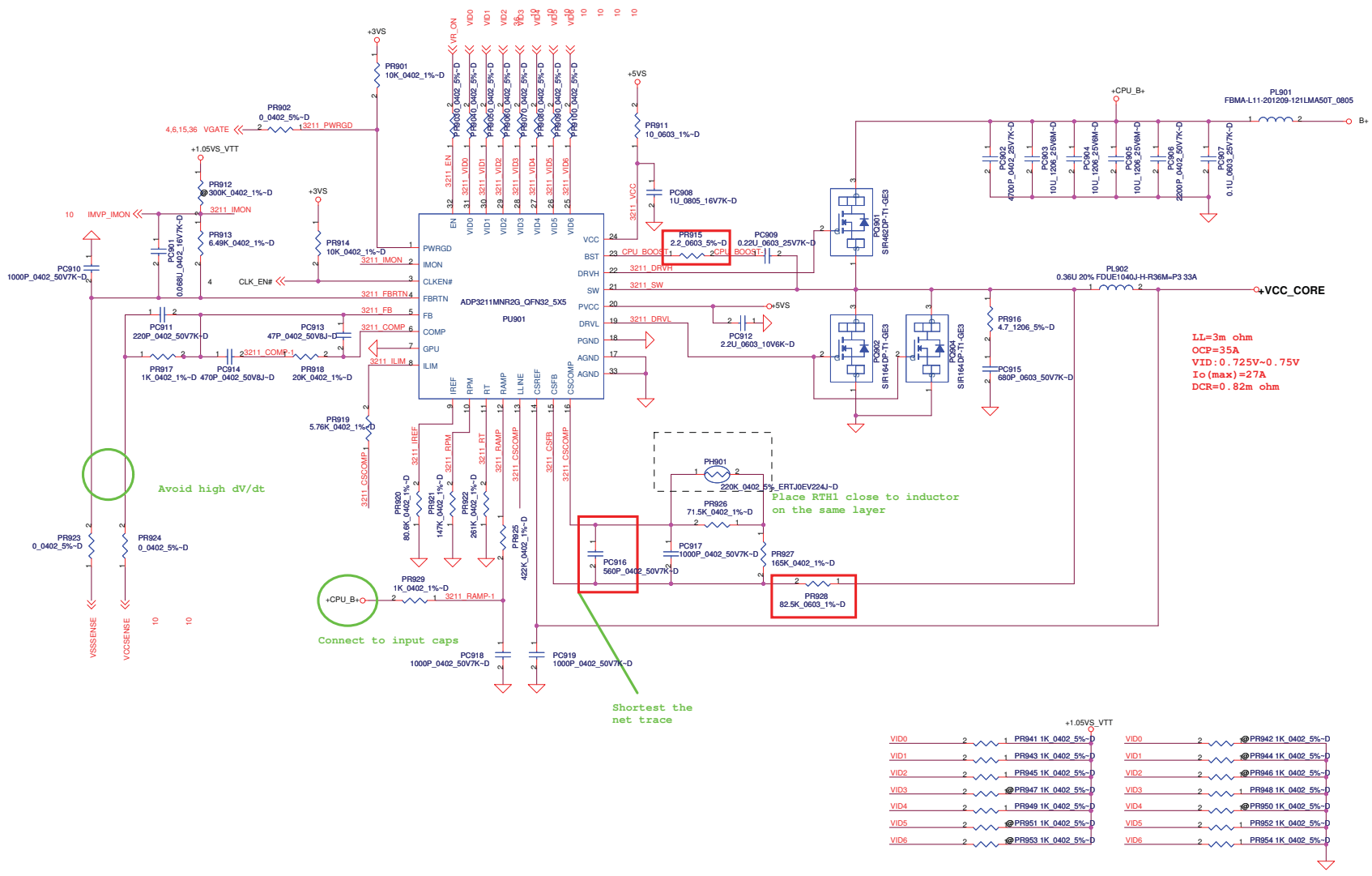
Security Classification	Compal Secret Data		
Issued Date	2009/01/06	Deciphered Date	2010/01/06

Compal Electronics, Inc.

Title: **GFX_CORE**

Size	Document Number	Rev
		1.0

Date: Monday, May 10, 2010 Sheet 53 of 55



Security Classification	Compal Secret Data		
Issued Date	2009/10/07	Deciphered Date	2012/09/28

Compal Electronics, Inc.

Title: +CPU_CORE

Size	Document Number	Rev
		1.0

Date: Monday, May 10, 2010 | Sheet 54 of 55

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

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	46	CHARGER	09/12/16	COMPAL	add current rating	change PQ13 from SB00000DL00 to SB00000I600	0.2
2	48	+VCCPP	09/12/16	COMPAL	adjust VTTPWRGD voltage rating	change PR204 from 100k to 15k and PR244 from 100k to 11k	0.2
3	53	GFX_CORE	09/12/16	COMPAL	adjust apposite MLCC size	change PC819 from SE153106K8L to SE000005T8L	0.2
4	51	+1.05VP	09/12/26	COMPAL	change enable signal for HW request	del PR257, add PR259 0 ohm	0.2
5	53	GFX_CORE	09/12/28	COMPAL	change resister for RF request	change PR815 from 0 to 2.2	0.2
6	54	CPU_CORE	09/12/28	COMPAL	change resister for RF request	change PR915 from 0 to 2.2	0.2
7	52	VGA_CORE	10/01/04	COMPAL	adjust VGA OCP point	change PR234 from 69.8k to 48.7k	0.2
8	54	CPU_CORE	10/01/04	COMPAL	adjust loadline	change PR928 from 60.4k to 82.5k	0.2
			10/01/04	COMPAL	adjust time-constant	change PC916 from 1000p to 560p	0.2
9	53	GFX_CORE	10/01/04	COMPAL	adjust loadline	change PR828 from 47.5k to 59k	0.2
			10/01/04	COMPAL	adjust time-constant	change PC813 from 1000p to 820p	0.2
10	48	+VCCPP	10/02/04	COMPAL	raise choke current rating	change PL13 from SH05056BM00 to SH00000I20L	0.3
11	49	+1.5VP/+0.75VSP	10/02/04	COMPAL	raise choke current rating	change PL15 from SH05056BM00 to SH00000I20L	0.3
12	49	+1.5VP/+0.75VSP	10/02/25	COMPAL	speaker interfere	change PC189 PC207 from SE142106M8L to SE000006R8L and add PC223	0.3
13	50	+1.8VP	10/02/26	COMPAL	HDD connect interfere	change PC105 from SE142106M8L to SE000006R8L and del PC115	0.3
14	44	BATTERY CONN/OTP	10/04/12	COMPAL	adjust OTP trigger point for thermal request	change PR39 from SD03410728L to SD03480618L	0.4
15	52	VGA_CORE	10/05/10	COMPAL	adjust time sequence for EE request	change PR241 from 220 to 22k	

Compal Electronics, Inc.		
Title: PWR-PIR		
Size	Document Number	Rev 0.1
Date: Monday, May 10, 2010	Sheet 55 of 55	