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)

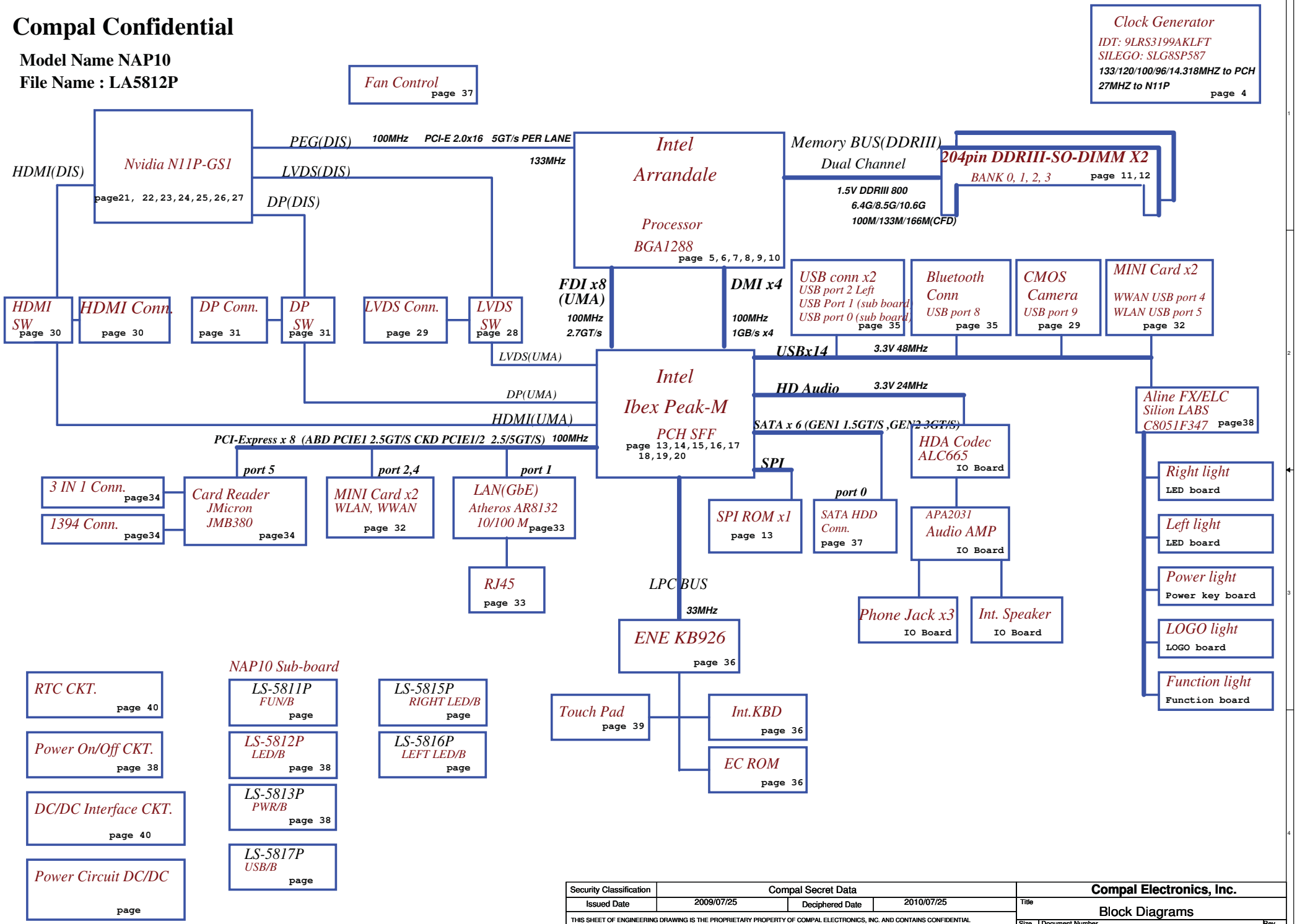
2010-04-19

Rev: 1.0

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



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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

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Title: Notes List

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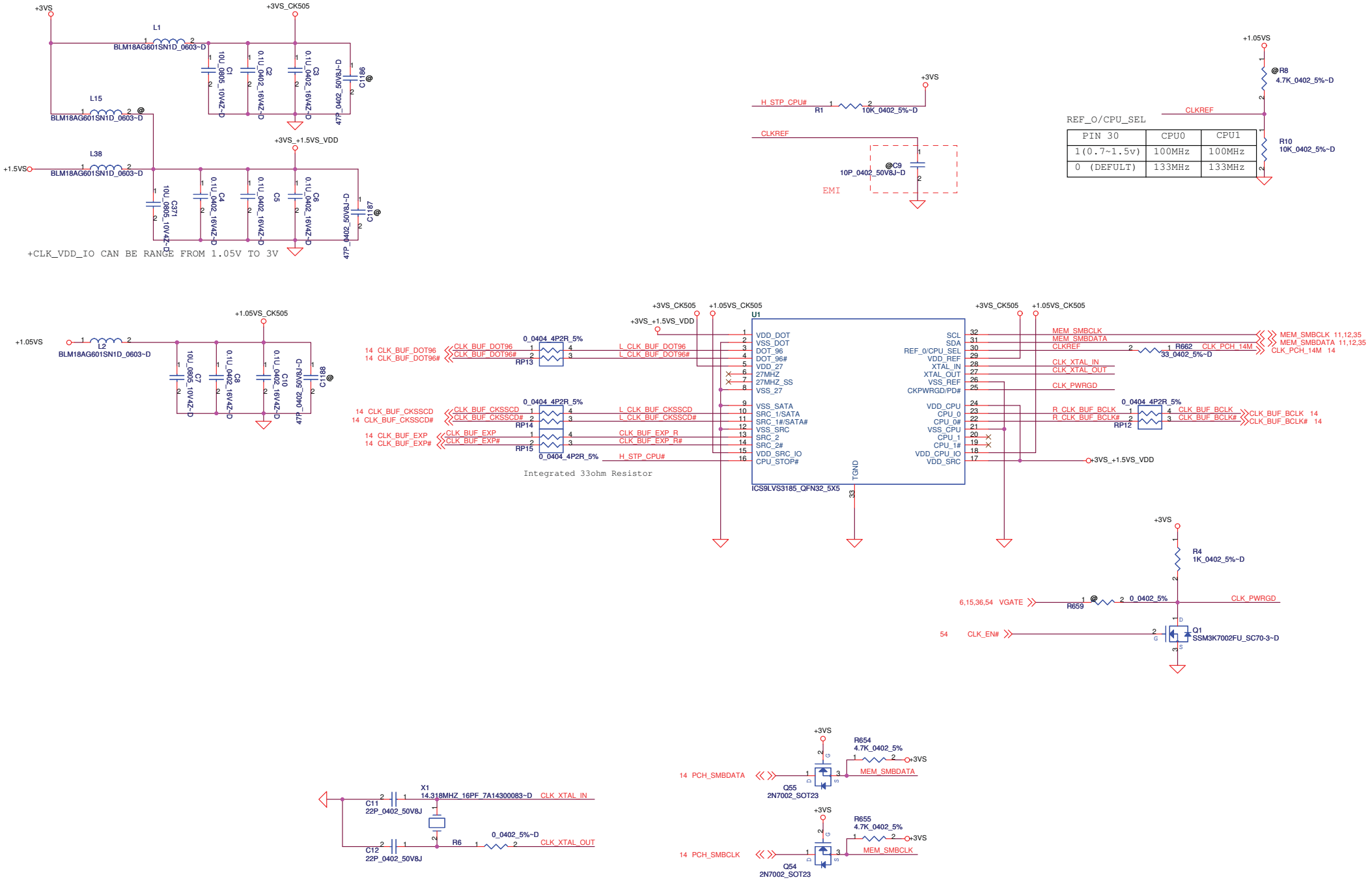
Date: Monday, May 10, 2010 | Sheet 3 of 55



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Title: Clock Generator

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

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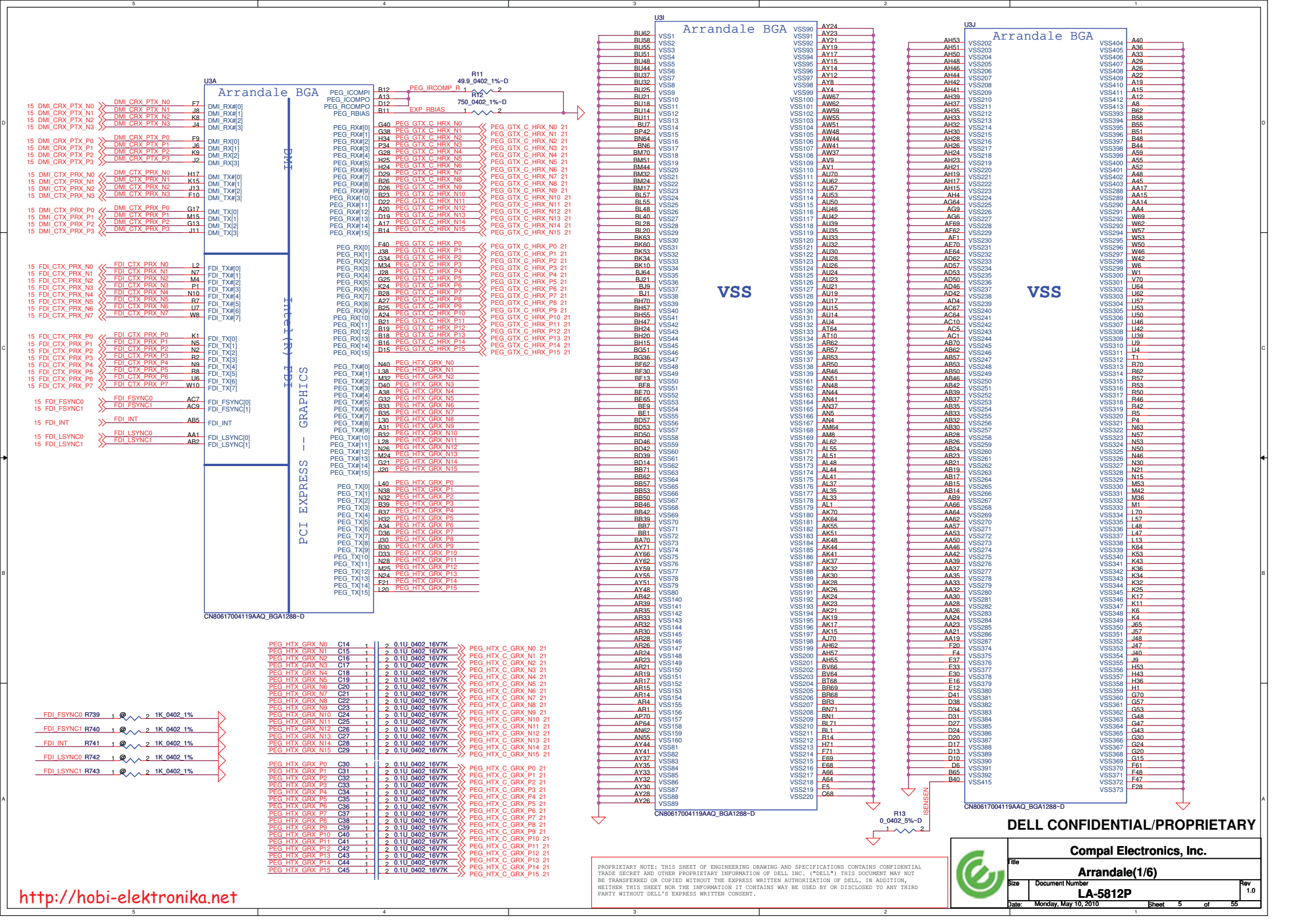

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Title: Arrandale(1/6)

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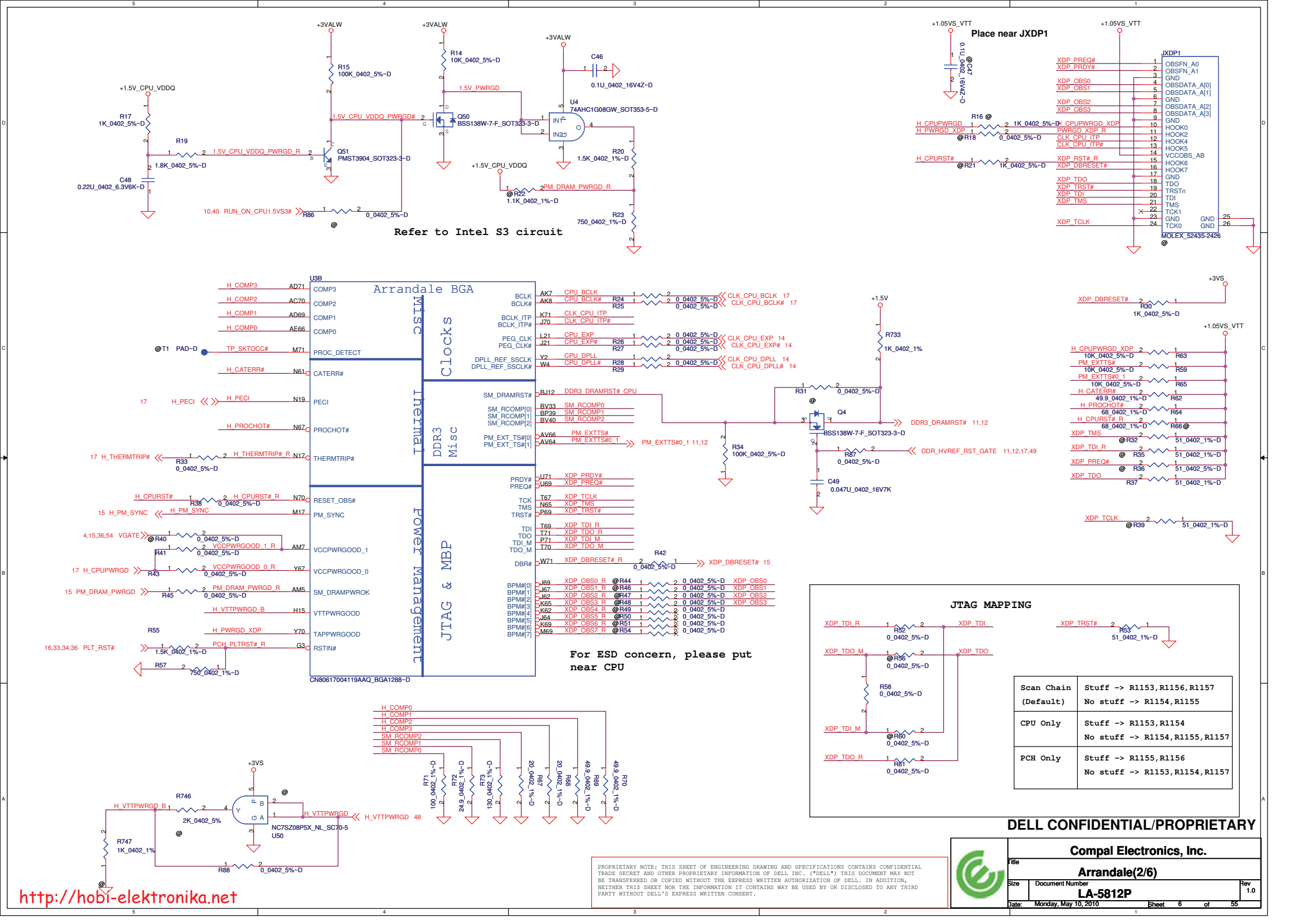
Date: Monday, May 10, 2010 | Sheet 5 of 55


Refer to Intel S3 circuit
Place near JXDP1
Arrandale BGA
Misc
Clocks
DDR3 Misc
Internal
JTAG & MBP
Power Management
U3B
CN80617004119AAQ_BGA1288~D
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
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Compal Electronics, Inc.
Arrandale(2/6)
LA-5812P
Rev 1.0
Monday, May 10, 2010
Sheet 6 of 55
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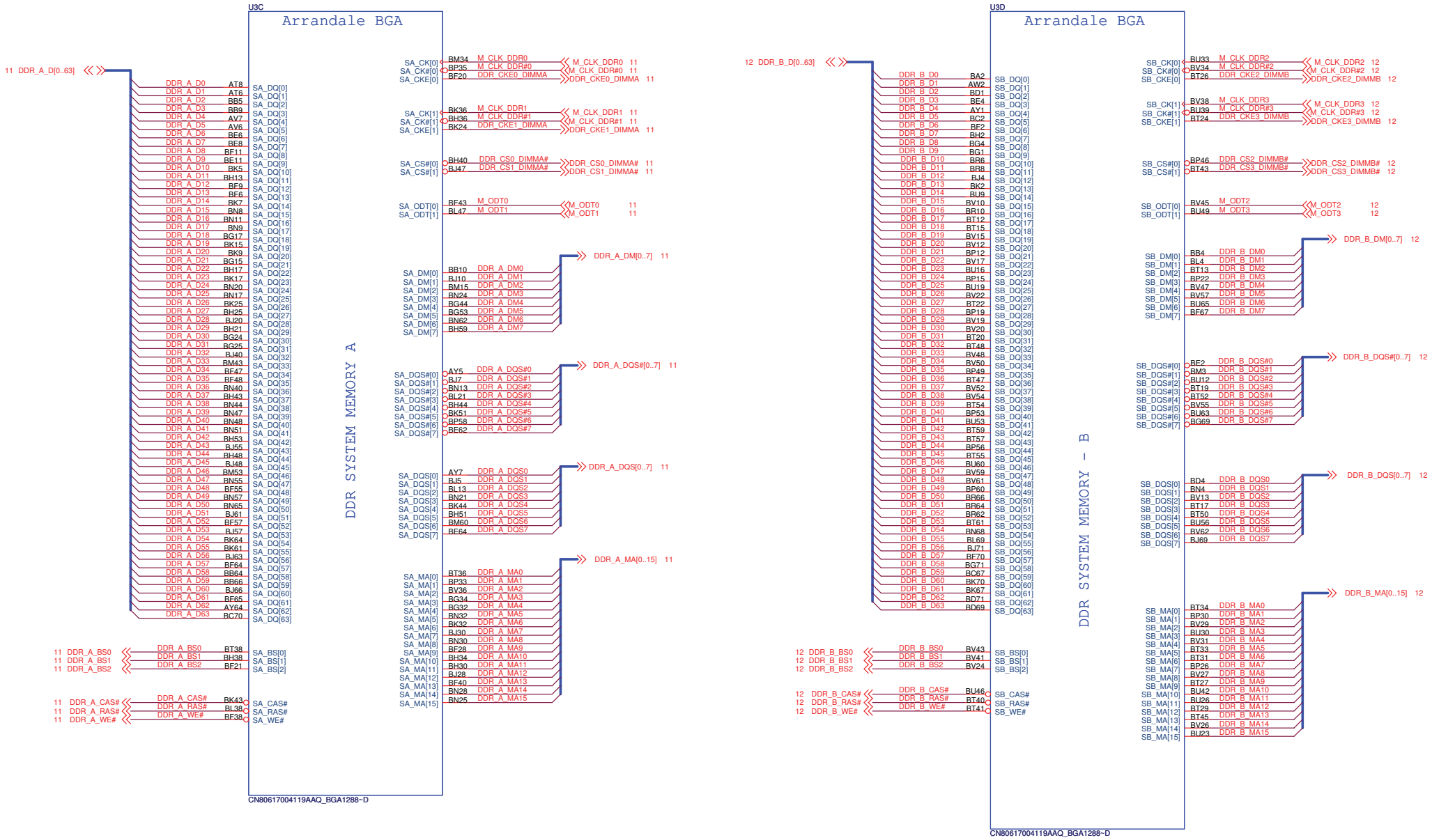

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Compal Electronics, Inc.

Title: Arrandale(3/6)

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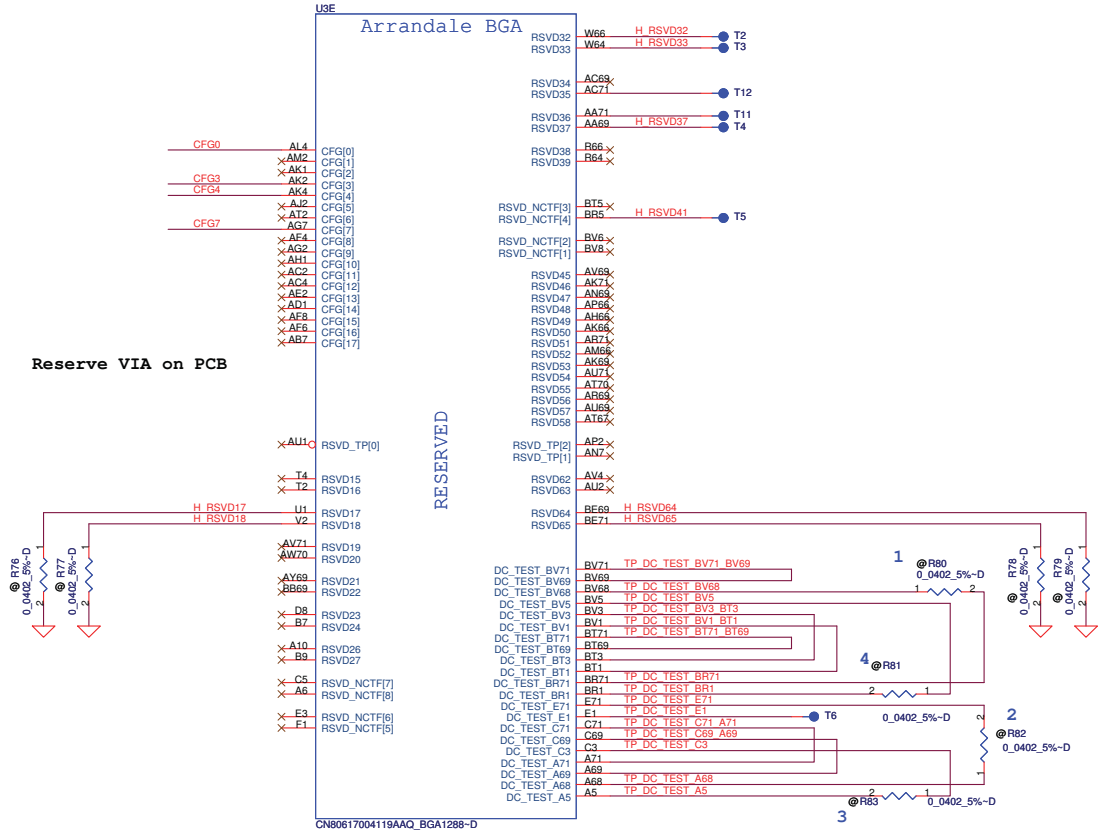
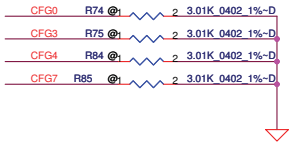
Date: Monday, May 10, 2010 | Sheet 7 of 55





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:

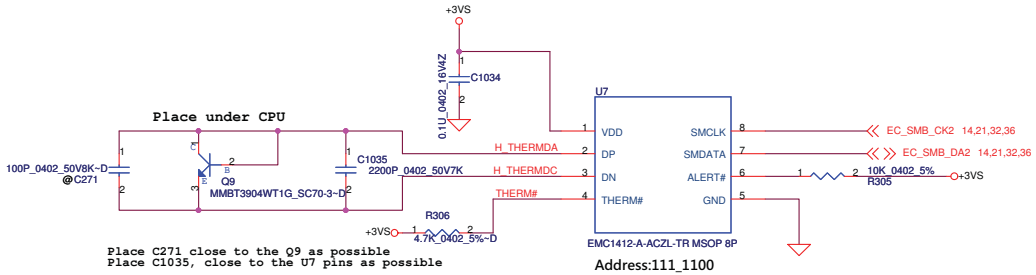
1: BR71 - pkg - BT71- board - BT69 - pkg - BV71 - board - BV69 - pkg - BV68

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



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Title: Arrandale(4/6)

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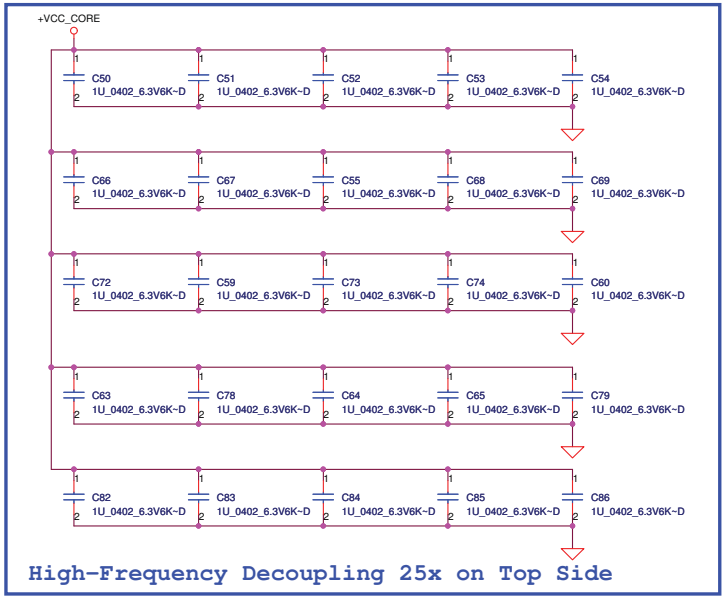
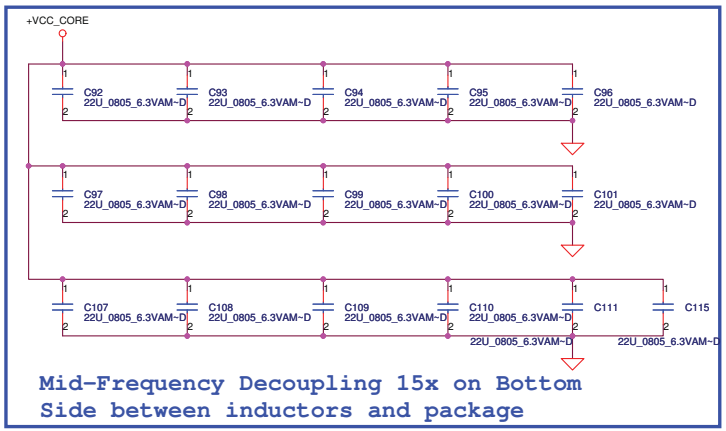
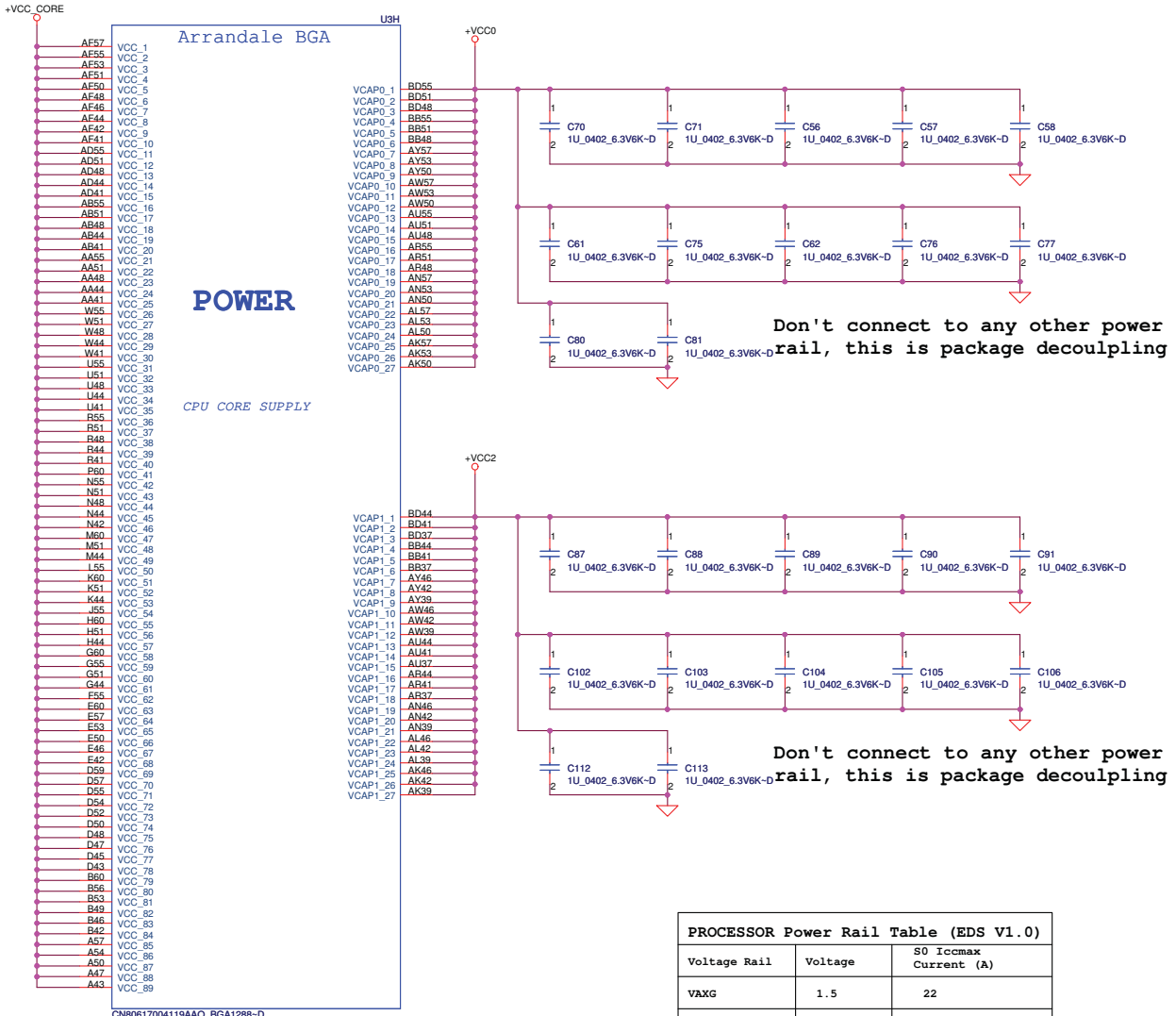
Date: Monday, May 10, 2010 | Sheet 8 of 55

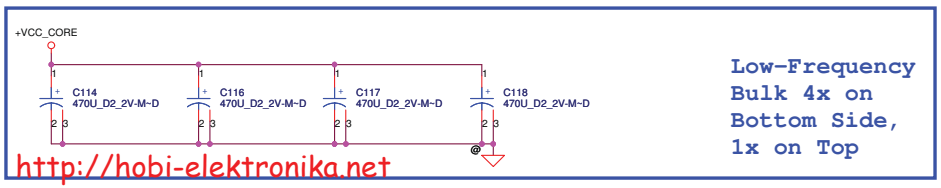




Current =48A



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



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Compal Electronics, Inc.

Title: Arrandale(5/6)

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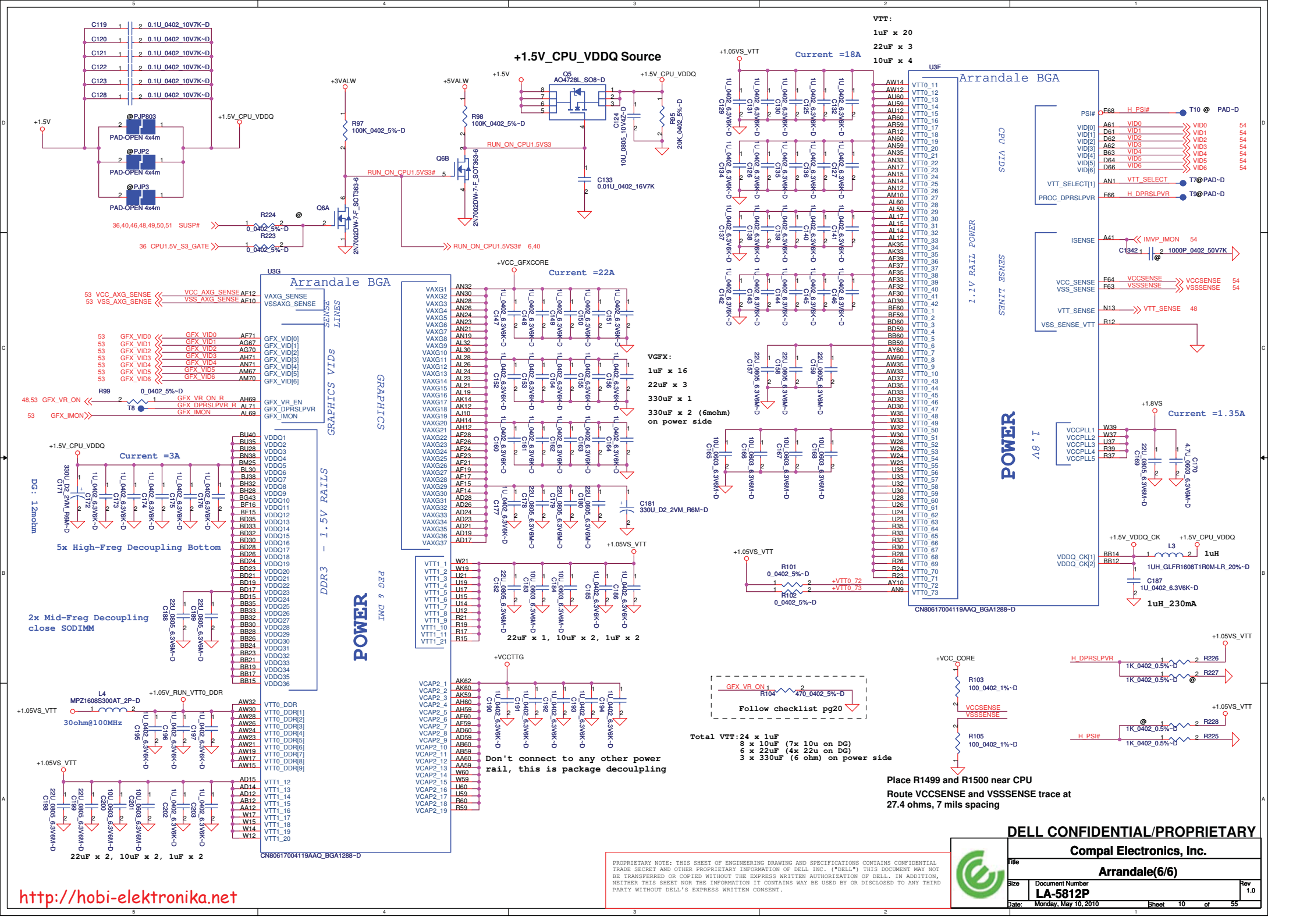
Date: Monday, May 10, 2010 | Sheet 9 of 55


+1.5V_CPU_VDDQ Source
Arrandale BGA
U3G
U3F
POWER
GRAPHICS
DDR3 - 1.5V RAILS
PEG & DMI
CPU VIDS
1.1V RAIL POWER
SENSE LINES
GRAPHICS VIDS
SENSE LINES
VTT:
1uF x 20
22uF x 3
10uF x 4
VGFX:
1uF x 16
22uF x 3
330uF x 1
330uF x 2 (6mohm)
on power side
Current =18A
Current =22A
Current =3A
Current =1.35A
5x High-Freg Decoupling Bottom
2x Mid-Freg Decoupling close SODIMM
22uF x 1, 10uF x 2, 1uF x 2
22uF x 2, 10uF x 2, 1uF x 2
Don't connect to any other power rail, this is package decoulpling
Follow checklist pg20
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
Place R1499 and R1500 near CPU
Route VCCSENSE and VSSSENSE trace at 27.4 ohms, 7 mils spacing
CN80617004119AAQ_BGA1288~D
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Arrandale(6/6)
LA-5812P
Monday, May 10, 2010
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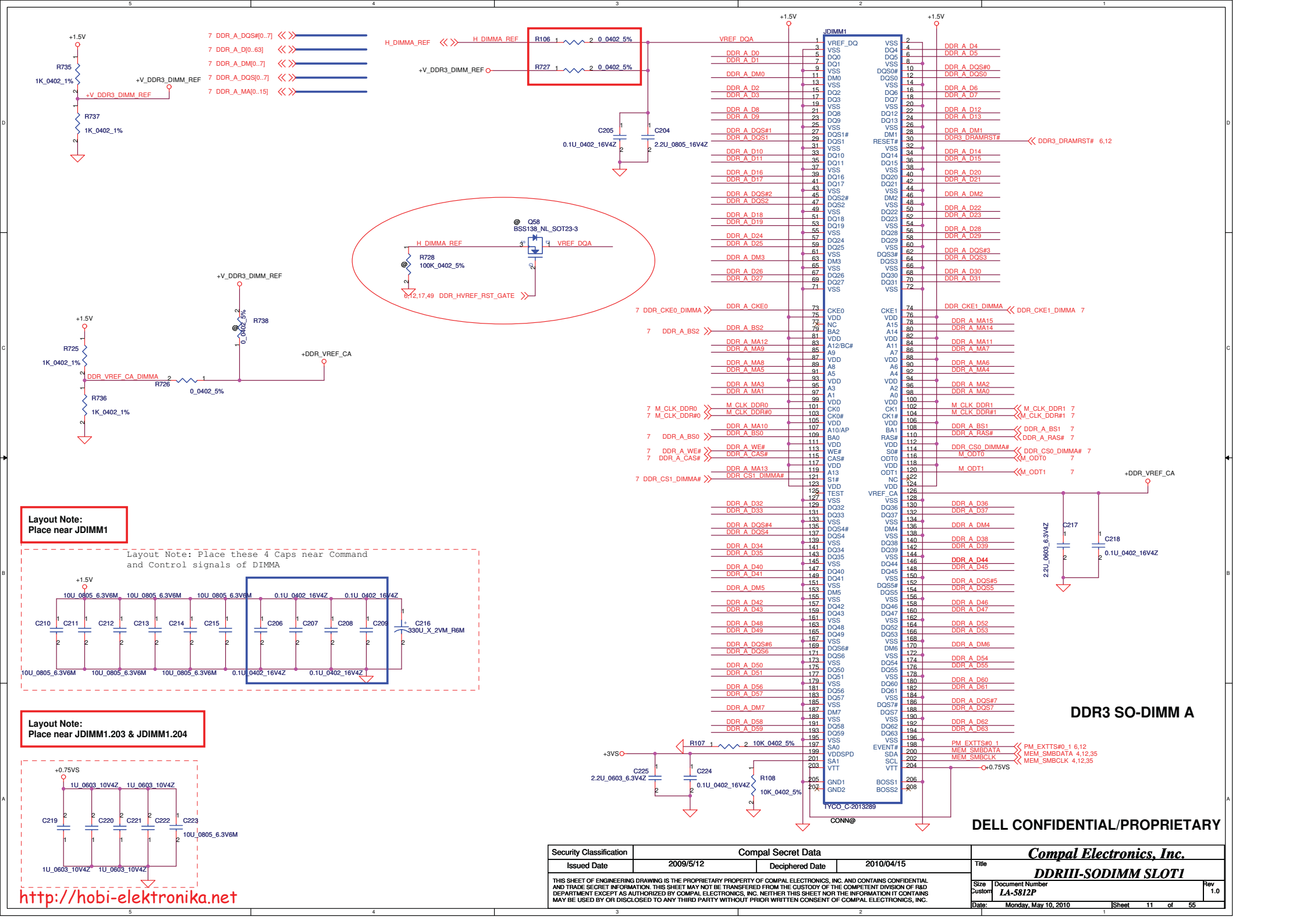
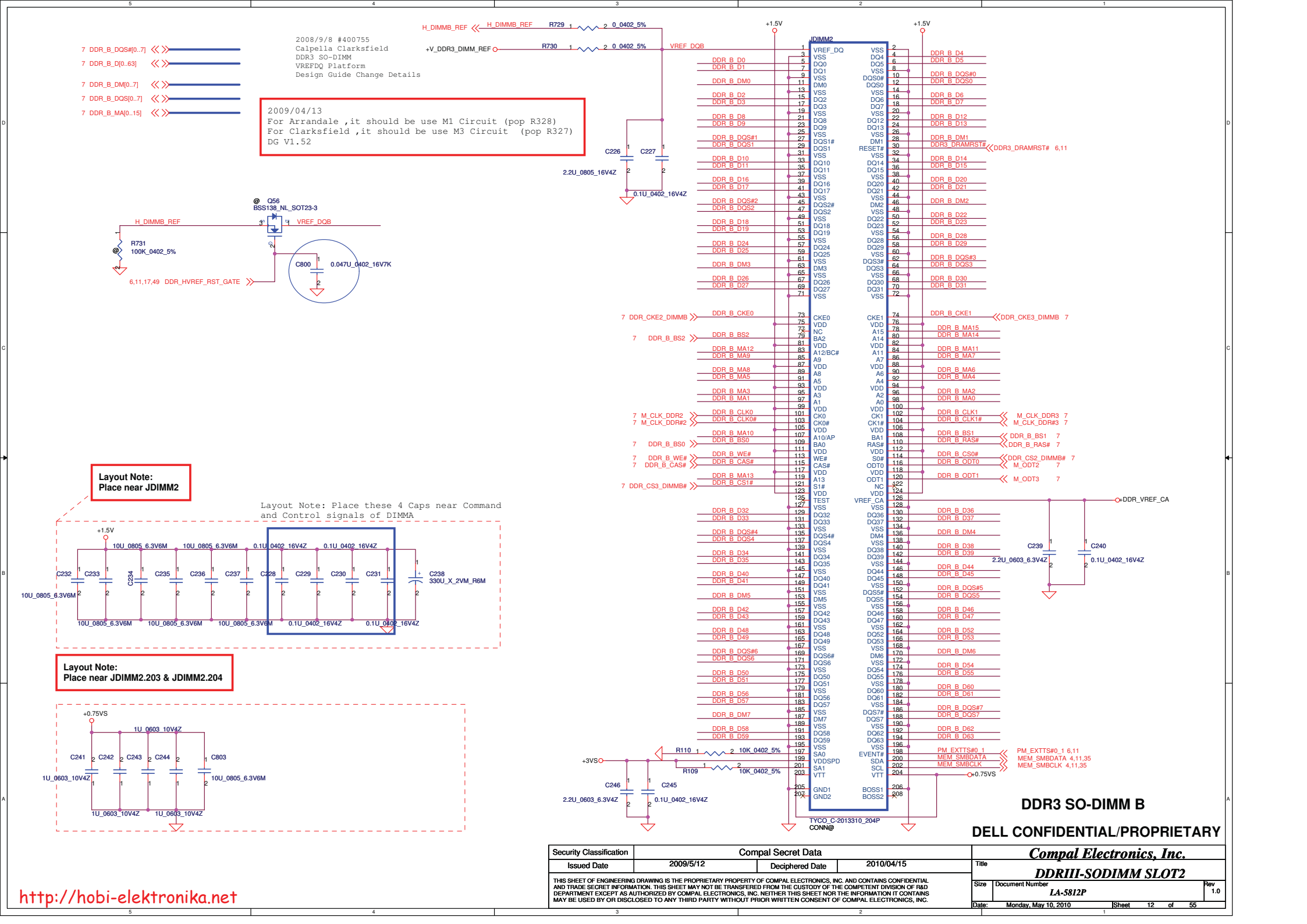


Security Classification	Compal Secret Data		
Issued Date	2009/5/12	Deciphered Date	2010/04/15

Title	Compal Electronics, Inc.	
	DDRIII-SODIMM SLOT1	
Size: Custom	Document Number: LA-5812P	Rev: 1.0
Date: Monday, May 10, 2010	Sheet 11 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

No Reboot Strap	
SPKR	Low = Default
	High = No Reboot

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

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	

Compal Electronics, Inc.

Title: PCH (1/8)

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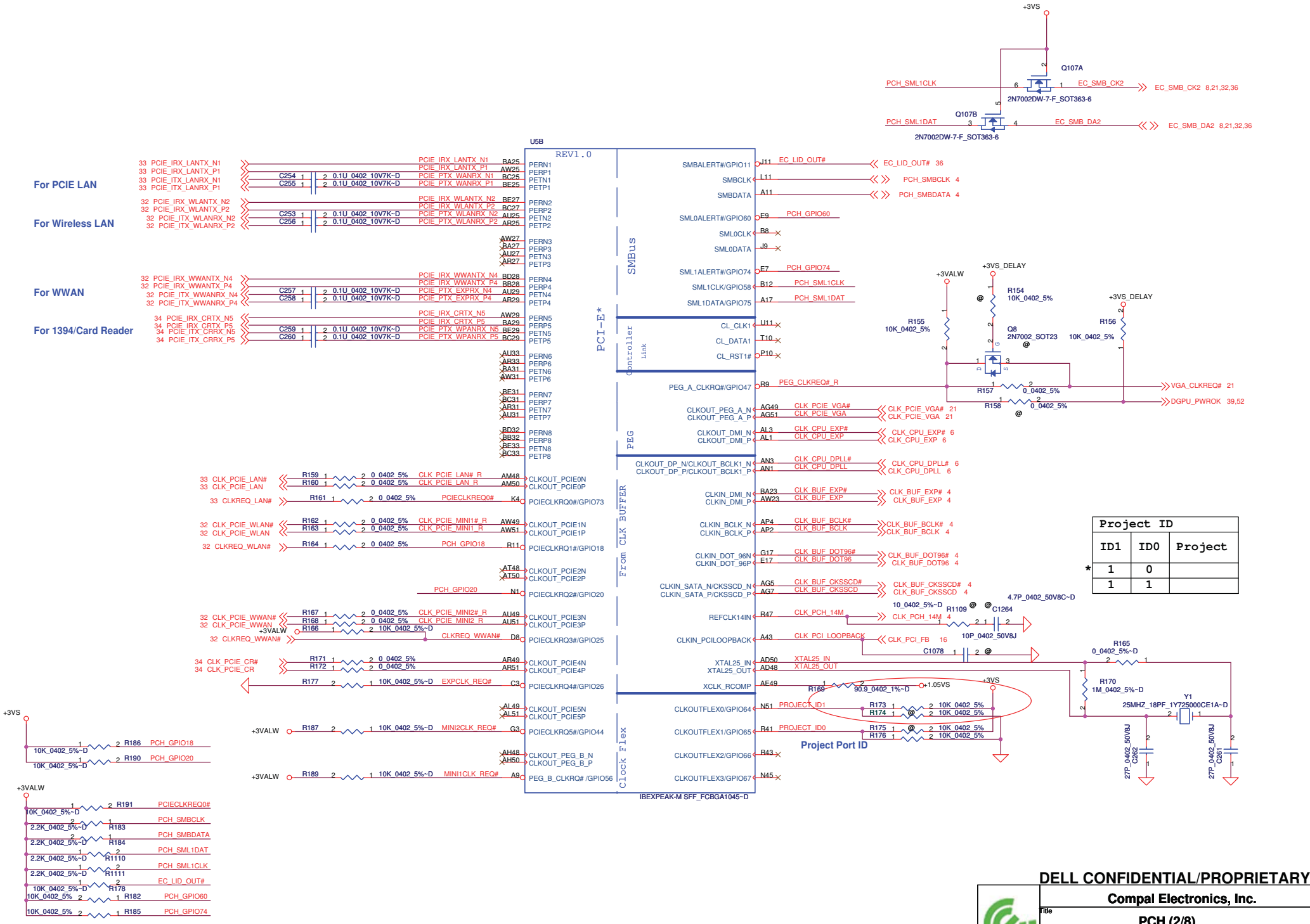
For PCIE LAN
For Wireless LAN
For WWAN
For 1394/Card Reader
U5B
REV1.0
PCI-E*
SMBus
PEG
From CLK BUFFER
Clock Flex
IBEXPEAK-M SFF_FCBGA1045~D
Q107A
Q107B
2N7002DW-7-F_SOT363-6
Q8
2N7002_SOT23
+3VS
+3VALW
+3VS_DELAY
Project Port ID
Project ID
ID1
ID0
Project
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Compal Electronics, Inc.
PCH (2/8)
LA-5812P
Monday, May 10, 2010
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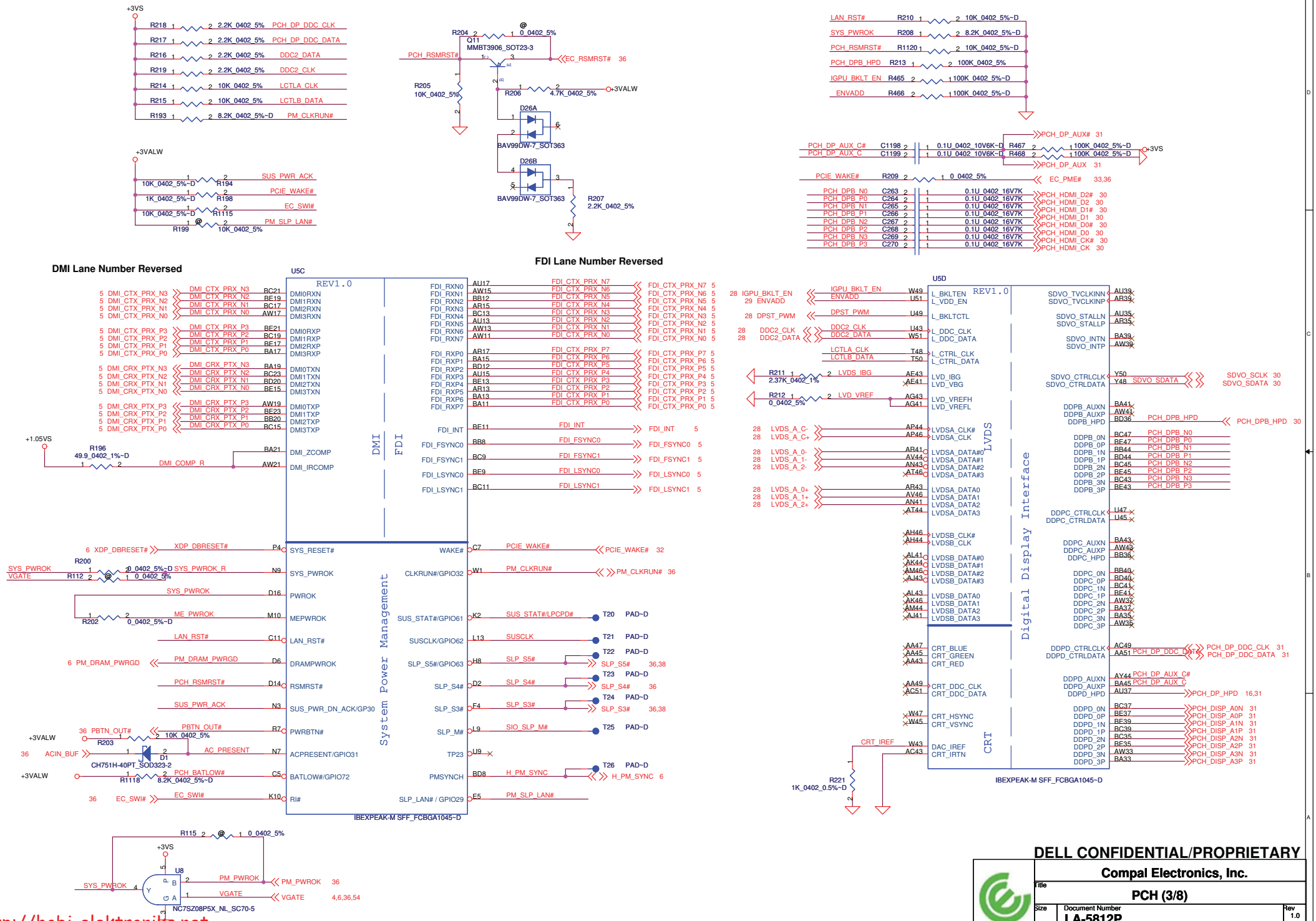
DMI Lane Number Reversed
FDI Lane Number Reversed
U5C
REV1.0
DMI
FDI
System Power Management
IBEXPEAK-M SFF_FCBGA1045~D
U5D
LVDS
Digital Display Interface
CRT
IBEXPEAK-M SFF_FCBGA1045~D
U8
NC7SZ08P5X_NL_SC70-5
CH751H-40PT_SOD323-2
BAV99DW-7_SOT363
BAV99DW-7_SOT363
MMBT3906_SOT23-3
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Compal Electronics, Inc.
PCH (3/8)
LA-5812P
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Monday, May 10, 2010
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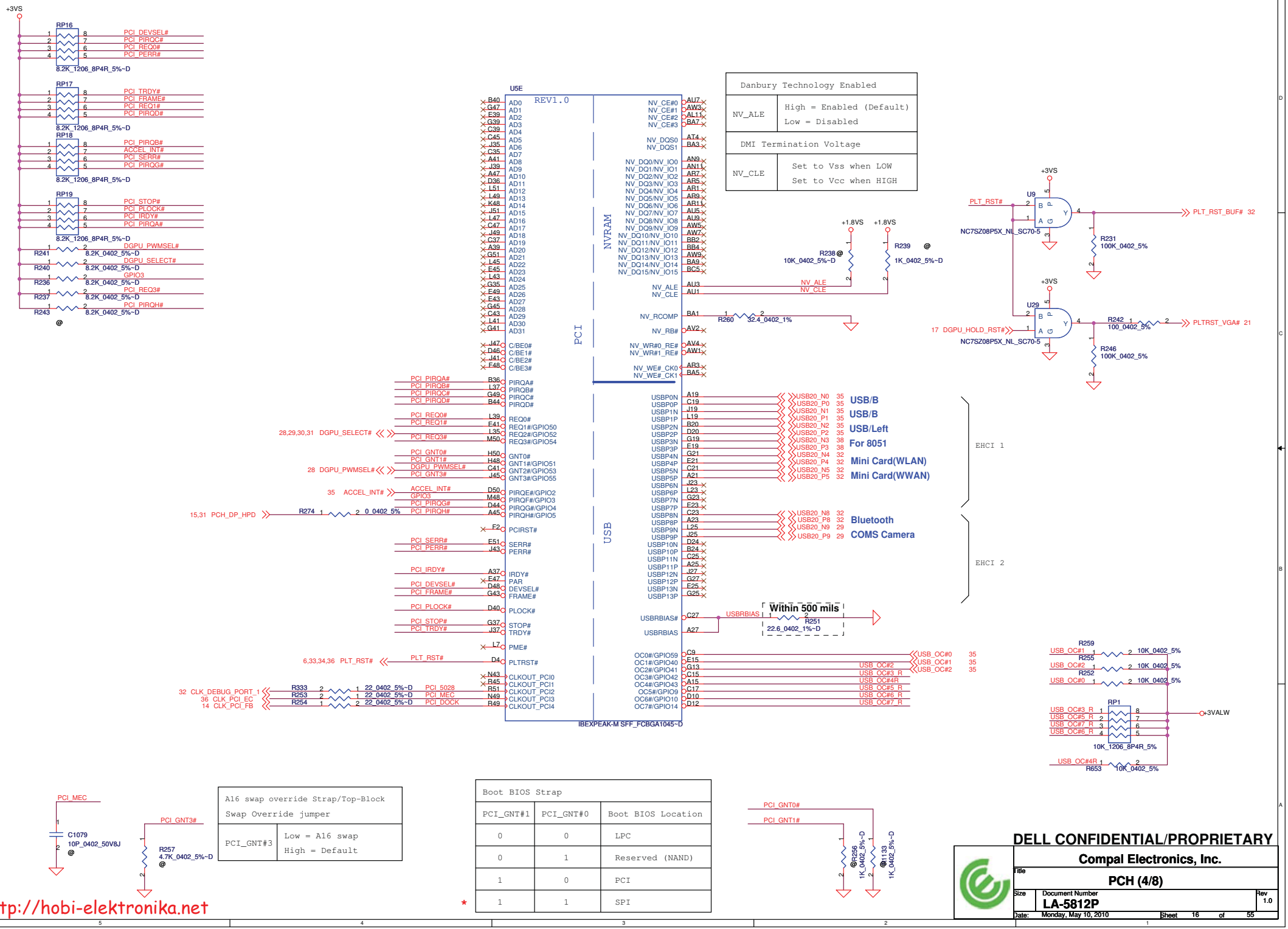

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Title: PCH (4/8)

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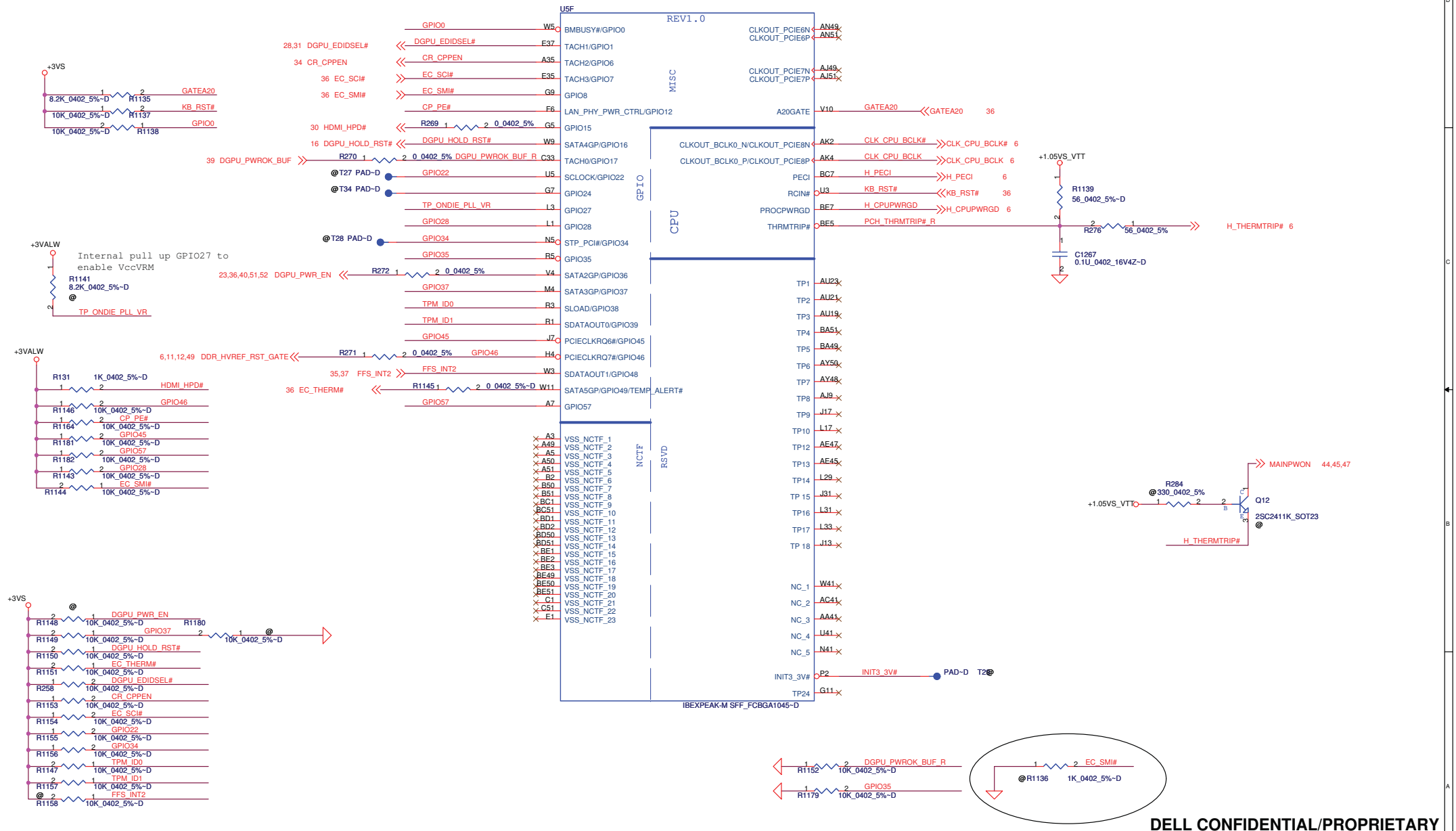
Date: Monday, May 10, 2010 | Sheet 16 of 55

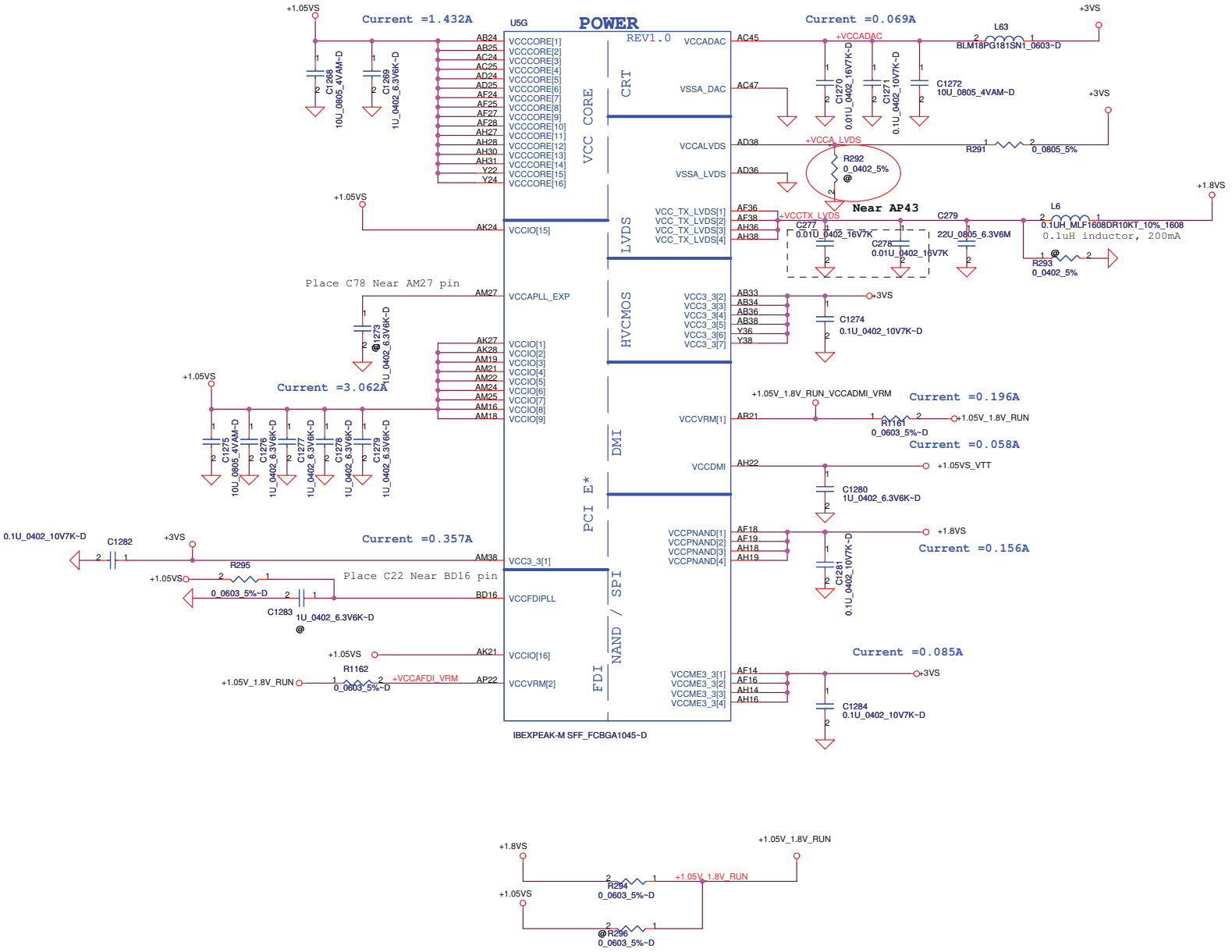


Compal Electronics, Inc.

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

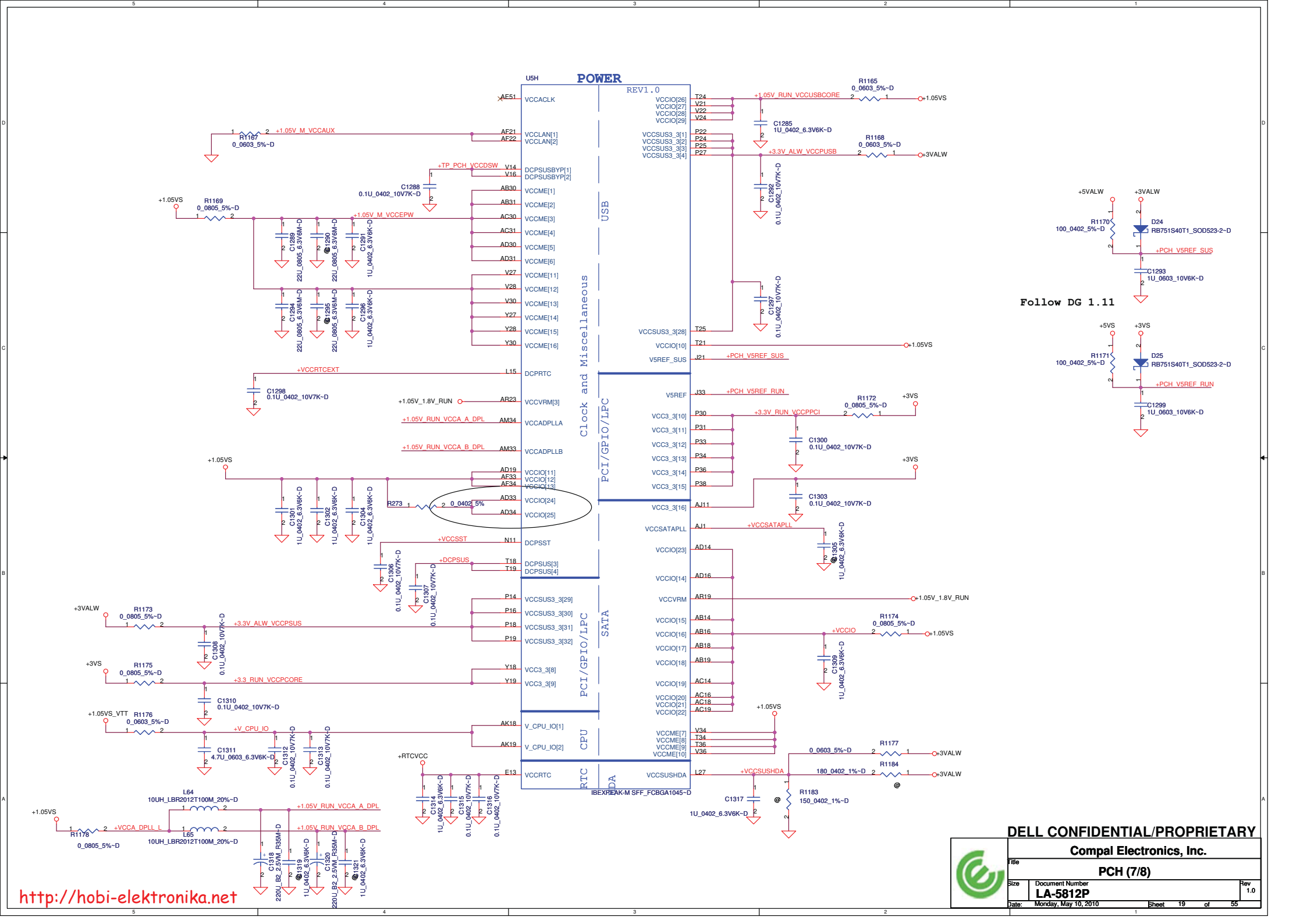
Voltage Rail	Voltage	S0 Iccmax Current (A)
V_CPU_IO	1.1/1.05	< 1 (mA)
V5REF	5	< 1 (mA)
V5REF_Sus	5	< 1 (mA)
Vcc3_3	3.3	0.357
VccAClk	1.1	0.052
VccADAC	3.3	0.069
VccADPLLA	1.1	0.068
VccADPLLB	1.1	0.069
VccapllEXP	1.1	0.04
VccCore	1.1	1.432
VccDMI	1.1	0.058
VccDMI	1.1	0.061
VccFDIPLL	1.1	0.037
VccIO	1.1	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


U5H
POWER
REV1.0
USB
Clock and Miscellaneous
PCI/GPIO/LPC
SATA
CPU
RTC
SDA
IBEXPEAK-M SFF_FCBGA1045~D
Follow DG 1.11
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PCH (7/8)
LA-5812P
Rev 1.0
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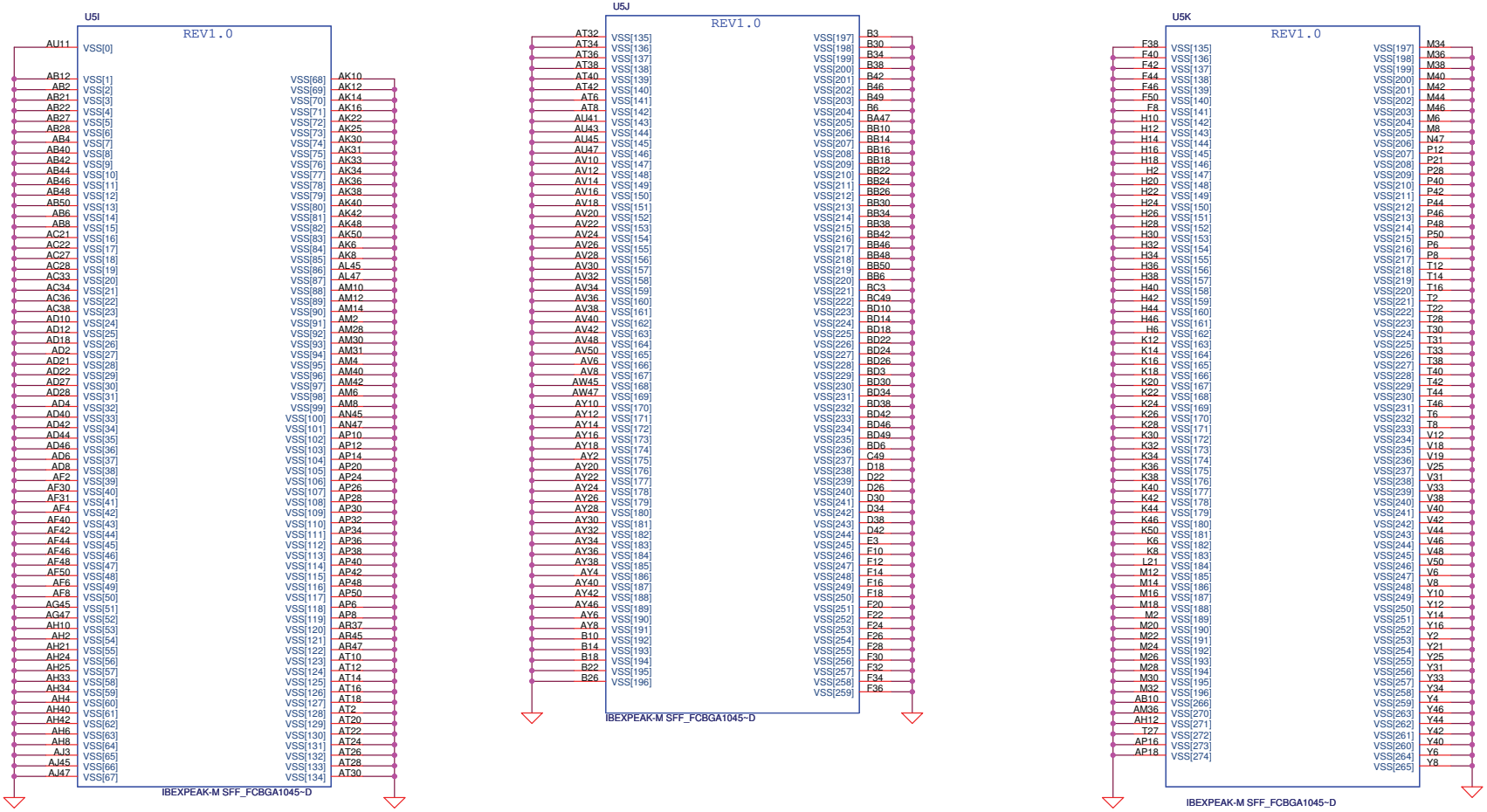

Compal Electronics, Inc.

Title: PCH (8/8)

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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

Address:100_1101

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Issued Date	2009/07/25	Deciphered Date	2010/07/25

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

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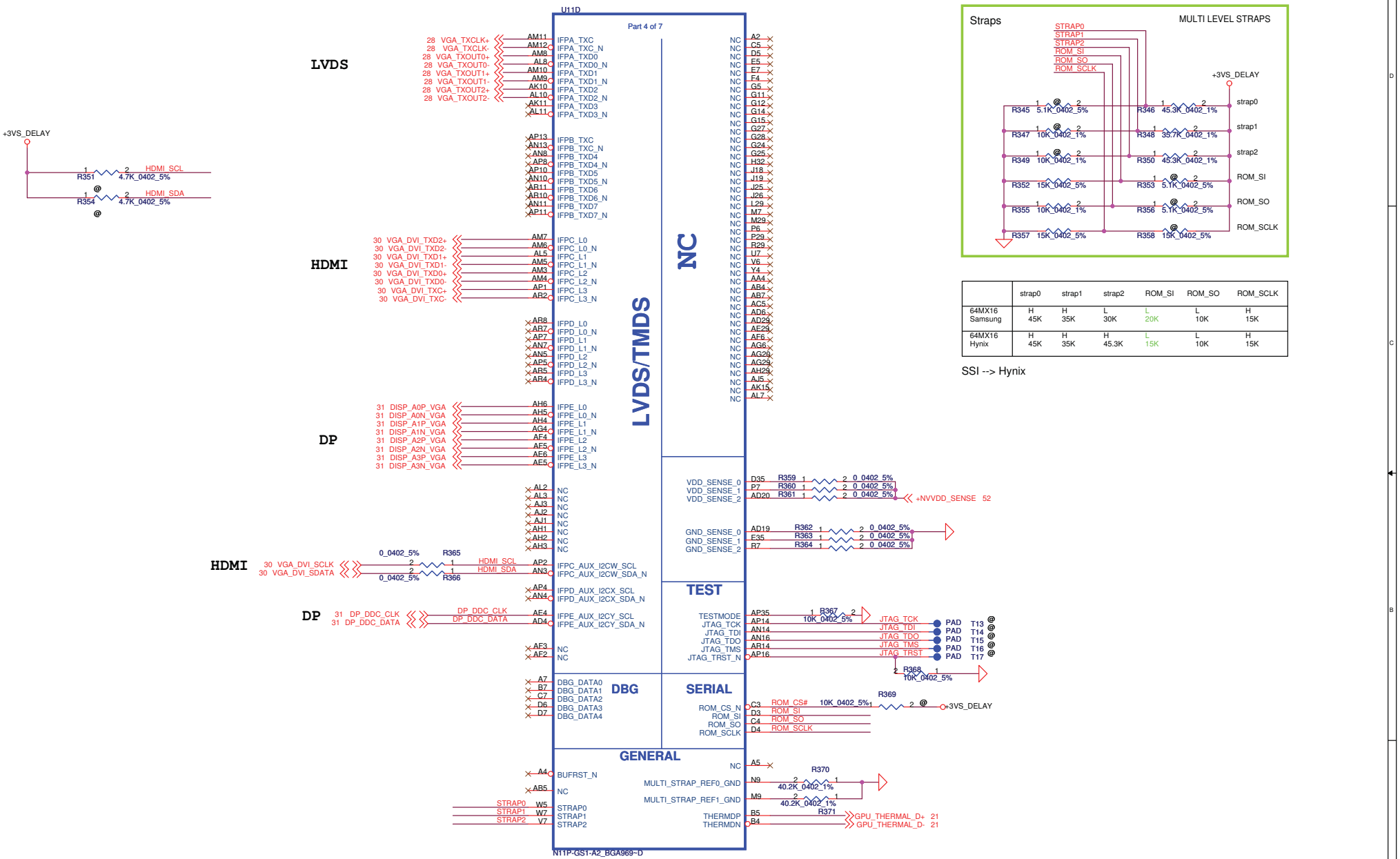
Date: Monday, May 10, 2010 | Sheet 21 of 55



	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

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Compal Electronics, Inc.

Title: N11P-GS1(2/5) IO

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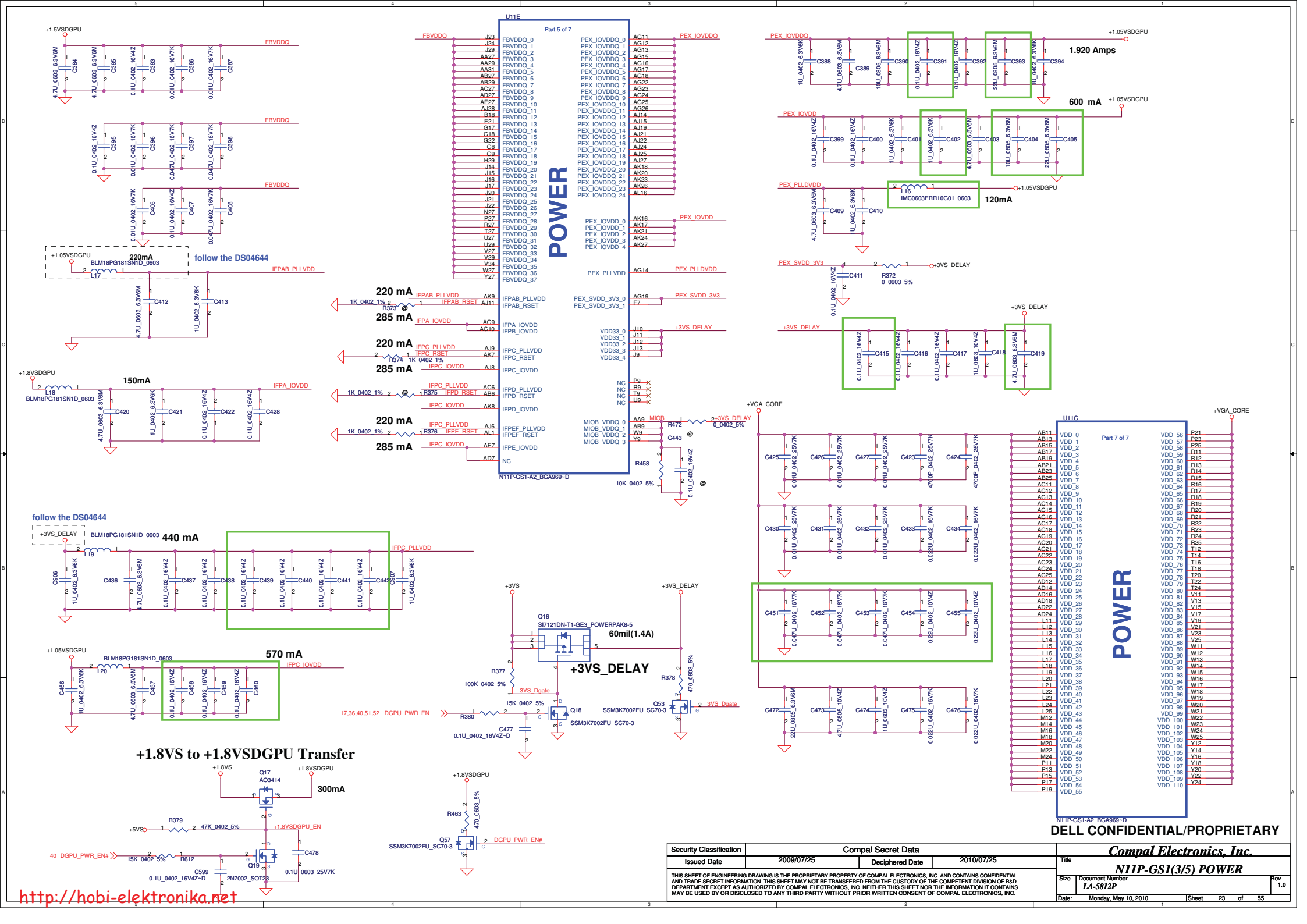
Date: Monday, May 10, 2010 | Sheet 22 of 55



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Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.

Title: N11P-GS1(3/5) POWER

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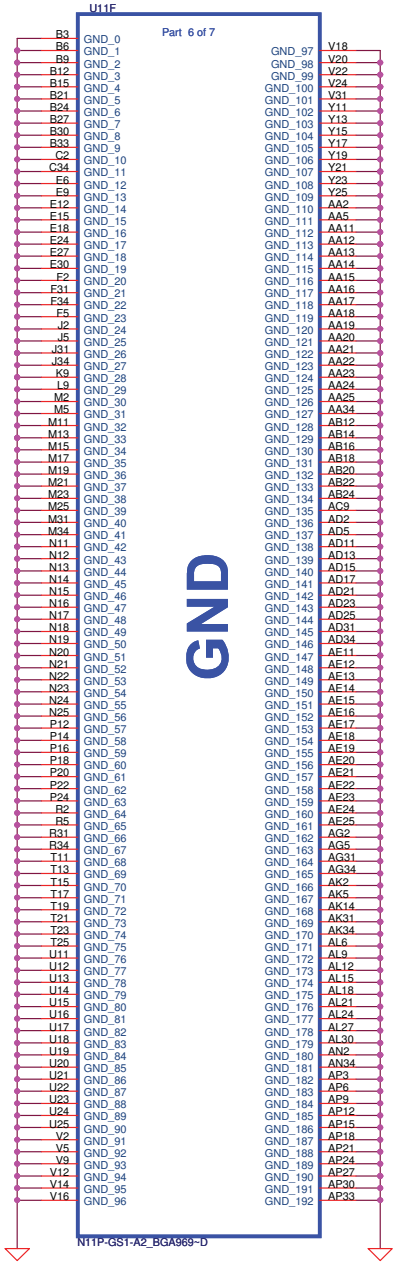

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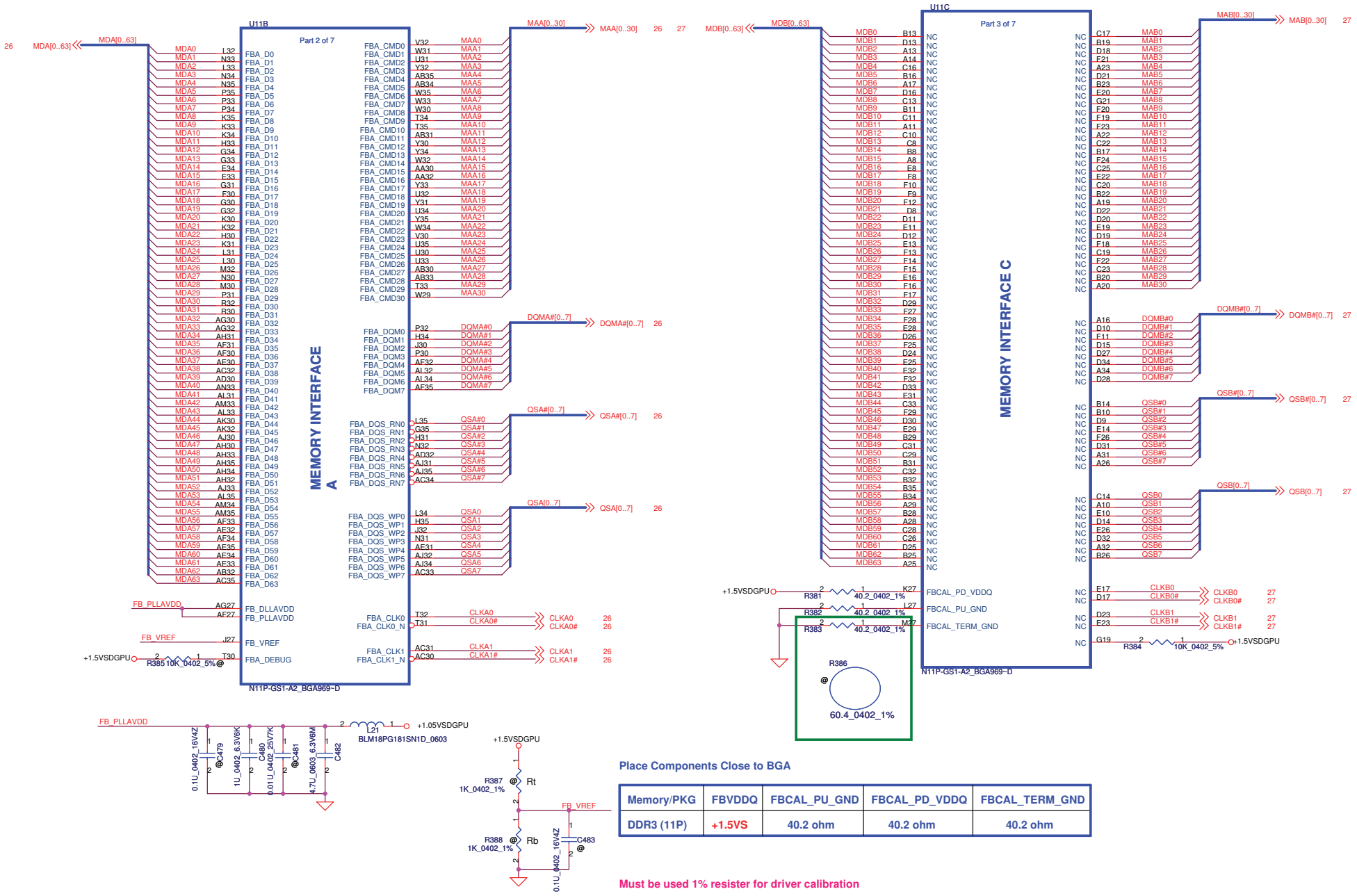
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.

Title: *N11P-GS1(4/5) GND*

Size	Document Number	Rev
	LA-5812P	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

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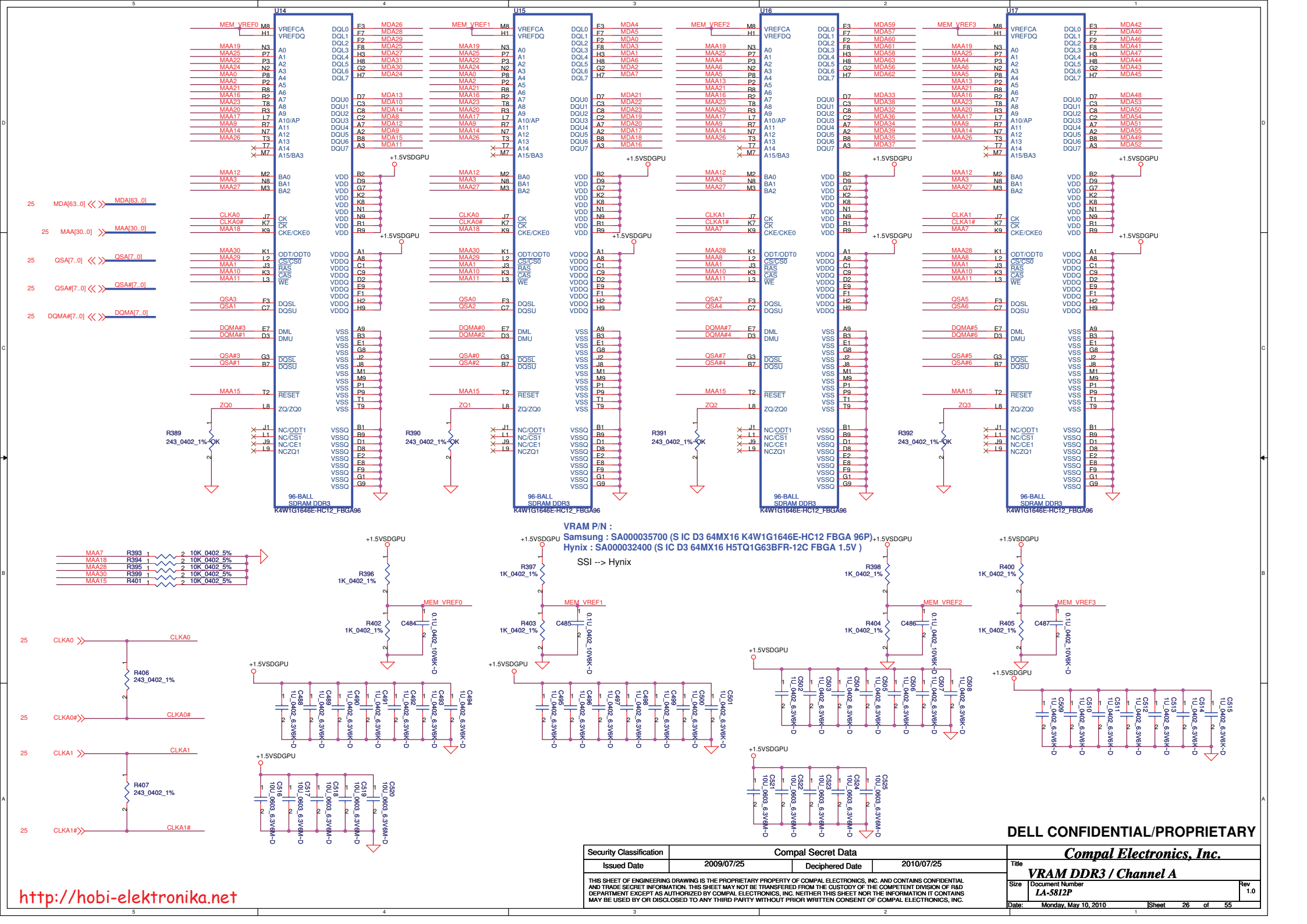
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

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	



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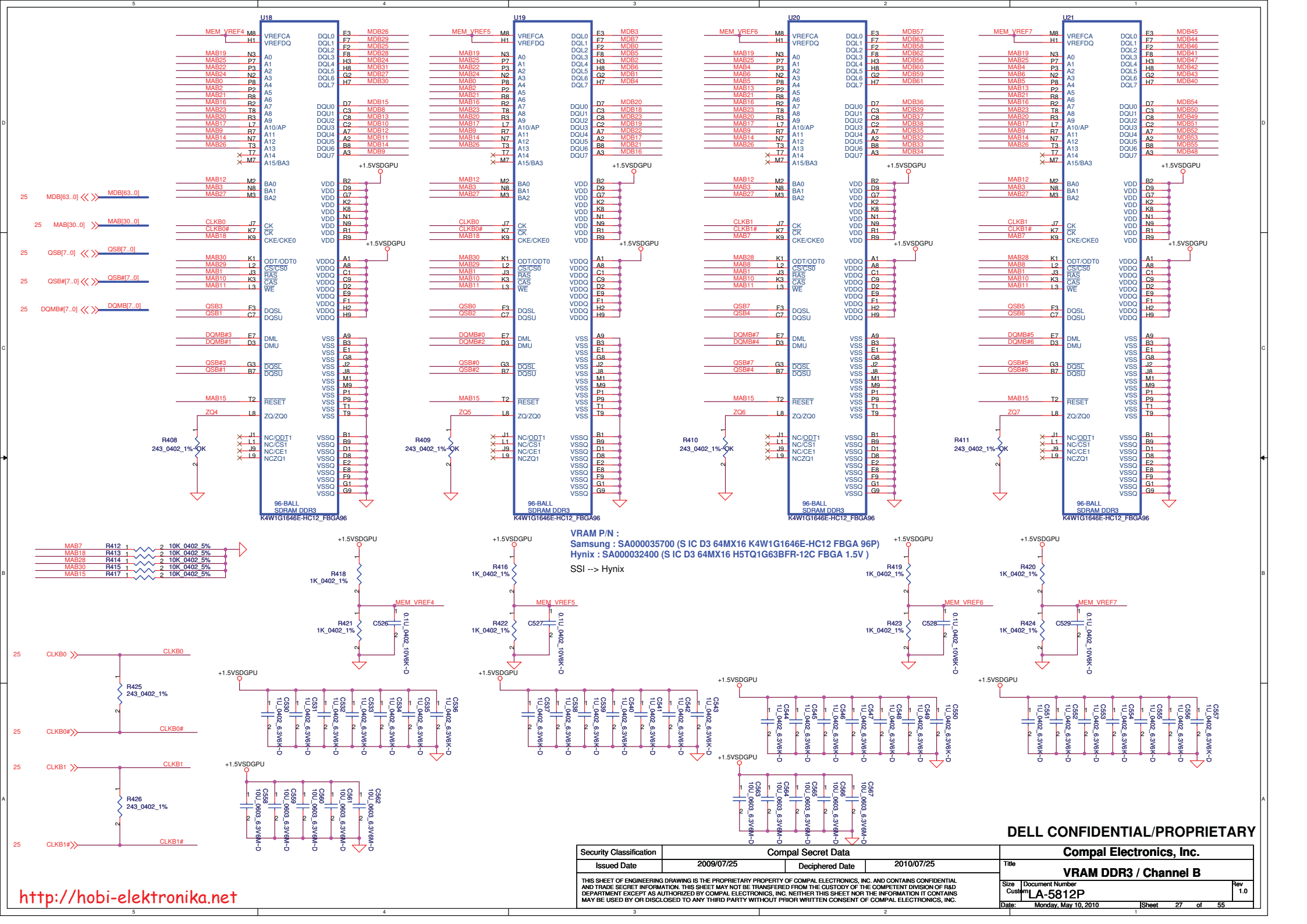
Date: Monday, May 10, 2010 Sheet 26 of 55


U18
U19
U20
U21
MEM_VREF4
MEM_VREF5
MEM_VREF6
MEM_VREF7
+1.5VSDGPU
MDB[63..0]
MAB[30..0]
QSB[7..0]
QSB#[7..0]
DQMB[7..0]
CLKB0
CLKB0#
CLKB1
CLKB1#
R408 243_0402_1%-OK
R409 243_0402_1%-OK
R410 243_0402_1%-OK
R411 243_0402_1%-OK
96-BALL SDRAM DDR3
K4W1G1646E-HC12_FBGA96
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
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Compal Electronics, Inc.
VRAM DDR3 / Channel B
LA-5812P
Rev 1.0
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Security Classification
Compal Secret Data
Issued Date
2009/07/25
Deciphered Date
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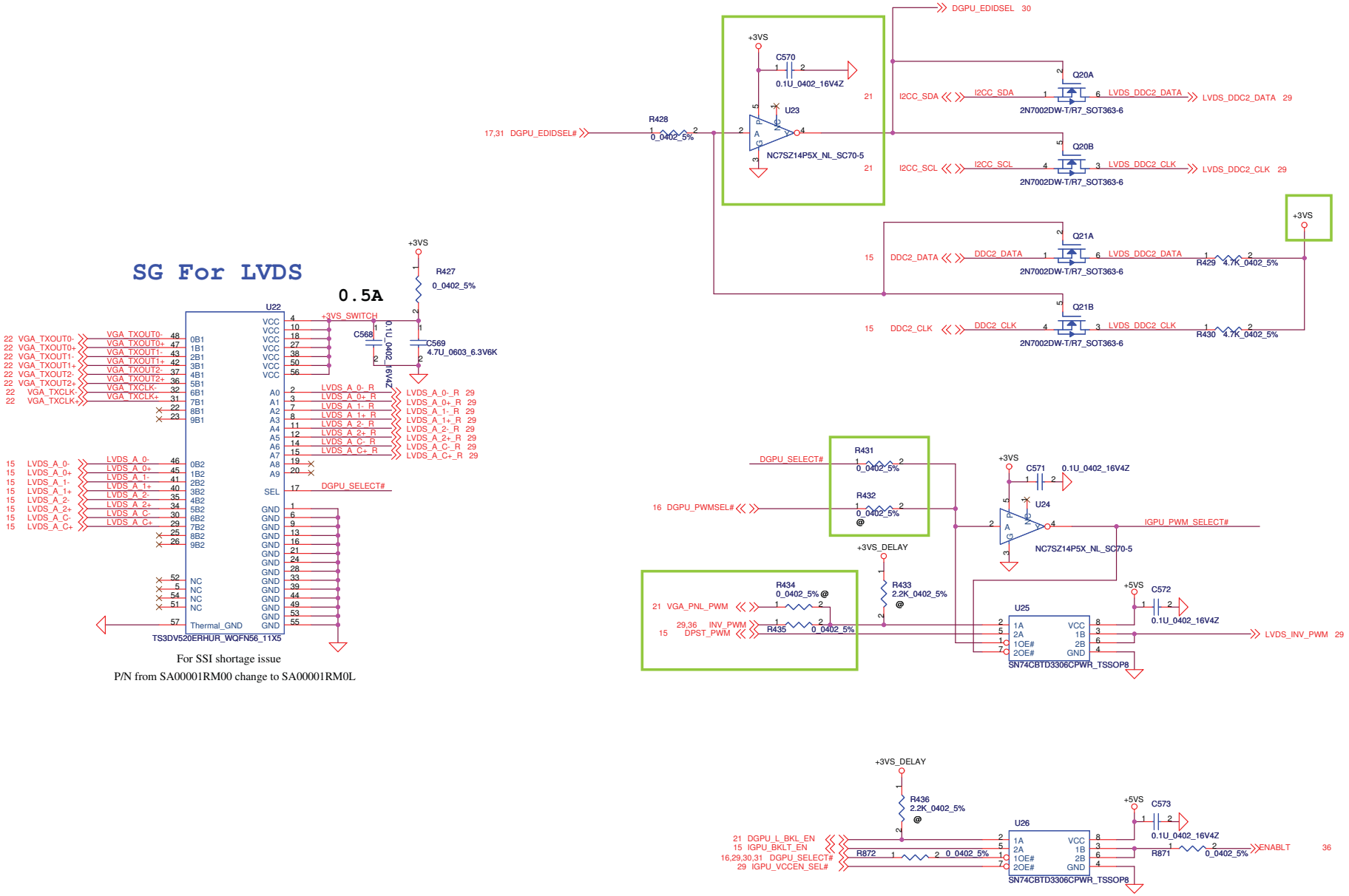

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Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.

Title: LVDS Switch

Size	Document Number	Rev
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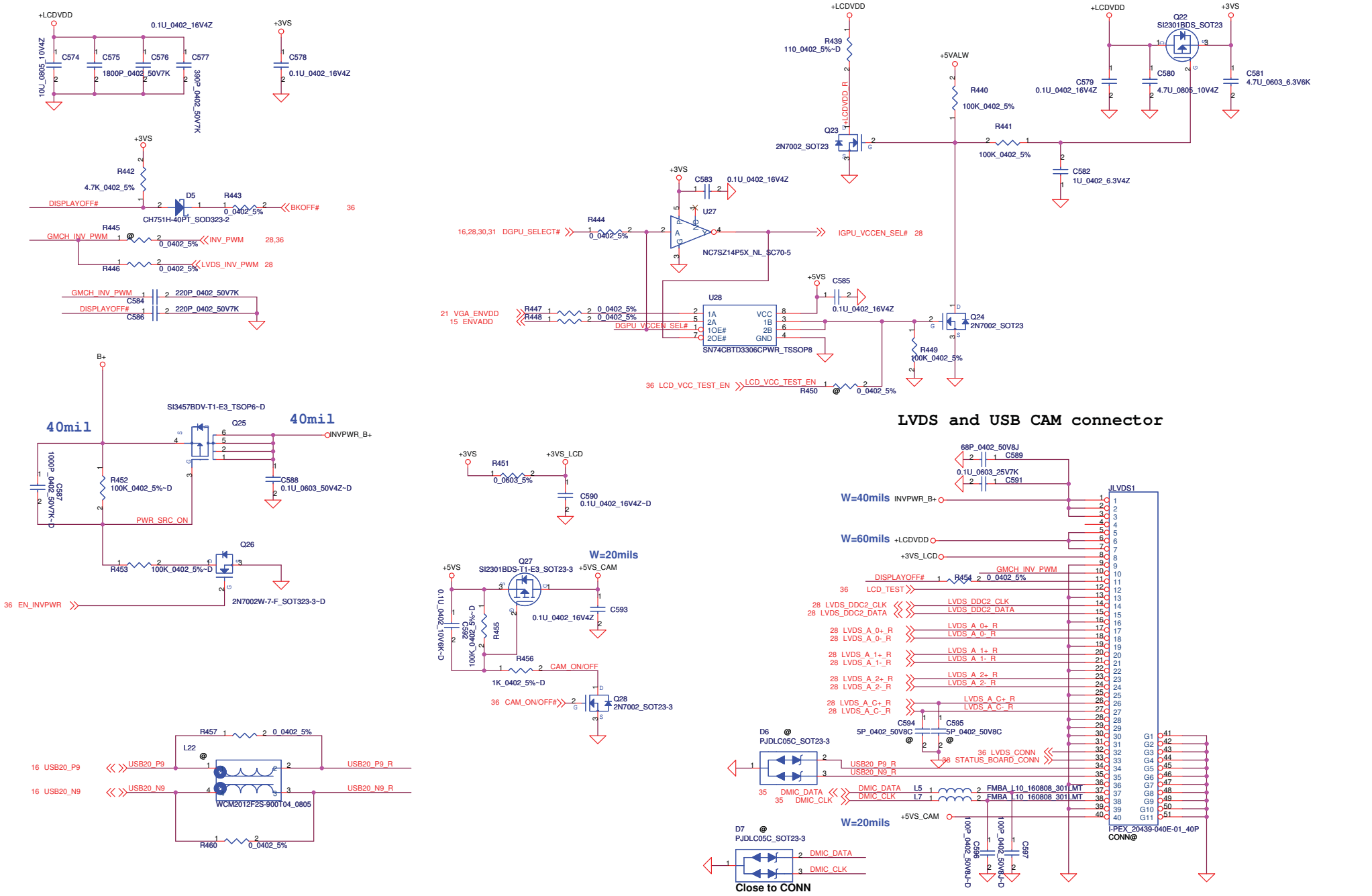

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Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.

Title: LCD CONN

Size	Document Number	Rev
	LA-5812P	1.0

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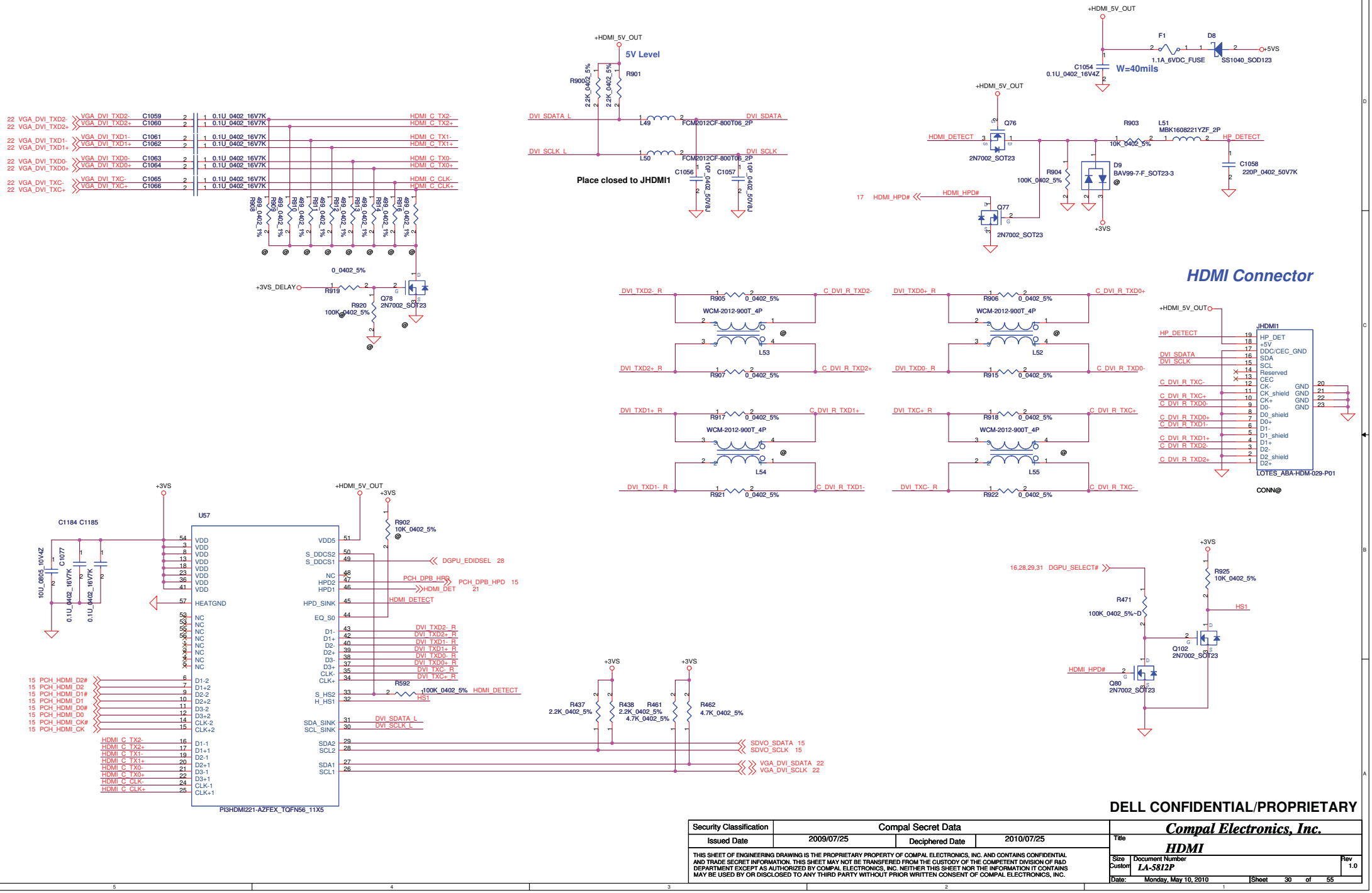
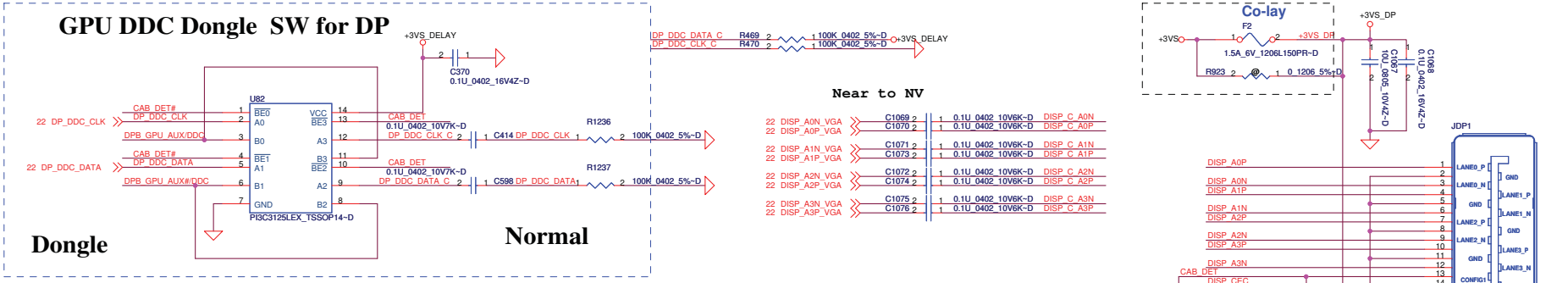


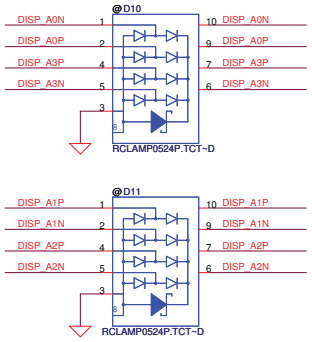
GPU DDC Dongle SW for DP

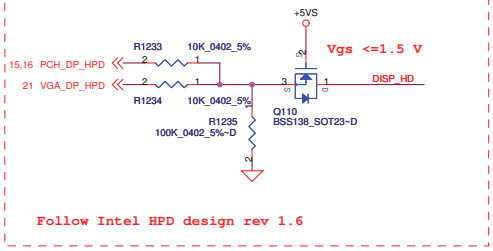


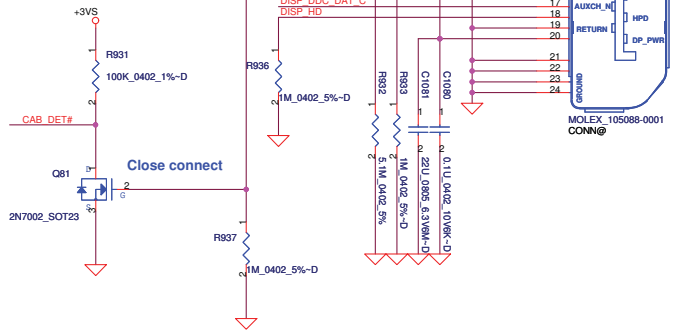
Near to NV

Co-lay

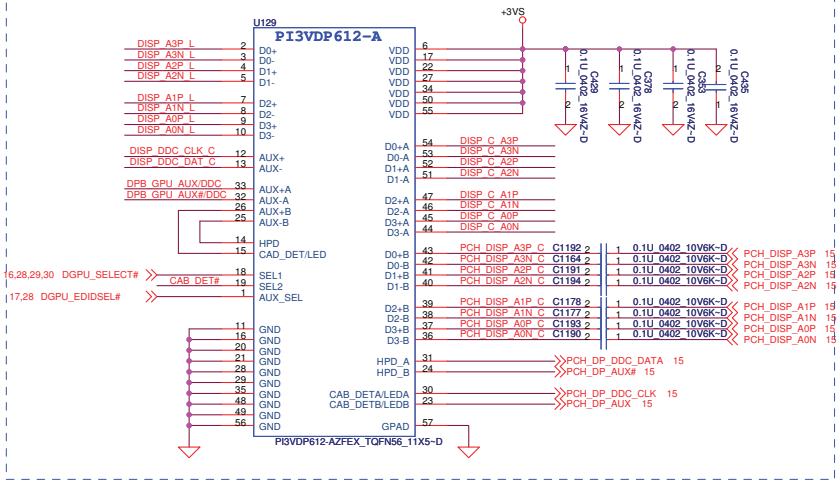
Place close JDP1

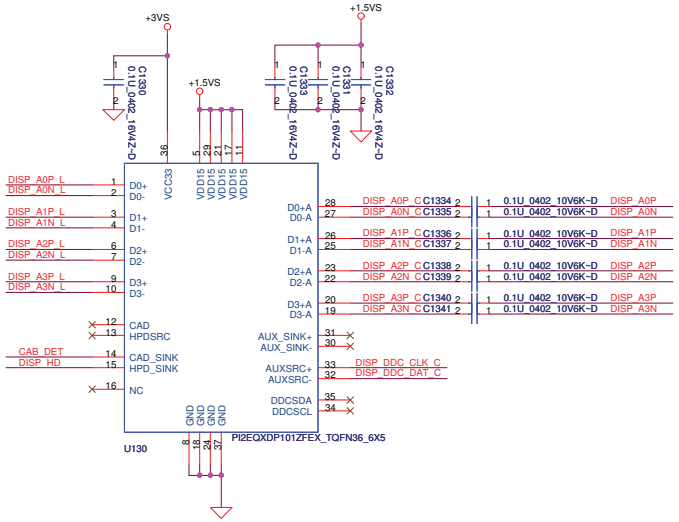






PCH/GPU AUX&LANE SW for DPB





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

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Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.			
Title: DP/FAN/HDD			
Size: Custom	Document Number: LA-5812P		Rev: 1.0
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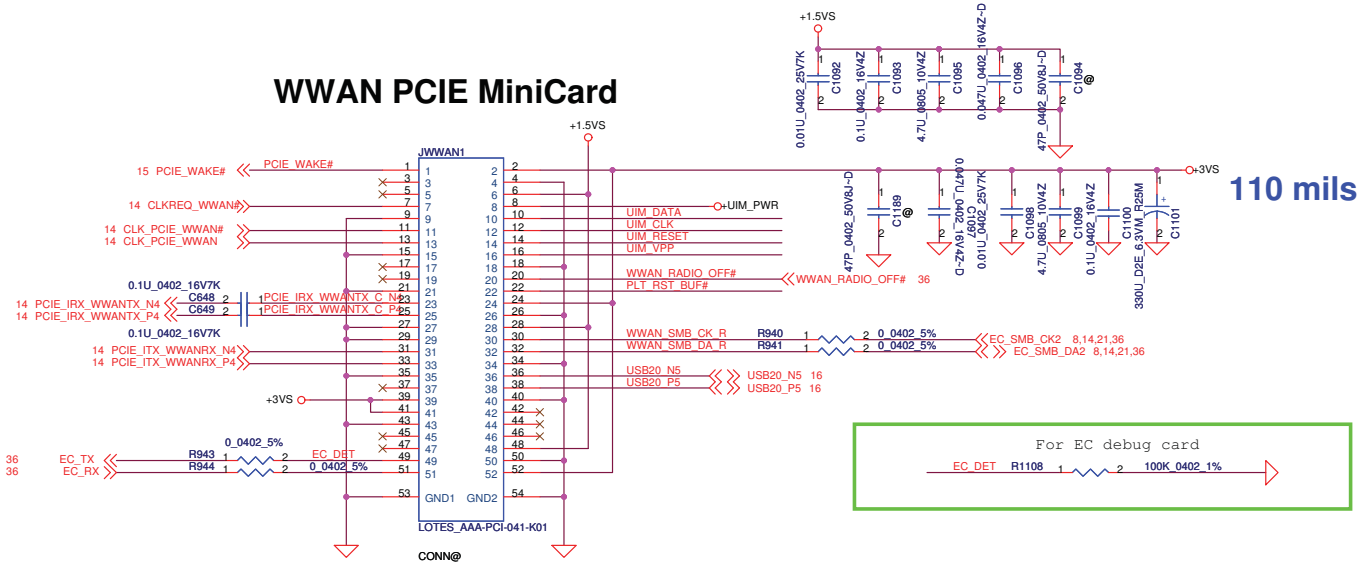
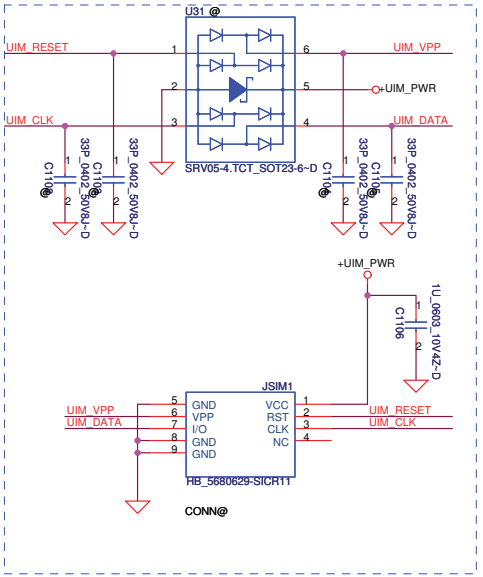
WWAN PCIE MiniCard



SIM Card

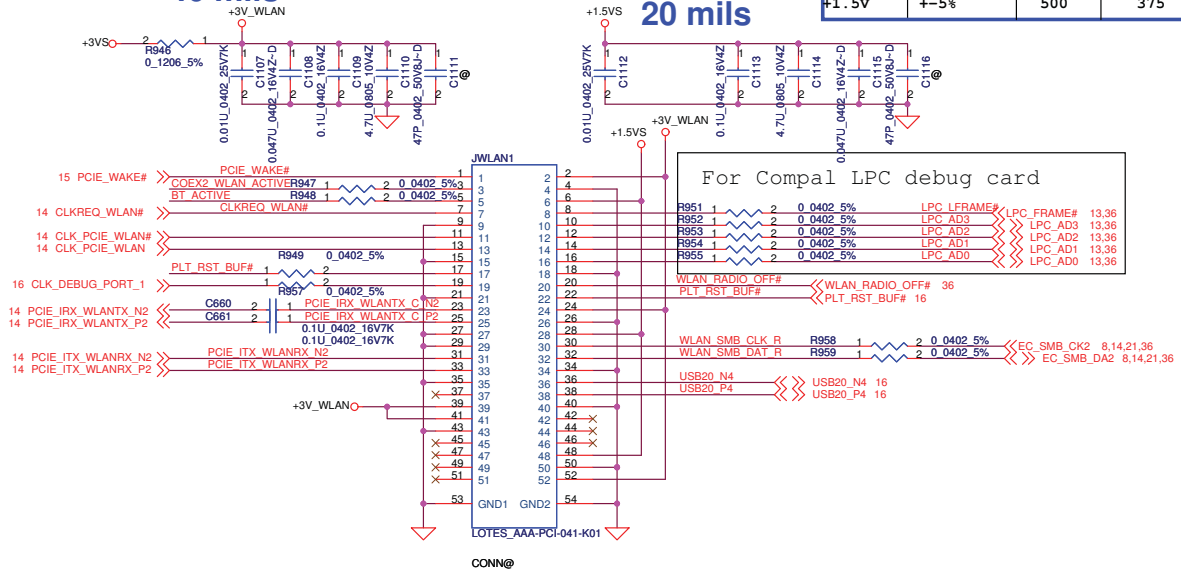


PWR Rail	Voltage Tolerance	Primary Power		Aux Power
		Peak	Normal	Normal
+3.3V	+-9%	1000	750	
+3.3Vaux	+-9%	330	250	250 (Wake enable) 5 (Not wake enable)
+1.5V	+-5%	500	375	NA

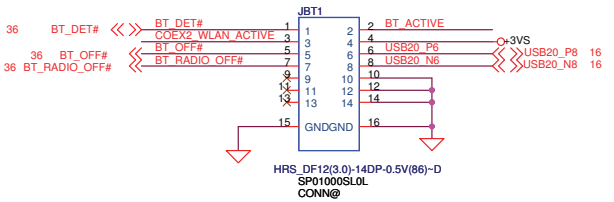
WLAN/WIMAX PCIE Mini Card

40 mils

20 mils



Bluetooth



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

Compal Electronics, Inc.

Title: WLAN/WWAN/SIM/BT

Size	Document Number	Rev
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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

All Cap close to TR1

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

C1153 close to Pin5

Layout Notice : Place as close c hip U32 PIN5

Place Close to U32

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 C1132 close to Pin19

C1130 close to Pin8

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

Atheros
AR8132 10/100 LAN
AR8132-AL1E_QFN48_6X6
SA000036Y00

TR1
350uH_NS0013LF
SP050001210

JLAN1
TYCO_2041633-1
CONN@

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

Compal Electronics, Inc.

Title: LAN

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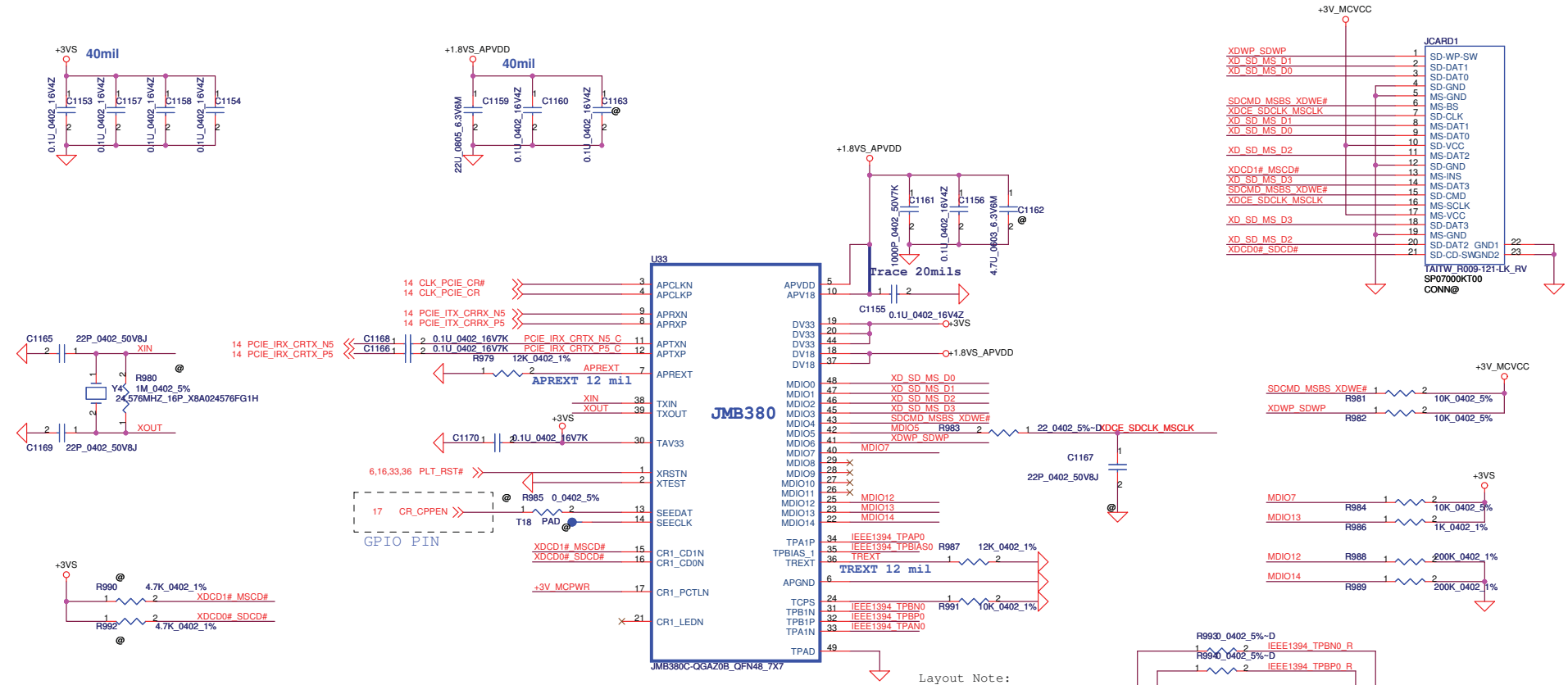
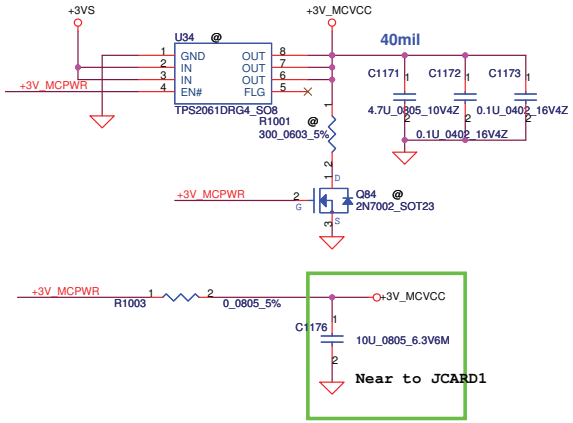
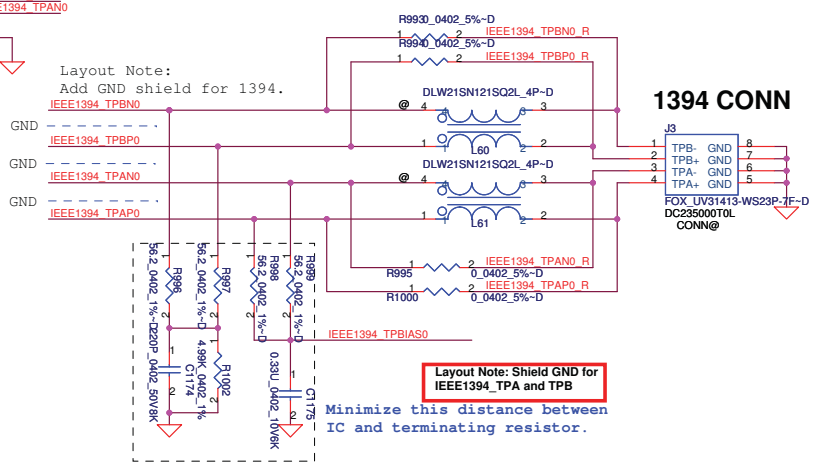
3 in 1 Card Reader CONN



Memory Card Power Switch



1394 CONN



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

Compal Electronics, Inc.			
Title: CARD READER/1394			
Size: Custom	Document Number: LA-5812P		Rev: 1.0
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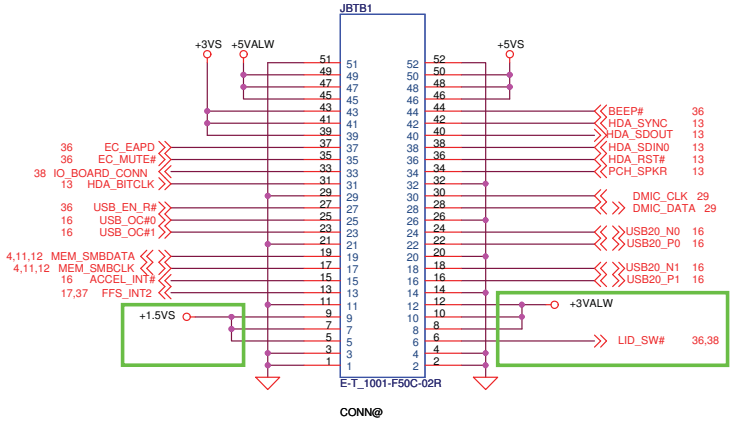
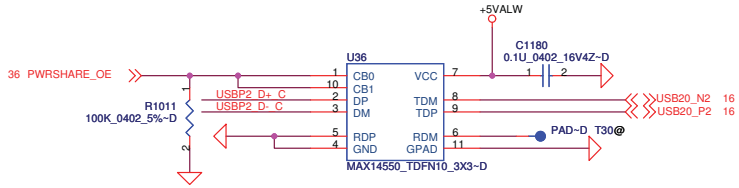
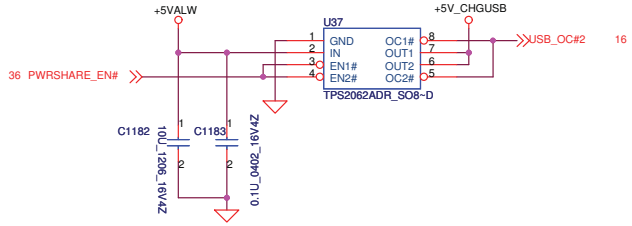
IO Board CONN

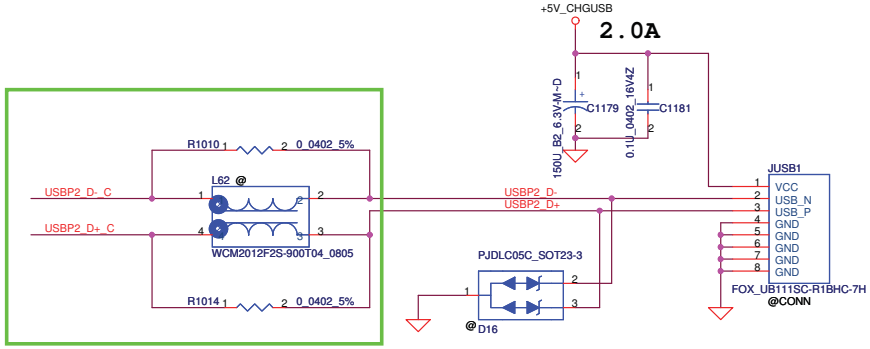




Powershare

2.0A





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Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.			
Title: USB/LID SW/IO CONN			
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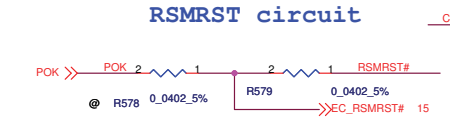
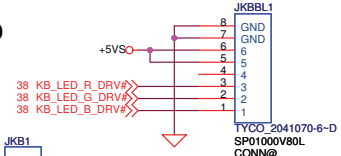
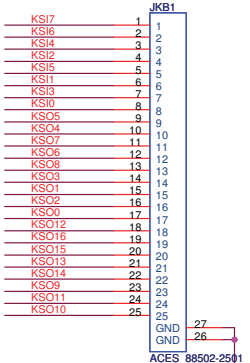
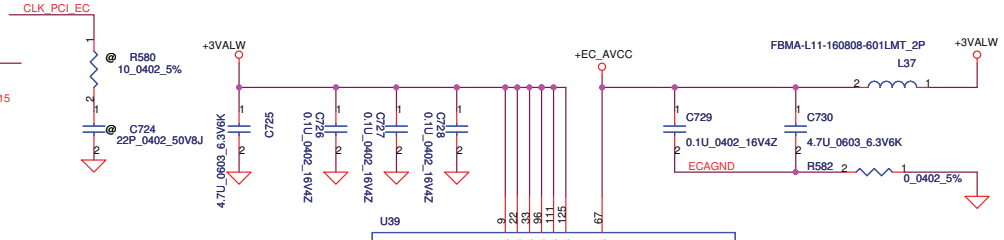
RSMRST circuit

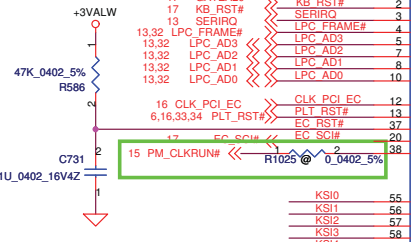


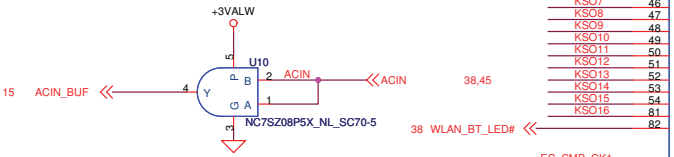
KEYBOARD CONN.

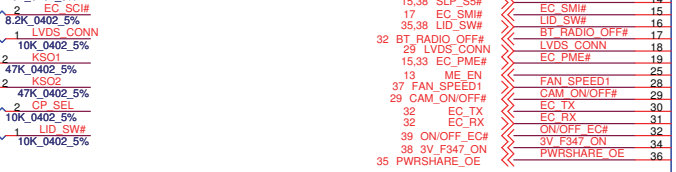


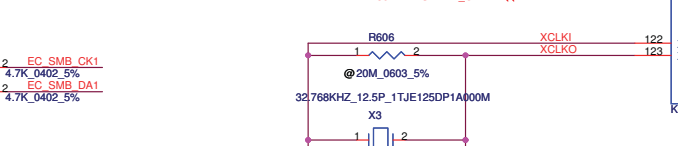


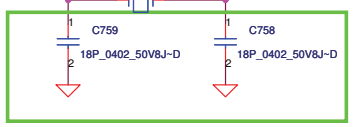


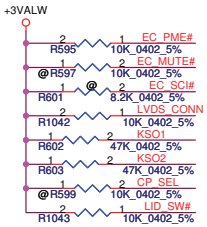


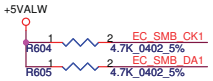


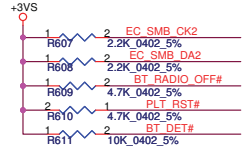


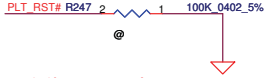




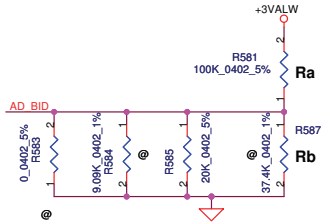






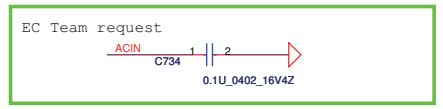


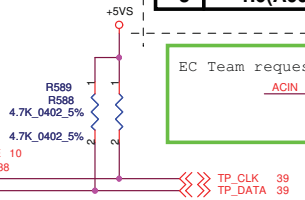
Board ID

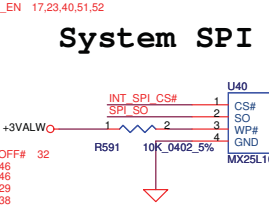


BOARD ID Table

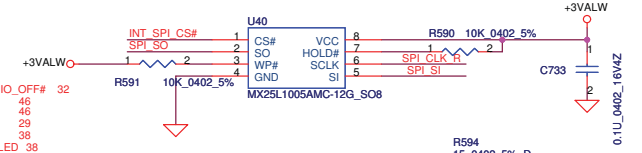
ID	BOARD ID	Ra	Rb	Vab	
0	0.1(X00)	NC	0	0V	*
1	0.2(X01)	100K	9.09K	0.25V	
2	0.3(X02)	100K	20K	0.50V	
3	1.0(A00)	100K	37.4K	0.82V	

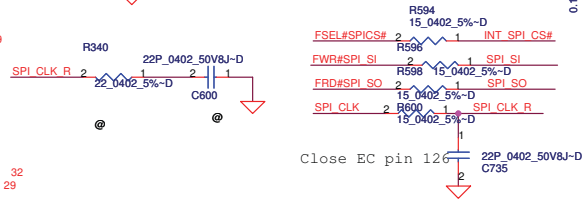


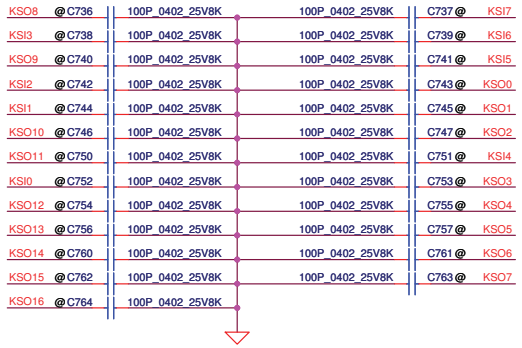




System SPI Flash ROM (1Mb)







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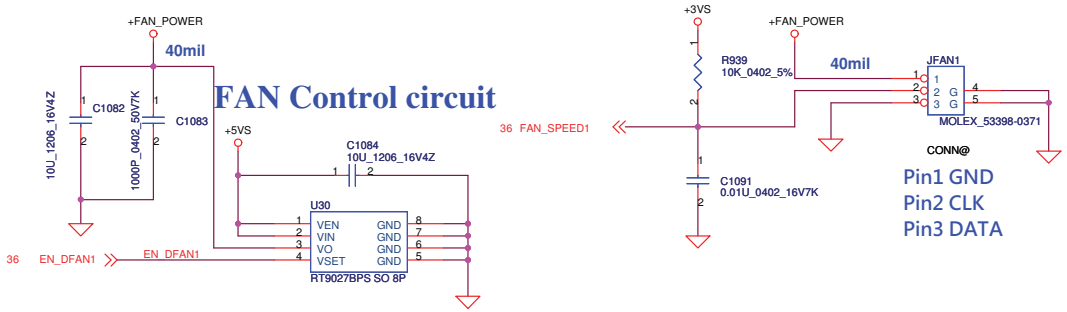

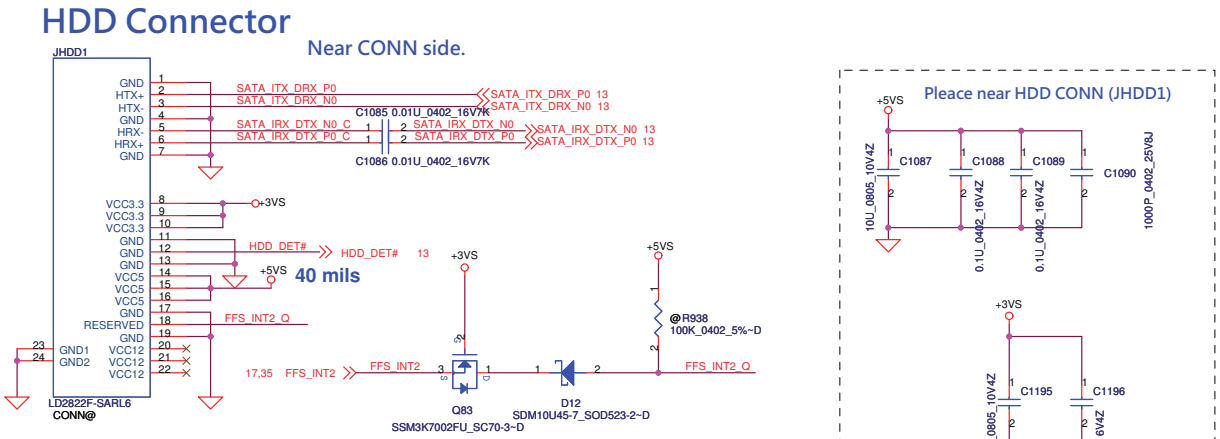

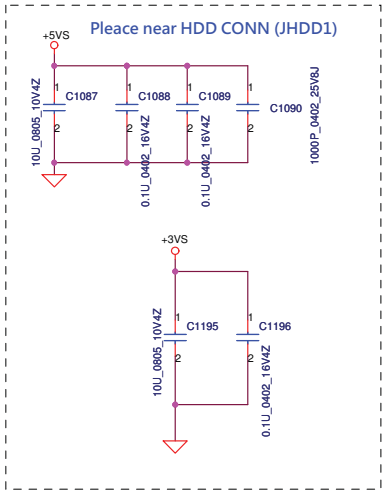

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title: FAN & Thermal Sensor

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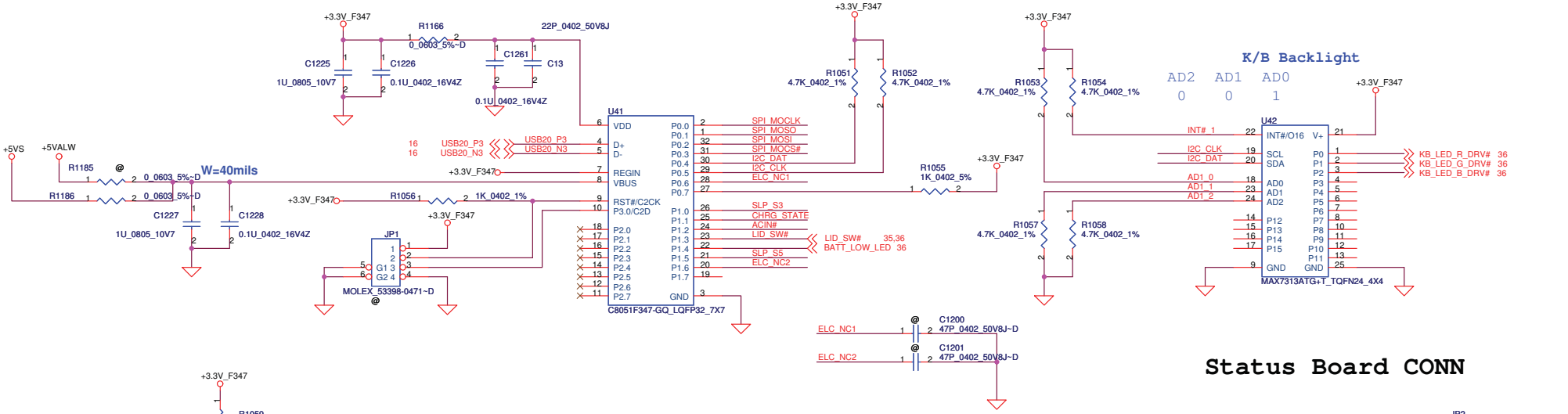
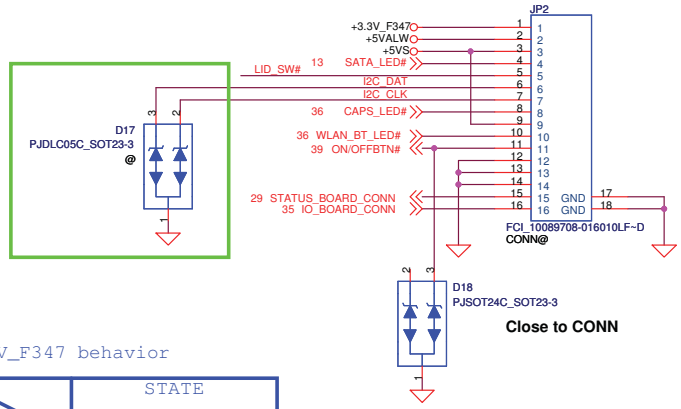
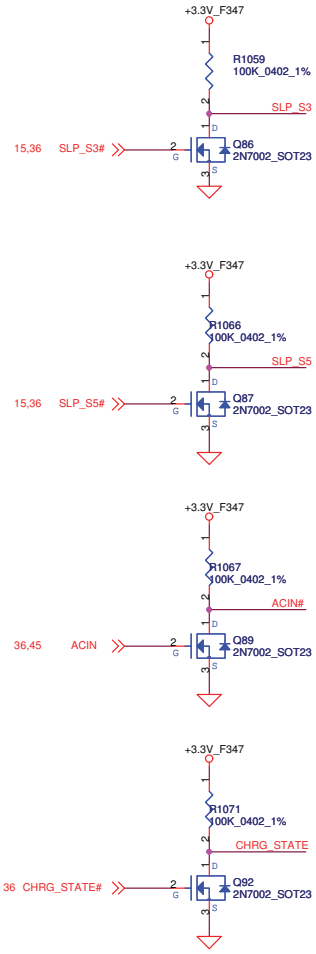
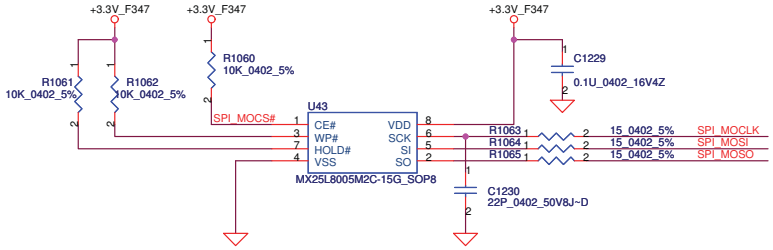
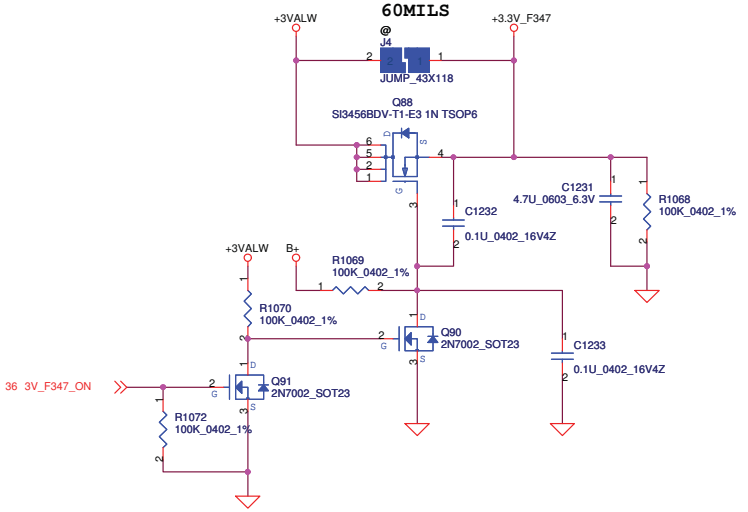


Status Board CONN









+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

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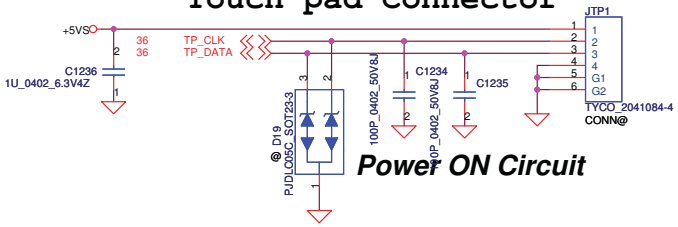
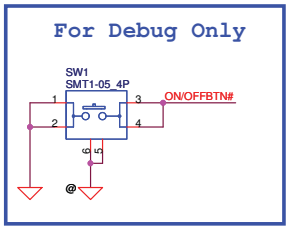
Touch pad Connector

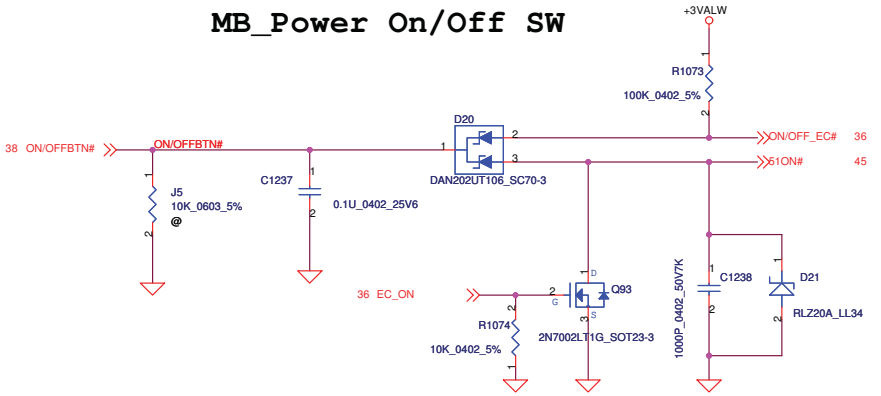


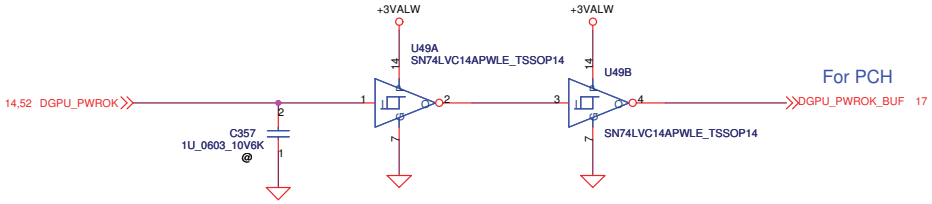
Power ON Circuit

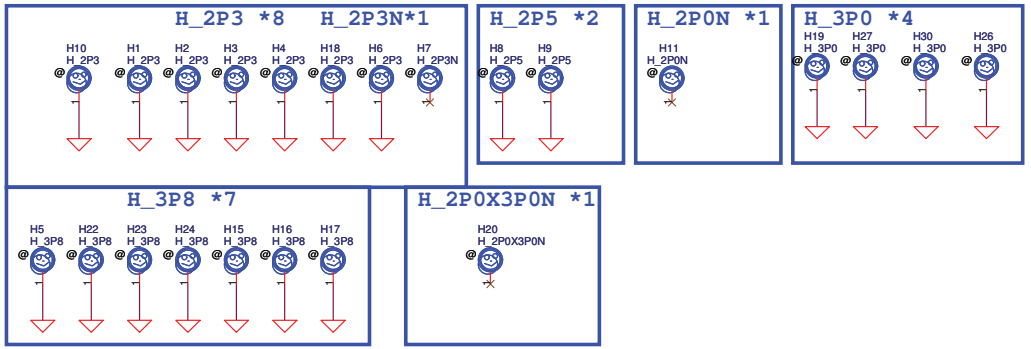
For Debug Only



MB_Power On/Off SW



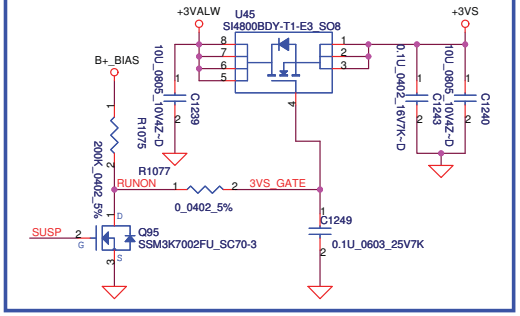




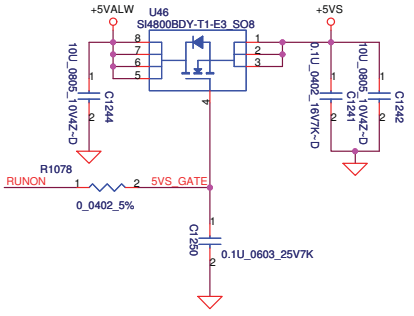
Security Classification	Compal Secret Data		
Issued Date	2009/07/25	Deciphered Date	2010/07/25

Compal Electronics, Inc.			
Title	SW/TP/SCREW		
Size: Custom	Document Number: LA-5812P		Rev: 1.0
Date: Monday, May 10, 2010	Sheet 39 of 55		

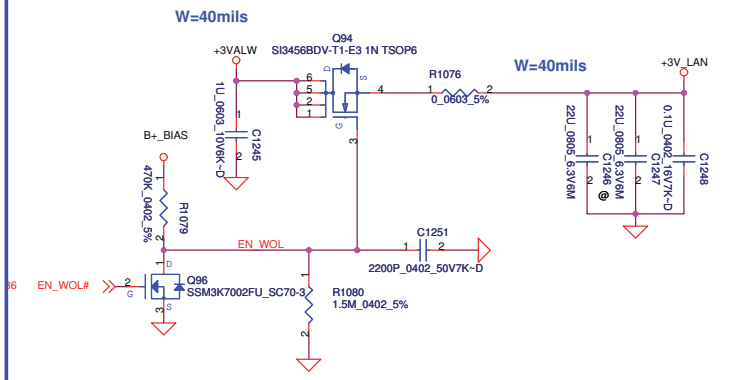
+3VALW to +3VS Transfer



+5VALW to +5VS Transfer

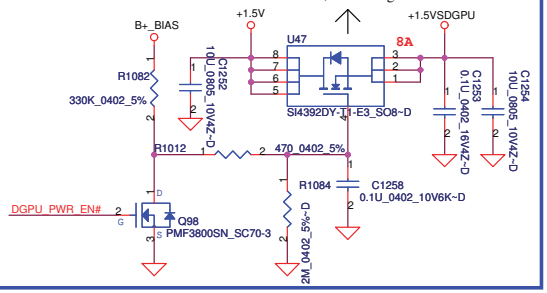


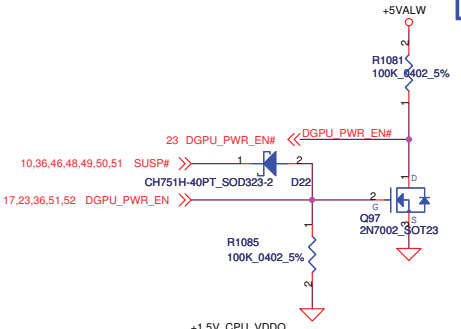
+3VALW to +3LAN Transfer



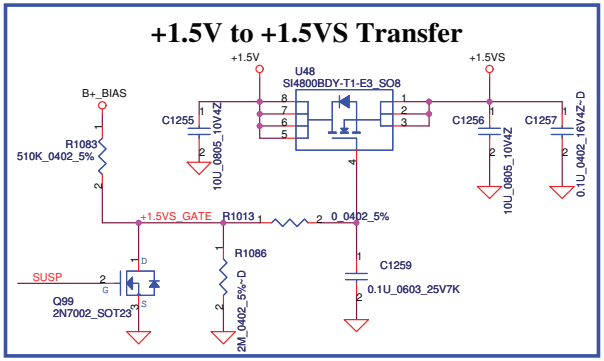
+1.5V to +1.5VSDGPU Transfer

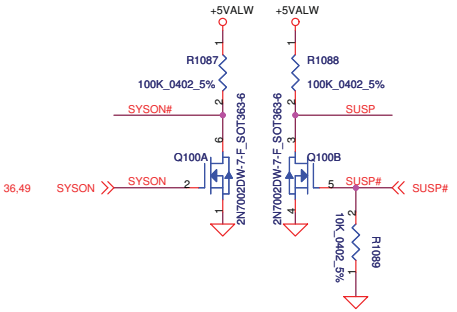
SB54392008L EOL, P/N change to SB54800038L

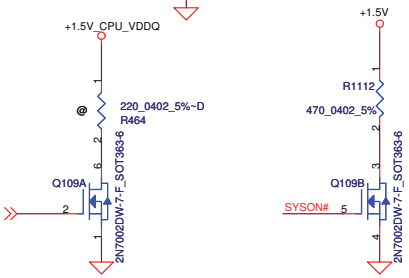


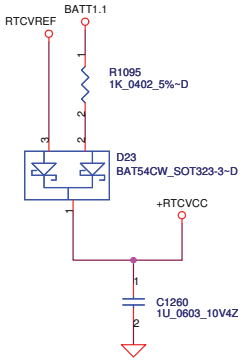


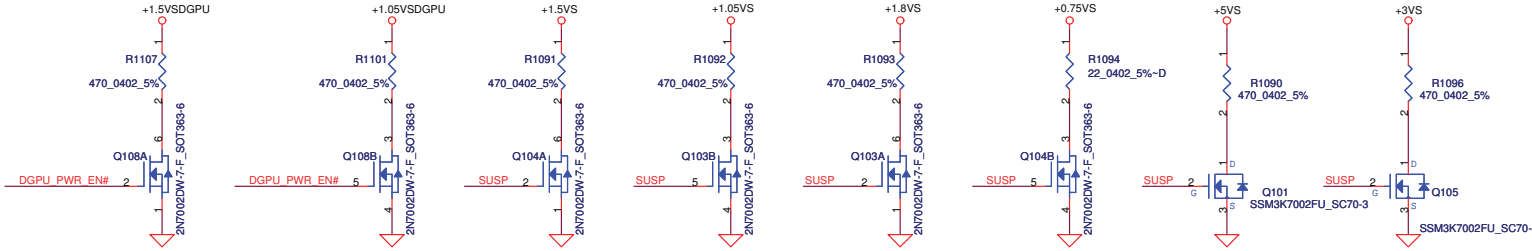
+1.5V to +1.5VS Transfer











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

Compal Electronics, Inc.

Title: DC/DC INTERFACE

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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

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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 SB923010020 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

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

Compal Electronics, Inc.

Title: HW Changed-List History-2

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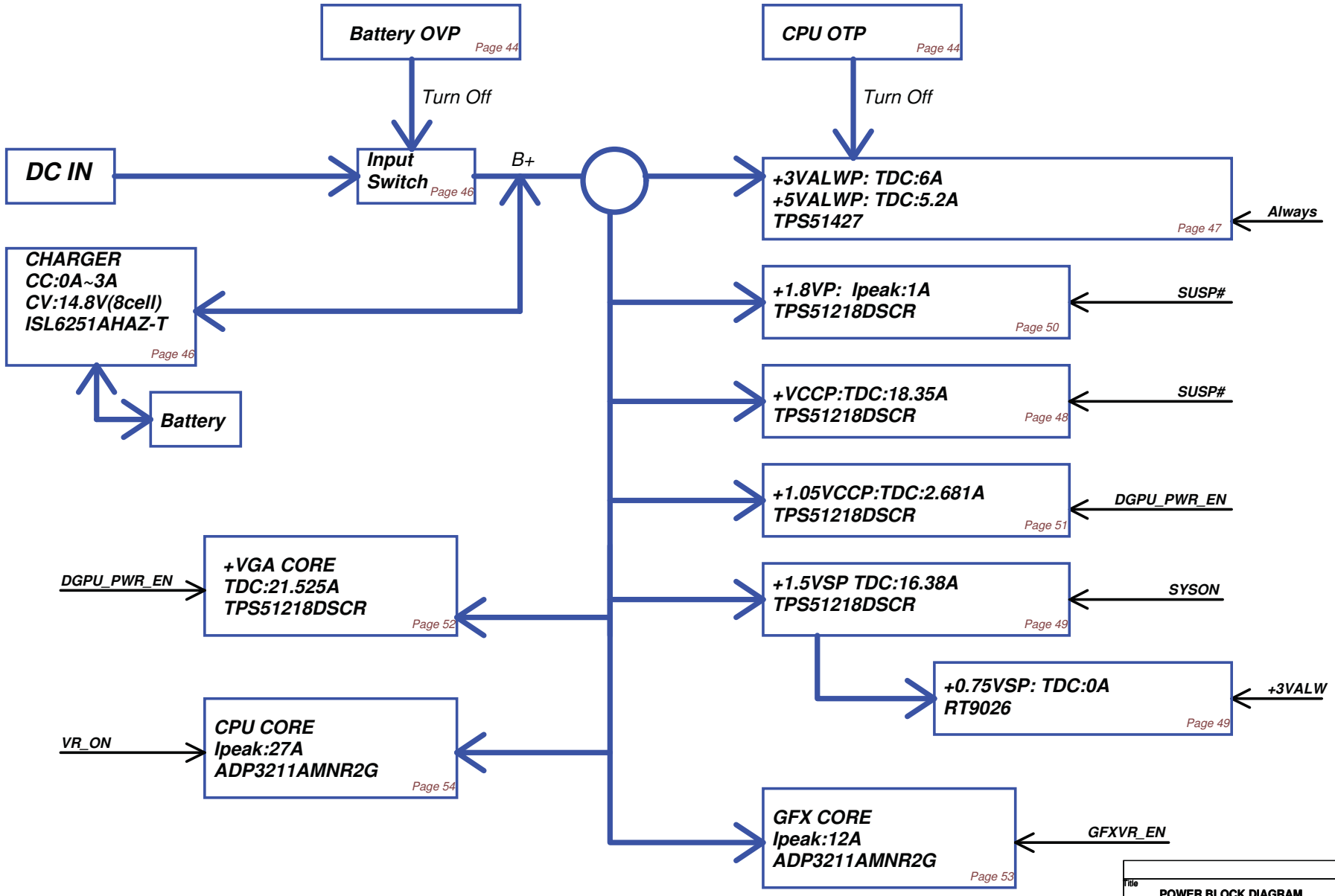
Power block



Title	POWER BLOCK DIAGRAM	
Size	Document Number	Rev
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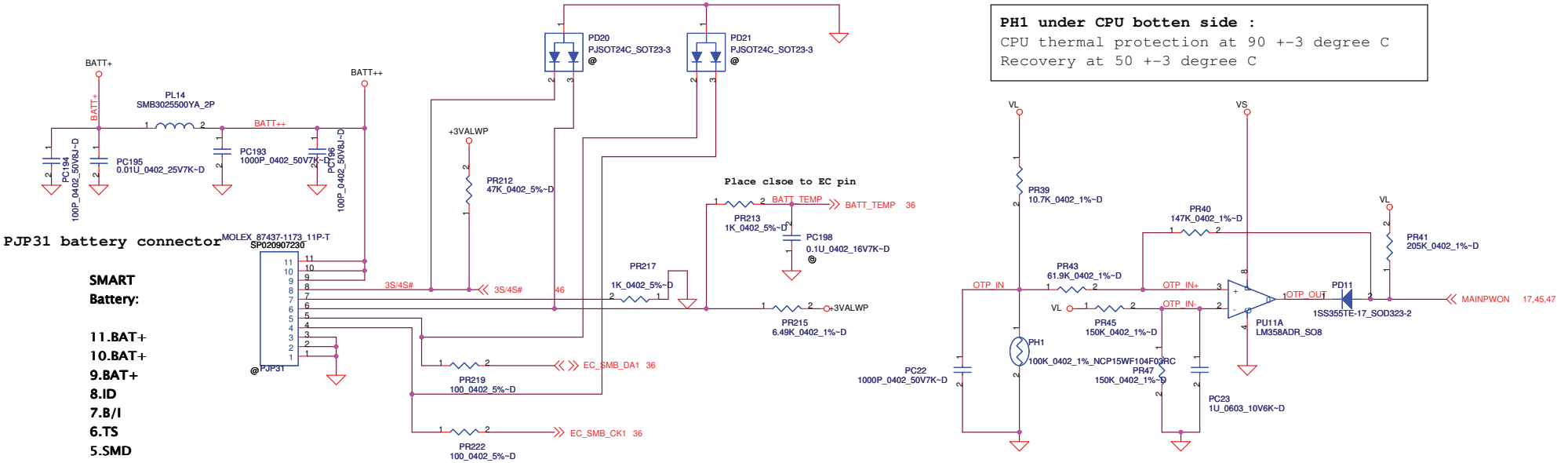
CPU OTP

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

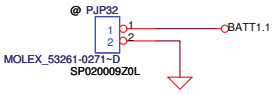


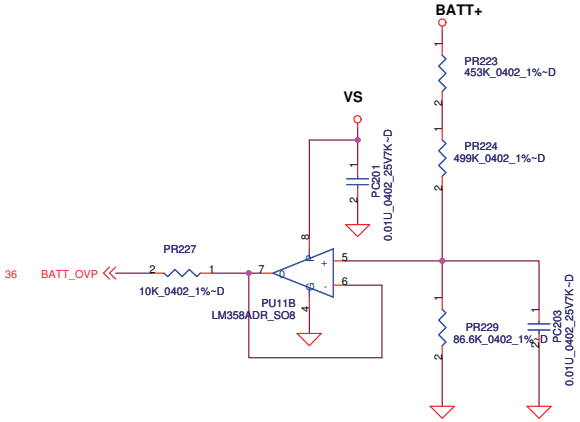
PJP31 battery connector

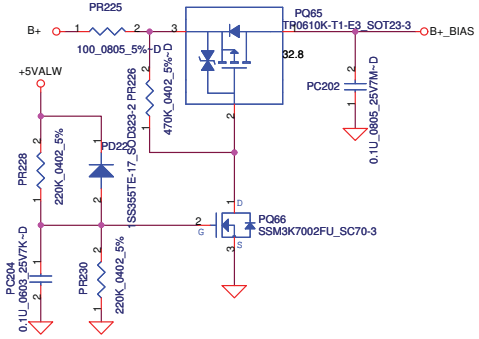
SMART Battery:

11.BAT+
10.BAT+
9.BAT+
8.ID
7.B/I
6.TS
5.SMD
4.SMC
3.GND
2.GND
1.GND

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
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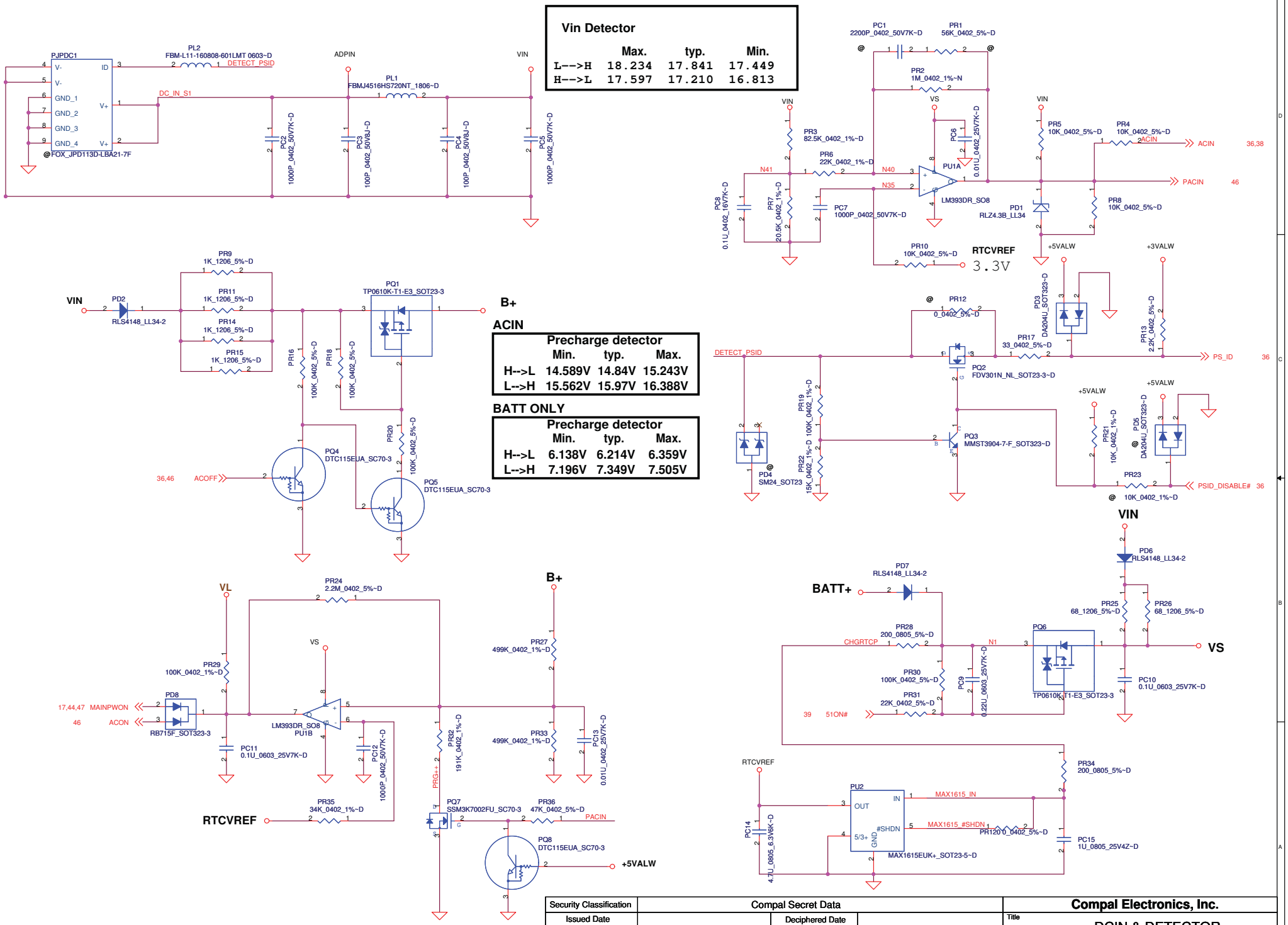

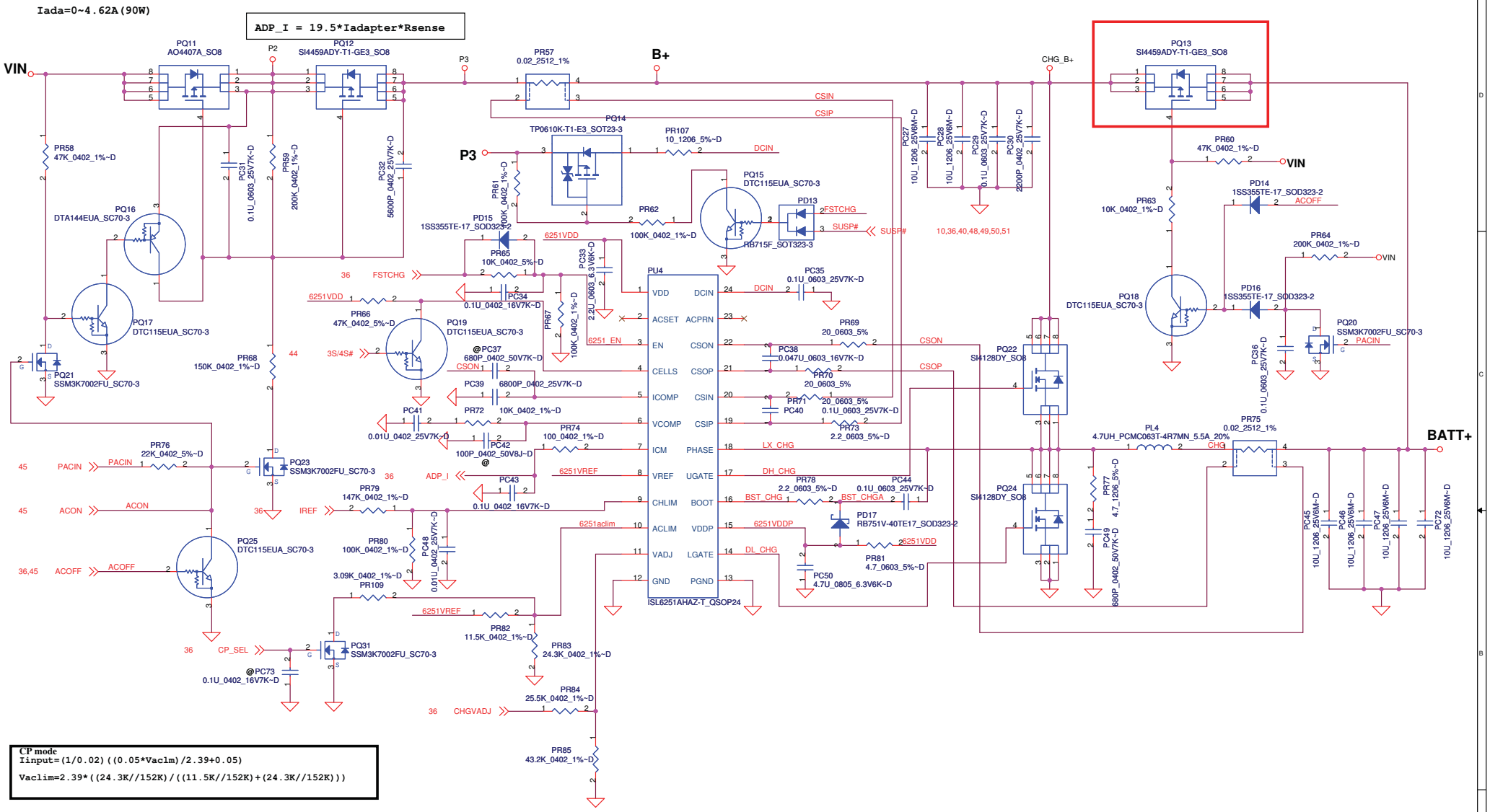

Compal Electronics, Inc.

Title: CHARGER

Size | Document Number | Rev

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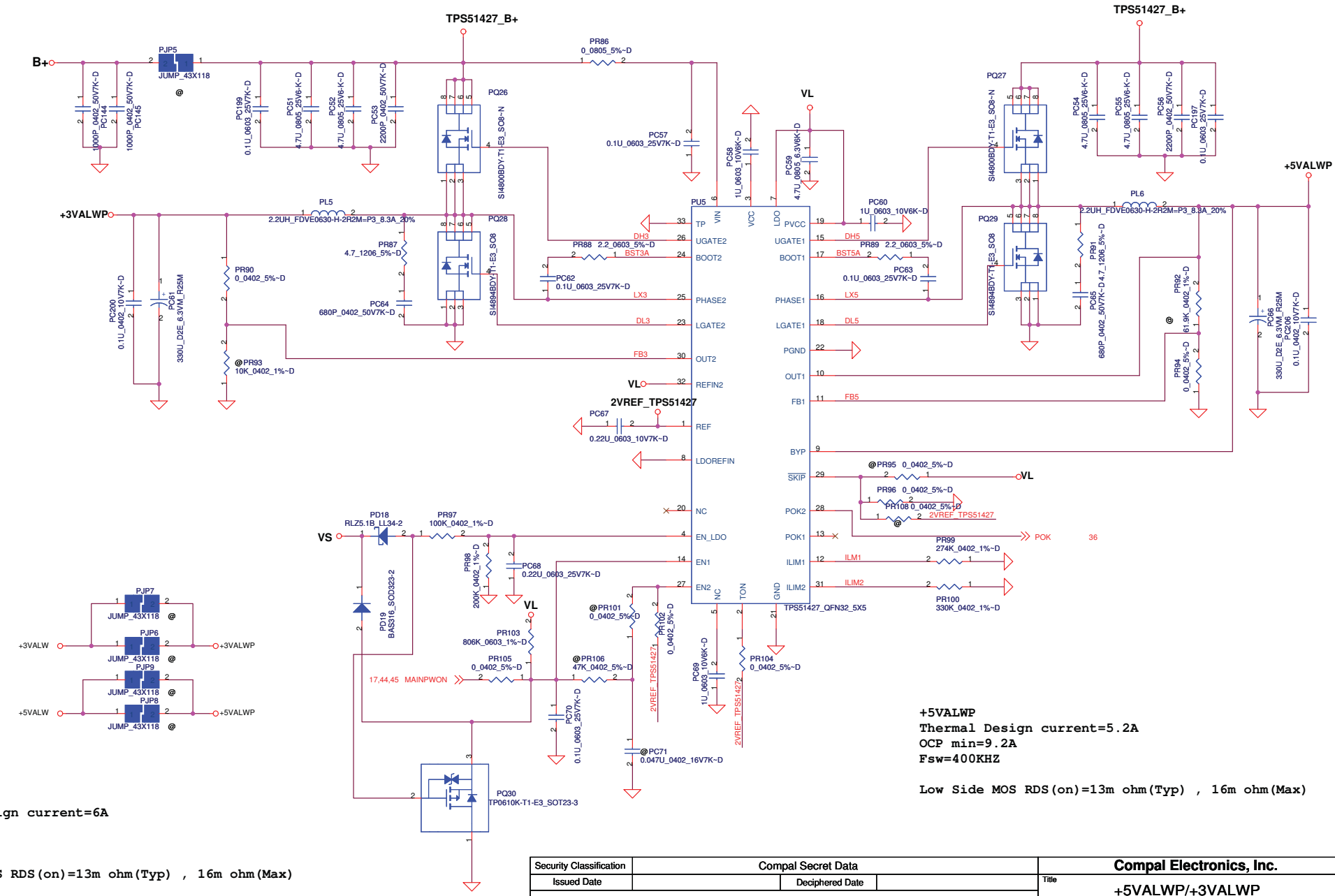

Security Classification	Compal Secret Data		
Issued Date		Deciphered Date	

Compal Electronics, Inc.

Title: +5VALWP/+3VALWP

Size	Document Number	Rev
Custom		

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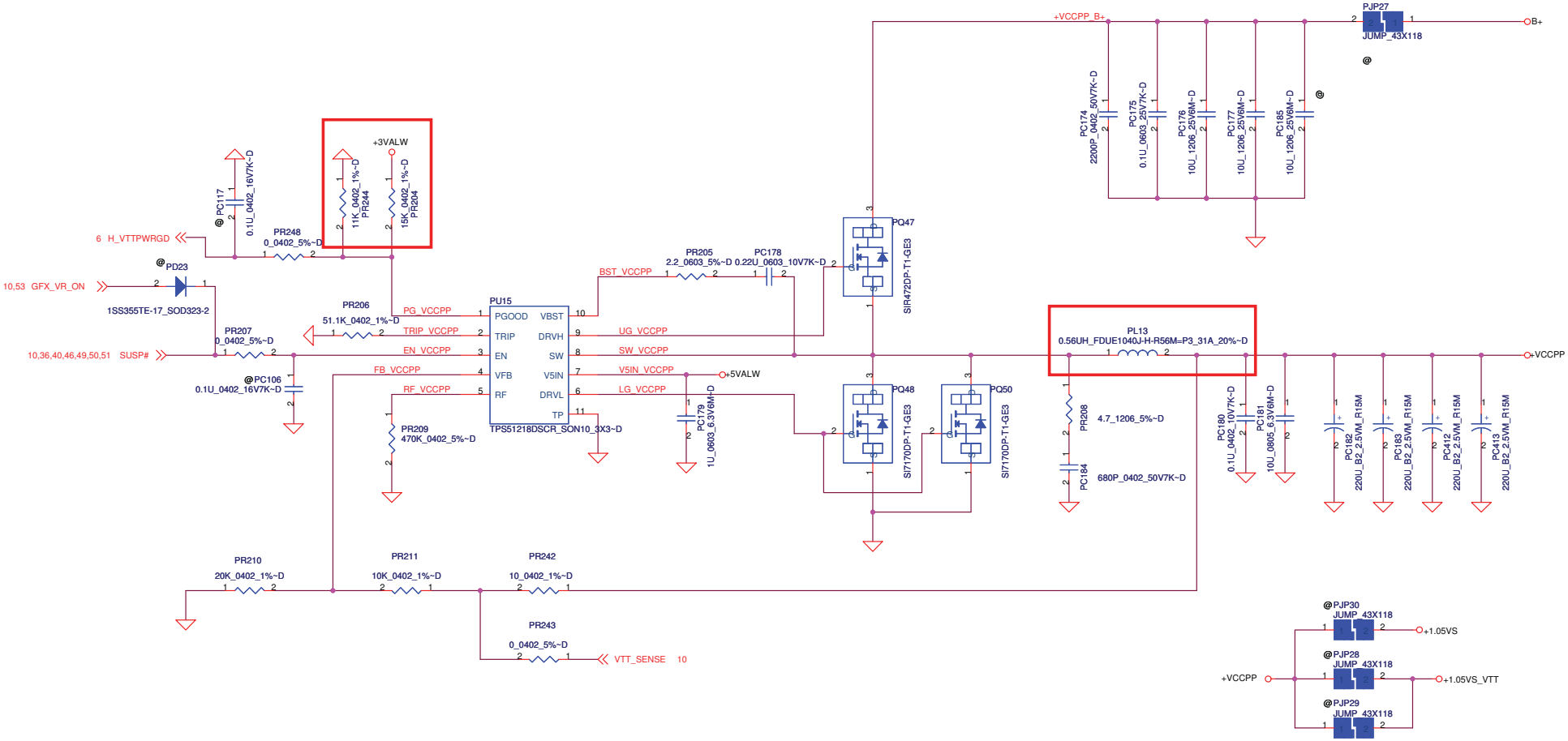

+VCCPP
Thermal Design current=18.35A
OCPmin=27.5A
Fsw=290KHZ

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

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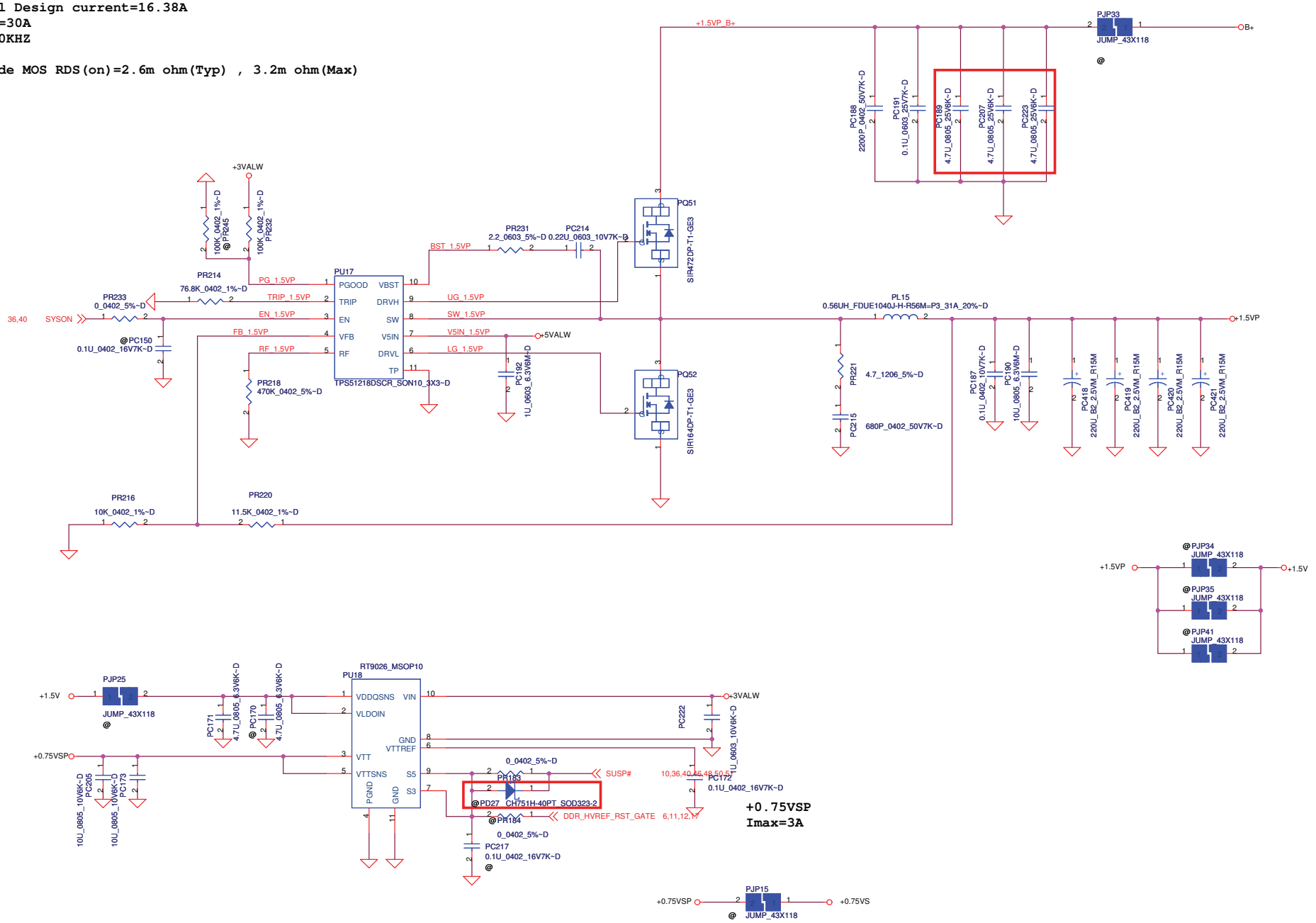
+1.5VP
Thermal Design current=16.38A
OCPmin=30A
Fsw=290KHZ

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.

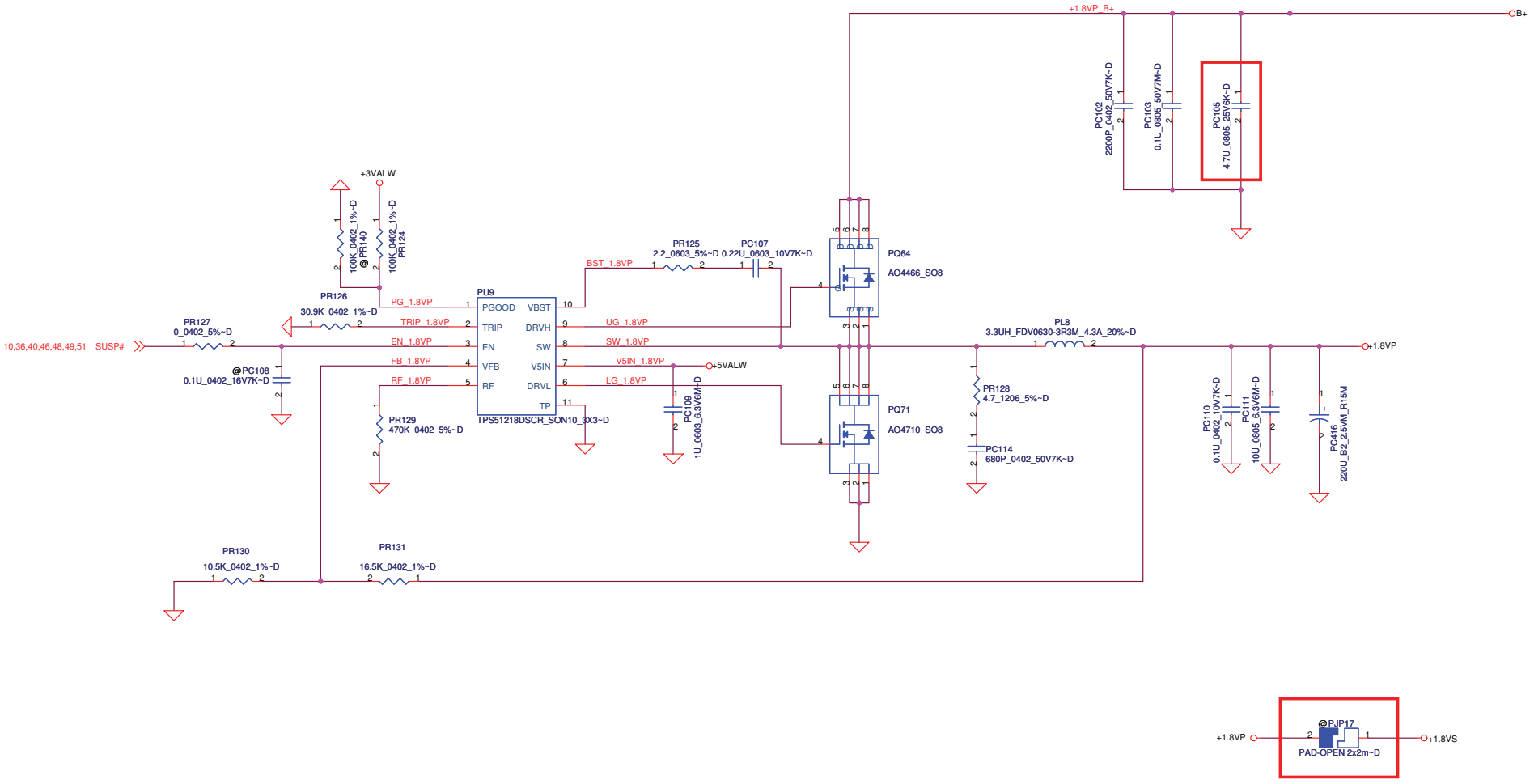
Title: +1.5VP/+0.75VSP

Size: Custom | Document Number | Rev

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

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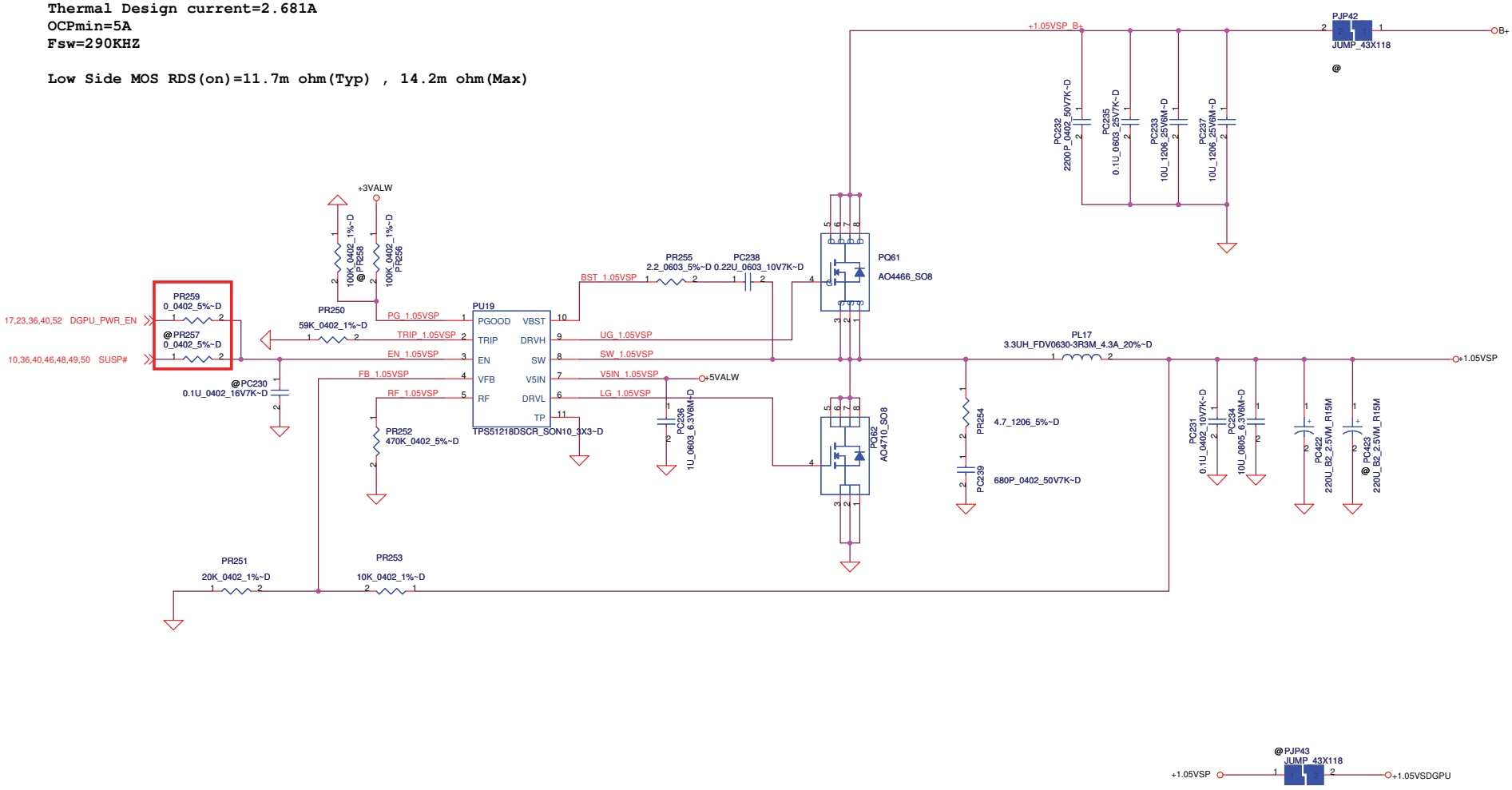
+1.05VSP
Thermal Design current=2.681A
OCPmin=5A
Fsw=290KHZ

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

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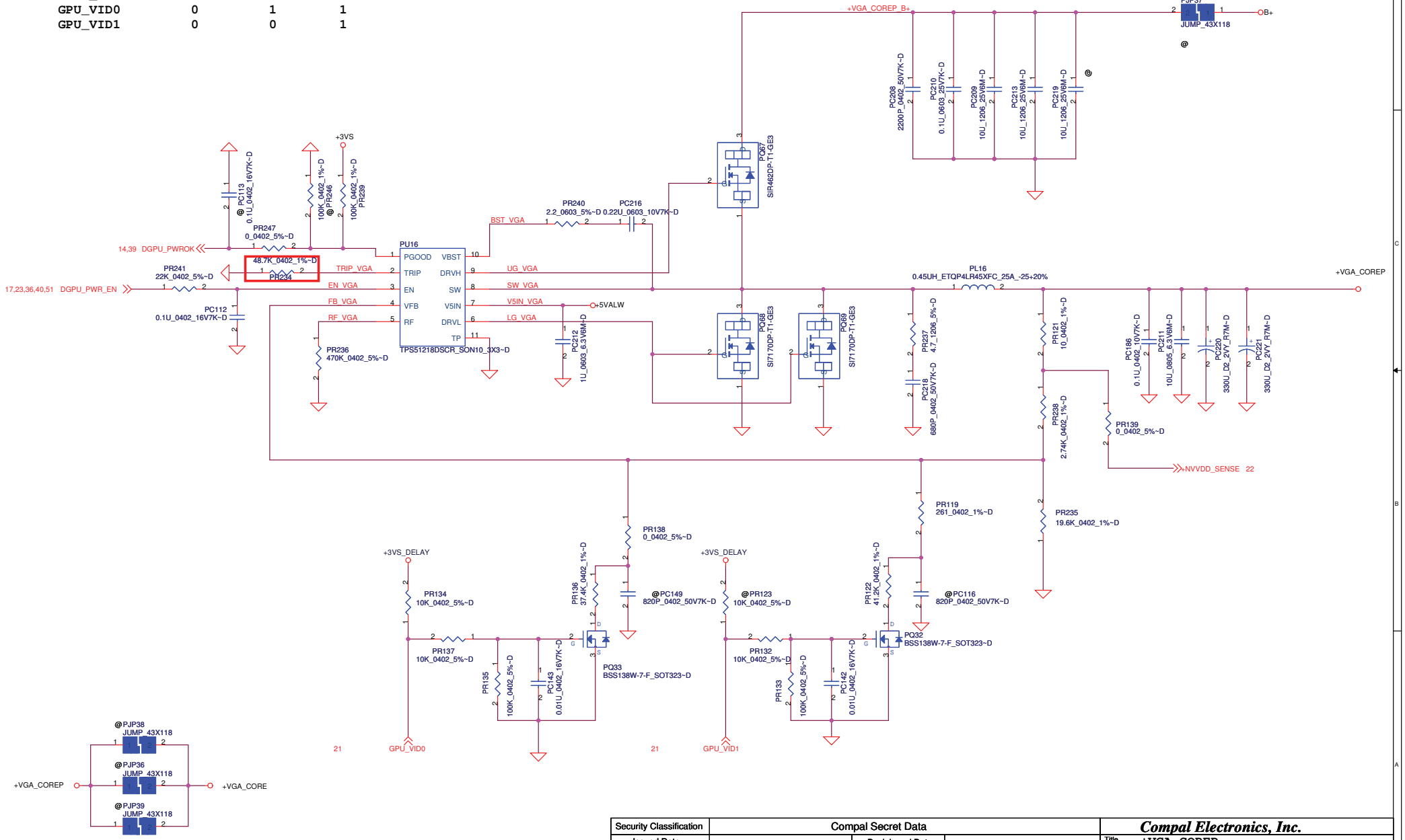
+VGA_COREP
ThermalDesigncurrent=21.525A
OCPmin=36.9A
Fsw=290KHZ
Low Side MOS RDS(on)=1.8m ohm(Typ) , 2.25m ohm(Max)

+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



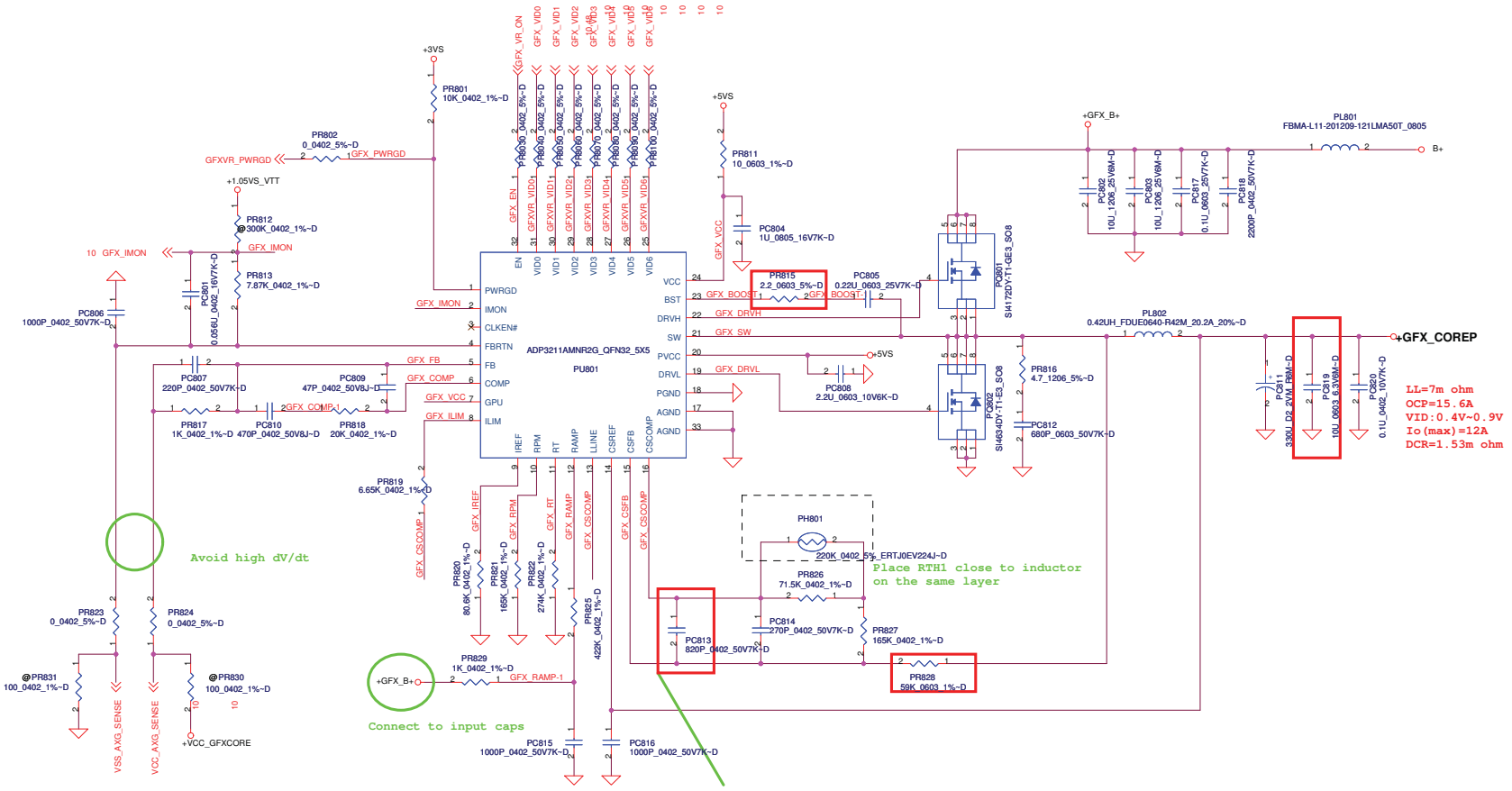
Security Classification	Compal Secret Data		
Issued Date		Deciphered Date	

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

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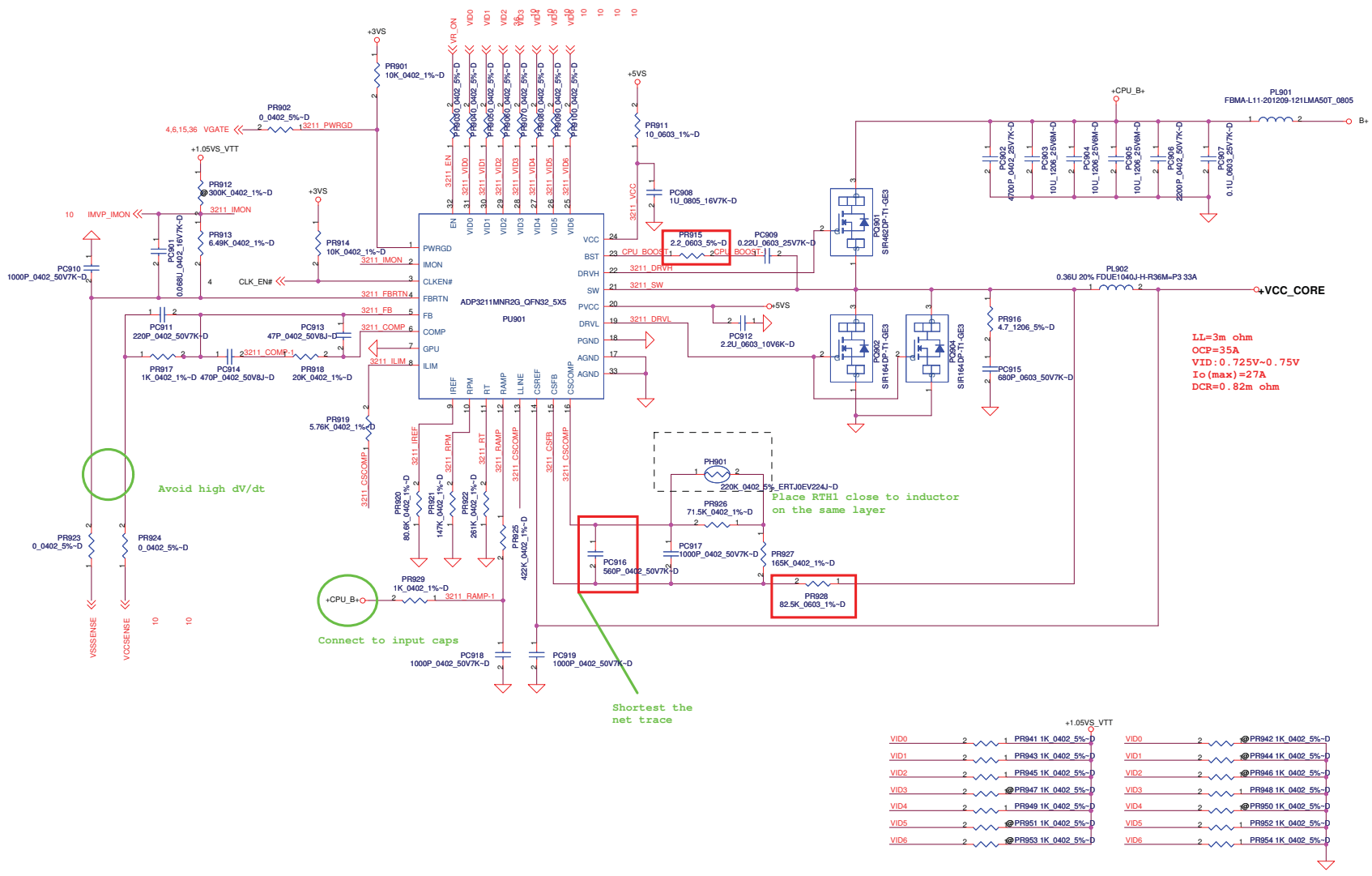

Security Classification	Compal Secret Data		
Issued Date	2009/10/07	Deciphered Date	2012/09/28

Compal Electronics, Inc.

Title: +CPU_CORE

Size	Document Number	Rev
		1.0

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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
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