Compal confidential

Schematics Document

Mobile Penryn uFCPGA with Intel Cantiga_PM+ICH9-M core logic

2008-04-29

Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.		
Title: Cover Sheet		
Size: Custom	Document Number: LA-4102P Blade discrete	Rev: 1.0
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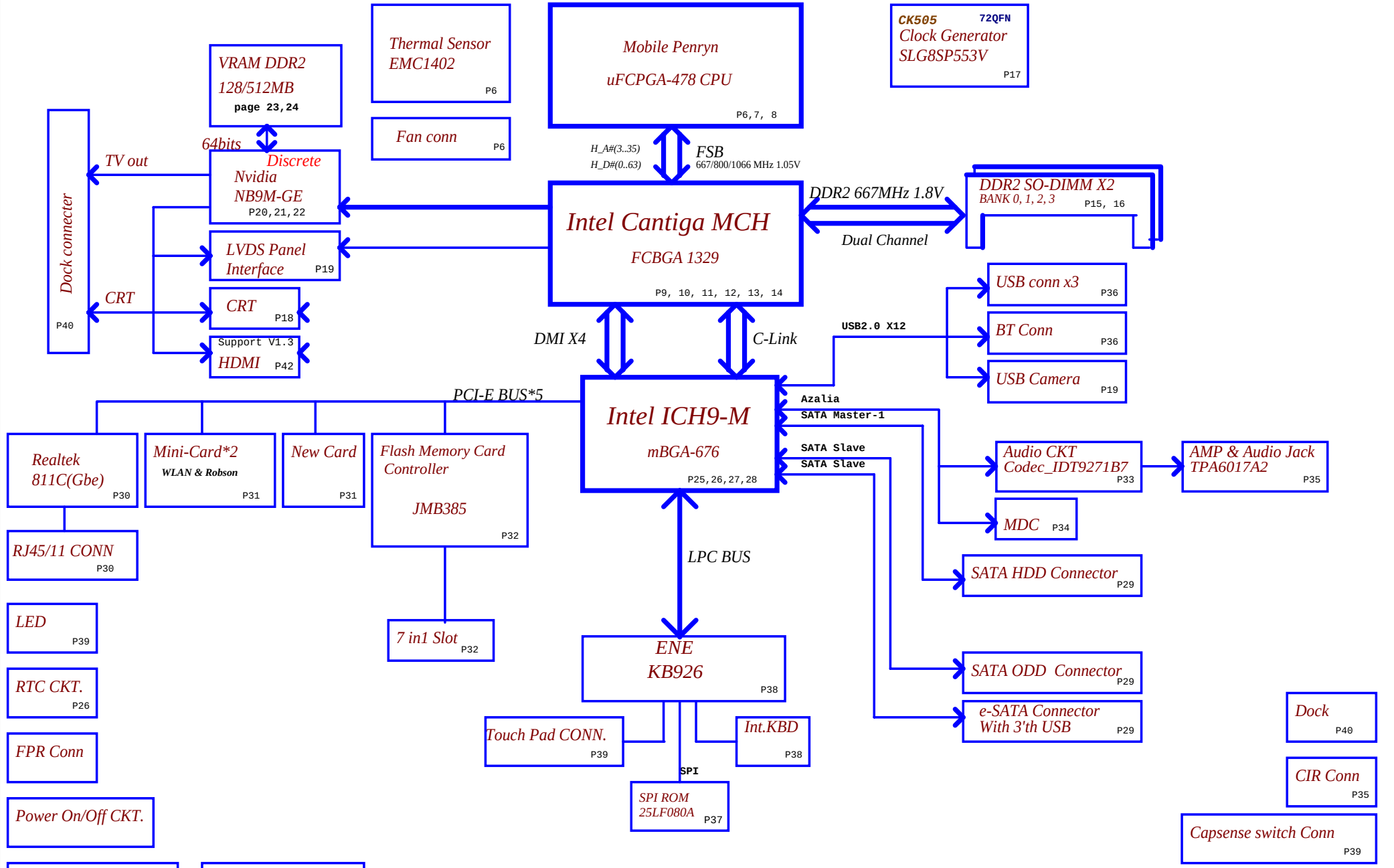
Montevina Consumer Discrete



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Compal Electronics, Inc.			
Title: Block Diagram			
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Voltage Rails

O MEANS ON

X MEANS OFF

power plane / State	+B	+5VALW +3VALW	+1.8V	+5VS +3VS +1.5VS +0.9V +VCCP +CPU_CORE +2.5VS +1.8VS +NVVDD +PCIE
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

BOM

NB	SA00002JJ80	R1	FRU
NB	SA00002JJE0	R3	
SB	SA00002JH50	R1	FRU
SB	SA00002JHB0	R3	

Symbol Note :

: means Digital Ground

: means Analog Ground

@ : means just reserve , no build
DEBUG@ : means just reserve for debug.

USB assignment:

USB-0 Right side
USB-1 Right side
USB-2 Left side(with ESATA)
USB-3 Dock
USB-4 Camera
USB-5 WLAN
USB-6 Bluetooth
USB-7 Finger Printer
USB-8 MiniCard(WWAN/TV)
USB-9 Express card
USB-10 X
USB-11 X

PCIe assignment:

PCIe-1 TV tuner/WWAN/Robeson
PCIe-2 X
PCIe-3 WLAN
PCIe-4 GLAN (Marvell)
PCIe-5 Card reader
PCIe-6 New Card

SMBUS Control Table

	SOURCE	INVERTER	BATT	SERIAL EEPROM	Thermal Sensor	SODIMM	CLK CHIP	MINI CARD	Sensor board	NB9M Thermal Sensor	NB9M	G-sensor
SMB_EC_CK1 SMB_EC_DA1	KB926	X	V	V	X	X	X	X	V	X	X	X
SMB_EC_CK2 SMB_EC_DA2	KB926	X	X	X	V	X	X	X	X	V	V	X
ICH_SMBCLK ICH_SMBDATA	ICH9	X	X	X	X	V	V	V	X	X	X	V

NB9M SMBUS Control Table

	SOURCE	LVDS	CRT	HDMI
DDC2_DATA DDC2_CLK	NB9M	V	X	X
3VDDCDA 3VDDCCL	NB9M	X	V	X
HDMIDAT_VGA HDMICLK_VGA	NB9M	X	X	V

I2C / SMBUS ADDRESSING

DEVICE	HEX	ADDRESS
DDR SO-DIMM 0	A0	1 0 1 0 0 0 0 0
DDR SO-DIMM 1	A4	1 0 1 0 0 1 0 0
CLOCK GENERATOR (EXT.)	D2	1 1 0 1 0 0 1 0

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Title: Notes List

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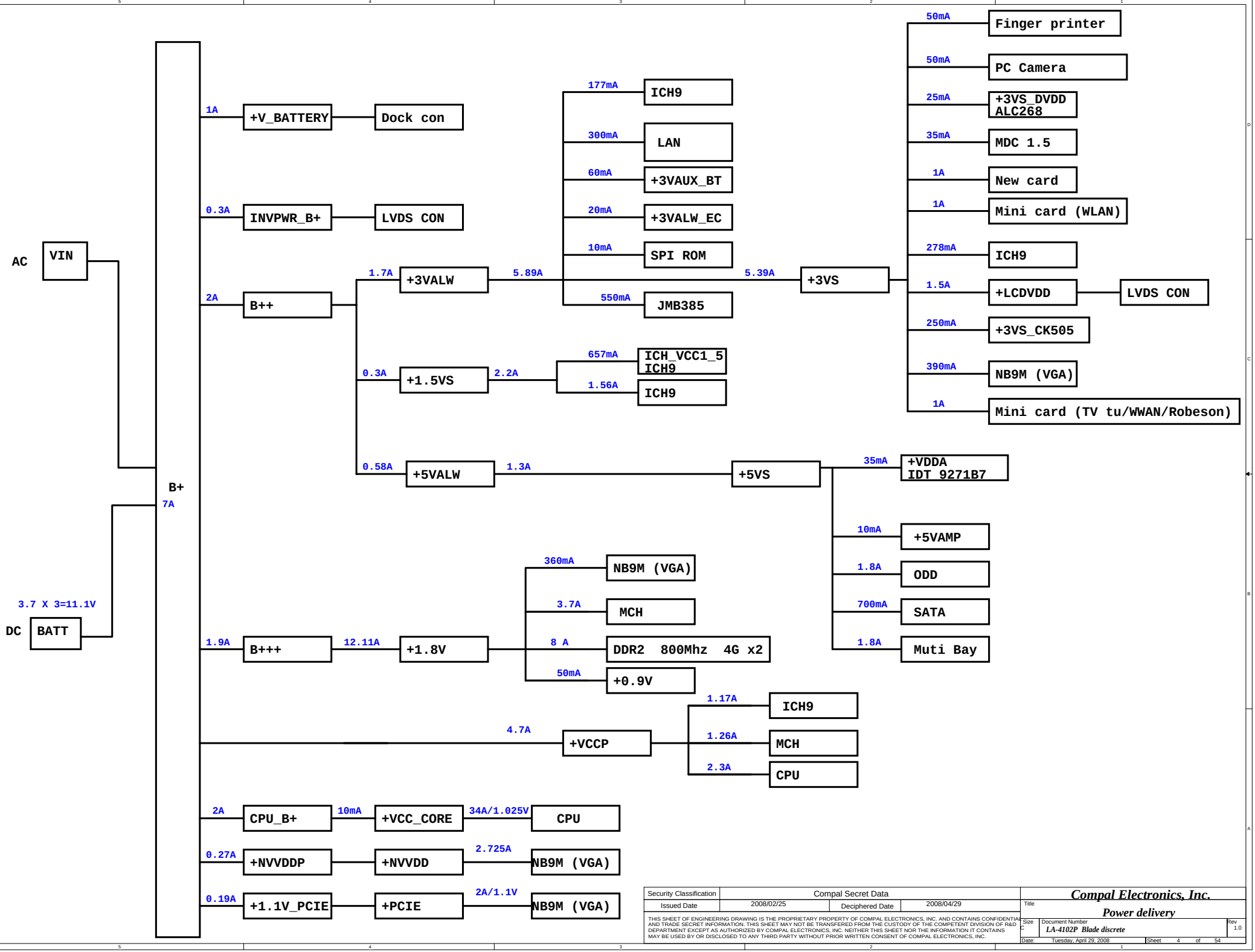

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Compal Electronics, Inc.

Title: *Power delivery*

Size	Document Number	Rev
C	*LA-4102P Blade discrete*	1.0

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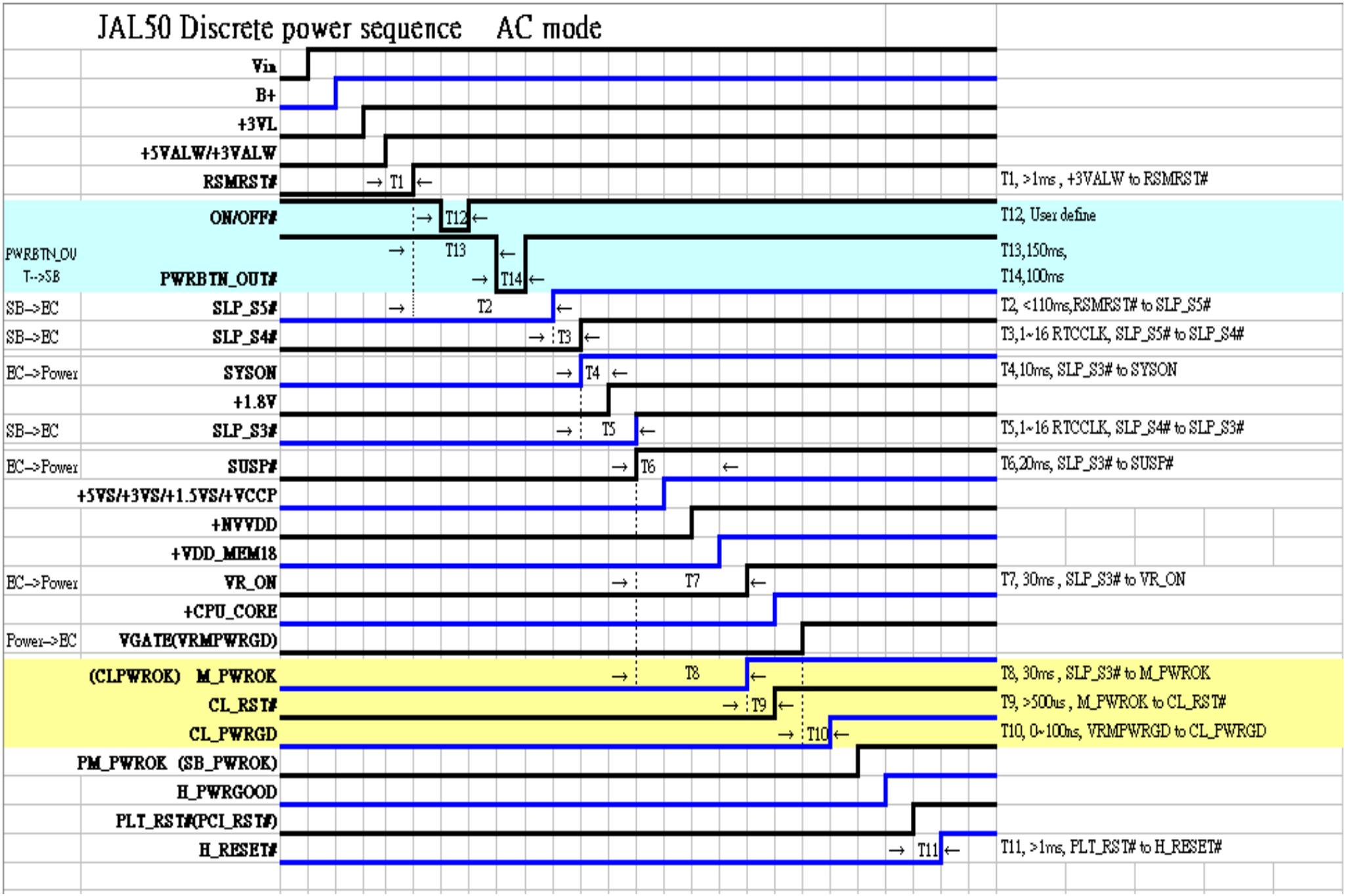
JAL50 Discrete power sequence AC mode



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Compal Electronics, Inc.

Title: **Power sequence**

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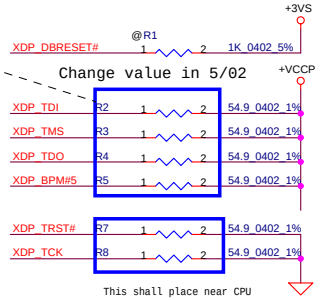
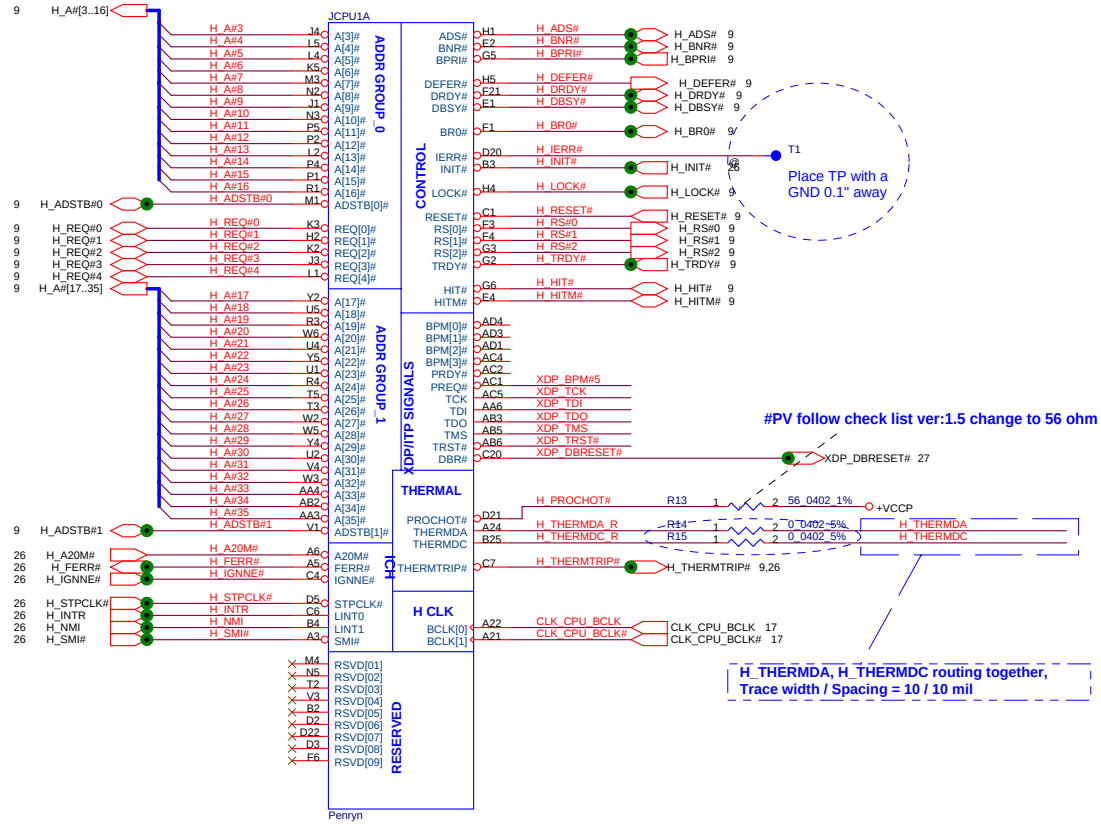
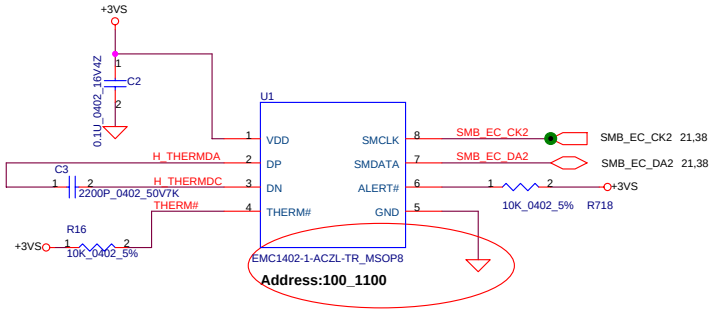
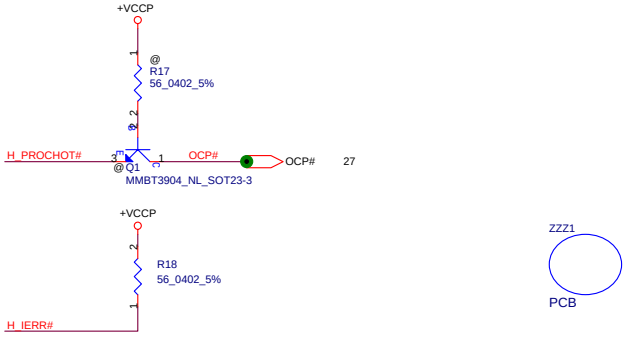
#PV follow check list ver:1.5 change to 51 ohm
#MVfollow check list ver:2.0 change to 55 ohm

#PV2 remove XDP connecter

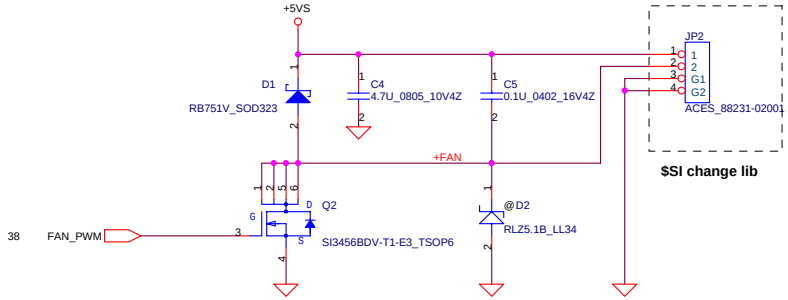








PWM Fan Control circuit



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Compal Electronics, Inc.

Title: Penryn(1/3)-AGTL+/ITP-XDP

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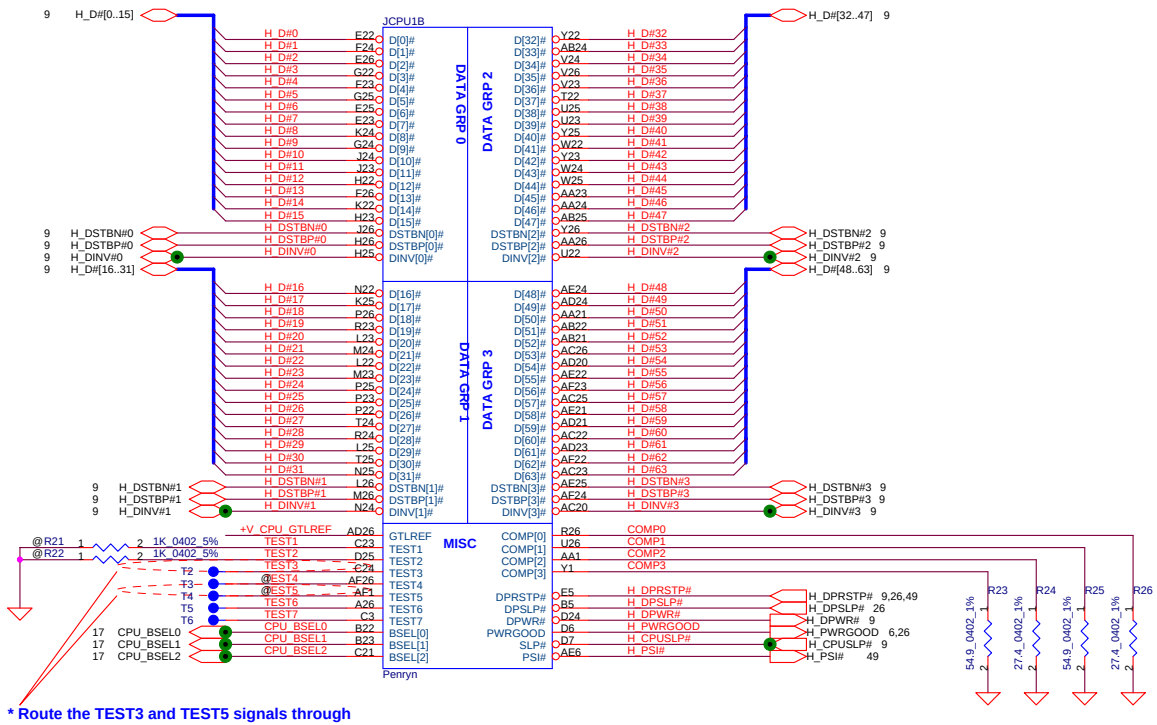
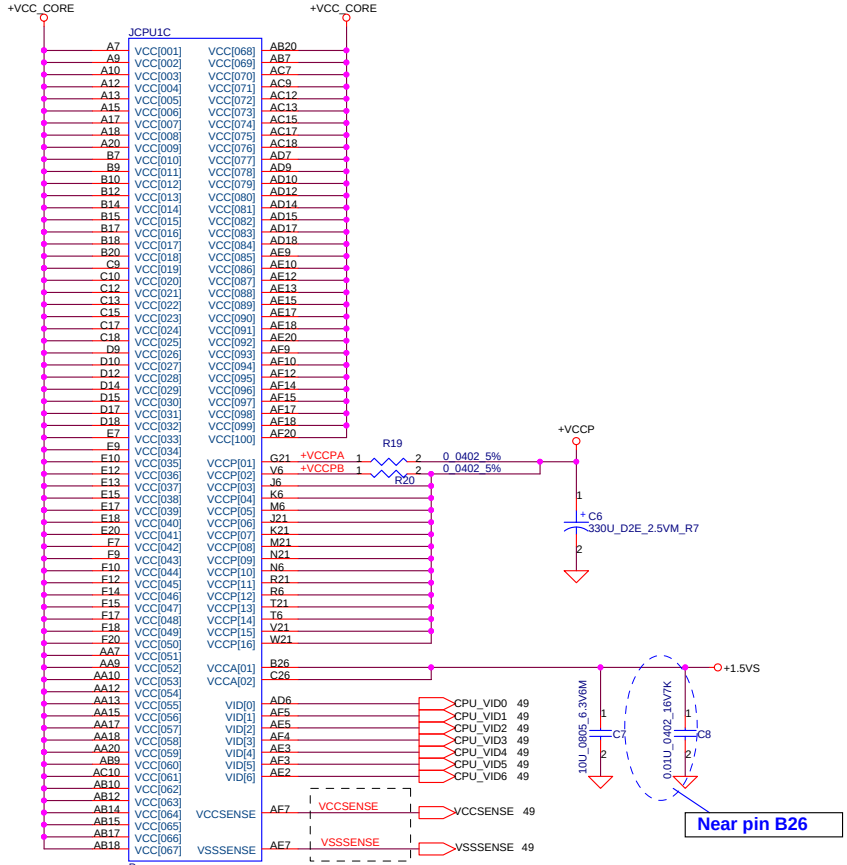
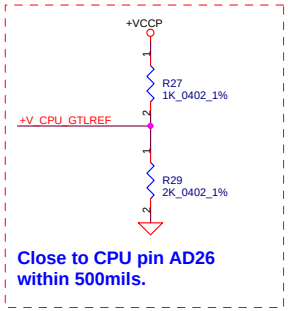




*** Route the TEST3 and TEST5 signals through a ground referenced Zo = 55-ohm trace that ends in a via that is near a GND via and is accessible through an oscilloscope connection.**

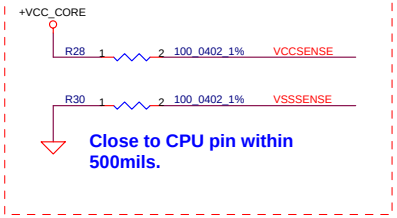
CPU_BSEL	CPU_BSEL2	CPU_BSEL1	CPU_BSEL0
166	0	1	1
200	0	1	0
266	0	0	0

Resistor placed within 0.5" of CPU pin.Trace should be at least 25 mils away from any other toggling signal. COMP[0,2] trace width is 18 mils. COMP[1,3] trace width is 4 mils.



Close to CPU pin AD26 within 500mils.

Length match within 25 mils.
The trace width/space/other is 20/7/25.



Close to CPU pin within 500mils.

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Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: Penryn(2/3)-AGTL+/ITP-XDP

Size: Custom | Document Number: LA-4102P Blade discrete | Rev: 1.0

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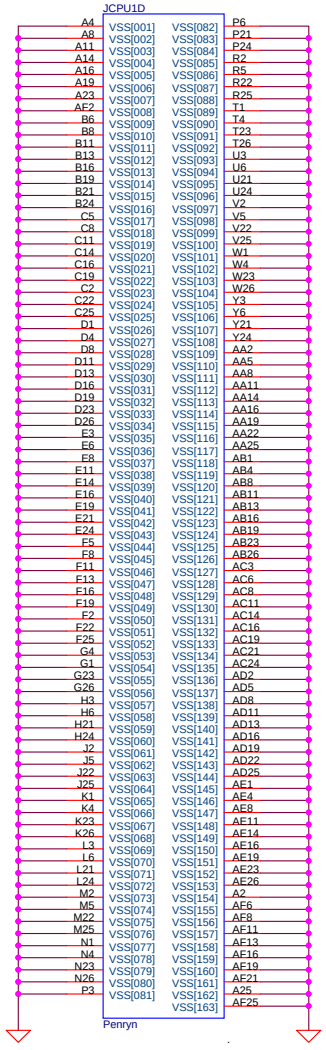
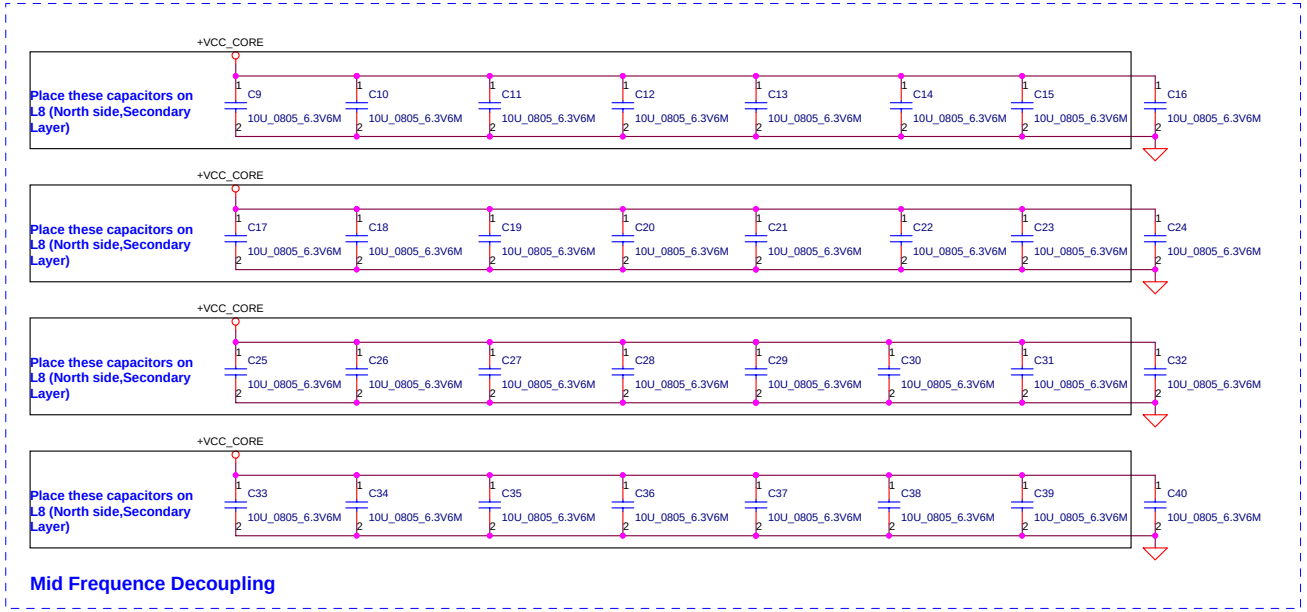
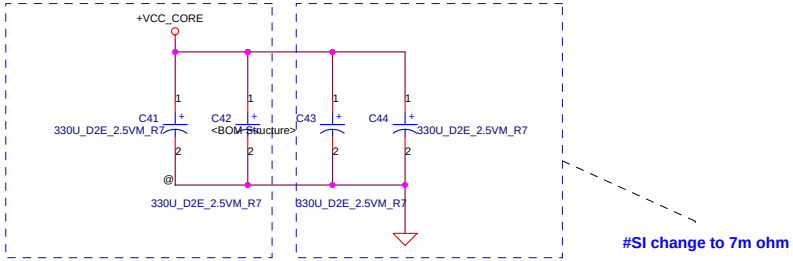
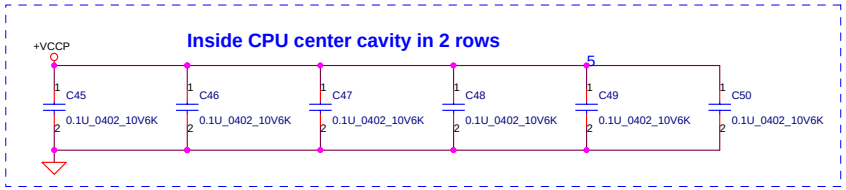




Near CPU CORE regulator

ESR <= 1.5m ohm
Capacitor > 1980uF





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Compal Electronics, Inc.			
Title: Penryn(3/3)-AGTL+/ITP-XDP			
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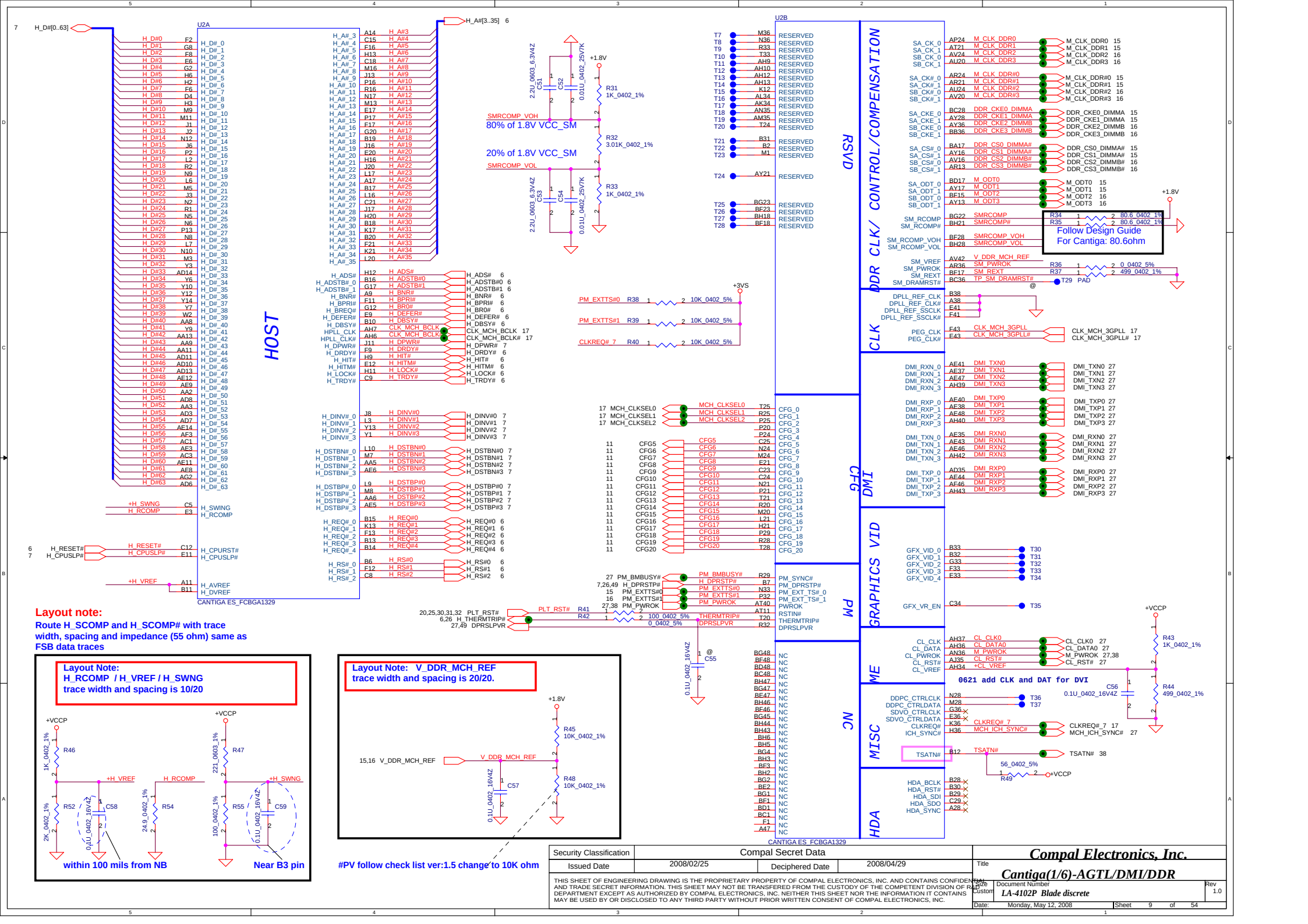
U2A
HOST
CANTIGA ES_FCBGA1329
U2B
RSVD
DDR CLK/ CONTROL/COMPENSATION
CLK
DMI
CFG
GRAPHICS VID
PM
ME
NC
MISC
HDA
CANTIGA ES_FCBGA1329
SMRCOMP_VOH
80% of 1.8V VCC_SM
SMRCOMP_VOL
20% of 1.8V VCC_SM
Follow Design Guide
For Cantiga: 80.6ohm
0621 add CLK and DAT for DVI
Layout note:
Route H_SCOMP and H_SCOMP# with trace width, spacing and impedance (55 ohm) same as FSB data traces
Layout Note:
H_RCOMP / H_VREF / H_SWNG
trace width and spacing is 10/20
within 100 mils from NB
Near B3 pin
Layout Note: V_DDR_MCH_REF
trace width and spacing is 20/20.
#PV follow check list ver:1.5 change to 10K ohm
Compal Electronics, Inc.
Cantiga(1/6)-AGTL/DMI/DDR
LA-4102P Blade discrete
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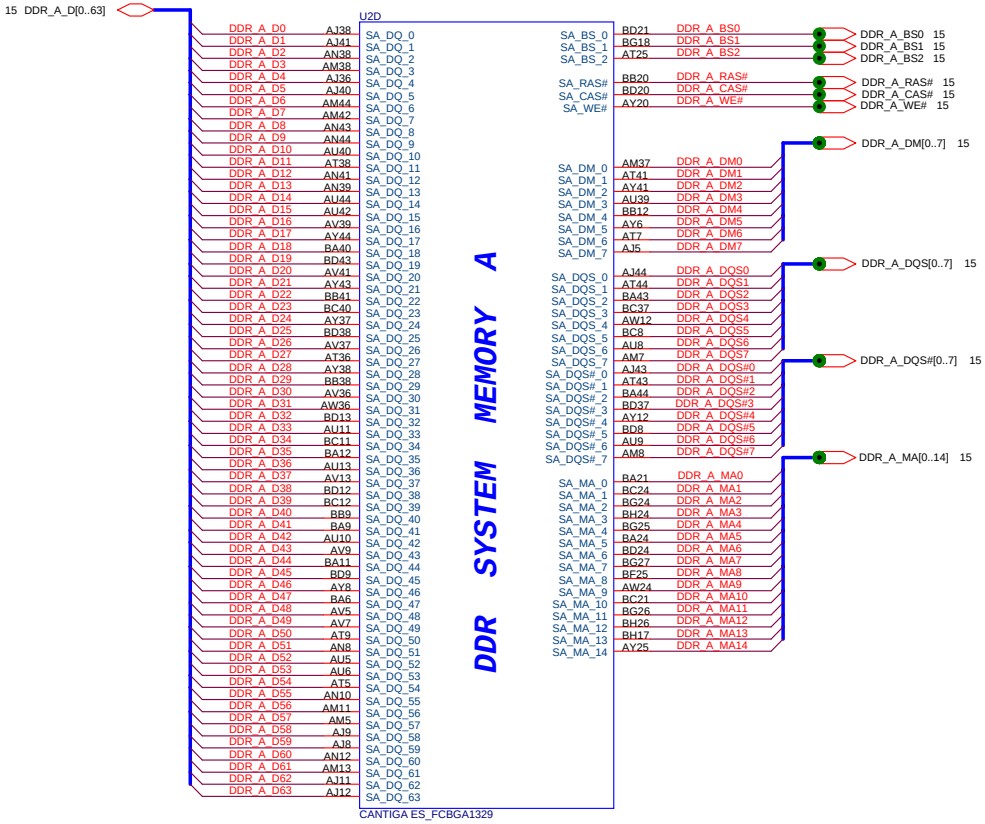

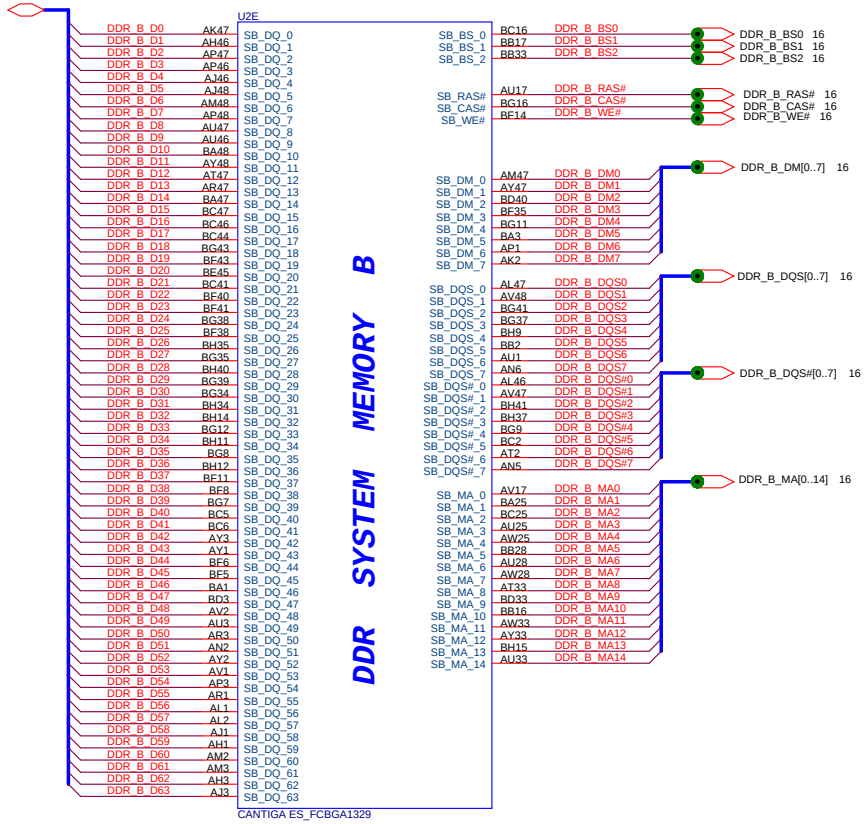

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Compal Electronics, Inc.

Title: Cantiga(2/6)-DDR2 A/B CH

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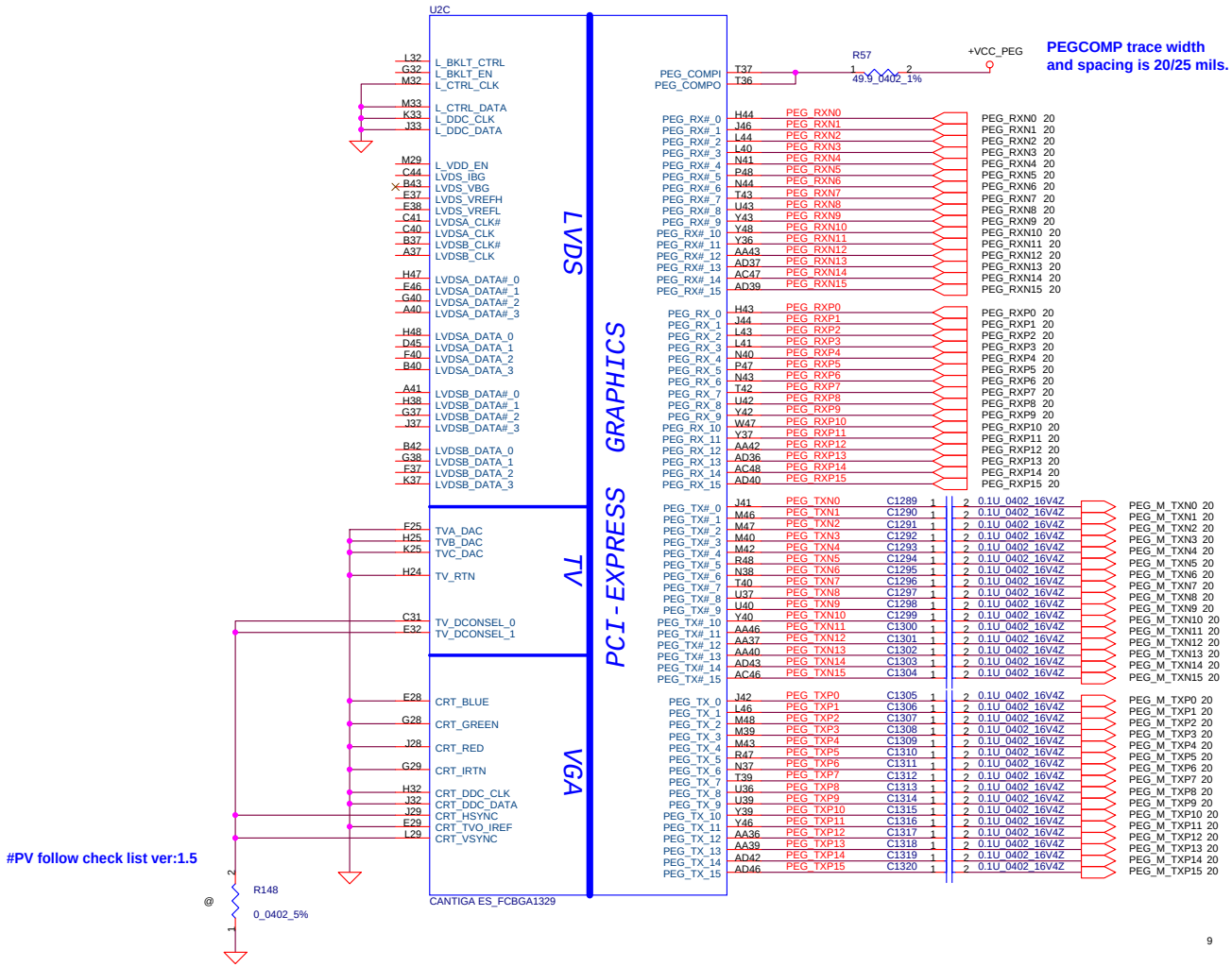
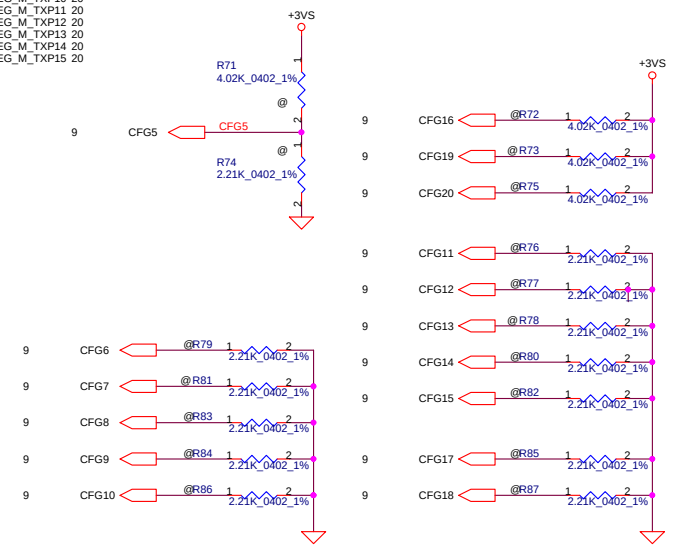


PEGCOMP trace width and spacing is 20/25 mils.

#PV follow check list ver:1.5

Strap Pin Table

CFG[2:0] FSB Freq select	000 = FSB 1066MHz 010 = FSB 800MHz 011 = FSB 667MHz Others = Reserved
CFG[4:3]	Reserved
CFG5 (DMI select)	0 = DMI x 2 1 = DMI x 4 *
CFG6	0 = The iTPM Host Interface is enable 1 = The iTPM Host Interface is disable *
CFG7 (Intel Management Engine Crypto strap)	0 =(TLS)chiper suite with no confidentiality 1 =(TLS)chiper suite with confidentiality *
CFG8	Reserved
CFG9 (PCIE Graphics Lane Reversal)	0 = Reverse Lane,15->0, 14->1 1 = Normal Operation,Lane Number in order *
CFG10 (PCIE Lookback enable)	0 = Enable 1 = Disable *
CFG11	Reserved
CFG[13:12] (XOR/ALLZ)	00 = Reserved 01 = XOR Mode Enabled 10 = All Z Mode Enabled 11 = Normal Operation (Default) *
CFG[15:14]	Reserved
CFG16 (FSB Dynamic ODT)	0 = Disabled 1 = Enabled *
CFG[18:17]	Reserved
CFG19 (DMI Lane Reversal)	0 = Normal Operation (Lane number in Order) * 1 = Reverse Lane
CFG20 (PCIE/SDVO concurrent)	0 = Only PCIE or SDVO is operational. * 1 = PCIE/SDVO are operating simu.



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Title: Cantiga(3/6)-VGA/LVDS/TV

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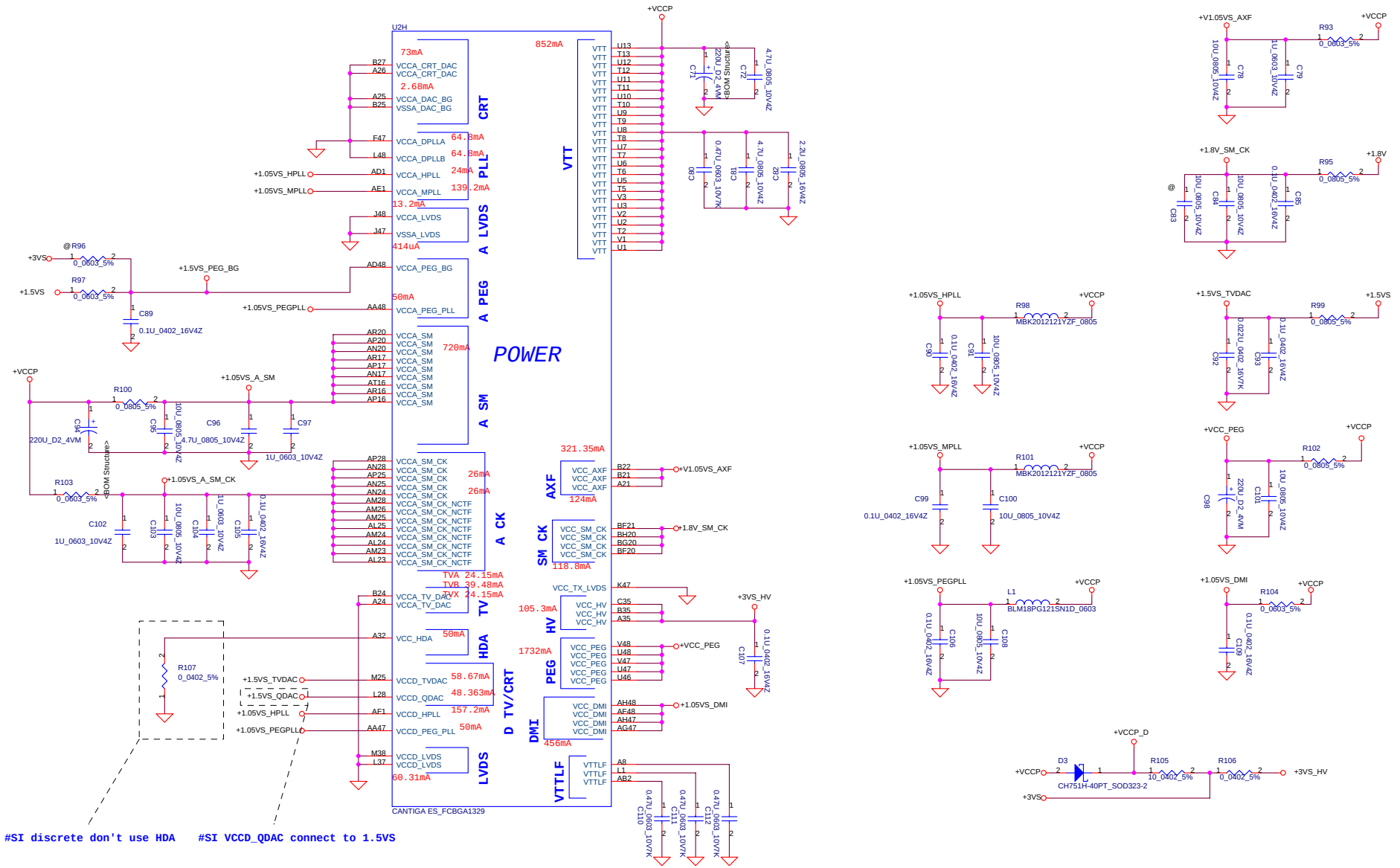

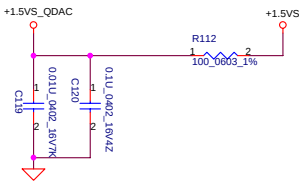

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Title: **Cantiga(4/6)-PWR**

Size: Custom | Document Number: **LA-4102P Blade discrete** | Rev: 1.0

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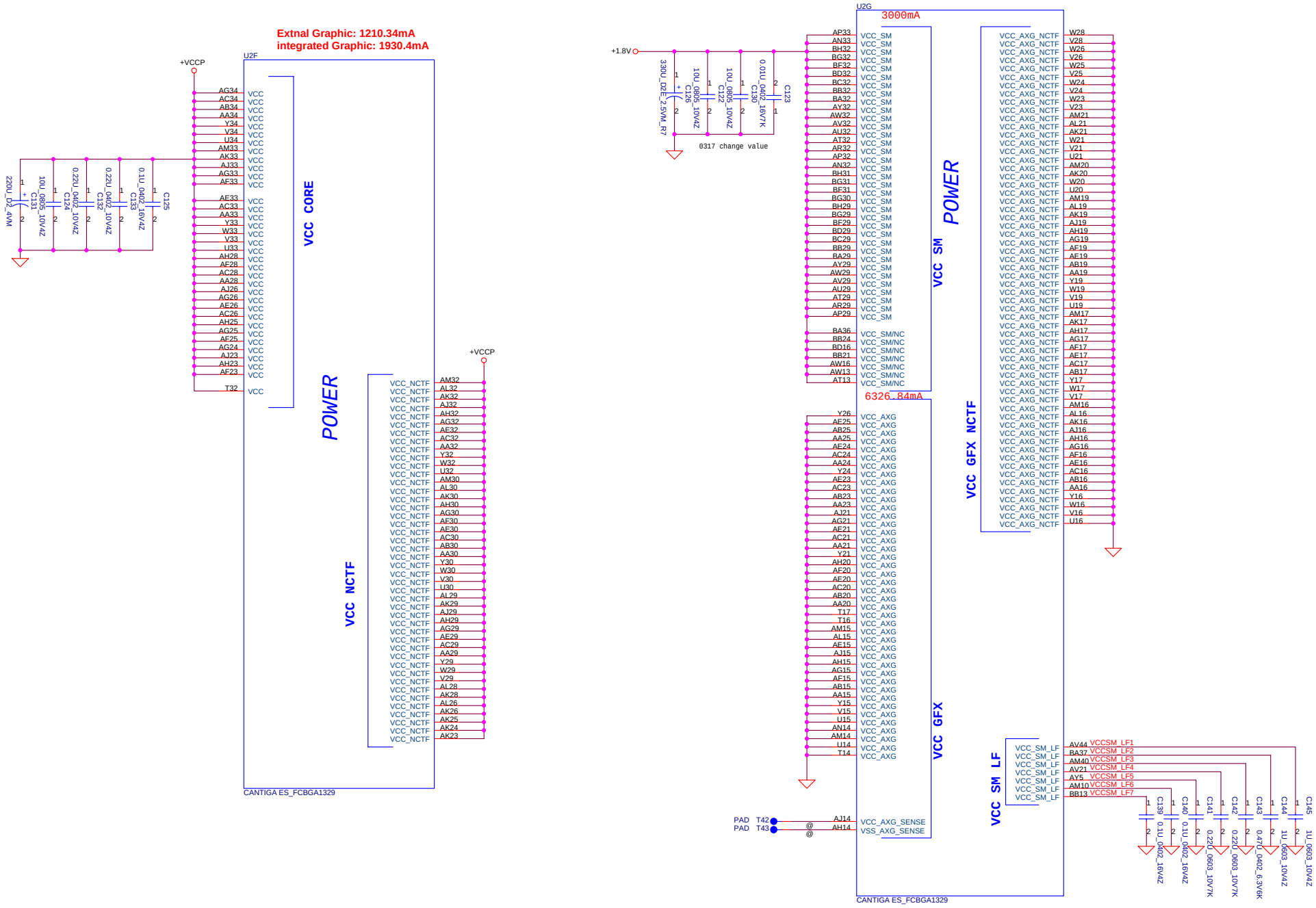

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Compal Electronics, Inc.			
Title: Cantiga(5/6)-PWR/GND			
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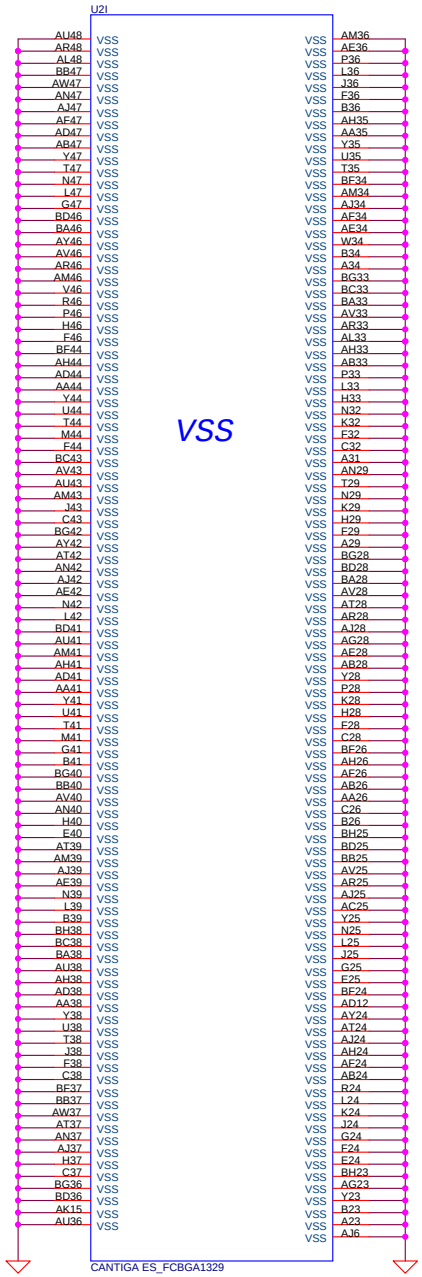

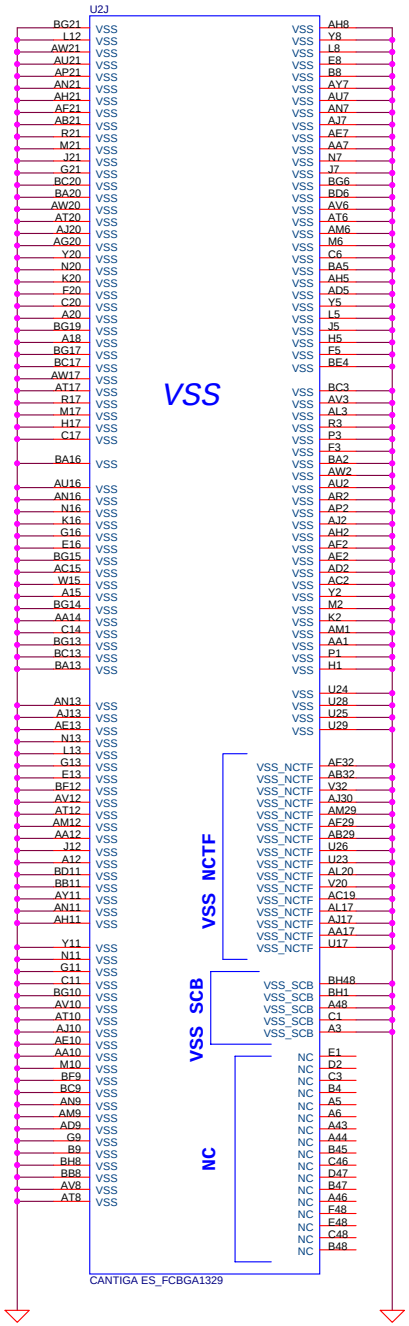

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Compal Electronics, Inc.		
Title: Cantiga(6/6)-PWR/GND		
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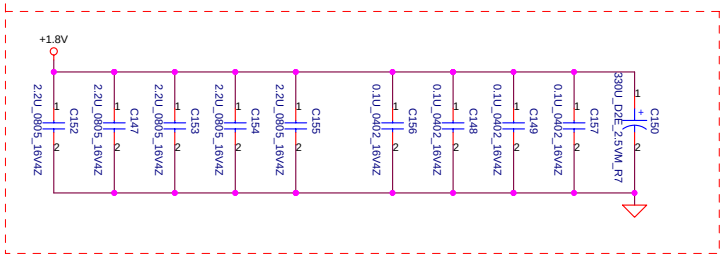
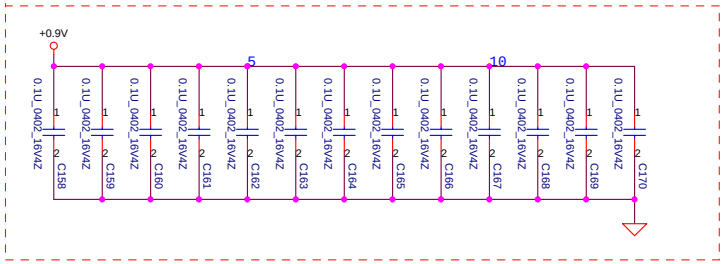
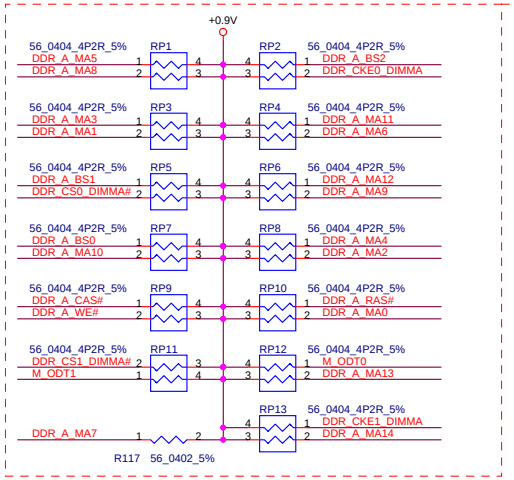
10 DDR_A_DQS#[0..7]
10 DDR_A_D[0..63]
10 DDR_A_DM[0..7]
10 DDR_A_DQS[0..7]
10 DDR_A_MA[0..14]

Layout Note:
Place near JP2

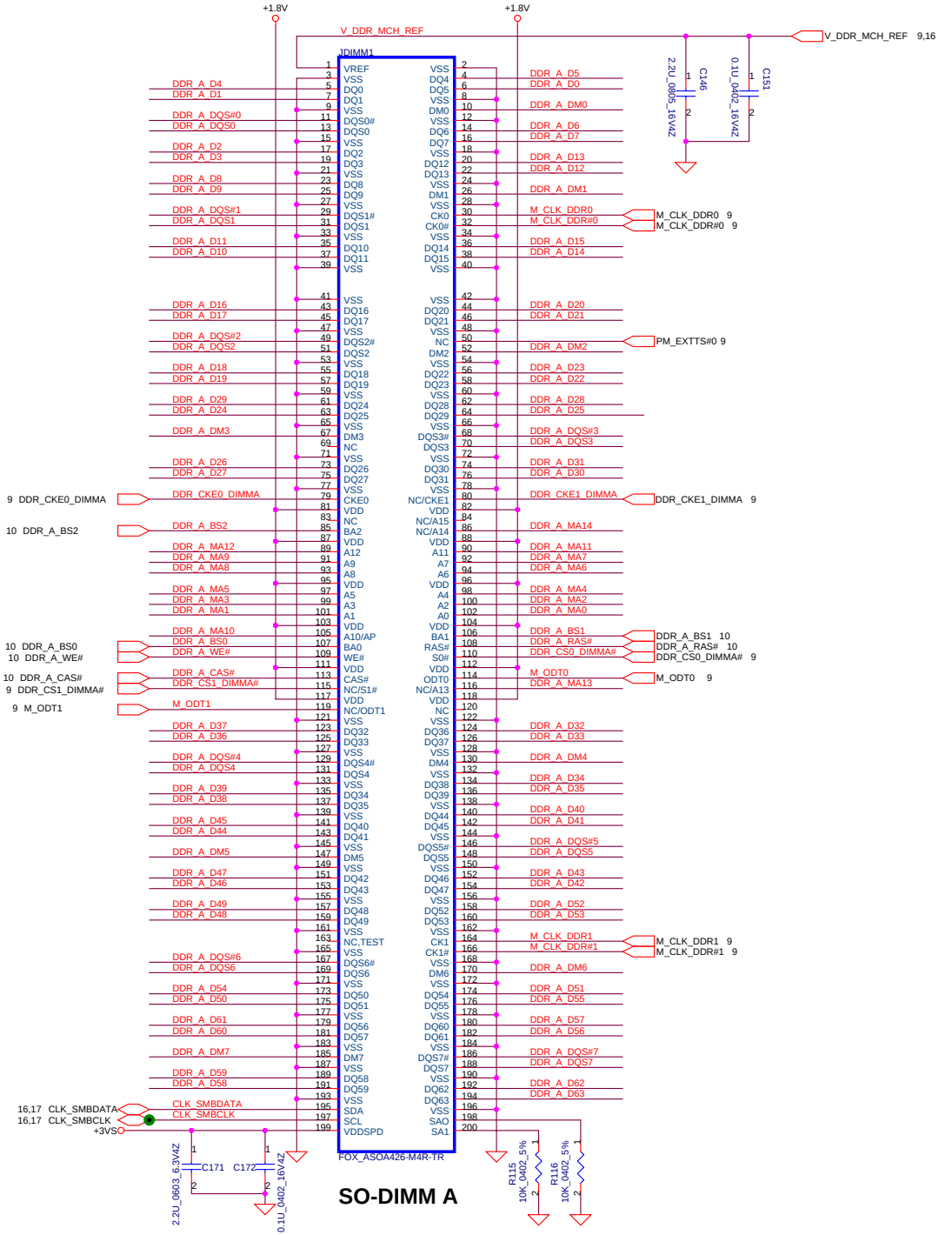


Layout Note:
Place one cap close to every 2 pullup
resistors terminated to +0.9VS





Layout Note:
Place these resistor closely JP3,all trace length Max=1.5"



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Compal Electronics, Inc.

Title: DDRII-SODIMM SLOT1

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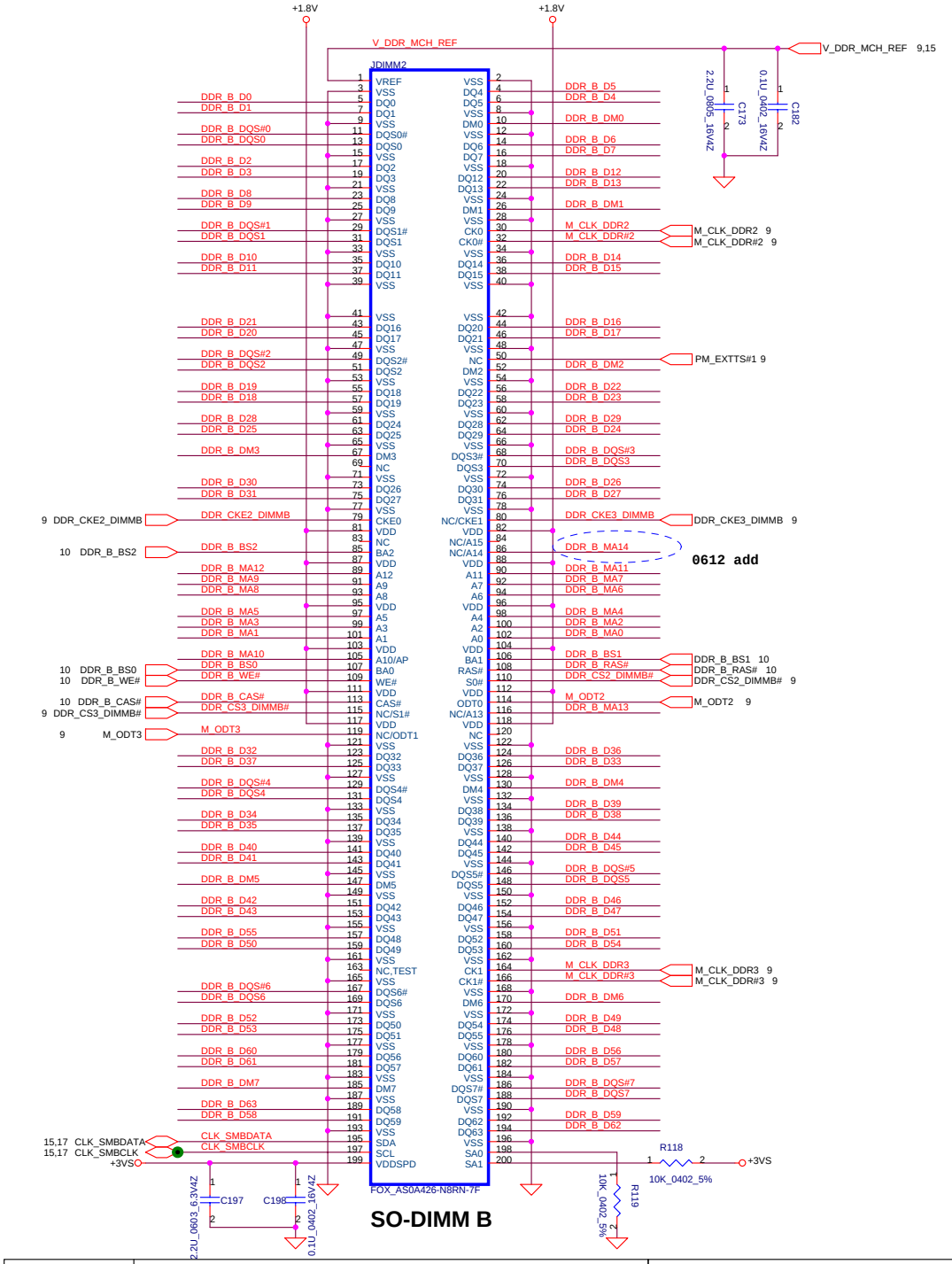
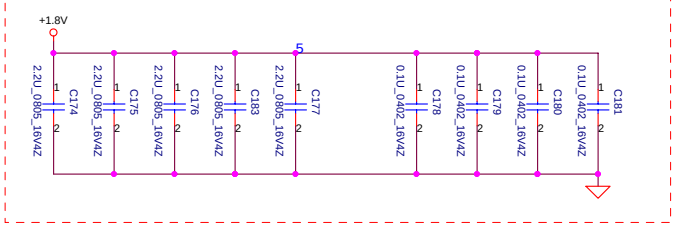
10 DDR_B_DQS#[0..7]
10 DDR_B_D[0..63]
10 DDR_B_DM[0..7]
10 DDR_B_DQS[0..7]
10 DDR_B_MA[0..14]

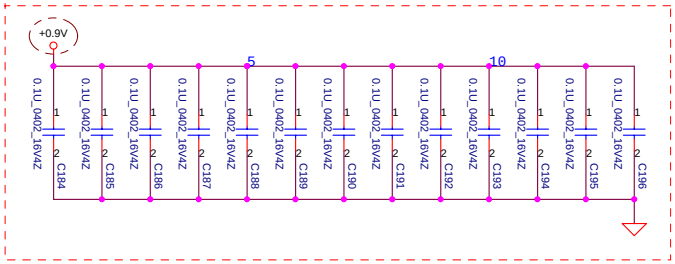
Layout Note:
Place near JP10

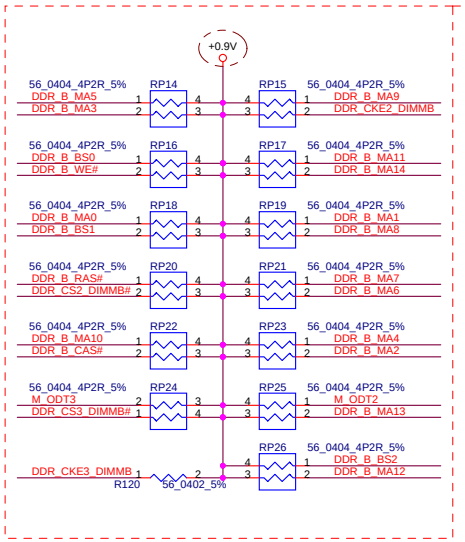
Layout Note:
Place one cap close to every 2 pullup resistors terminated to +0.9VS

Layout Note:
Place these resistor closely JP3,all trace length Max=1.5"









Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: **DDRII-SODIMM SLOT2**

Size: | Document Number: **LA-4102P Blade discrete** | Rev: 1.0

Date: Tuesday, April 29, 2008 | Sheet 16 of 54

FSC CLKSEL2	FSB CLKSEL1	FSA CLKSEL0	CPU MHz	SRC MHz	PCI MHz	REF MHz	DOT_96 MHz	USB MHz
0	0	0	266	100	33.3	14.318	96.0	48.0
0	0	1	133	100	33.3	14.318	96.0	48.0
0	1	0	200	100	33.3	14.318	96.0	48.0
0	1	1	166	100	33.3	14.318	96.0	48.0
1	0	0	333	100	33.3	14.318	96.0	48.0
1	0	1	100	100	33.3	14.318	96.0	48.0
1	1	0	400	100	33.3	14.318	96.0	48.0
1	1	1	Reserved					

Routing the trace at least 10mil

Place close to U51

Vendor suggests 22pF

NB CPU

No Debug port anymore

Mini card debug port

24pin debug port

#SI change to 39 ohm

#SI change to 33 ohm

XDP/ITP

3G_PLL

MiniCard_WLAN

MiniCard_WWAN

Card reader

GLAN

New Card

SATA

ICH

VGA

SB, MINI PCI

#PV for WWAN noise add 12P

ITP_EN	0 = SRC8/SRC8# 1 = ITP/ITP#	V
PCI_CLK3	0 = Enable DOT96 & SRC1(UMA) 1 = Enable SRC0 & 27MHz(DIS)	V

Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

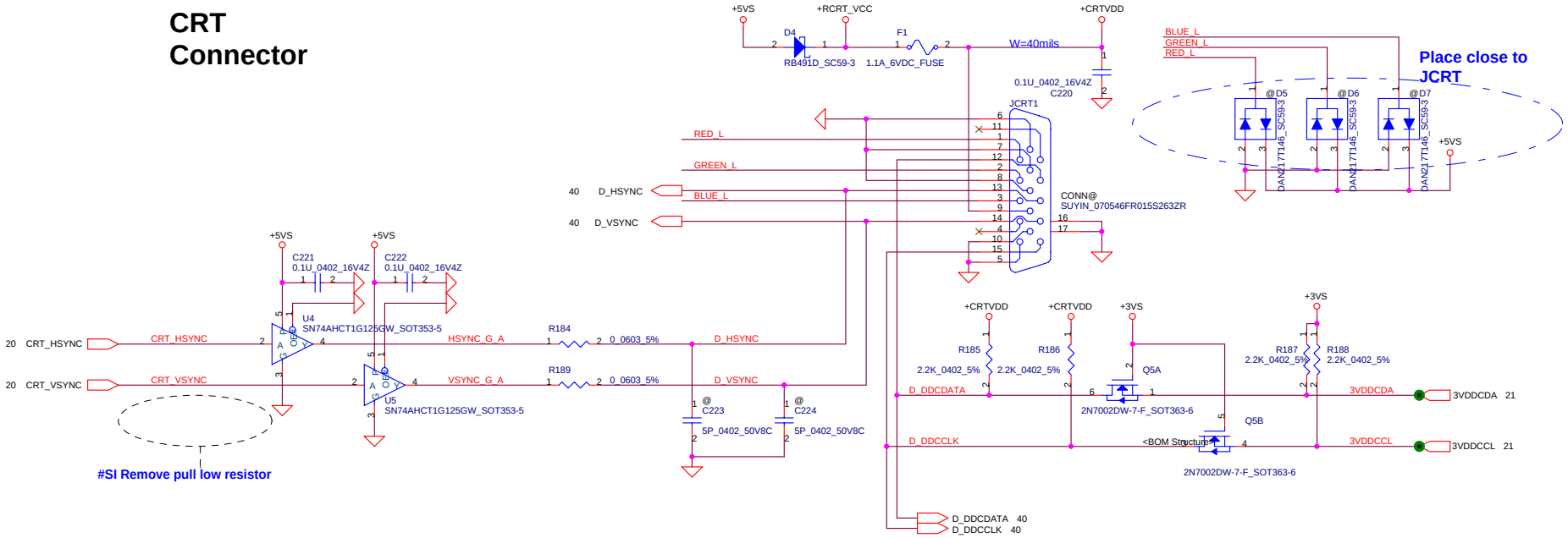
Compal Electronics, Inc.

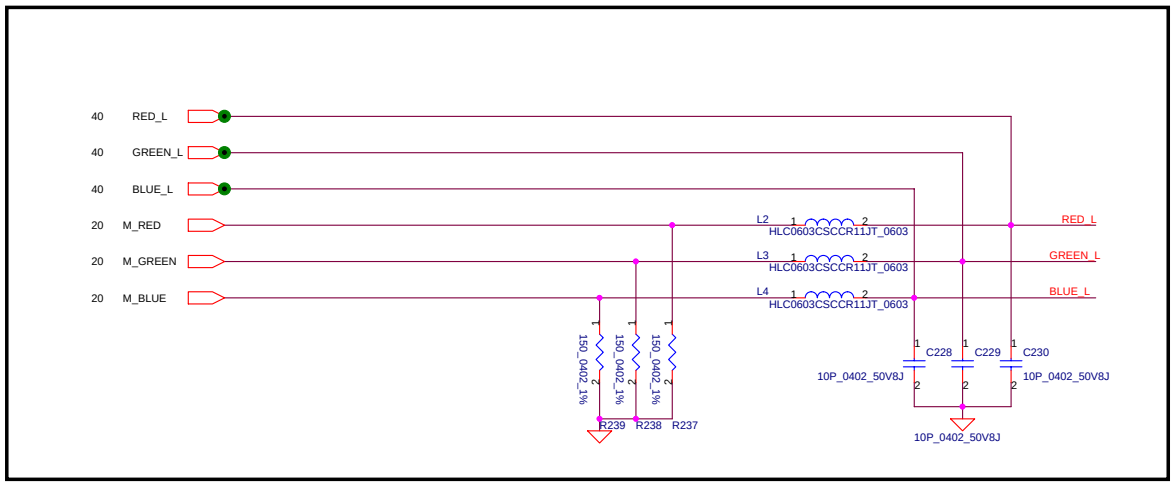
Title: Clock Generator CK505

Size: Document Number: LA-4102P Blade discrete — Rev: 1.0

Date: Tuesday, April 29, 2008 — Sheet 17 of 54

CRT Connector





Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.			
Title: CRT Connector			
Size:	Document Number: LA-4102P Blade discrete		Rev: 1.0
Date: Tuesday, April 29, 2008	Sheet 18 of 54		

1108 EMI request

DMIC_CLK
DMIC_DAT
@C2110 220P_0402_25V8J
@C2111 220P_0402_25V8J

LVDS CONN WITH Camera and Digi MIC

+3VS +LCDVDD INVPWR_B+
C235 C236 C237 680P_0402_50V7K

JLVDS1 ACES_88242-4001
LVDS_A2- LVDS_A2+ LVDS_A1- LVDS_A1+ LVDS_A0- LVDS_A0+ LVDS_ACLK- LVDS_ACLK+
USB20_P4 USB20_N4
DMIC_DAT DMIC_CLK +5V_LOGO R727 100_0805_5% INV_PWM BKOFF# DAC_BRIG USB_CAM DDC2_CLK DDC2_DATA
C435 C434 680P_0402_50V7K

+LCDVDD
C231 C232 0.1U_0402_16V4Z

+LCDVDD +5VALW
R198 470_0402_5% R199 1M_0402_5%
Q8A 2N7002DW-7-F_SOT363-6
R200 100K_0402_5%

+LCDVDD +3VS
Q7 SI2301BDS-T1-E3_SOT23-3
C233 4.7U_0805_10V4Z C234 4.7U_0805_10V4Z
C238 0.047U_0402_16V7K

Limited Current < 1A

21 ENAVDD
2N7002DW-7-F_SOT363-6 Q8B
R201 2.2K_0402_5% C239 0.22U_0603_10V7K

Avoid Panel display garbage after power on.

+3VS
R202 2.2K_0402_5% R203 2.2K_0402_5%
DDC2_CLK DDC2_DATA
DMIC_DAT DMIC_CLK
C496 C498 680P_0402_50V7K

B+ INVPWR_B+
L5 0_0805_5%
L6 FBMA-L11-201209-221LMA30T_0805

0308_Reserve L10 and install L11.

BKOFF#
R717 10K_0402_5%

#SI2 for EMI

#PV reserve pull low 10K

USB Camera Power

1106 Add SB control pin

+5VALW +5VS
PJP604 PAD-OPEN 2x2m PJP4 PAD-OPEN 2x2m
C1392 10U_0805_6.3V6M
R2072 0_0402_5%
27 GPIO20 R2073 0_0402_5%

U42 G916-390T1UF_SOT23-5
IN GND SHDN OUT BYP
USB_CAM 215K_0603_1%
R1091 R1093 100K_0402_1%
C1391 10U_0805_6.3V6M

#SI change lib

USB_VCCA is +3.9V
USB_VCCA =1.25X(1+R1091/R1093)

#SI Add GPIO20 control and reserve +5VS

Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

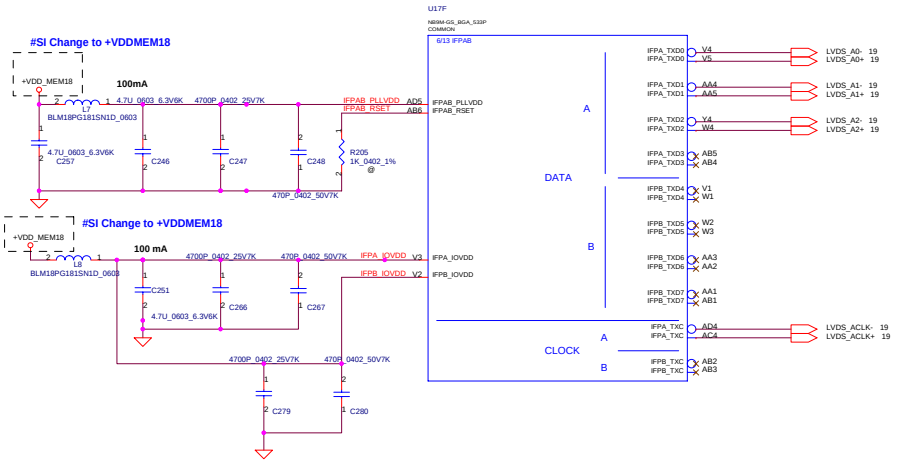
Compal Electronics, Inc.

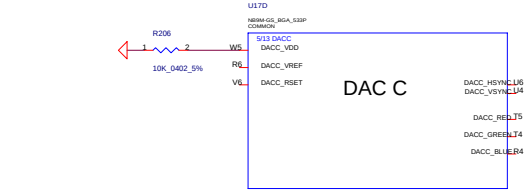
Title: LCD CONN.

Size: Document Number: LA-4102P Blade discrete Rev: 1.0

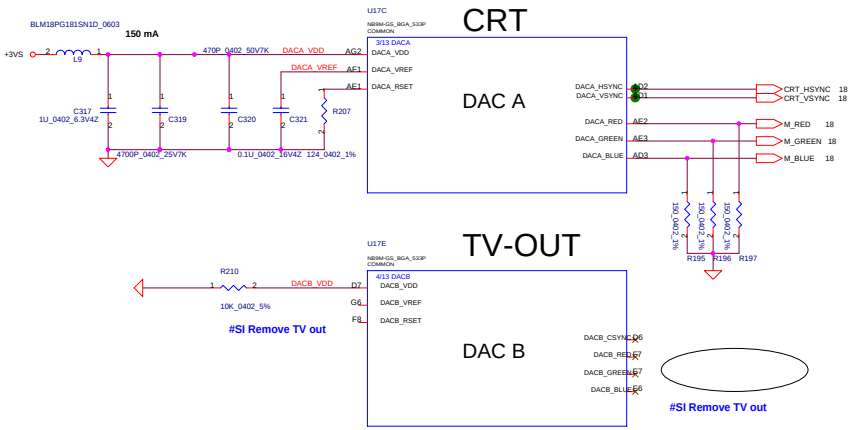
Date: Tuesday, April 29, 2008 Sheet 19 of 54

LVDS & DAC Interface



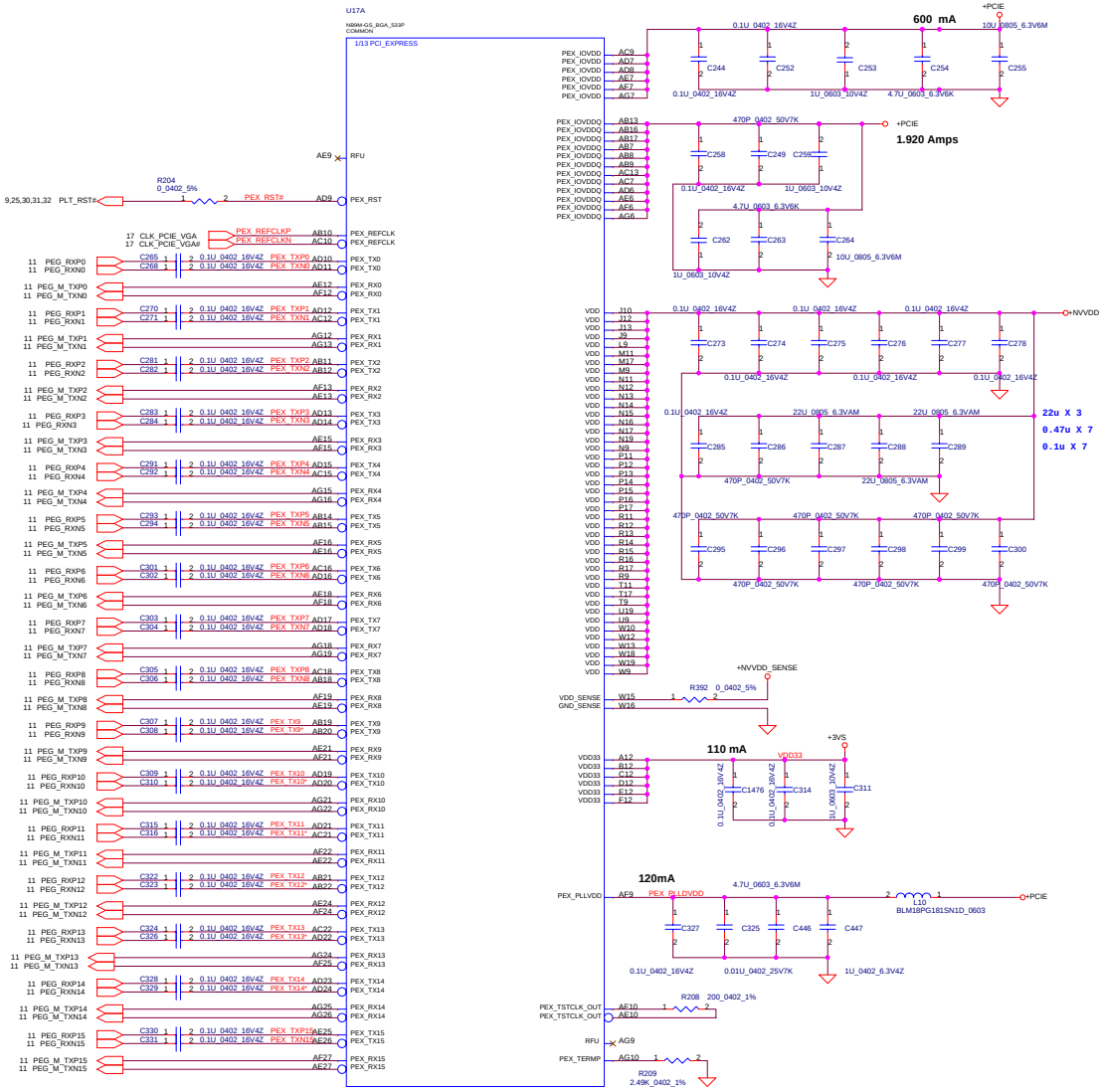


CRT



TV-OUT

PEG Interface



Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

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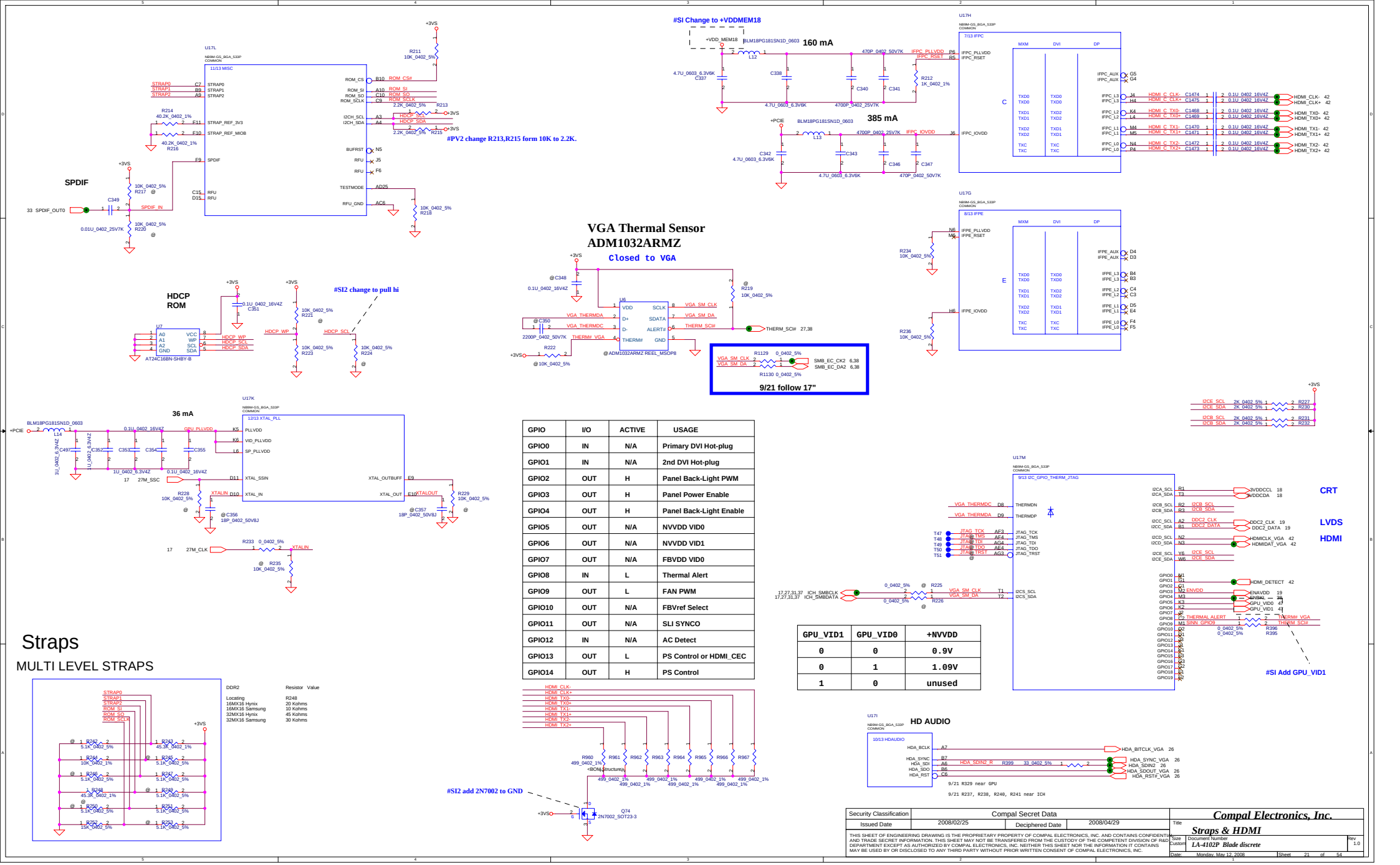
Compal Electronics, Inc.

Title: **PEG & LVDS & DAC**

Size: Custom | Document Number: *LA-4102P Blade discrete* | Rev: 1.0

Date: Monday, May 12, 2008 | Sheet 20 of 54



GPIO	I/O	ACTIVE	USAGE
GPIO0	IN	N/A	Primary DVI Hot-plug
GPIO1	IN	N/A	2nd DVI Hot-plug
GPIO2	OUT	H	Panel Back-Light PWM
GPIO3	OUT	H	Panel Power Enable
GPIO4	OUT	H	Panel Back-Light Enable
GPIO5	OUT	N/A	NVVDD VID0
GPIO6	OUT	N/A	NVVDD VID1
GPIO7	OUT	N/A	FBVDD VID0
GPIO8	IN	L	Thermal Alert
GPIO9	OUT	L	FAN PWM
GPIO10	OUT	N/A	FBVref Select
GPIO11	OUT	N/A	SLI SYNCO
GPIO12	IN	N/A	AC Detect
GPIO13	OUT	L	PS Control or HDMI_CEC
GPIO14	OUT	H	PS Control

GPU_VID1	GPU_VID0	+NVVDD
0	0	0.9V
0	1	1.09V
1	0	unused

Straps

MULTI LEVEL STRAPS

DDR2	Resistor	Value
Locating	R248	
16MX16 Hynix	20 Kohms	
16MX16 Samsung	10 Kohms	
32MX16 Hynix	45 Kohms	
32MX16 Samsung	30 Kohms	

Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

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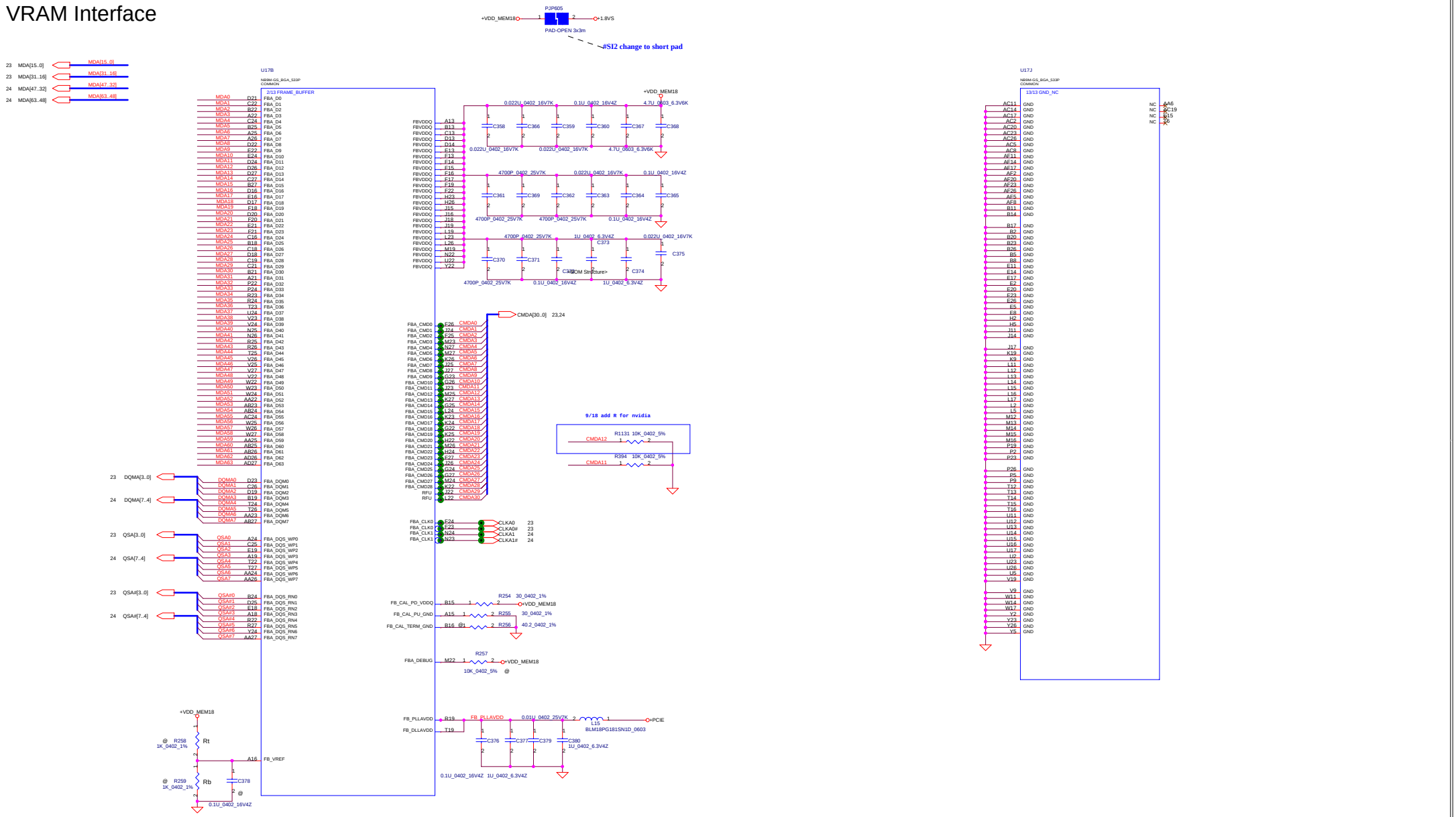
Compal Electronics, Inc.

Straps & HDMI

Size	Document Number	Rev
Custom	LA-4102P Blade discrete	1.0

Date: Monday, May 12, 2008 Sheet 21 of 54

VRAM Interface



Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.	
Title	VRAM / GND
Size: Custom	Document Number: LA-4102P Blade discrete
Rev	1.0
Date: Monday, May 12, 2008	Sheet 22 of 54

VRAM DDR2 chips (256MB & 512MB)

32Mx16 DDR2 400MHz *4==>256MB

64Mx16 DDR2 400MHz*4==>512MB

	DATA Bus	
Address	0..31	32..63
CMD0	A3	
CMD1	A0	A0
CMD2	A2	
CMD3	A1	A1
CMD4		A3
CMD5		A4
CMD6		A5
CMD7		
CMD8	CS#	CS#
CMD9	WE#	WE#
CMD10	BA0	BA0
CMD11	CKE	CKE
CMD12	ODT	ODT
CMD13		
CMD14	A12	A12
CMD15	RAS#	RAS#
CMD16	A11	A11
CMD17	A10	A10
CMD18	BA1	BA1
CMD19	A8	A8
CMD20	A9	A9
CMD21	A6	A6
CMD22	A5	
CMD23	A7	A7
CMD24	A4	
CMD25	CAS#	CAS#
CMD26	A13	A13
CMD27	BA2	BA2
CMD28		
CMD29		
CMD30		

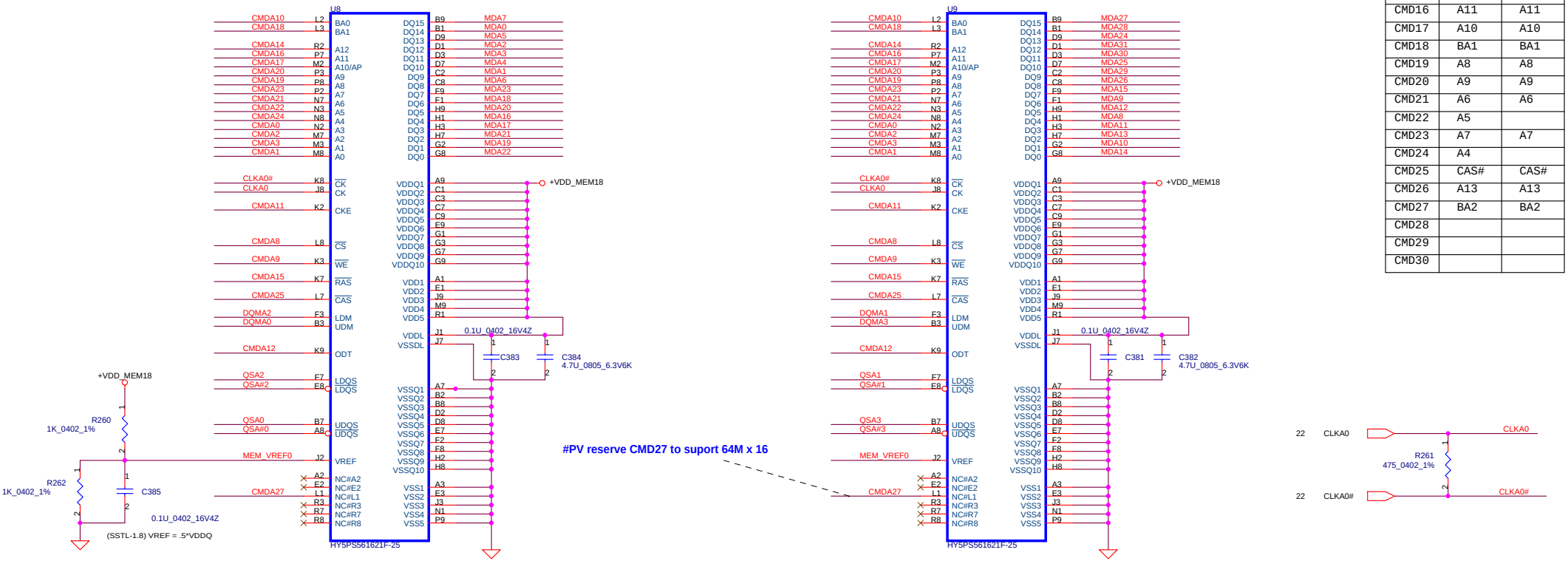
22,24 QSA[7..0] — QSA[7..0]

22,24 QSA#[7..0] — QSA#[7..0]

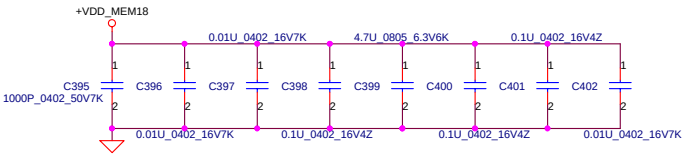
22,24 DQMA[7..0] — DQMA[7..0]

22,24 MDA[63..0] — MDA[63..0]

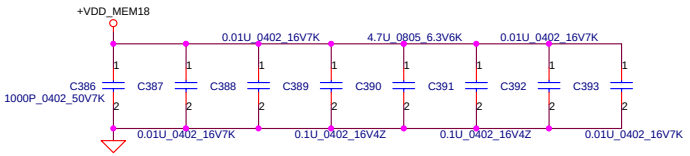
22,24 CMDA[30..0] — CMDA[30..0]



DDR2 BGA MEMORY



DDR BGA MEMORY



Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: LS-2821 ATI_M56-P VGA Board

Size | Document Number: CHANNEL A EXT. 256M_1 | Rev: 0.1

Date: Tuesday, April 29, 2008 | Sheet 7 of 16

VRAM DDR2 chips (256MB & 512MB)

32Mx16 DDR2 400MHz *4==>256MB

64Mx16 DDR2 400MHz*4==>512MB

	DATA Bus	
Address	0..31	32..63
CMD0	A3	
CMD1	A0	A0
CMD2	A2	
CMD3	A1	A1
CMD4		A3
CMD5		A4
CMD6		A5
CMD7		
CMD8	CS#	CS#
CMD9	WE#	WE#
CMD10	BA0	BA0
CMD11	CKE	CKE
CMD12	ODT	ODT
CMD13		
CMD14	A12	A12
CMD15	RAS#	RAS#
CMD16	A11	A11
CMD17	A10	A10
CMD18	BA1	BA1
CMD19	A8	A8
CMD20	A9	A9
CMD21	A6	A6
CMD22	A5	
CMD23	A7	A7
CMD24	A4	
CMD25	CAS#	CAS#
CMD26	A13	A13
CMD27	BA2	BA2
CMD28		
CMD29		
CMD30		

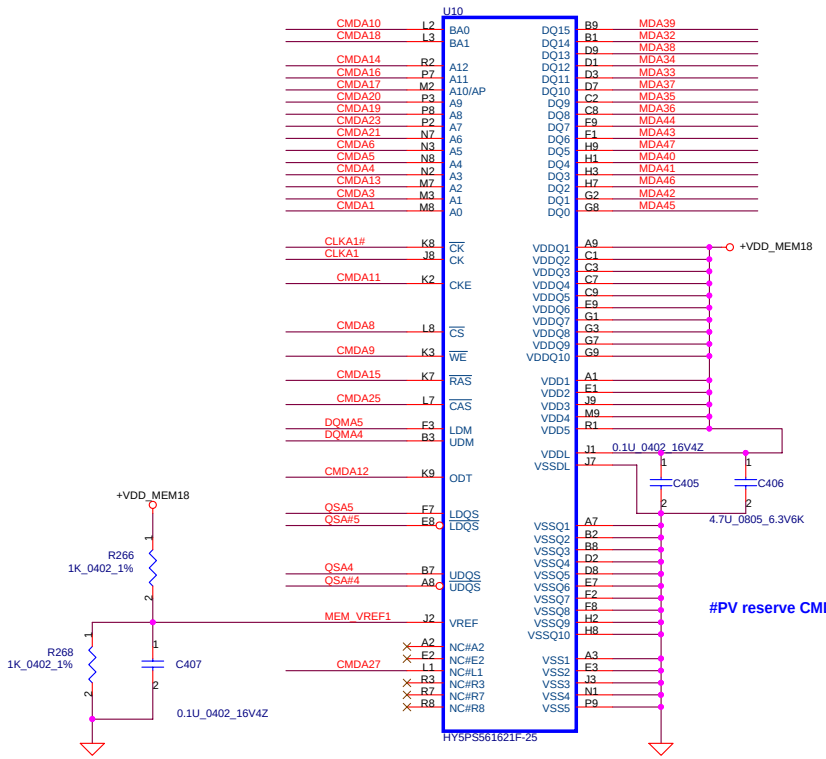
22,23 DQMA[7..0] — DQMA[7..0]

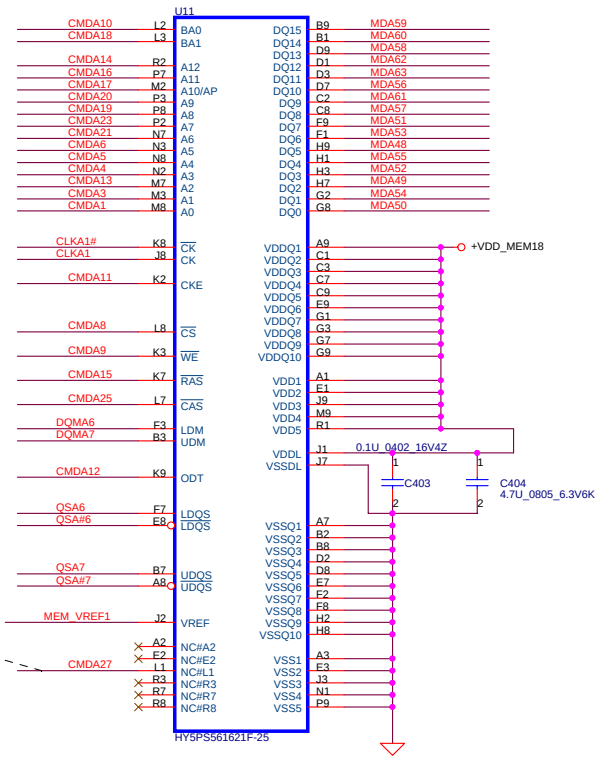
22,23 CMDA[30..0] — CMDA[30..0]

22,23 QSA#[7..0] — QSA#[7..0]

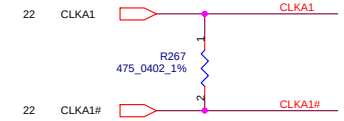
22,23 QSA[7..0] — QSA[7..0]

22,23 MDA[63..0] — MDA[63..0]

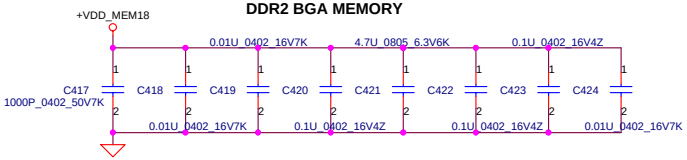




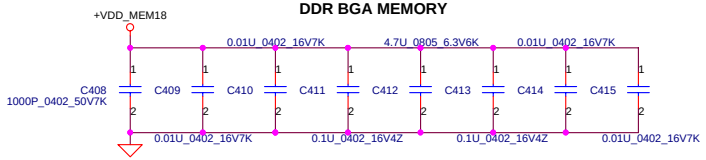
#PV reserve CMD27 to suport 64M x 16



DDR2 BGA MEMORY



DDR BGA MEMORY



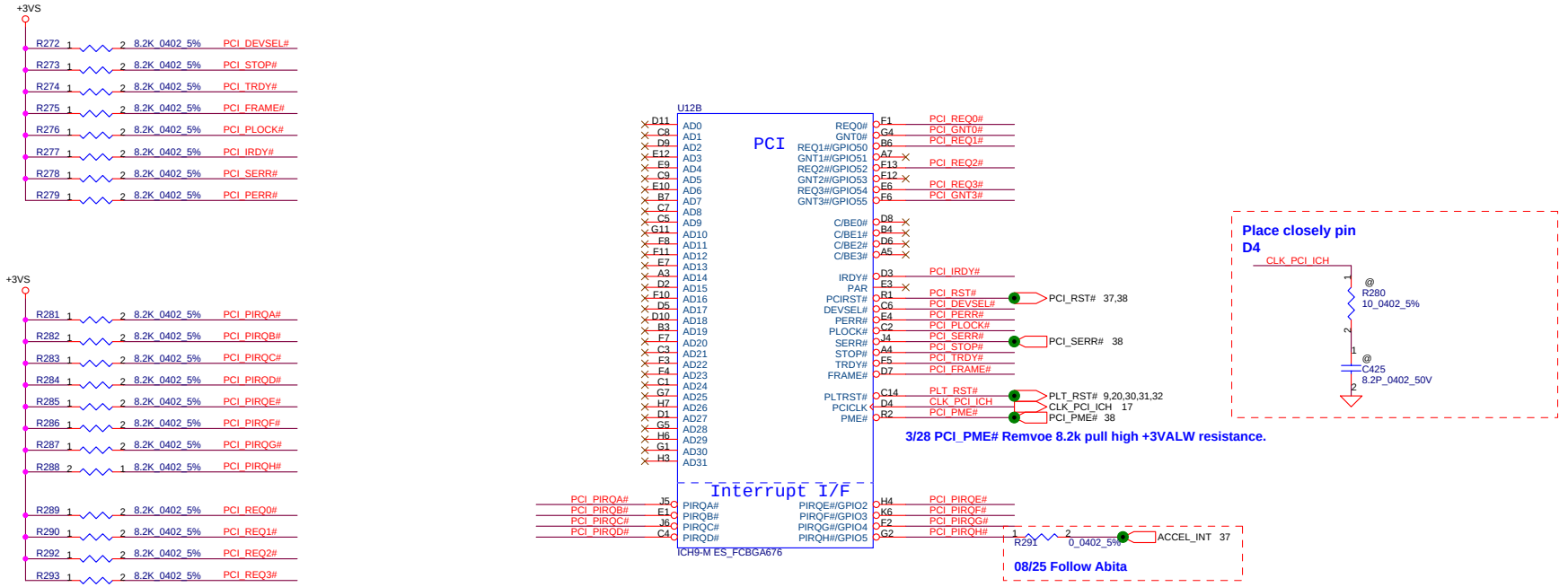
Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: LS-2821 ATI_M56-P VGA Board

Size | Document Number: CHANNEL A EXT. 256M_2 | Rev: 0.1

Date: Tuesday, April 29, 2008 | Sheet 8 of 16

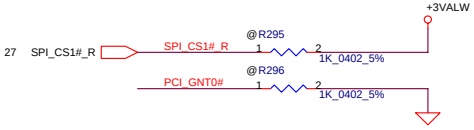


A16 swap override Strap

PCI_GNT3#	Low= A16 swap override Enble High= Default *

Boot BIOS Strap

PCI_GNT0#	SPI_CS#1	Boot BIOS Location
0	1	SPI
1	0	PCI
1	1	LPC *



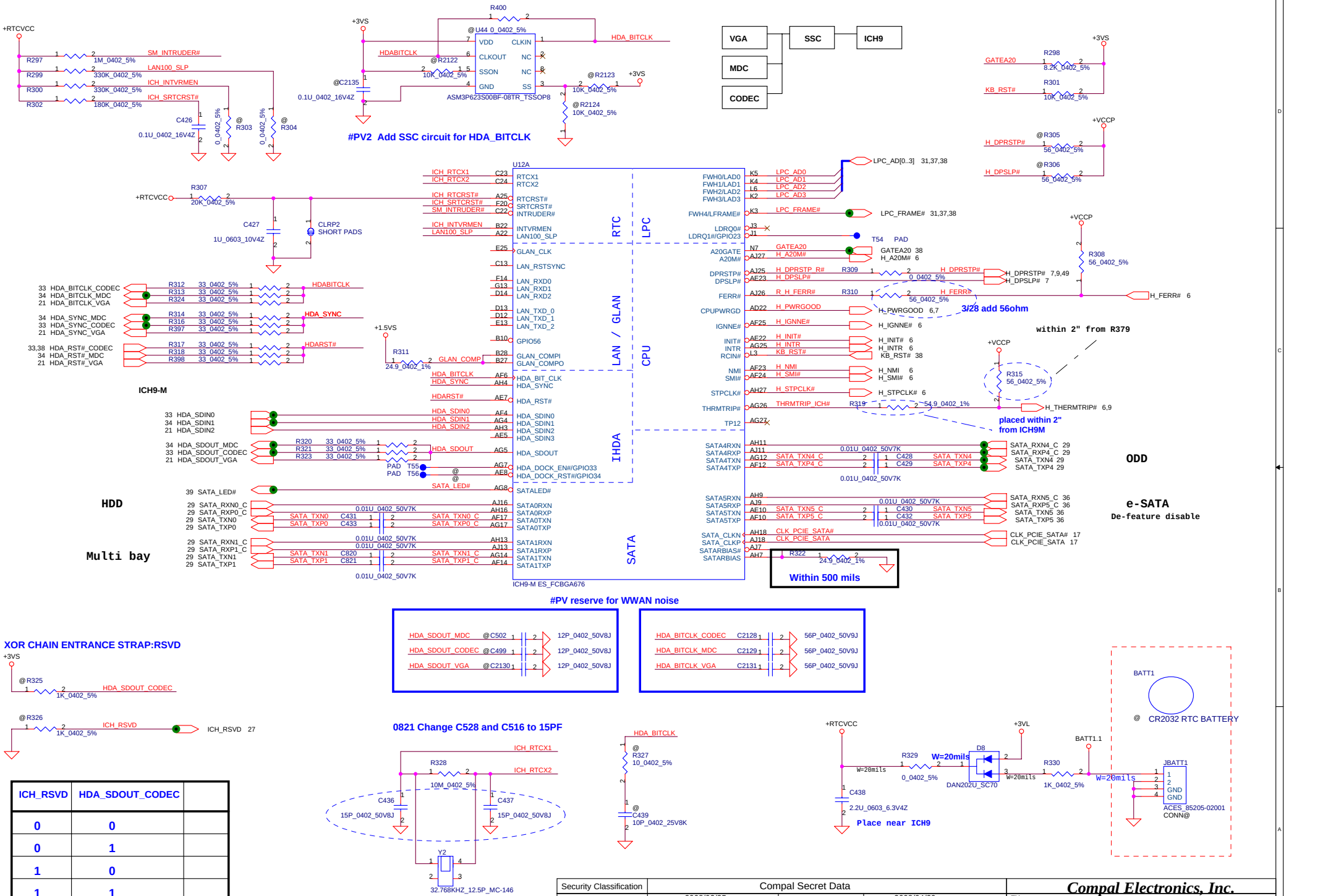
Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: ICH9(1/4)-PCI/INT

Size: Document Number: LA-4102P Blade discrete — Rev: 1.0

Date: Monday, May 12, 2008 — Sheet 25 of 54



ICH_RSVD	HDA_SDOUT_CODEC	
0	0	
0	1	
1	0	
1	1	

Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: ICH9(2/4)_LAN,HD,IDE,LPC

Size: Custom | Document Number: LA-4102P Blade discrete | Rev: 1.0

Date: Monday, May 12, 2008 | Sheet 26 of 54

#SI connect to EC

Place closely pin AF3

Place closely pin H1

#SI connect to 3VALW POWER_OK

#SI LAN DSM

R424
Low -->default
High -->No boot

TV Tuner/WWAN/Robeson

#PV PWROK sequence issue

WLAN

GLAN

Card reader

New Card

Board ID

17" High
14" Low
Dis" High
UMA" Low

#SI new card & LAN swap

Within 500 mils

Within 500 mils

USB-0 Right side
USB-1 Right side
USB-2 Left side(with ESATA)
USB-3 Dock
USB-4 Camera
USB-5 WLAN
USB-6 Bluetooth
USB-7 Finger Printer
USB-8 MiniCard(WWAN/TV)
USB-9 Express card

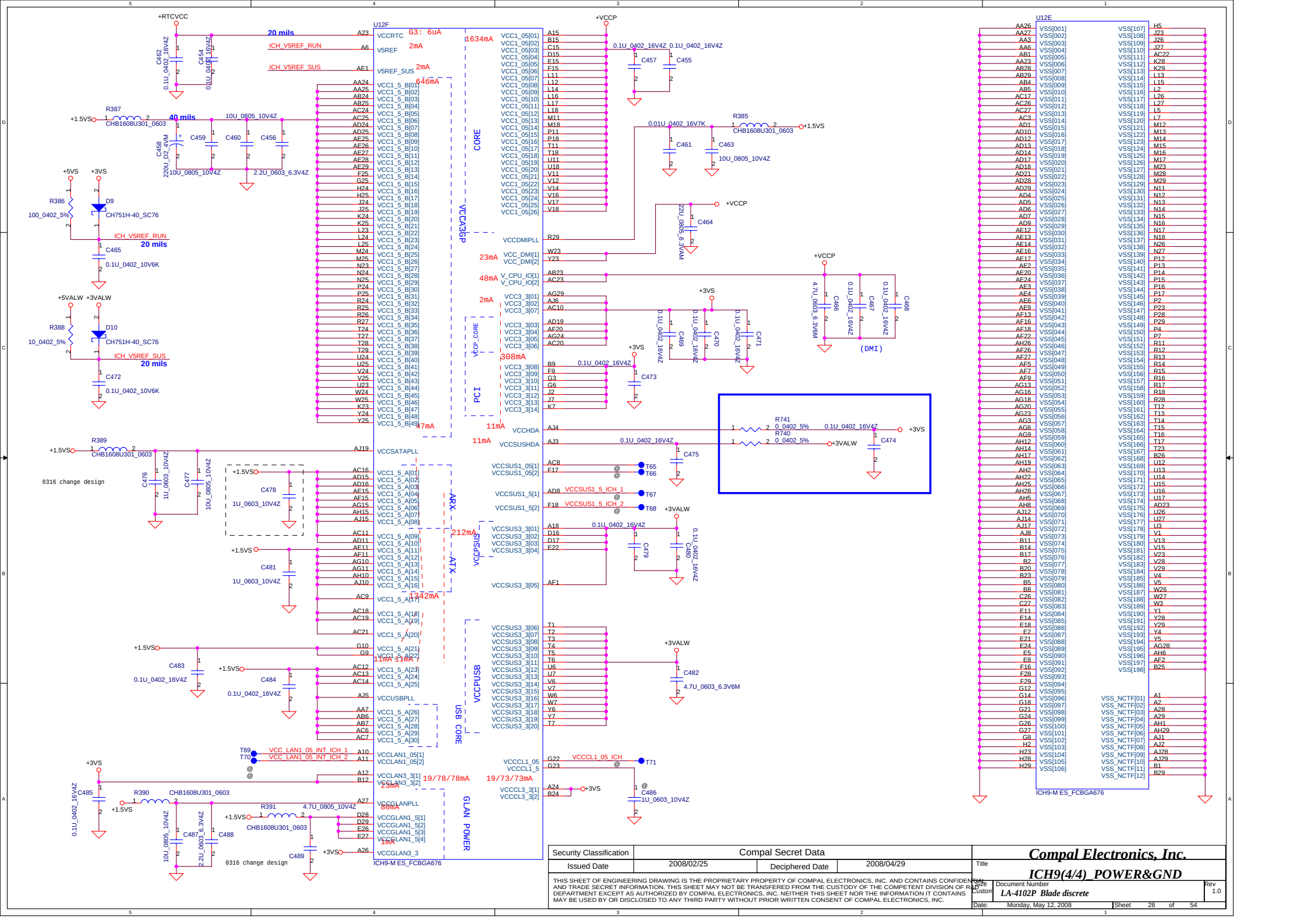
Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: ICH9(3/4)_DMI,USB,GPIO,PCIE

Size: Custom | Document Number: LA-4102P Blade discrete | Rev: 1.0

Date: Monday, May 12, 2008 | Sheet 27 of 54


U12F
ICH9-M ES_FCBGA676
U12E
ICH9-M ES_FCBGA676
CORE
VCCA3GP
PCI
VCP_CORE
ARX
ATX
VCCPSUS
VCCPUSB
USB CORE
GLAN POWER
(DMI)
0316 change design
0316 change design
Security Classification
Compal Secret Data
Issued Date
2008/02/25
Deciphered Date
2008/04/29
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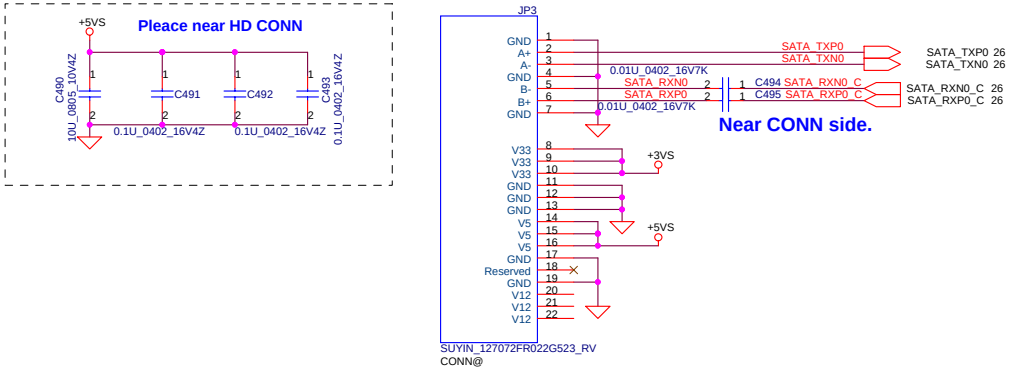
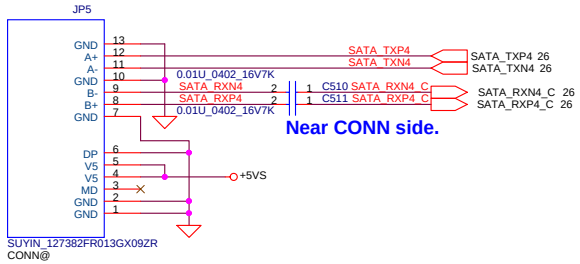
Compal Electronics, Inc.
Title
ICH9(4/4)_POWER&GND
Size
Custom
Document Number
LA-4102P Blade discrete
Rev
1.0
Date:
Monday, May 12, 2008
Sheet
28
of
54

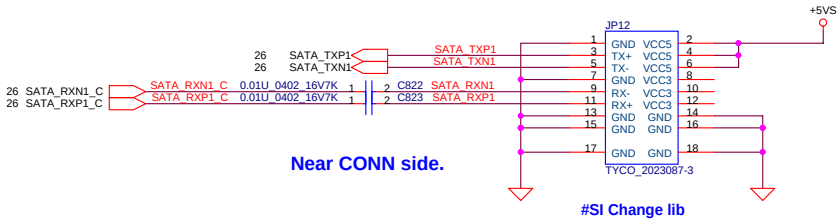
HDD Connector

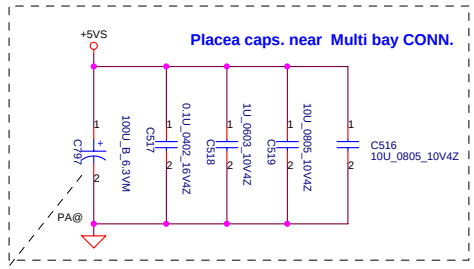


CD-ROM Connector



Multi Bay Connector





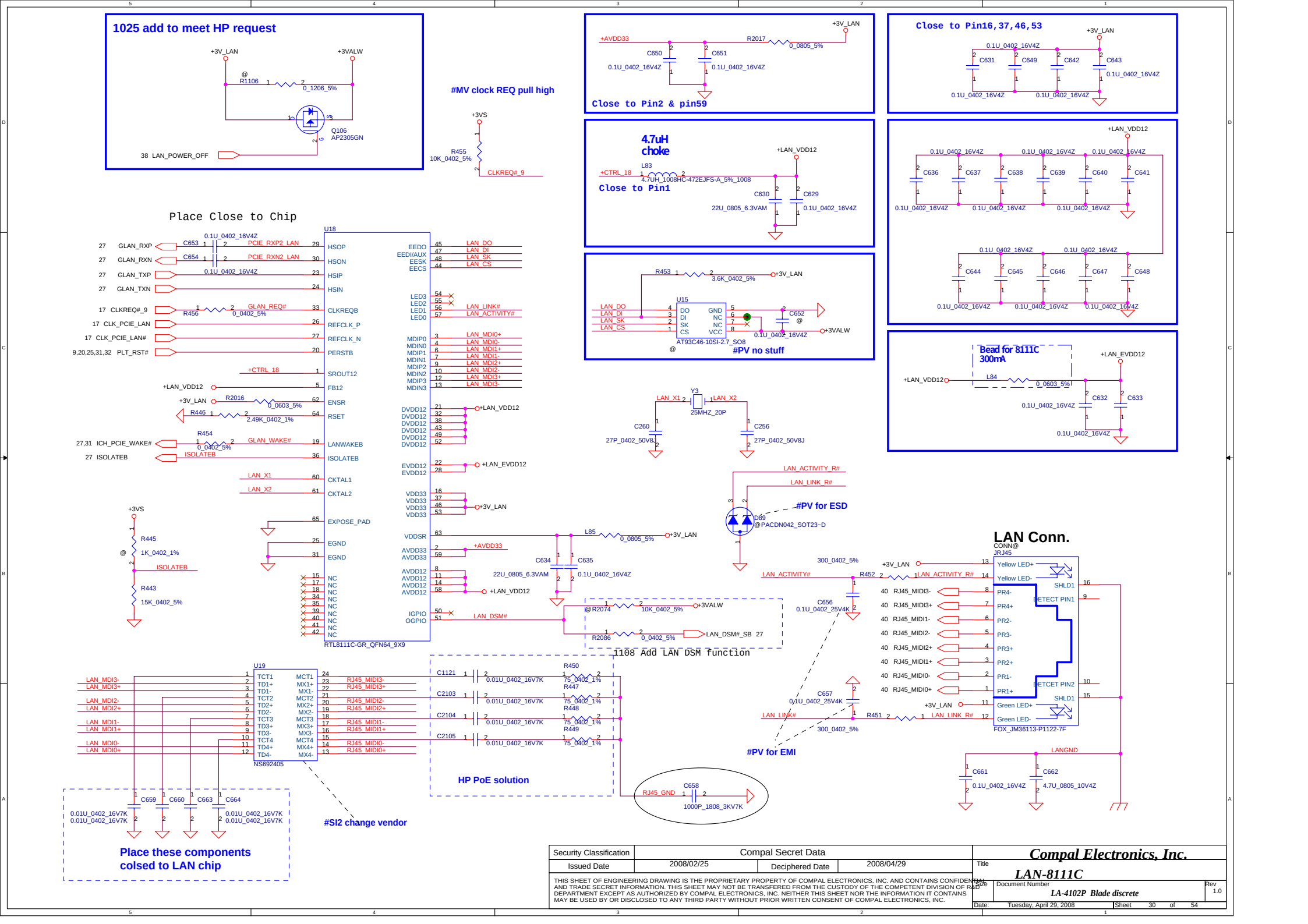
Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: **HDD & CDROM**

Size: Custom | Document Number: *LA-4102P Blade discrete* | Rev: 1.0

Date: Friday, May 09, 2008 | Sheet 29 of 54



Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

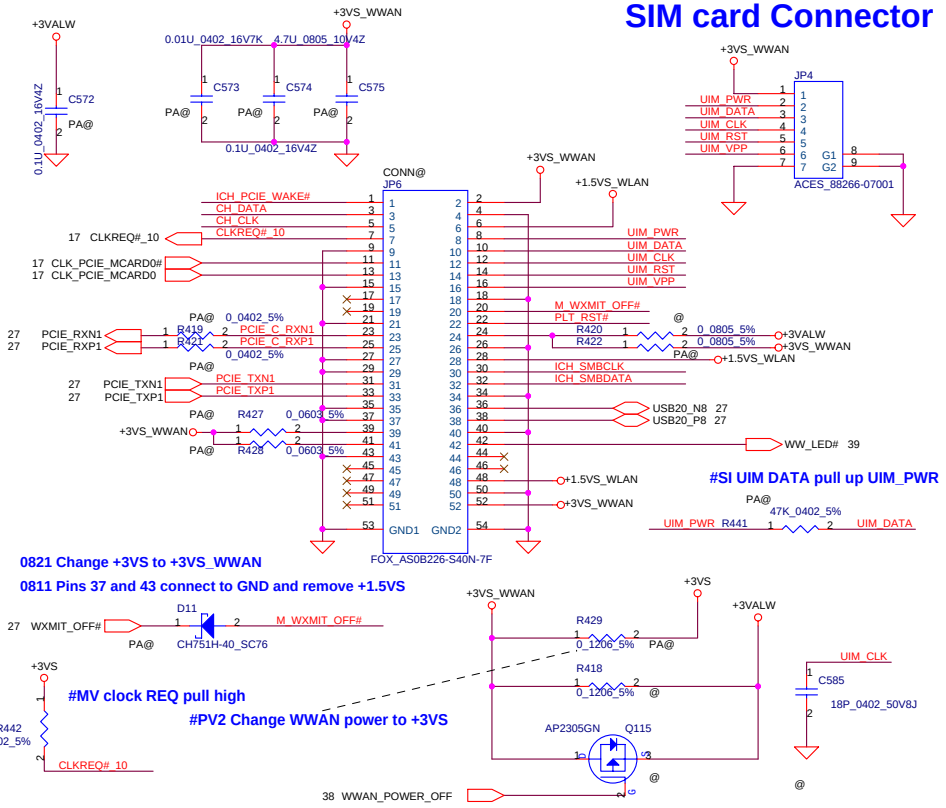
Title: LAN-8111C

Size | Document Number: LA-4102P Blade discrete | Rev: 1.0

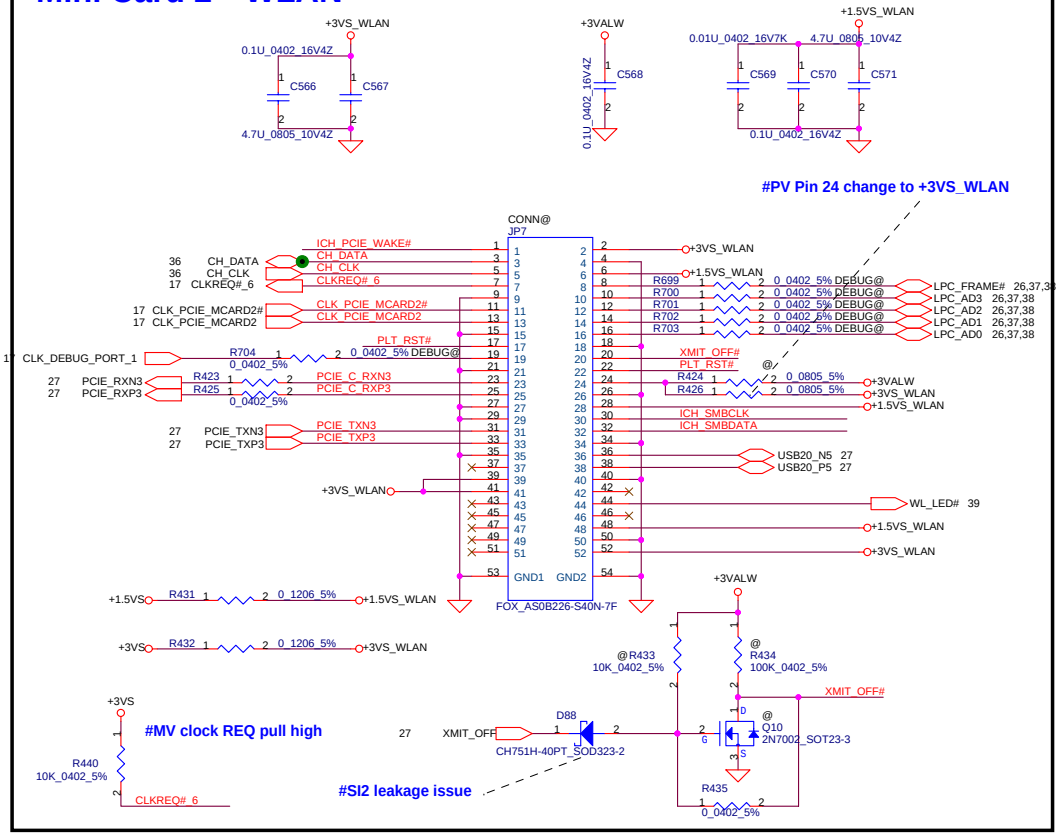
Date: Tuesday, April 29, 2008 | Sheet 30 of 54

Mini Card 0--TV tuner/WWAN/Robson

SIM card Connector

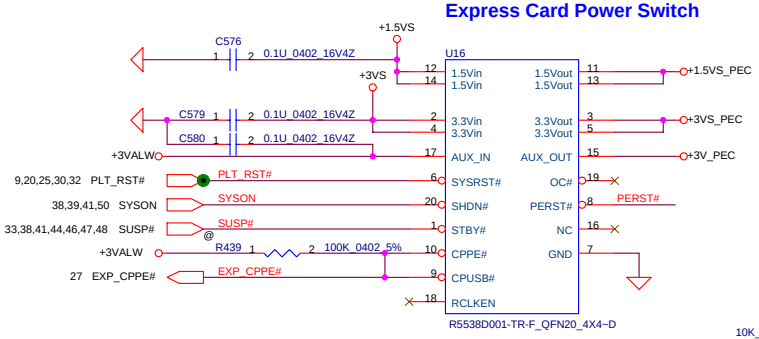


Mini Card 2---WLAN

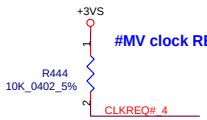


New Card

Express Card Power Switch

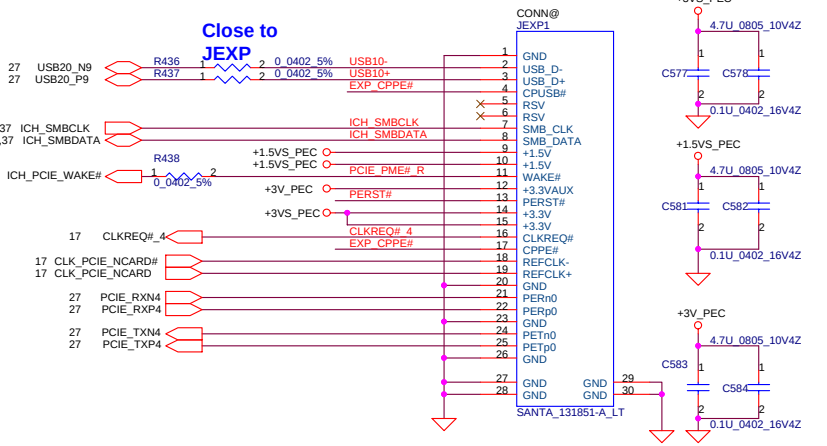


internal pull high to 3.3Vaux-in
EC need setting at Hi-Z & output Low



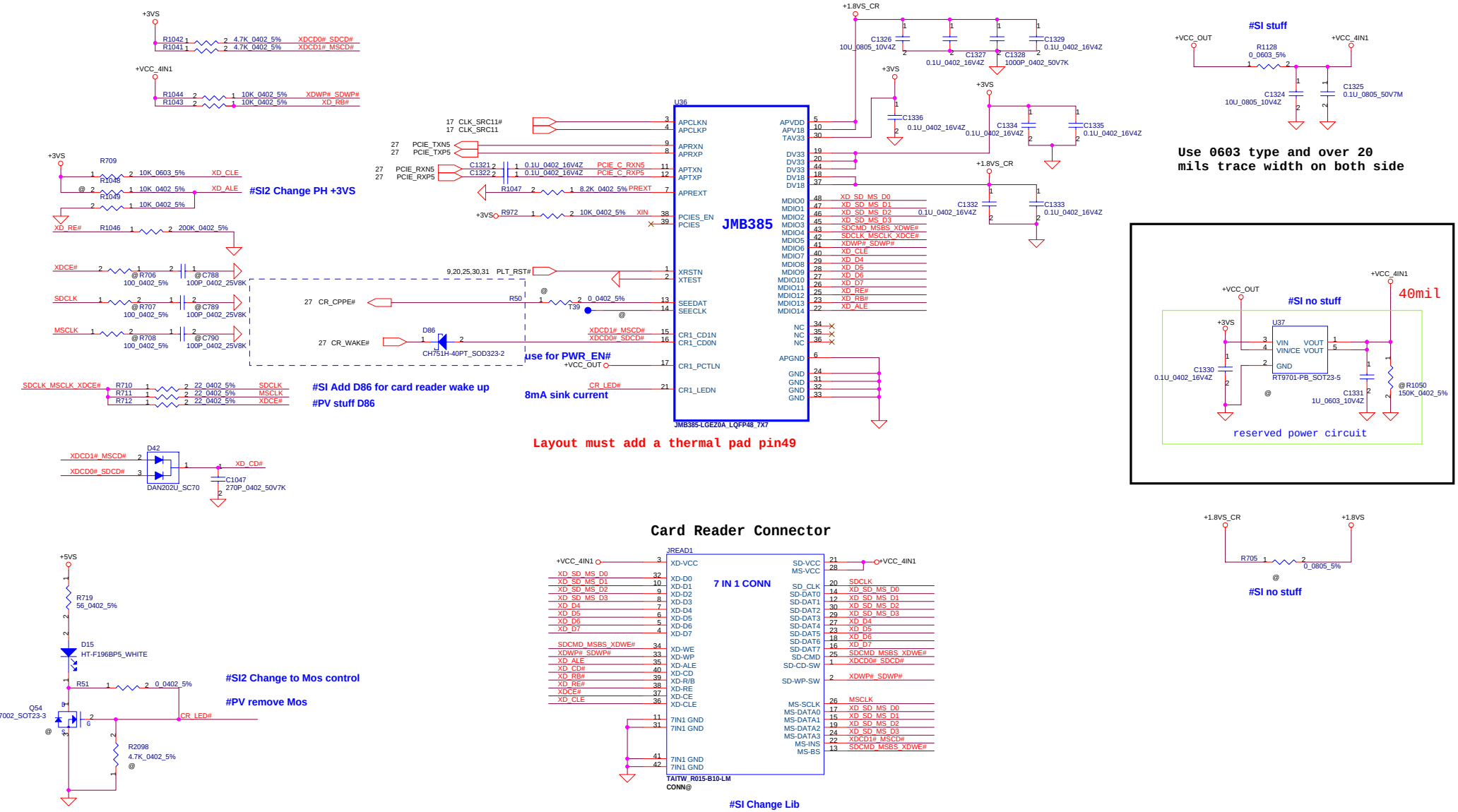
Close to JEXP

Near to Express Card slot.



Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.	
Title	WLAN, WWAN, New Card
Size	Document Number: LA-4102P Blade discrete
Rev	1.0
Date: Monday, May 12, 2008	Sheet 31 of 54



Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

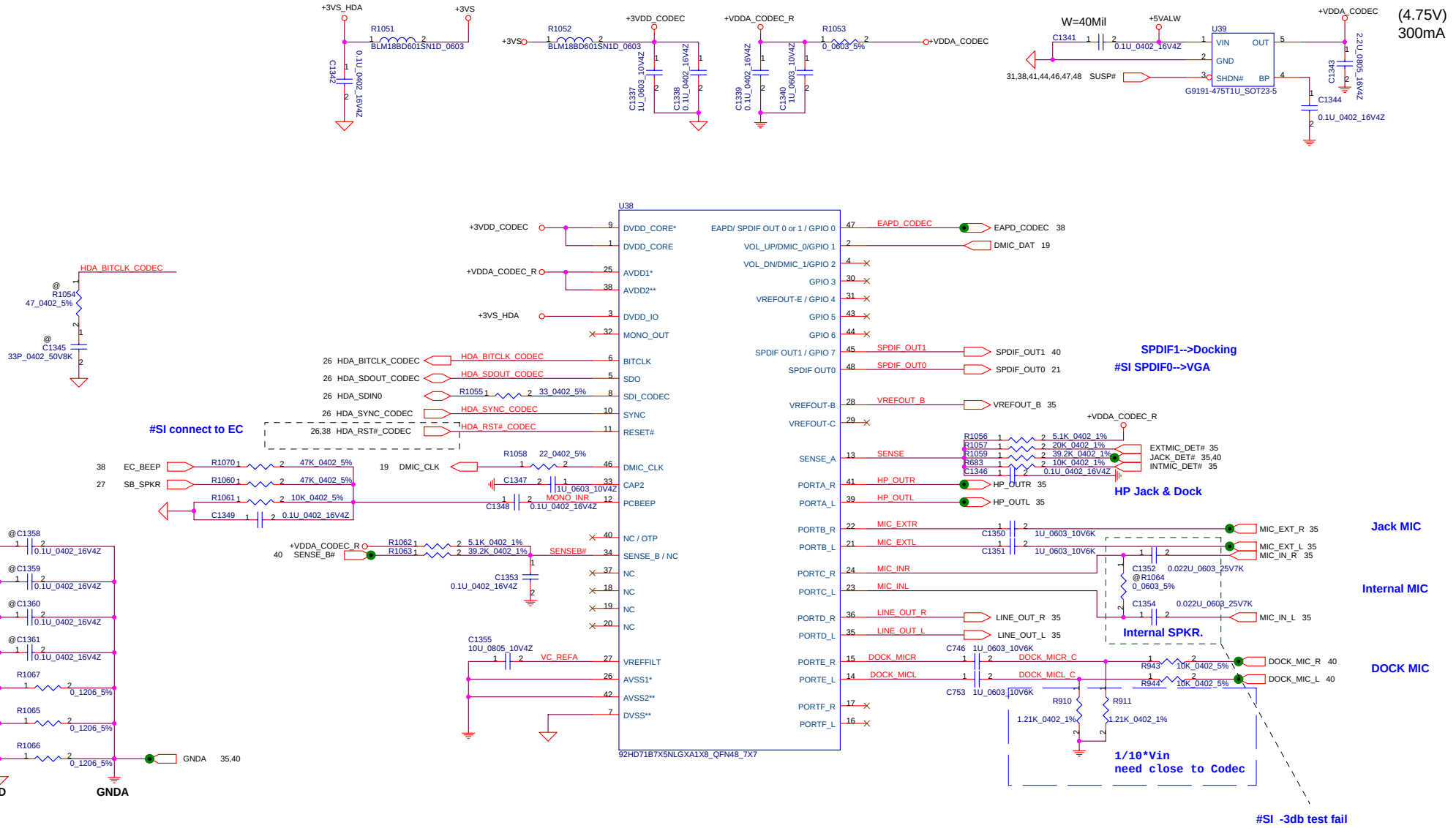
Title: **USB CardReader&CONN**

Size	Document Number	Rev
Custom	LA-4102P Blade discrete	1.0

Date: Tuesday, April 29, 2008 | Sheet 32 of 54

CODEC POWER

(4.75V)
300mA

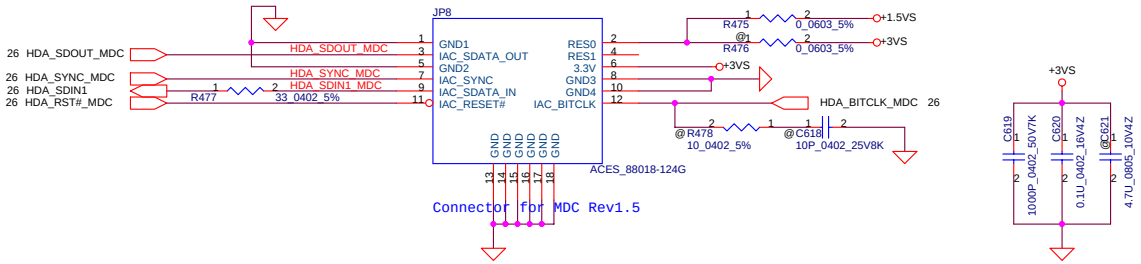


SENSE A		SENSE B	
Port	Resistor	Port	Resistor
A	39.2K	E	39.2K
B	20K	F	20K
C	10K	G	10K
D	5.11K	H	5.11K

Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Title	Codec_IDT9271B7		
Size: Custom	Document Number: LA-4102P Blade discrete		Rev: 1.0
Date: Tuesday, April 29, 2008	Sheet 33 of 54		

MDC 1.5 Conn.



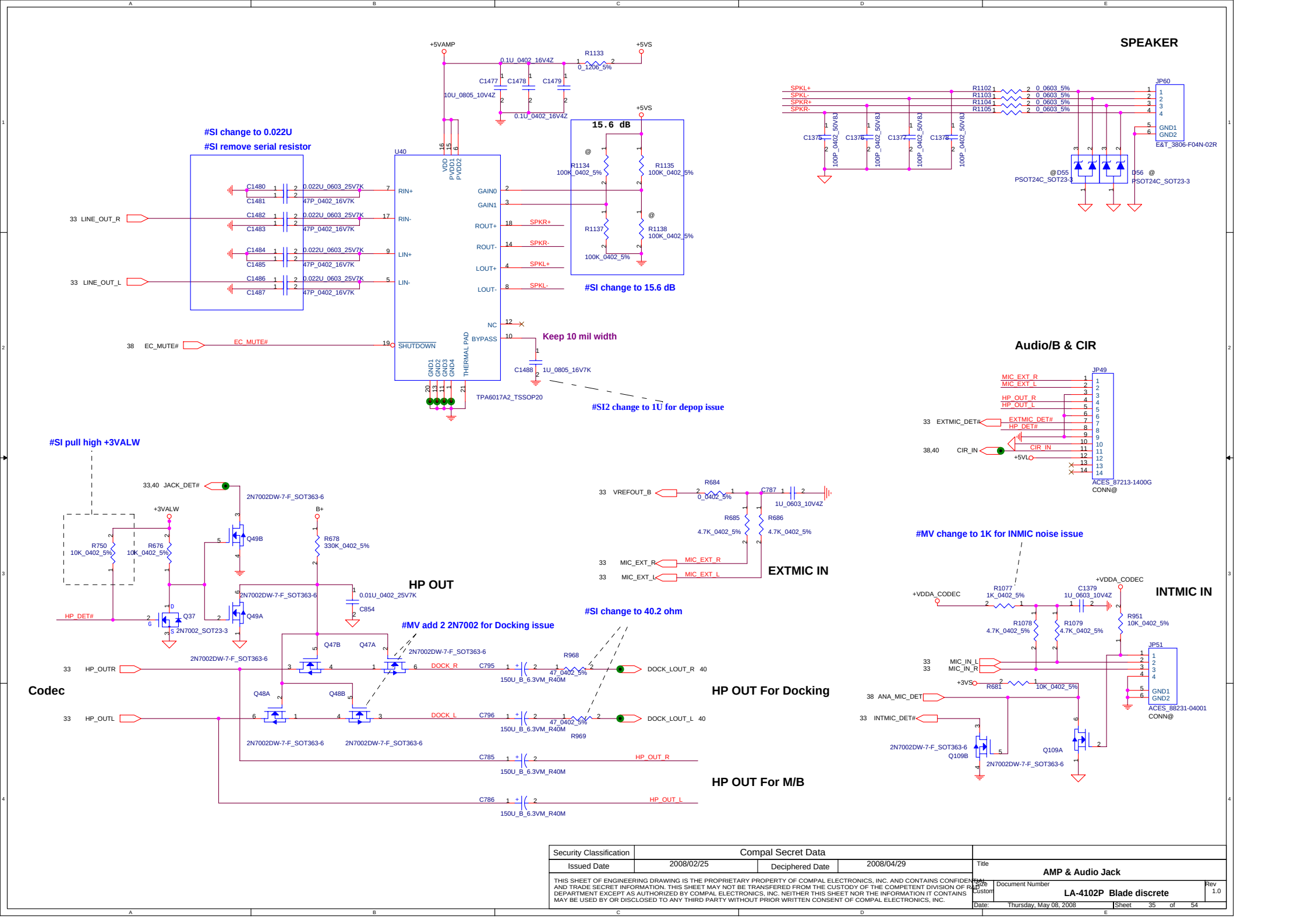
Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: **MDC 1.5 & Robson**

Size: | Document Number: ***LA-4102P Blade discrete*** | Rev: 1.0

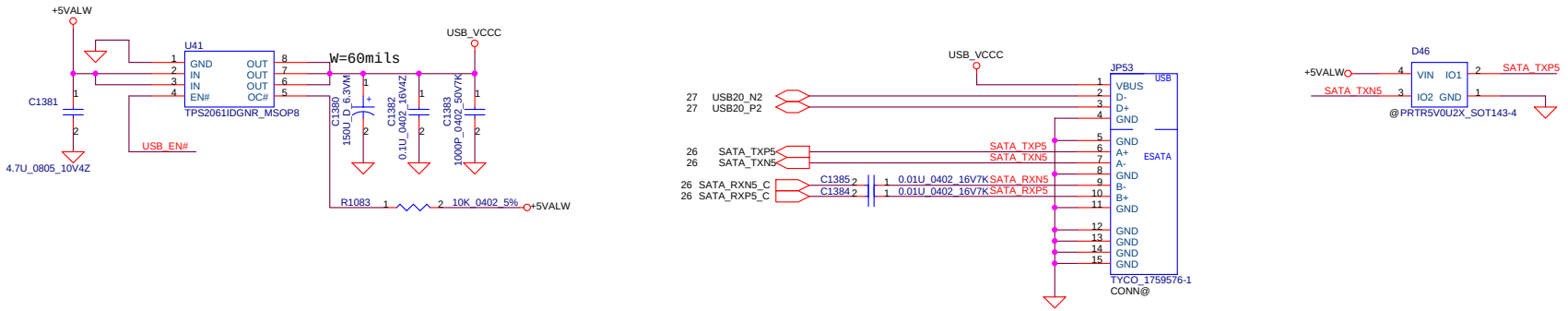
Date: Tuesday, April 29, 2008 | Sheet 34 of 54



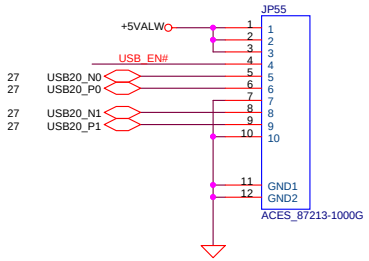
Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Title	AMP & Audio Jack		
Size: Custom	Document Number: LA-4102P Blade discrete		Rev: 1.0
Date: Thursday, May 08, 2008	Sheet 35 of 54		

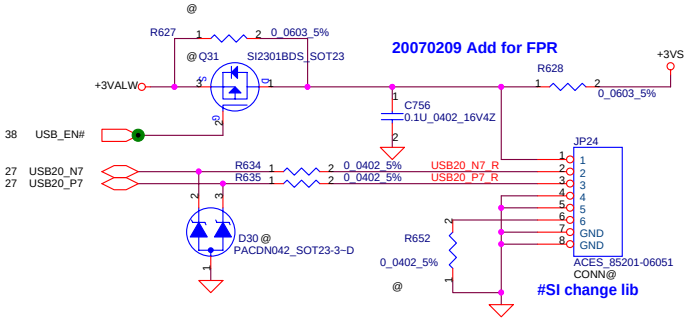
Left side ESATA/USB combination Connector



USB cable connector for Right side

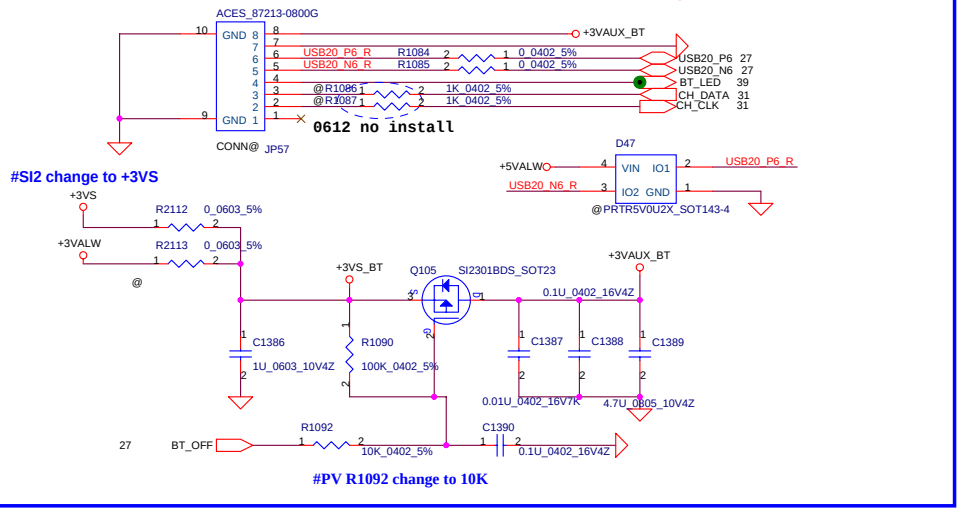


Finger printer



BT Connector

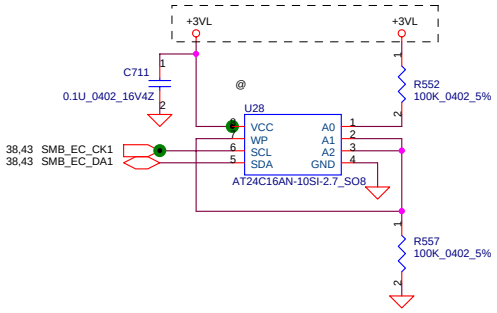
Need change to New version



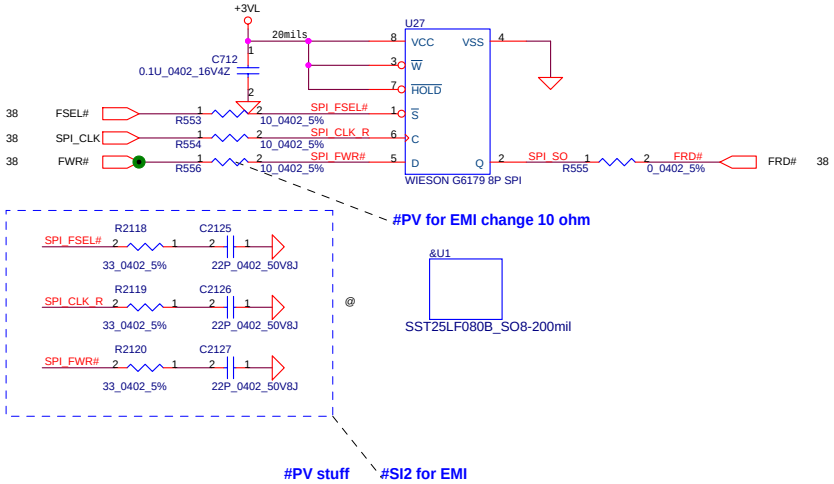
Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.			
Title: USB, BT, eSATA			
Size	Document Number: LA-4102P Blade discrete		Rev: 1.0
Date: Tuesday, April 29, 2008	Sheet 36 of 54		

#SI change to +3VALW

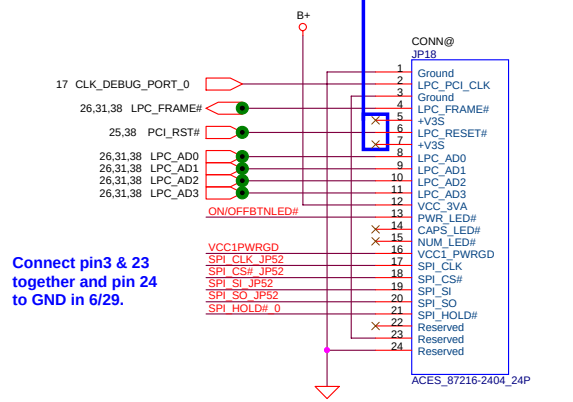


SPI ROM

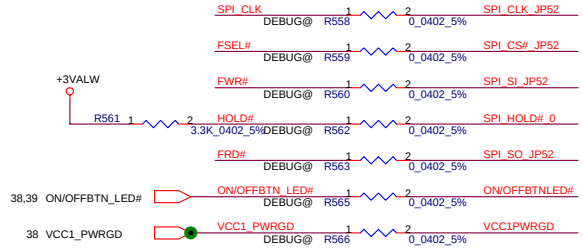


LPC Debug Port

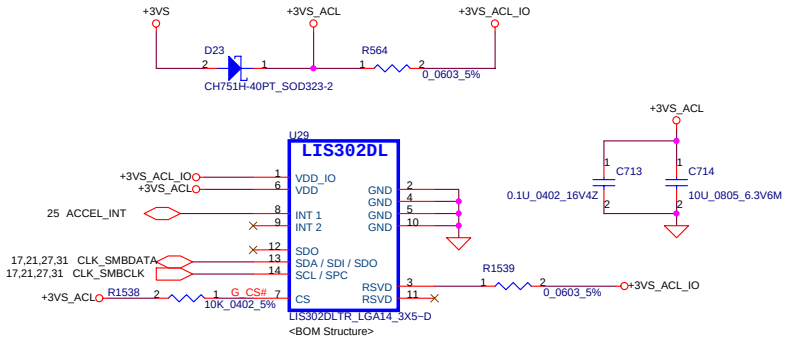
Change from +3VL to +3VS. 6/9
Removed +3VS. 6/13



Connect pin3 & 23 together and pin 24 to GND in 6/29.



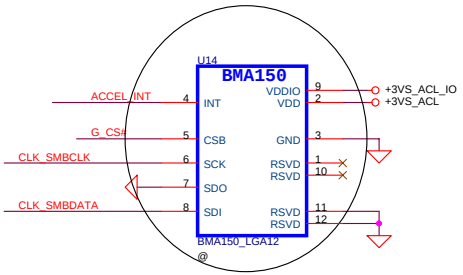
Acceleromter-1



Must be placed in the center of the system.

Acceleromter-2

U29 & U14 must be close



#SI co-lay MMA150

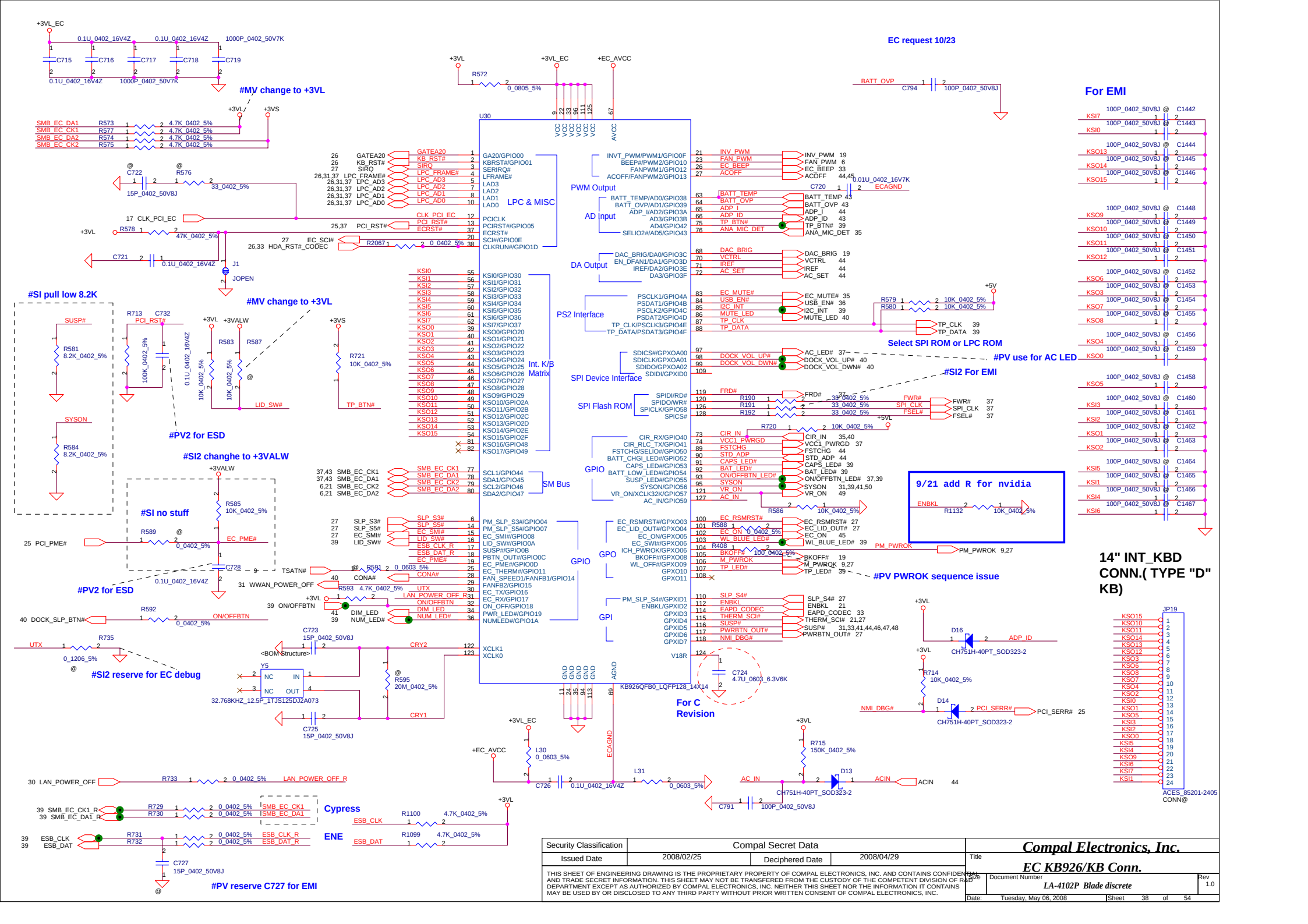
Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: BIOS ROM

Size | Document Number: LA-4102P Blade discrete | Rev: 1.0

Date: Tuesday, April 29, 2008 | Sheet 37 of 54



Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

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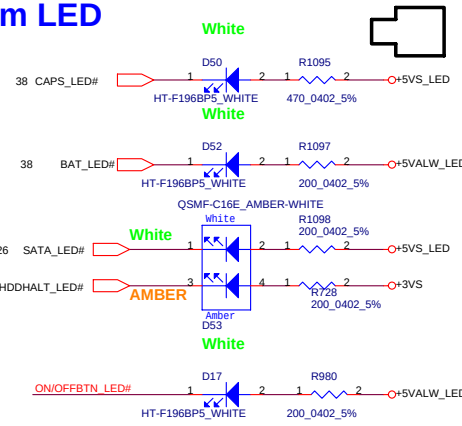
Compal Electronics, Inc.

Title: **EC KB926/KB Conn.**

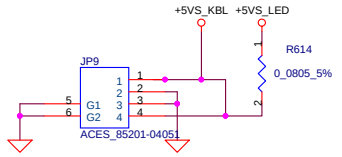
Size: | Document Number: *LA-4102P Blade discrete* | Rev: 1.0

Date: Tuesday, May 06, 2008 | Sheet 38 of 54

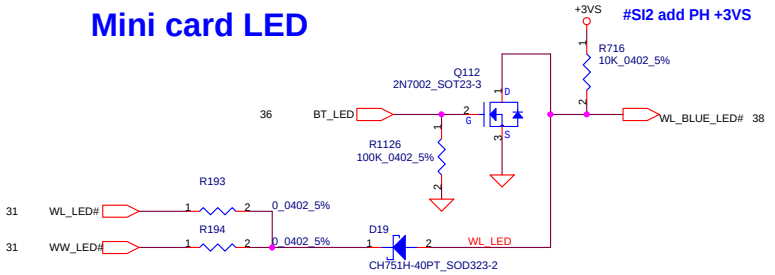
System LED



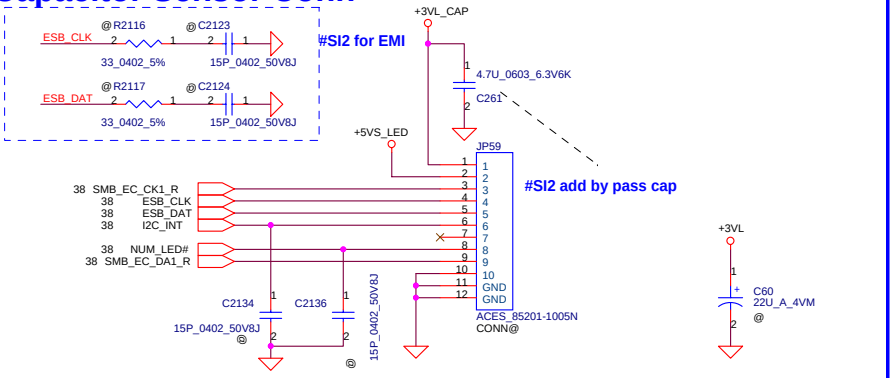
Keyboard backlight Conn



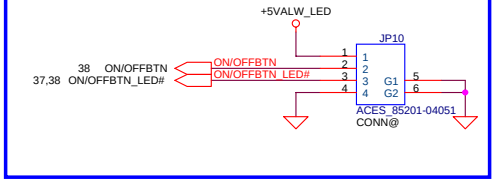
Mini card LED



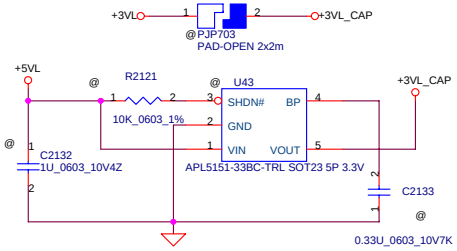
Capacitor Sensor Conn



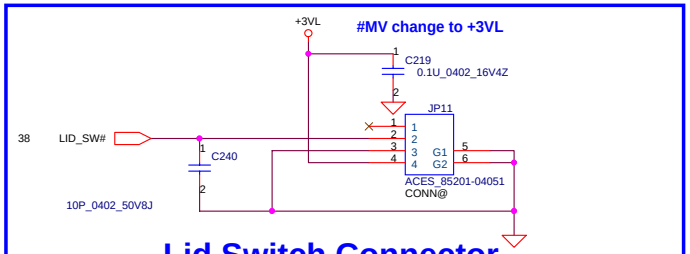
ON/OFF Button Connector



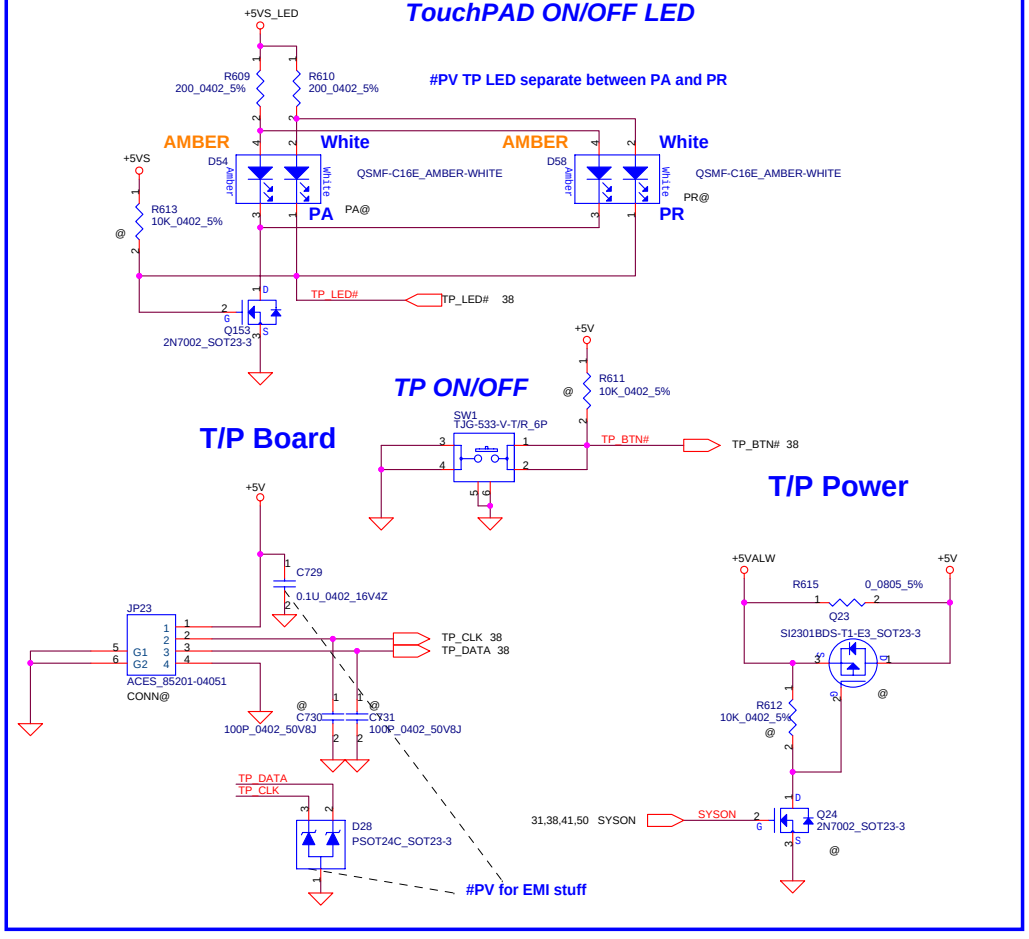
#PV reserve LDO for capacitor sensor board



Lid Switch Connector



TouchPAD ON/OFF LED

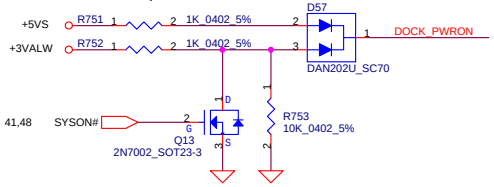


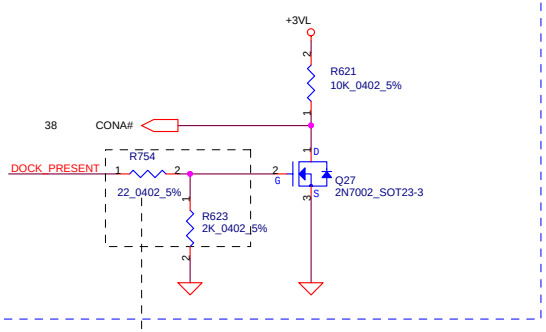
Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Title	Compal Electronics, Inc.		
	LED, TP,KBL,Cab sensor boar		
Size	Document Number		Rev
	LA-4102P Blade discrete		1.0
Date:	Monday, May 12, 2008	Sheet	39 of 54

Atlas/ Saturn Dock

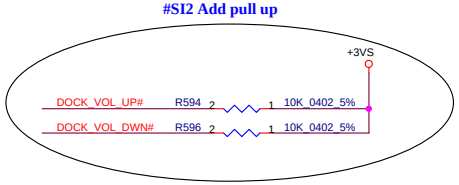
DOCK_PWR_ON Spec
0V = Notebook S4/S5, Dock off
2.5V = Notebook S3, Dock on
4V = Notebook S0, Dock on

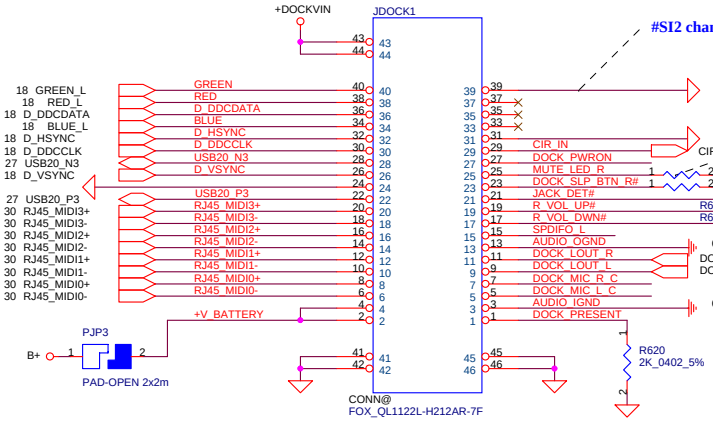




#SI2 change to 22 ohm

#SI2 Add pull up

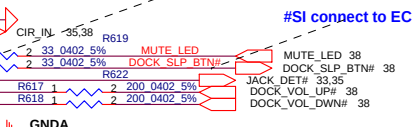




#SI2 change ping 31,39,22 connect to GND

#PV reserve resistor

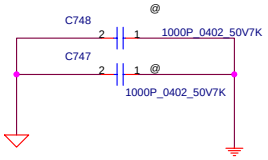
#SI connect to EC

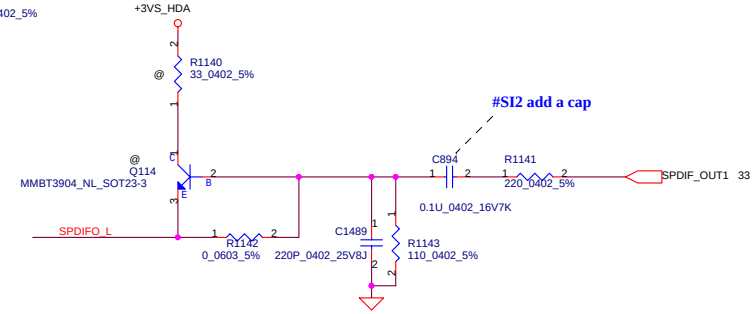


GNDA
DOCK_LOUT_R 35
DOCK_LOUT_L 35

GNDA **#SI connect to GNDA**

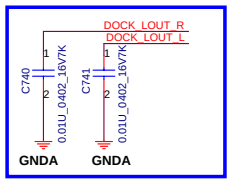
need change to reverse type connector

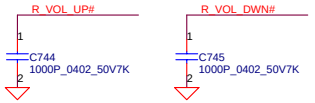


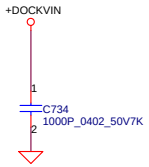


#SI2 add a cap

11/17 update

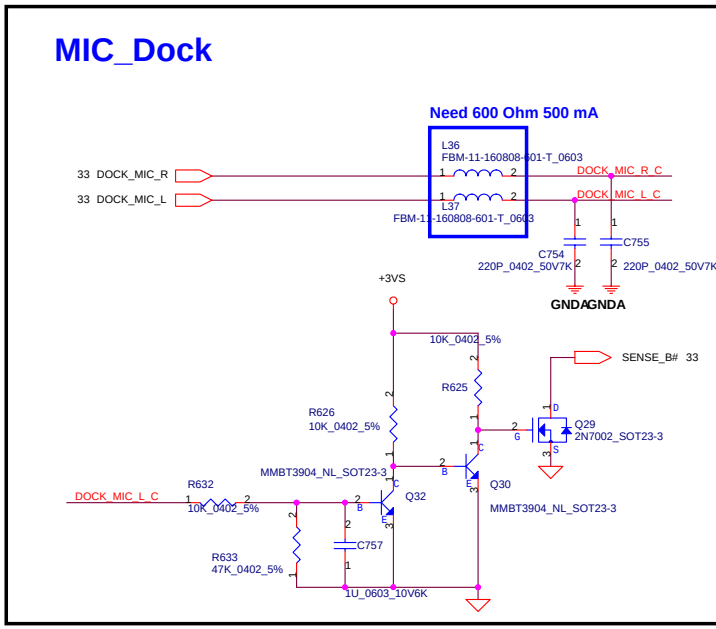






MIC_Dock

Need 600 Ohm 500 mA



Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

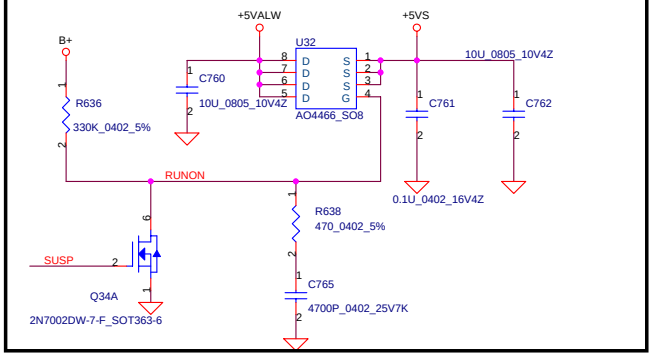
Compal Electronics, Inc.

Title: **DOCK CONN.**

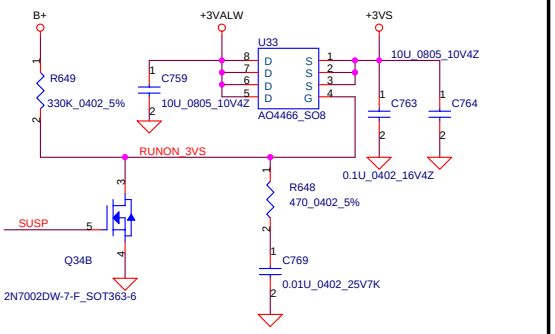
Size	Document Number	Rev
Custom	LA-4102P Blade discrete	1.0

Date: Tuesday, April 29, 2008 Sheet 40 of 54

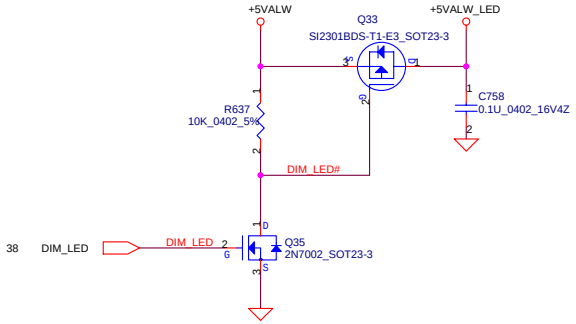
+5VALW to +5VS Transfer



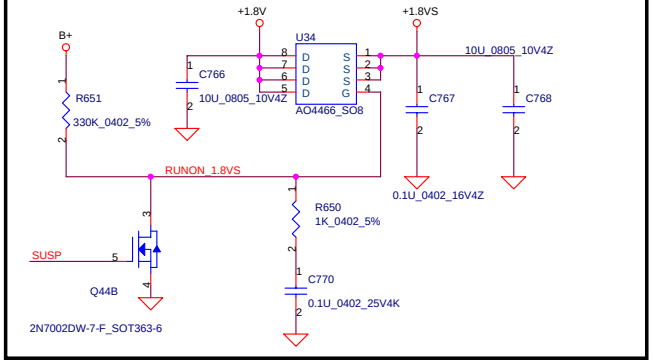
+3VALW to +3VS Transfer

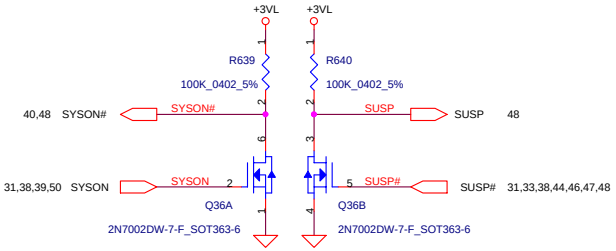


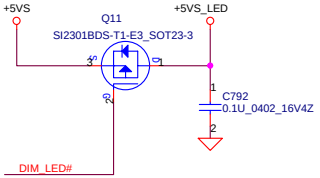
DIM LED



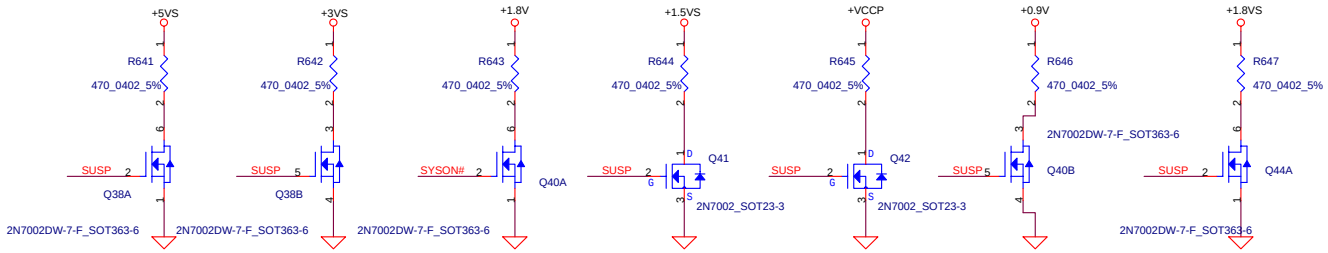
+1.8V to +1.8VS Transfer

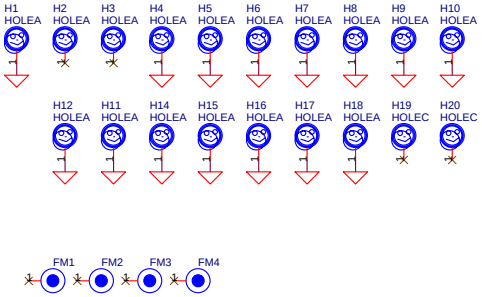






Discharge circuit





Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Title	*Compal Electronics, Inc.*		
	DC/DC Interface		
Size	Document Number		Rev
	LA-4102P Blade discrete		1.0
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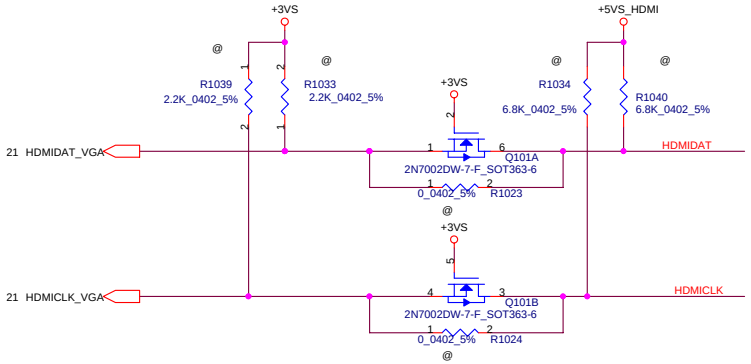
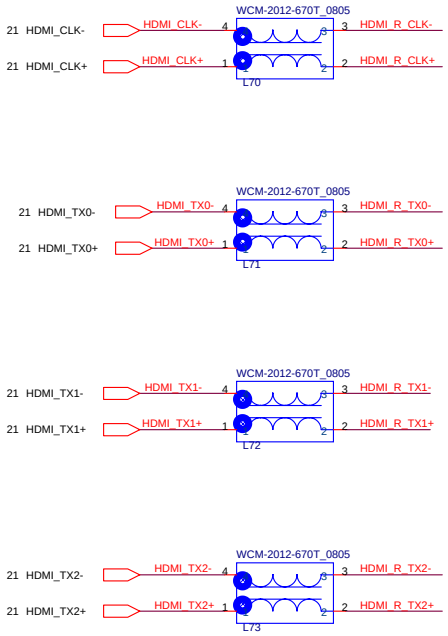




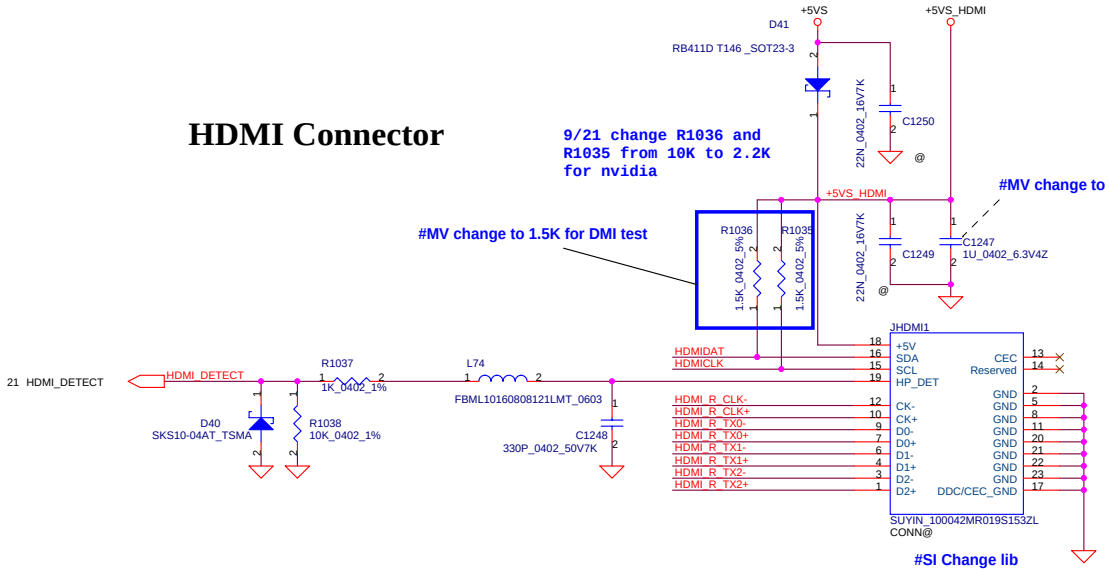
HDMI Connector

#PV reserve C1250,C1249 for EMI

9/21 change R1036 and R1035 from 10K to 2.2K for nvidia

#MV change to 1.5K for DMI test

#MV change to 1U for DMI test



#SI Change lib

Security Classification	Compal Secret Data		
Issued Date	2008/02/25	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: **HDMI LS & Conn.**

Size: Custom | Document Number: **LA-4102P Blade discrete** | Rev: 1.0

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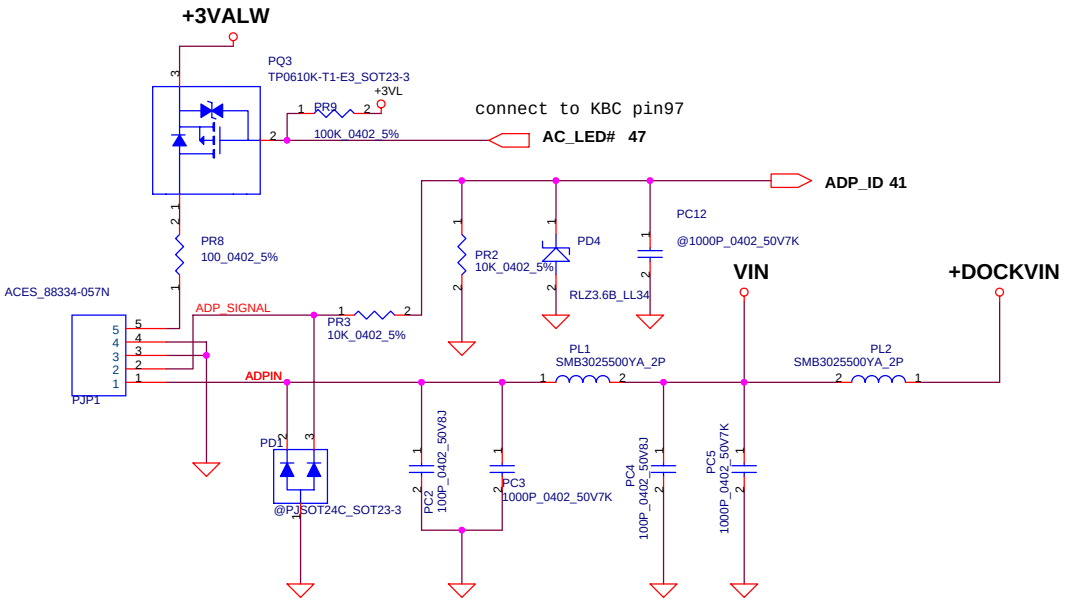
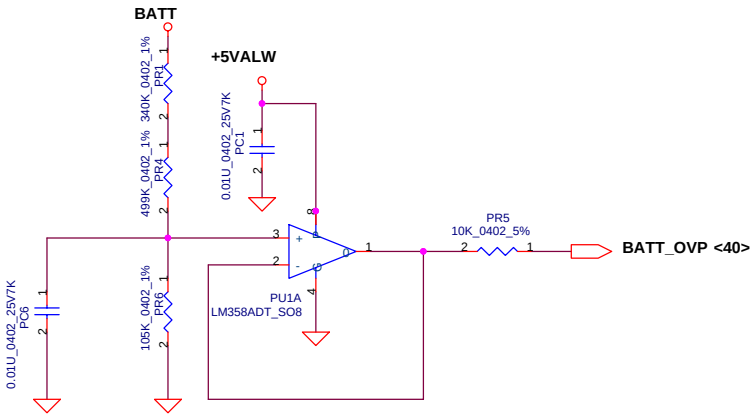
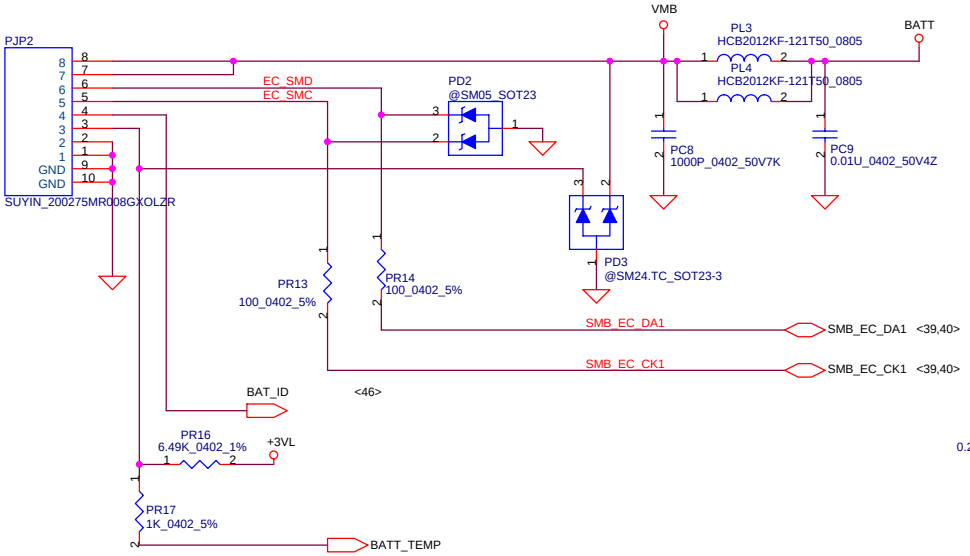
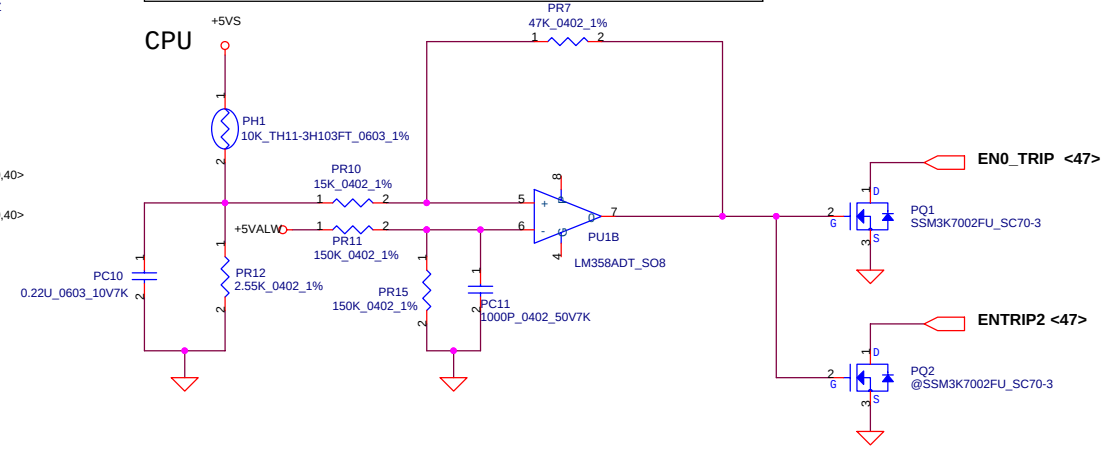






PH1 under CPU botten side :
CPU thermal protection at 90 +-3 degree C
Recovery at 47 +-3 degree C



Security Classification	Compal Secret Data		
Issued Date	2007/05/29	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: **DC Connector/CPU_OTP**

Size	Document Number	Rev
	LA-4102P Blade discrete	1.0

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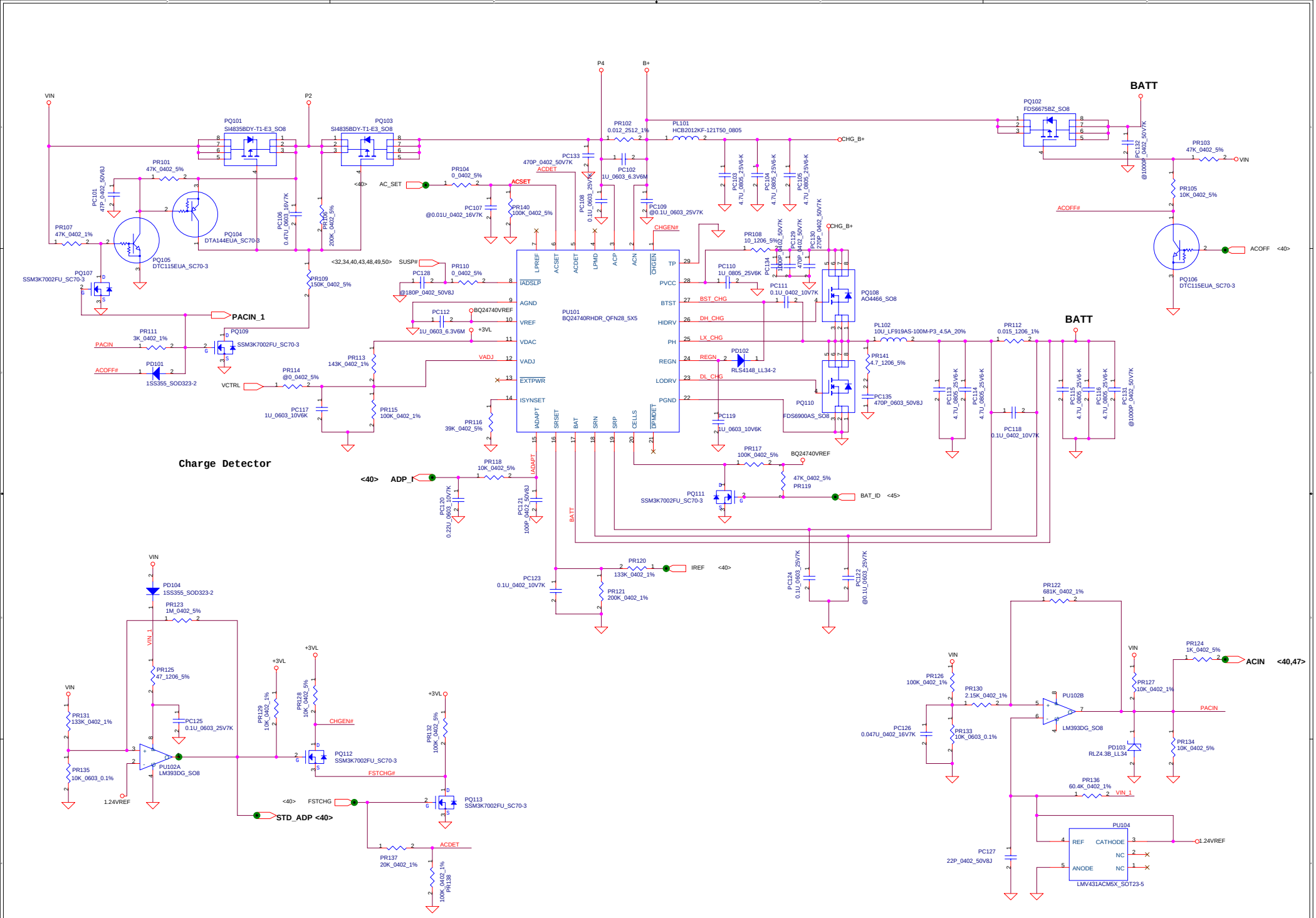

Security Classification	Compal Secret Data		
Issued Date	2007/05/29	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: **Charger**

Size	Document Number	Rev
	LA-4102P Blade discrete	1.0

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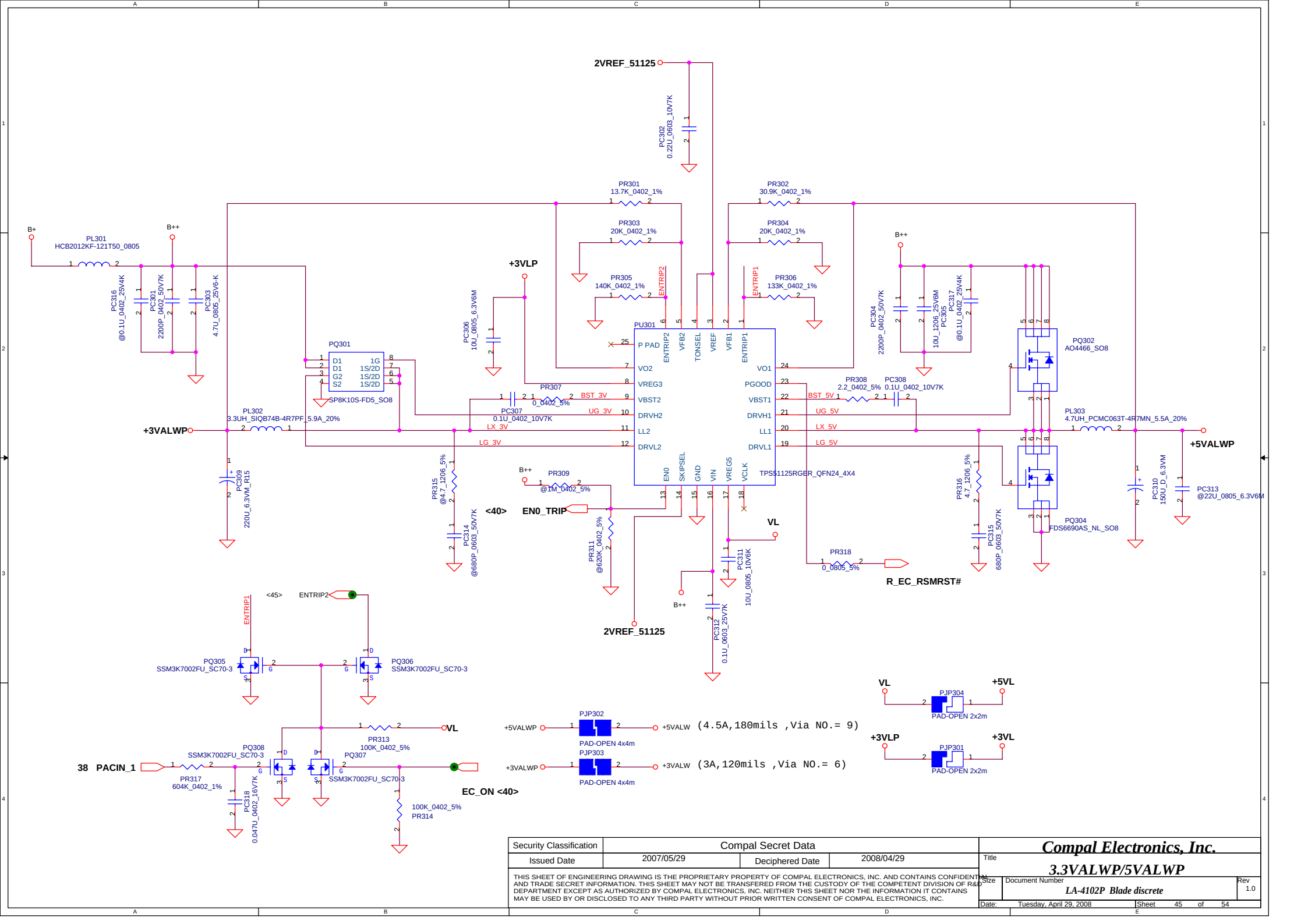
Tuesday, April 29, 2008	44	54



Security Classification	Compal Secret Data		
Issued Date	2007/05/29	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: **3.3VALWP/5VALWP**

Size	Document Number	Rev
	LA-4102P Blade discrete	1.0

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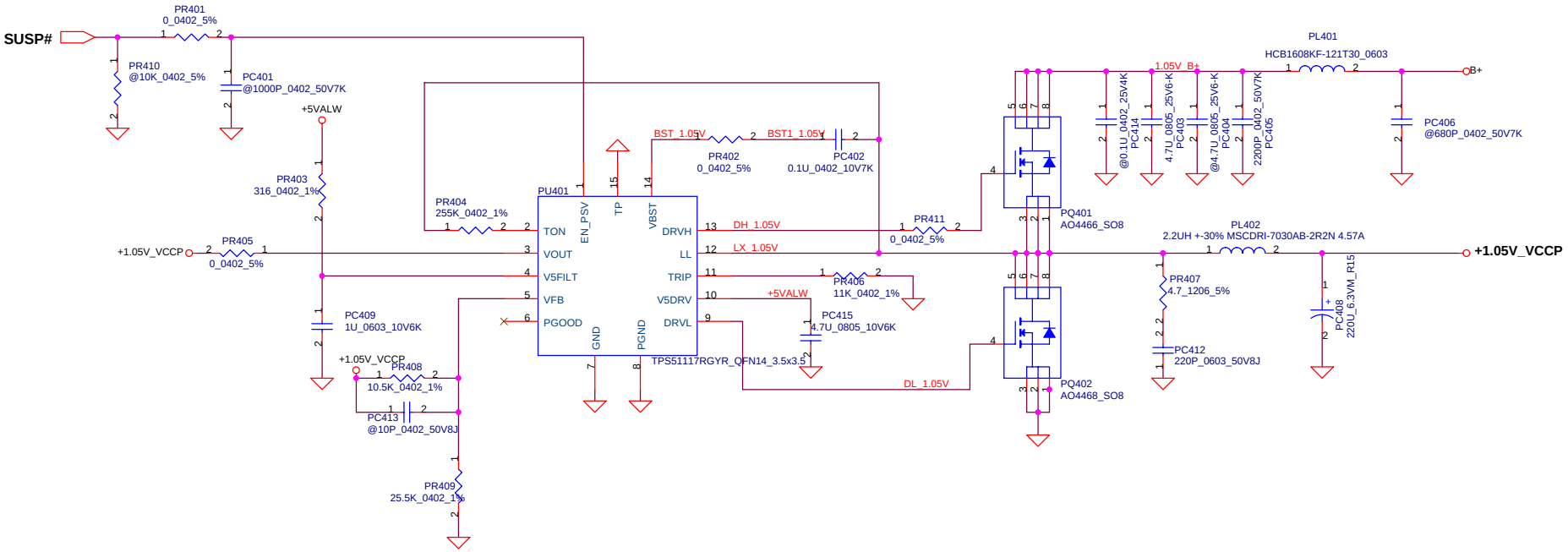

PJP401 +1.05V_VCCP 1 2 +VCCP (6A,240mils ,Via NO.=12)
PAD-OPEN 4x4m

Security Classification	Compal Secret Data		
Issued Date	2007/05/29	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: *1.05V_VCCP*

Size | Document Number: *LA-4102P Blade discrete* | Rev: 1.0

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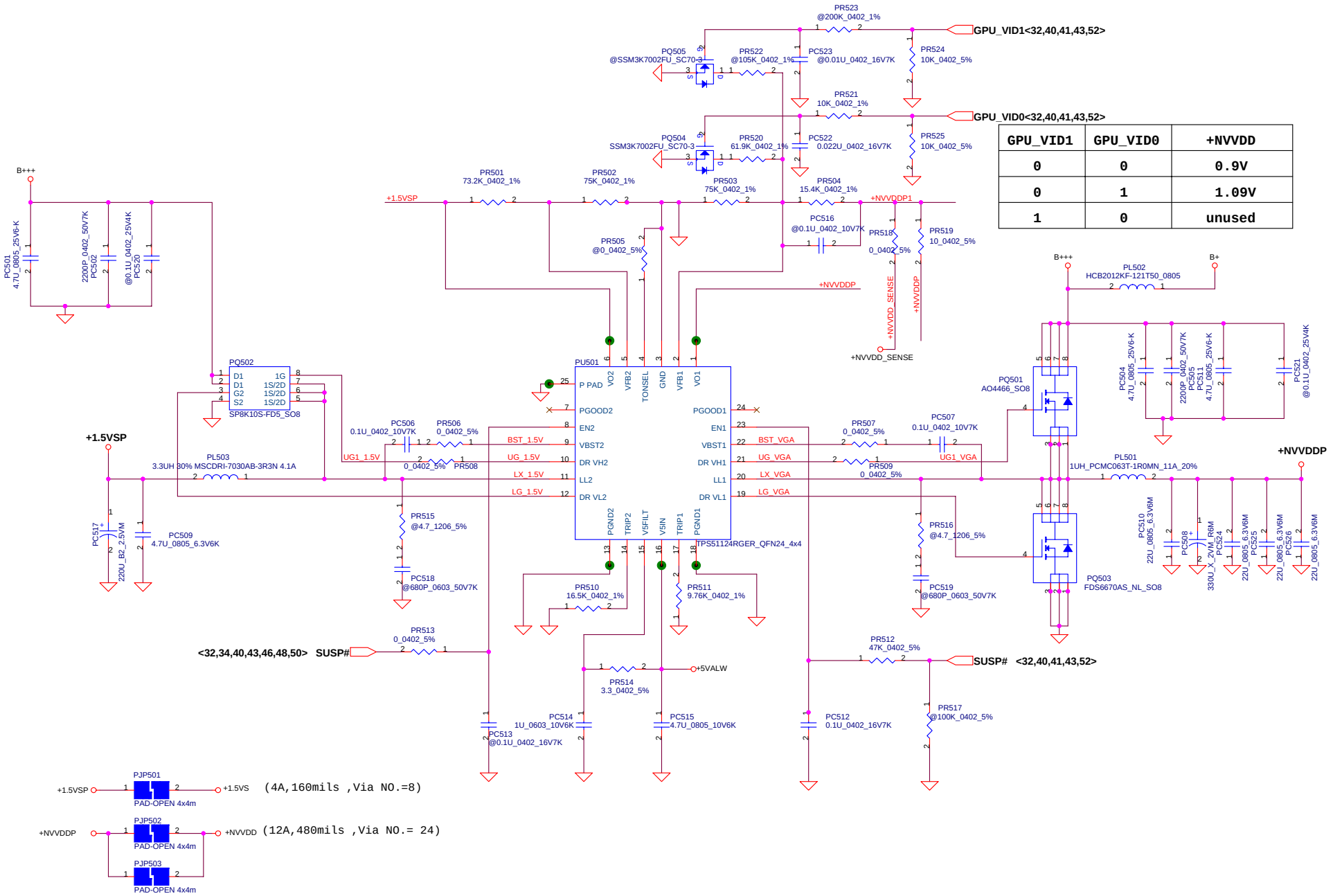

GPU_VID1	GPU_VID0	+NVVDD
0	0	0.9V
0	1	1.09V
1	0	unused

Security Classification	Compal Secret Data		
Issued Date	2007/05/29	Deciphered Date	2008/04/29

Compal Electronics, Inc.	
Title	1.5VSP/VGA_CORE
Size	Document Number: LA-4102P Blade discrete
Rev	1.0
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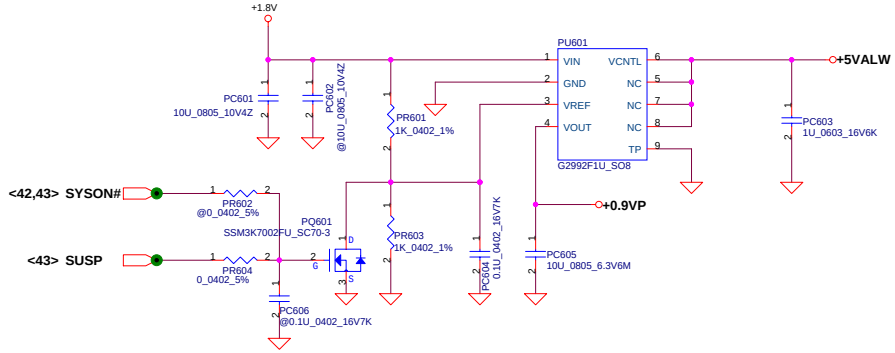
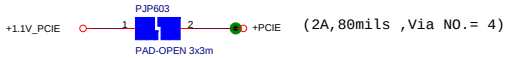
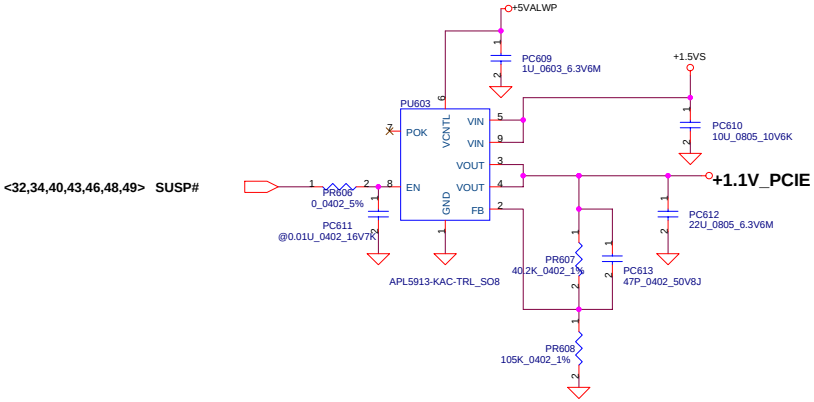


(2A,80mils ,Via NO.= 4)



(2A,80mils ,Via NO.= 4)



Security Classification	Compal Secret Data		
Issued Date	2006/11/23	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: **0.9VP/1.1V_PCIE**

Size	Document Number	Rev
	LA-4102P Blade discrete	1.0

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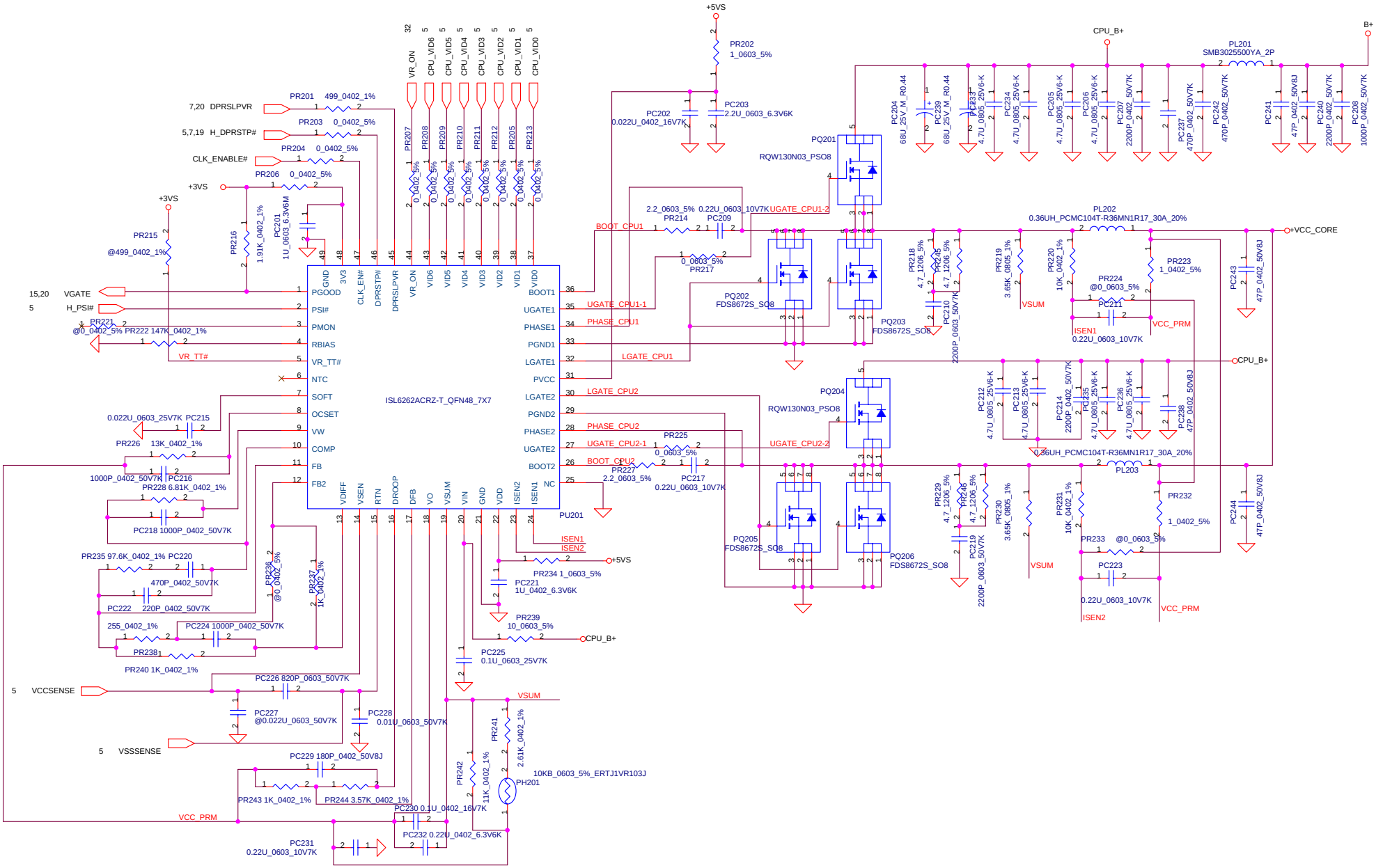

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Title	+CPU_CORE	
Size	Document Number	Rev 1.0
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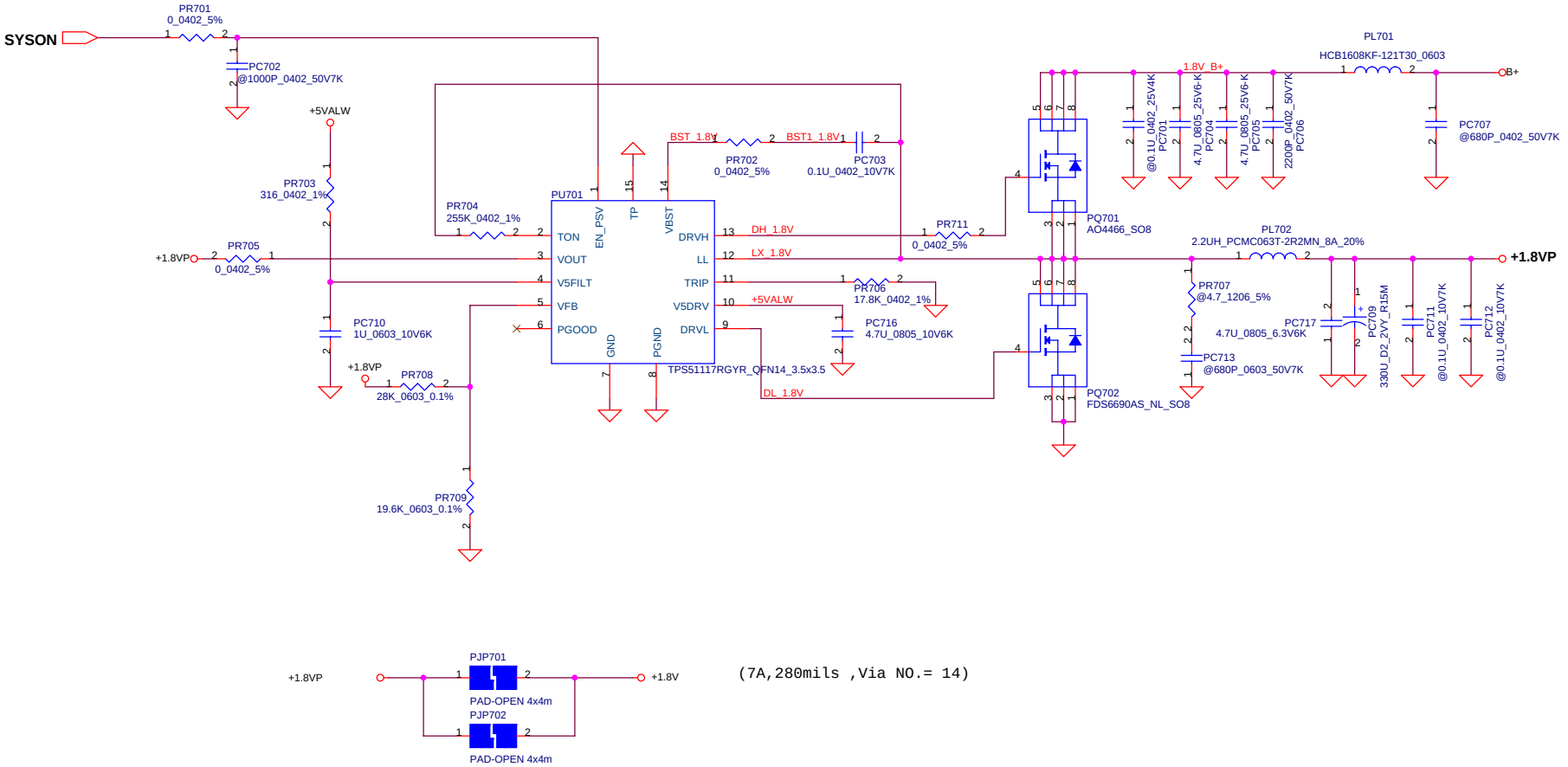

(7A,280mils ,Via NO.= 14)

Security Classification	Compal Secret Data		
Issued Date	2007/05/29	Deciphered Date	2008/04/29

Compal Electronics, Inc.

Title: *1.8VP*

Size | Document Number: *LA-4102P Blade discrete* | Rev: 1.0

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Version Change List (P. I. R. List) for Power Circuit

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	43	DC Connector /CPU_OTP	11/06	Compal	Add PD4 & PC12	Add PD4 & PC12	
2	45	3.3VALWP/5VALWP	11/06	Compal	for Layout	Change PQ301, cancel PQ303.	
3	44	Charger	11/06	Compal	EMI solution	Add PC128	
4	49	CPU_CORE	11/06	Compal	EMI solution	Add PC240	
5	47	1.5VSP/VGA_CORE	11/06	Compal	for VGA voltage steps	Add PQ505, PR523, PR524, PR525	
6	45	3.3VALWP/5VALWP	12/31	Compal	PWR request	Add PU302, control signal changed to ACOFF	
7	44	Charger	12/31	Compal	EMI solution	Add PC129, PC130, PC131, PC132, PC133	
8	49	+CPU_CORE	12/31	Compal	EMI solution	Add PC242	
9	47	+1.5VSP/VGA COREP	01/02	Compal	HW request	Change PR513 to 0_ohm	
10	44	Charger	01/02	Compal	EMI solution	Add PC135 and PR141	
11	49	+CPU_CORE	02/15	Compal	Change high-side MOS for WWAN	Change PQ201 and PQ204 to powerpak	
12	43	DC Connector /CPU_OTP	02/15	Compal	AC LED change to KBC control	ACLED# connect to EC pin 97	
13	43	DC Connector /CPU_OTP	02/19	Compal	WWAM issue	add PC241 47pF	
14	49	+CPU_CORE	02/19	Compal	WWAM issue	add PC243 PC244 47pF	
15	43	DC Connector /CPU_OTP	04/02	Compal	AC LED issue	Change AC_LED# pull-high to +3VL	

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Title: Power Changed-List History-1

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Item	Fixed Issue (Reason for change)	PAGE	Modify List	Date	Phase
1	Transation Fail	08	C41、C42、C43、C44 Change ESR=7m ohm	11/21	DB
2	Disable TV out function from Docking	20	TV signal unconnected,DACB_VDD pull low 10K (R948).	11/07	DB
3	Update Connetor Library		CRT(JCRT1)、HDMI(JHDMI1)、ESATA(JP53)、Finger print(JJP24)、FAN(JP2)、Speaker(JP60)、Multi bay(JP12)、Dual LED(D53、D54	11/17	DB
4	Delete LVDS B channel	19,20	Schematic Delete	11/17	DB
5	USB camera Footprint error	19	Change U42 to G916-390T1UF SOT23, it adjustable mode, R1091=215K, R1093=100K,Add GPIO 20 to turn off power	11/07	DB
6	Reserve Card reader D3E function	27,32	GPIO6= CR_CPPE#, GPIO22=CR_WAKE#	11/17	DB
7	Swap PCIE LAN and New card	27	Swap PCIE4 and PICE6	11/17	DB
8	Change GPU 1.8VS power	20、21	Change 1.8VS to +VDD_MEM18	11/17	DB
9	Change G sensor control from SB、LED drive by +5VS	27、39	Change G sensor control from SB	11/17	DB
10	Avoid Battery mode can't boot issue	38、45	Add +3VALW GD to EC_RSMRST# to fix Battery mode can't boot issue	11/17	DB
11	Add G sensor ST and Bosch	37	Add G sensor ST and Bosch	11/17	DB
12	Change LAN solution (Marvell to Realtek)	30	Change LAN solution (Marvell to Realtek)	11/17	DB
13	LAN transformer interfere	30	U19 Change to correct transformer type	11/17	DB
14	Cardreader schematic review,add D3E function	32	R709-->10K、R1047-->8.2K、R1128-->Stuff、R705-->@、U37-->@、Cardreader LED-->+5VS、add D3E function	11/17	DB
15	Jack can't detect normal	33	R1059 change from 39.2 to 39.2K	11/17	DB
16	Docking can not power on	40	Add power on circuit D57,Q13R751,R752,R753	11/17	DB
17	HP audio team recommend	33、35	C1480~C1487、C1352、C1354 change to 0.022U、Amp output setup to 15.6 dB、Reserve C747、C748 for GNDA and GND	11/17	DB
18	Audio jack can't detect normal	35	Add Pull up resistor R750 to +3VALW	11/17	DB
19	Docking HP audio test fail	35	Add C795、C796 to avoid DC level, and add R968、R969 to reduce HP out level	11/17	DB
20	Leakage problem	38	Correct direction pretect leakage	11/07	DB
21	EC pin define update	38	Delete EC_PME#、SYSON PU、SUSP# PU、LID_SW# change to +3VALW、Delete CLKRUN#、R582->@ for C0 chip、CIR PU+5VL、add 100P to BATT_OVP(EC recommend)	11/07	DB
22	Can't Hibernation(SLP_S4#)	38	Connect SLP_S4# to SB	11/17	DB
23	EC can't receive docking present	40	CONA# change +3VL	11/12	DB
24	Reserve capacitor on digital MIC for EMI request	19	Add C496,C498	11/07	DB
25	Add 2N7002 to GND on HDMI to avoid leakage.	21	Add Q74	01/04	SI
26	+VDD_MEM18 to +1.8VS, change to jummper	22	Delete R1124,R1125 add PJP605	01/04	SI
27	HDCP ROM fail. HDCP_SCL need pull high.	22	R224 no stuff. R213 stuff.	01/04	SI
28	Reserve capacitor on digital MIC for SED. WWAN noise	26	Add C499,C502	01/04	SI

Compal Electronics, Inc.

Title: HW PIR

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Item	Fixed Issue (Reason for change)	PAGE	Modify List	Date	Phase
1	Change transformer vendor	30	change U19 library	01/04	SI
2	XMIT_OFF add a diode to avoid leakage.	31	Add D88	01/04	SI
3	Card reader recommend	32	XD_ALE need pull +3VS not pull low.	01/04	SI
4	change Q54 from transistor to MOS for cardreader LED.	32	Change Q54	01/04	SI
5	speaker pop issue	35	Change C1488 to 1U	01/04	SI
6	Reserve capacitor on SPI_FSEL#,CLK#,FER for EMI request	36	Add C2125,C2126,C2127	01/04	SI
7	Change EC_PME pull high from +3VL to +3VALW	38	R585 stuff	01/04	SI
8	Reserve damping resistor on SPI_CLK for EMI request	38	Add R191	01/04	SI
9	WLAN LED issue,WL_BLUE_LED# pull +3VS	39	Add R716	01/04	SI
10	Add bypass capacitance on sensor bottom	39	Add C261(4.7U)	01/04	SI
11	EC can't detect DOCK_PRESENT.	40	change R754 to 22 Ohm,R623 to 2K	01/04	SI
12	Add DOCK_VOL_UP#,DOCK_VOL_Down# pull +3VS	40	Add R594,R596	01/04	SI
13	SPDIF issue	40	follow Vader	01/04	SI
14	Docking CRT blurred	40	Change ping 31,39,22 connect to GND	01/04	SI
15	Change R650 and C770 to modify the power sequence	41	change R650 to 1K, C770 to 0.1u	01/04	SI
16	Add 12P on CLK_14M_ICH for WWAN noise	17	Add 12P on CLK_14M_ICH	02/15	PV
17	BKOFF# reserve pull low 10K	19	reserve R717	02/15	PV
18	Reserve CMD27 to support 64M X16	7,8	Reserve CMD27 to support 64M X16	02/15	PV
19	Reserve cap on HDA_BITCLK for WWAN noise issue	26	Reserve cap on HDA_BITCLK	02/15	PV
20	Reserve to prevent ESD issue	30	Reserve ESD diode on LAN LED pin	02/15	PV
21	Change WLAN and WWAN 0402 resistor to 0805	31	Change WLAN and WWAN 0402 resistor to 0805, and WLAN change to +3VS power plane	02/15	PV
22	Direct drive LED, and add D3E function diode	32	Direct drive LED and XD_ALE Pull L, and add D86 for D3E function	02/15	PV
23	Change R1092 value on BT power switch Gate	36	Change R1092 to 10K	02/15	PV
24	Correct AC_LED control by EC	38	AC_LED Change controll by EC	02/15	PV
25	Change all LED limit current resistor to 200 ohm	39	Change all LED limit current resistor to 200 ohm and add Touch pad LED for PR	02/15	PV
26	Add 33 ohm for MUTE_LED and DOCK_SLP_BTN#	40	Add 33 ohm for MUTE_LED and DOCK_SLP_BTN#	02/15	PV
27	follow check list ver:1.5	6	change R13 to 56 ohm;change R2~R8 to 51 ohm;change R11 to 0ohm	02/20	PV
28	Reserve Cap for EMI	42	add C1250,C1249	02/20	PV

Compal Electronics, Inc.

Title: **HW PIR**

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Item	Fixed Issue (Reason for change)	PAGE	Modify List	Date	Phase
1	follow check list Ver:1.5	17	reserve R148	02/15	PV
2	follow check list Ver:1.5	9	change R45,R48 to 10K	02/15	PV
3	boot code "88" power sequence faill	27	add Diode from PWROK to RSMRST	02/15	PV
4	Change BT,LAN,DOCK,Multibay connect for DFX			02/15	PV
5	Change WWAN and WLAN LED	39		02/15	PV
6	For EMI	37	SPI_CLK add R2118 , R2119 , R2120 => 33ohm add C2125 , C2126 , C2127 => 22pF;R553, 554, 556 =>10ohm	02/15	PV
7	For EMI	30	LAN add C656 and C657 => o.1uF	02/15	PV
8	For EMI	39	T/P add D28 and C729	02/15	PV
9	remove LAN EEPROM	30		02/15	PV
10	For EMI	26	Add SSC circuit for HDA_BITCLK	03/11	PV2
11	For ESD	38	add 0.1U for EC_PME# and PCI_RST#	03/11	PV2
12	Change WWAN power to +3VS	31	Change WWAN power to +3VS	03/11	PV2
13	For ESD	06	Delete XDP connector	03/11	PV2
14	Delete LID switch pin1(+3VALW)	39	Delete LID switch pin1(+3VALW)	03/11	PV2
15	AT24C16B rising/falling time issue	21	change R213,R215 form 10K to 2.2K.	03/11	PV2
16	the SMbus pull wrong power rail	38	change R573,R577 pull +3VL	04/29	MV
17	change Lid pull high power	38,39	change R583 pull +3VL;JP11 pin4 connect to +3VL	04/29	MV
18	Clock REQ need external pull high	31,30	add R442,R440,R444,R455	04/29	MV
19	For HDMI certification	42	C1247 change to 1U;R1036,R1035 change to 1.5K	04/29	MV
20	For 2nd source thermal sensor	6	U1 pin 6 pull high 10K ohm	04/29	MV
21	Docking headphone issue	11	Add Q48	04/29	MV
22	Multibay shout down issue	35	Add C797	04/29	MV
23	wrong strap pin setting	11	no stuff R71,R81,R72,R77,R78	05/08	MV
24	reduce internal MIC noise	35	changw R1077 to 1K	05/08	MV
25					
26					
27					
28					

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Title: HW PIR

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