Compal Confidential

NTV00

LA-5661 Rev 1.0 Schematics

Intel PineView Processor/ Tiger point

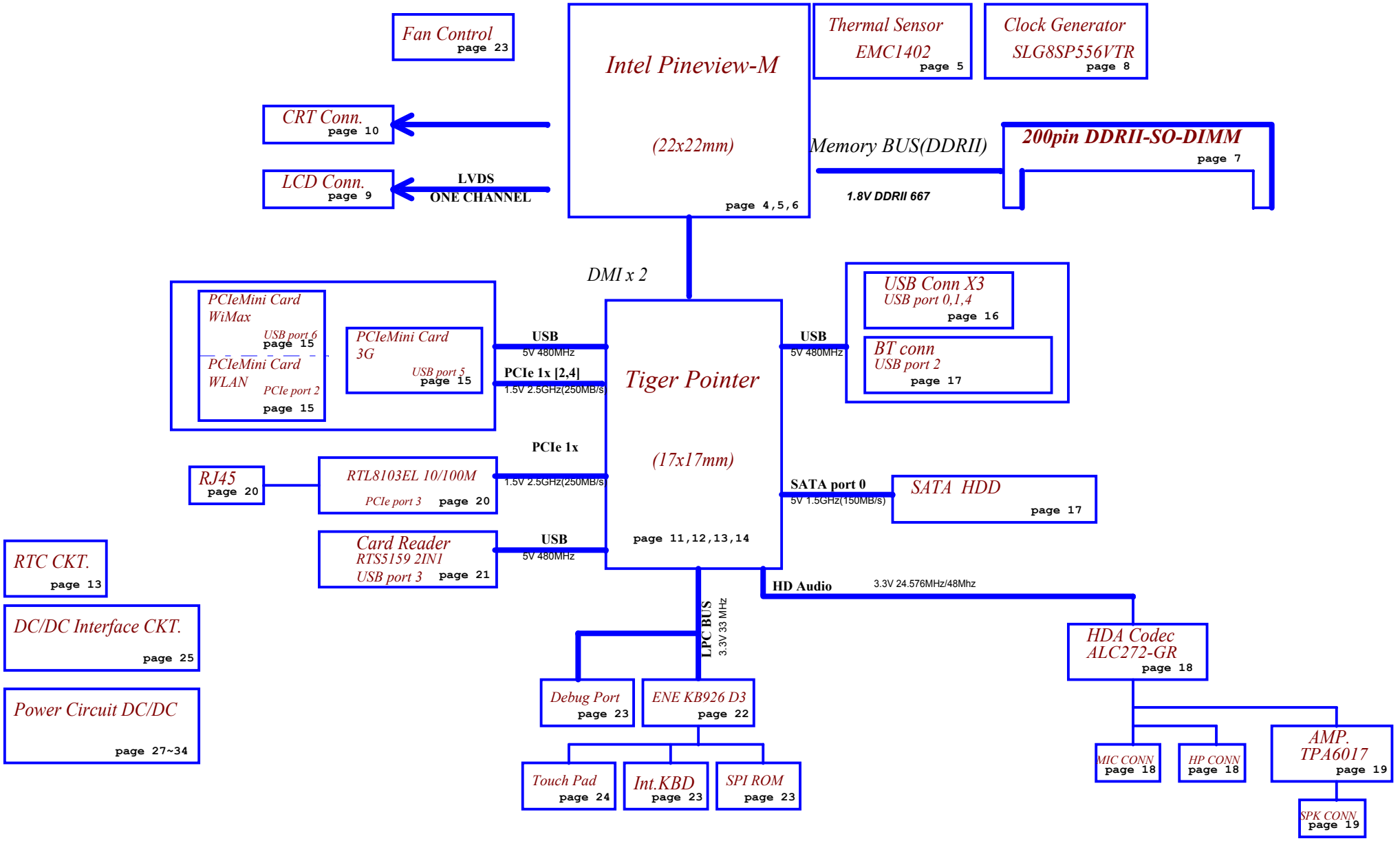
2010-01-07 REV : 1.0

Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.		
Title: Cover Page		
Size: Custom	Document Number: NTV00 LA5661P M/B	Rev: 1.0
Date: Thursday, January 07, 2010	Sheet 1 of 35	

Compal Confidential

Model Name : NTV00
File Name : LA-5661P



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: Block Diagrams

Size | Document Number: NTV00 LA5661P M/B | Rev: 1.0

Date: Thursday, January 07, 2010 | Sheet 2 of 35

Voltage Rails

Power Plane	Description	S1	S3	S5	G3
VIN	Adapter power supply (19V)	ON	ON	ON	OFF
B+	AC or battery power rail for power circuit.	ON	ON	ON	ON
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF	OFF
+0.89VS	0.89VS GFX support voltage	ON	OFF	OFF	OFF
+0.9VS	0.9V switched power rail for DDR terminator	ON	OFF	OFF	OFF
+1.05VS	VCCP switched power rail	ON	OFF	OFF	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF	OFF
+1.8V	1.8V power rail for DDR	ON	ON	OFF	OFF
+1.8VS	1.8VS switched power rail	ON	OFF	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON	OFF
+3V_SB	3.3V power rail for LAN	ON	ON	OFF	OFF
+3V_LAN	3.3V power rail for LAN	ON	ON	OFF	OFF
+RTCVCC	RTC power	ON	ON	ON	ON
+3VS	3.3V switched power rail	ON	OFF	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON	OFF
+5V_SB	5V power rail for SB	ON	ON	OFF	OFF
+5VS	5V switched power rail	ON	OFF	OFF	OFF
+VSB	VSB always on power rail	ON	ON	ON	OFF

Note : ON* means that this power plane is ON only with AC power available, otherwise it is OFF.

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

BTO Option Table

Function	Mini PCI-E SLOT				STAR			
description								
explain	Wi-Fi	WiMax	3G		POWER SAVING			
BTO	WLAN@	WIMAX@	3G@		STAR@			

Function			
description			
explain			
BTO			

EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b

EC SM Bus2 address

Device	Address
EMC1402	1001 010X b

Tiger point SM Bus address

Device	Address
Clock Generator (SLG8SP556VTR)	1101 001Xb
DDR DIMMA	1010 000Xb

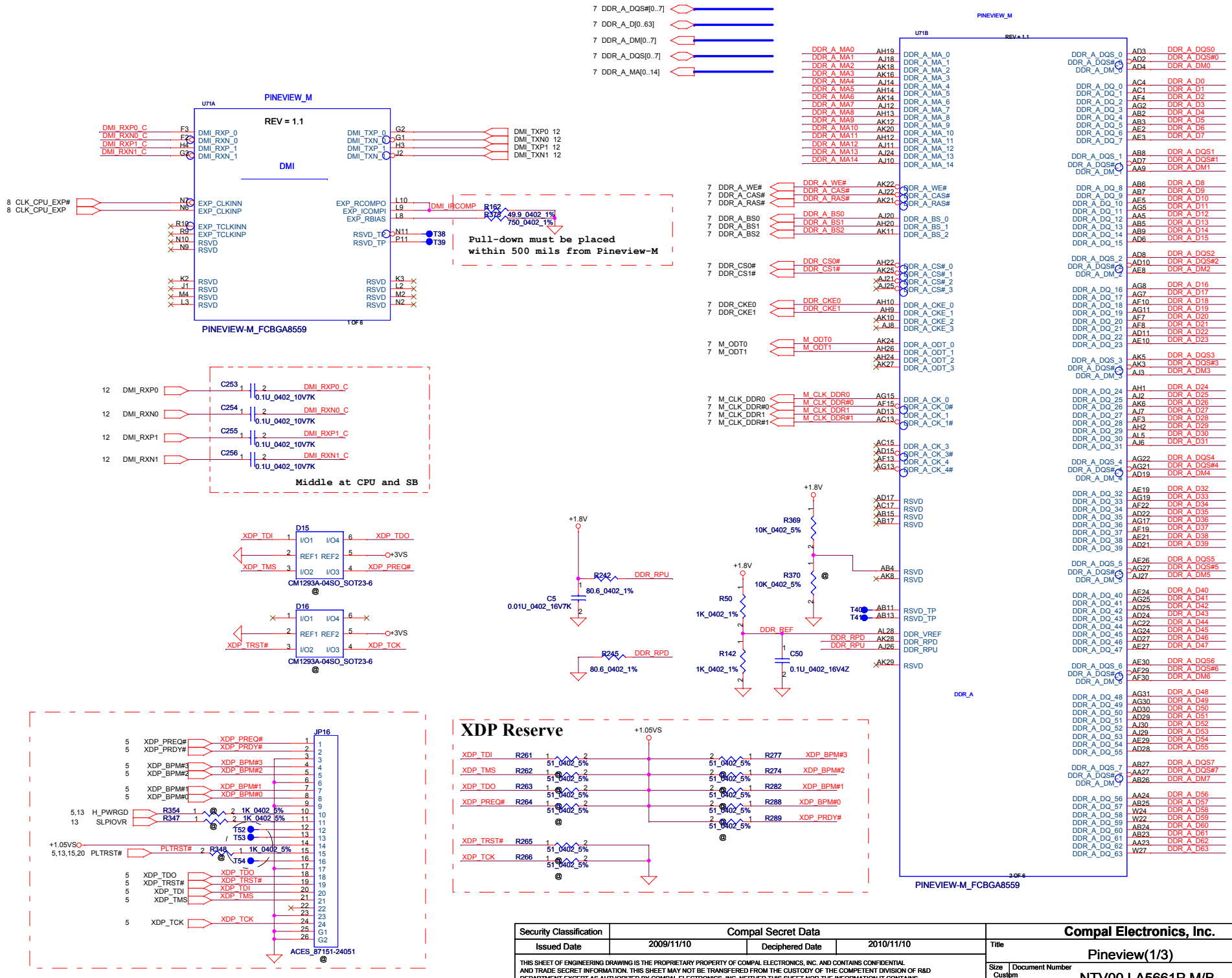
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: Notes List

Size: Custom | Document Number: NTV00 LA5661P M/B | Rev: 1.0

Date: Thursday, January 07, 2010 | Sheet 3 of 35



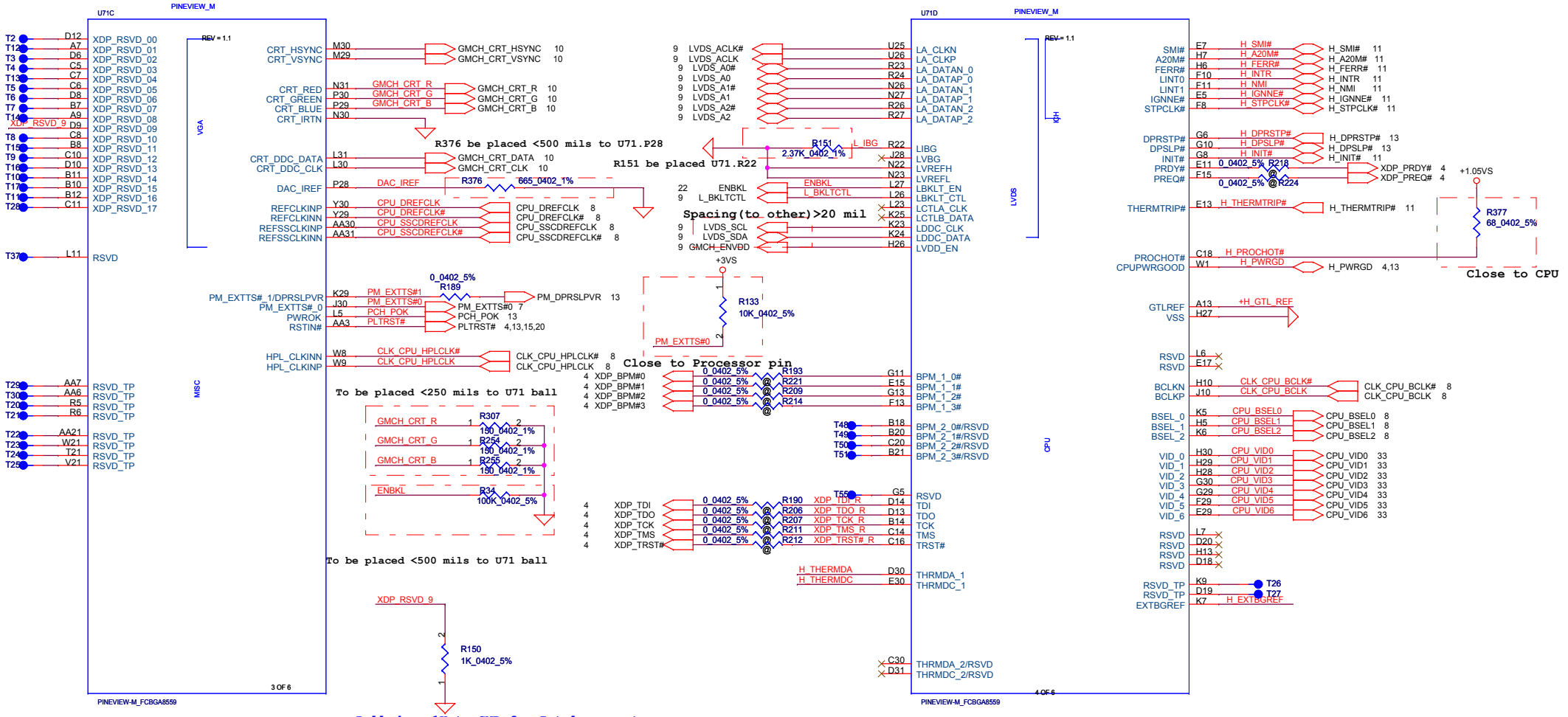
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

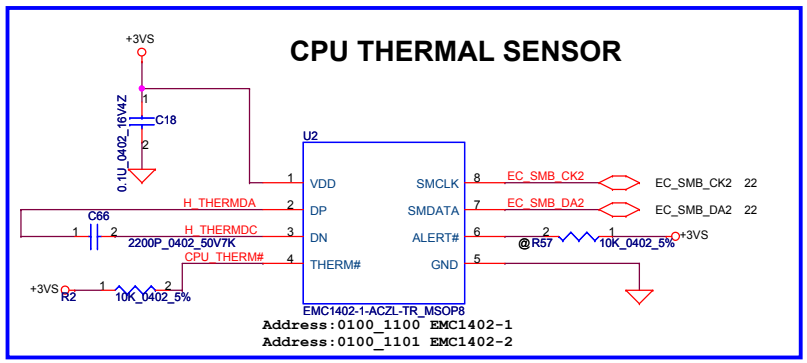
Compal Electronics, Inc.

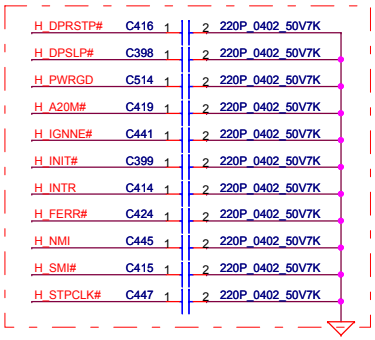
Title: Pineview(1/3)

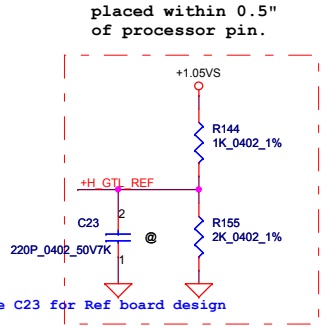
Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

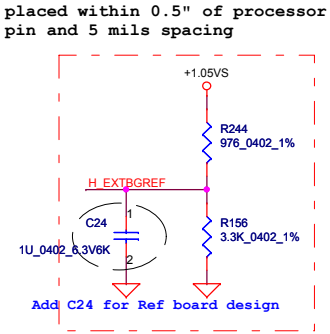
Date: Thursday, January 07, 2010 | Sheet 4 of 35











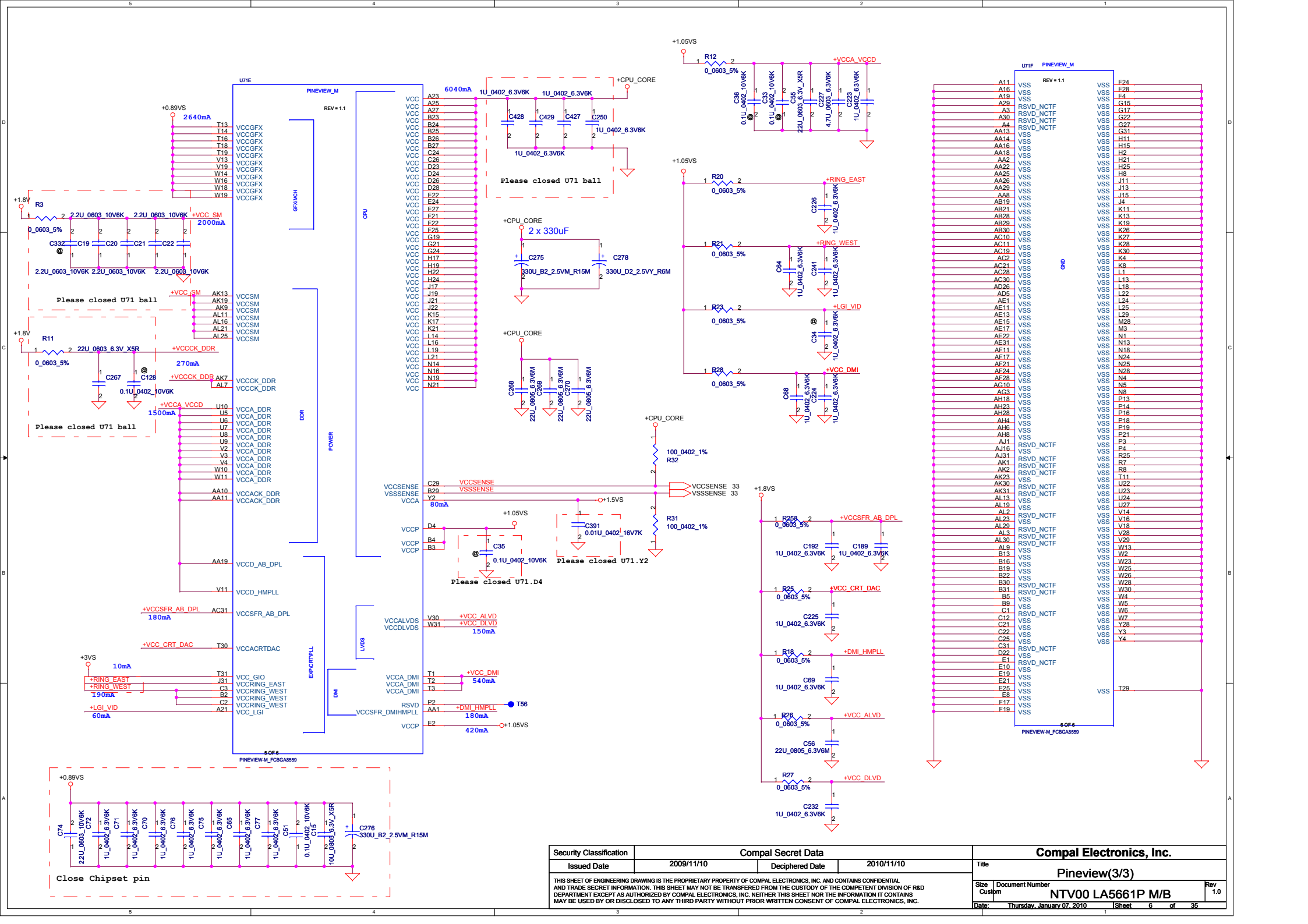
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: Pineview(2/3)

Size	Document Number	Rev
B	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 Sheet 5 of 35


U71E
PINEVIEW_M
REV = 1.1
5 OF 6
PINEVIEW-M_FCBGA8559
U71F
6 OF 6
Please closed U71 ball
Please closed U71.D4
Please closed U71.Y2
Close Chipset pin
+0.89VS
+1.8V
+3VS
+1.05VS
+1.5VS
+CPU_CORE
+VCC_SM
+VCCCK_DDR
+VCCA_VCCD
+VCCSFR_AB_DPL
+VCC_CRT_DAC
+VCC_ALVD
+VCC_DLVD
+VCC_DMI
+DMI_HMPLL
+RING_EAST
+RING_WEST
+LGI_VID
VCCSENSE
VSSSENSE
2 x 330uF
Security Classification
Compal Secret Data
Issued Date
2009/11/10
Deciphered Date
2010/11/10
Compal Electronics, Inc.
Pineview(3/3)
NTV00 LA5661P M/B
Rev 1.0
Thursday, January 07, 2010
Sheet 6 of 35

4 DDR_A_DQS#[0..7]
4 DDR_A_D[0..63]
4 DDR_A_DM[0..7]
4 DDR_A_DQS[0..7]
4 DDR_A_MA[0..14]

Layout Note:
Place near JDDR1

+1.8V
C362 2.2U_0603_6.3V6K
C364 2.2U_0603_6.3V6K
C366 2.2U_0603_6.3V6K
C368 2.2U_0603_6.3V6K
C370 2.2U_0603_6.3V6K
@ C358 220U_B2_2.5VM_R35
C363 0.1U_0402_16V4Z
C365 0.1U_0402_16V4Z
C367 0.1U_0402_16V4Z
C369 0.1U_0402_16V4Z

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

+0.9VS
C82 C84 C86 C90 C98 C101 C102 C81 C97 C99 C96 C85 C83 C454 0.1U_0402_16V4Z

+1.8V
C589 C40 C559 C610 C41 C547 C344 C628 C542 0.1U_0402_16V4Z

R53 1K_0402_1%
R54 1K_0402_1%
+DIMM_VREF

Share +DIMM_VREF for
1.DDRII VREF
2.PineView DDR_VREF

+DIMM_VREF
20mils
C90 0.1U_0402_16V4Z
C91 @ 2.2U_0603_6.3V6K
Please closed SO-DIMM

+1.8V
C579 C567 C587 C588 C26 C558 C608 C25 C546 C343 C627 C541 0.1U_0402_16V4Z

+1.8V
C88 @ 0.1U_0402_16V4Z
+1.5VS
C87 @ 0.1U_0402_16V4Z

JDIM1
FOX_AS0A426-N4RN-7F
CONN

+DIMM_VREF	1	VREF	VSS	2	
DDR_A_D0	3	VSS	DQ4	4	DDR_A_D4
DDR_A_D1	5	DQ0	DQ5	6	DDR_A_D5
	7	DQ1	VSS	8	
DDR_A_DQS#0	9	VSS	DM0	10	DDR_A_DM0
DDR_A_DQS0	11	DQS0#	VSS	12	
	13	DQS0	DQ6	14	DDR_A_D6
DDR_A_D2	15	VSS	DQ7	16	DDR_A_D7
DDR_A_D3	17	DQ2	VSS	18	
	19	DQ3	DQ12	20	DDR_A_D12
DDR_A_D8	21	VSS	DQ13	22	DDR_A_D13
DDR_A_D9	23	DQ8	VSS	24	
	25	DQ9	DM1	26	DDR_A_DM1
DDR_A_DQS#1	27	VSS	VSS	28	
DDR_A_DQS1	29	DQS1#	CK0	30	M_CLK_DDR0
	31	DQS1	CK0#	32	M_CLK_DDR#0
DDR_A_D10	33	VSS	VSS	34	
DDR_A_D11	35	DQ10	DQ14	36	DDR_A_D14
	37	DQ11	DQ15	38	DDR_A_D15
	39	VSS	VSS	40	
	41	VSS	VSS	42	
DDR_A_D16	43	DQ16	DQ20	44	DDR_A_D20
DDR_A_D17	45	DQ17	DQ21	46	DDR_A_D21
	47	VSS	VSS	48	
DDR_A_DQS#2	49	DQS2#	NC	50	
DDR_A_DQS2	51	DQS2	DM2	52	DDR_A_DM2
	53	VSS	VSS	54	
DDR_A_D18	55	DQ18	DQ22	56	DDR_A_D22
DDR_A_D19	57	DQ19	DQ23	58	DDR_A_D23
	59	VSS	VSS	60	
DDR_A_D24	61	DQ24	DQ28	62	DDR_A_D28
DDR_A_D25	63	DQ25	DQ29	64	DDR_A_D29
	65	VSS	VSS	66	
DDR_A_DM3	67	DM3	DQS3#	68	DDR_A_DQS#3
	69	NC	DQS3	70	DDR_A_DQS3
	71	VSS	VSS	72	
DDR_A_D26	73	DQ26	DQ30	74	DDR_A_D30
DDR_A_D27	75	DQ27	DQ31	76	DDR_A_D31
	77	VSS	VSS	78	
4 DDR_CKE0	79	CKE0	NC/CKE1	80	DDR_CKE1 4
	81	VDD	VDD	82	
	83	NC	NC/A15	84	
4 DDR_A_BS2	85	BA2	NC/A14	86	DDR_A_MA14
	87	VDD	VDD	88	
DDR_A_MA12	89	A12	A11	90	DDR_A_MA11
DDR_A_MA9	91	A9	A7	92	DDR_A_MA7
DDR_A_MA8	93	A8	A6	94	DDR_A_MA6
	95	VDD	VDD	96	
DDR_A_MA5	97	A5	A4	98	DDR_A_MA4
DDR_A_MA3	99	A3	A2	100	DDR_A_MA2
DDR_A_MA1	101	A1	A0	102	DDR_A_MA0
	103	VDD	VDD	104	
DDR_A_MA10	105	A10/AP	BA1	106	DDR_A_BS1
4 DDR_A_BS0	107	BA0	RAS#	108	DDR_A_RAS#
4 DDR_A_WE#	109	WE#	S0#	110	DDR_CS0#
	111	VDD	VDD	112	
4 DDR_A_CAS#	113	CAS#	ODT0	114	M_ODT0
4 DDR_CS1#	115	NC/S1#	NC/A13	116	DDR_A_MA13
	117	VDD	VDD	118	
4 M_ODT1	119	NC/ODT1	NC	120	
	121	VSS	VSS	122	
DDR_A_D32	123	DQ32	DQ36	124	DDR_A_D36
DDR_A_D33	125	DQ33	DQ37	126	DDR_A_D37
	127	VSS	VSS	128	
DDR_A_DQS#4	129	DQS4#	DM4	130	DDR_A_DM4
DDR_A_DQS4	131	DQS4	VSS	132	
	133	VSS	DQ38	134	DDR_A_D38
DDR_A_D34	135	DQ34	DQ39	136	DDR_A_D39
DDR_A_D35	137	DQ35	VSS	138	
	139	VSS	DQ44	140	DDR_A_D44
DDR_A_D40	141	DQ40	DQ45	142	DDR_A_D45
DDR_A_D41	143	DQ41	VSS	144	
	145	VSS	DQS5#	146	DDR_A_DQS#5
DDR_A_DM5	147	DM5	DQS5	148	DDR_A_DQS5
	149	VSS	VSS	150	
DDR_A_D42	151	DQ42	DQ46	152	DDR_A_D46
DDR_A_D43	153	DQ43	DQ47	154	DDR_A_D47
	155	VSS	VSS	156	
DDR_A_D48	157	DQ48	DQ52	158	DDR_A_D52
DDR_A_D49	159	DQ49	DQ53	160	DDR_A_D53
	161	VSS	VSS	162	
	163	NC_TEST	CK1	164	M_CLK_DDR1
	165	VSS	CK1#	166	M_CLK_DDR#1
DDR_A_DQS#6	167	DQS6#	VSS	168	
DDR_A_DQS6	169	DQS6	DM6	170	DDR_A_DM6
	171	VSS	VSS	172	
DDR_A_D50	173	DQ50	DQ54	174	DDR_A_D54
DDR_A_D51	175	DQ51	DQ55	176	DDR_A_D55
	177	VSS	VSS	178	
DDR_A_D56	179	DQ56	DQ60	180	DDR_A_D60
DDR_A_D57	181	DQ57	DQ61	182	DDR_A_D61
	183	VSS	VSS	184	
DDR_A_DM7	185	DM7	DQS7#	186	DDR_A_DQS#7
	187	VSS	DQS7	188	DDR_A_DQS7
DDR_A_D58	189	DQ58	VSS	190	
DDR_A_D59	191	DQ59	DQ62	192	DDR_A_D62
	193	VSS	DQ63	194	DDR_A_D63
8,15 CLK_SMBDATA	195	SDA	VSS	196	
8,15 CLK_SMBCLK	197	SCL	SA0	198	R326 10K_0402_5%
+3VS	199	VDDSPD	SA1	200	R325 10K_0402_5%
	201	G1	G2	202	
	203	GND	GND	204	

DDR_A_D4 DDR_A_D5 DDR_A_DM0 DDR_A_D6 DDR_A_D7 DDR_A_D12 DDR_A_D13 DDR_A_DM1 M_CLK_DDR0 M_CLK_DDR#0 DDR_A_D14 DDR_A_D15 DDR_A_D20 DDR_A_D21 DDR_A_DM2 DDR_A_D22 DDR_A_D23 DDR_A_D28 DDR_A_D29 DDR_A_DQS#3 DDR_A_DQS3 DDR_A_D30 DDR_A_D31 DDR_CKE1 DDR_A_MA14 DDR_A_MA11 DDR_A_MA7 DDR_A_MA6 DDR_A_MA4 DDR_A_MA2 DDR_A_MA0 DDR_A_BS1 DDR_A_RAS# DDR_CS0# M_ODT0 DDR_A_MA13 DDR_A_D36 DDR_A_D37 DDR_A_DM4 DDR_A_D38 DDR_A_D39 DDR_A_D44 DDR_A_D45 DDR_A_DQS#5 DDR_A_DQS5 DDR_A_D46 DDR_A_D47 DDR_A_D52 DDR_A_D53 M_CLK_DDR1 M_CLK_DDR#1 DDR_A_DM6 DDR_A_D54 DDR_A_D55 DDR_A_D60 DDR_A_D61 DDR_A_DQS#7 DDR_A_DQS7 DDR_A_D62 DDR_A_D63

M_CLK_DDR0 4
M_CLK_DDR#0 4
R59 0_0402_5% PM_EXTTS#0 5
DDR_CKE1 4
DDR_A_BS1 4
DDR_A_RAS# 4
DDR_CS0# 4
M_ODT0 4
M_CLK_DDR1 4
M_CLK_DDR#1 4

C371 0.1U_0402_16V4Z
C372 0.1U_0402_16V4Z

DIMMA

+0.9VS
RP6 RP5 RP2 RP4 RP3 RP1
47_0804_8P4R_5%

DDR_A_MA13 M_ODT0 DDR_CS0# DDR_A_RAS# DDR_A_BS1 DDR_A_MA2 DDR_A_MA0 DDR_A_MA4
DDR_A_MA1 DDR_A_MA3 DDR_A_MA10 DDR_A_BS0 DDR_A_MA6 DDR_A_MA7 DDR_A_MA11 DDR_CKE1
DDR_A_WE# DDR_A_CAS# DDR_CS1# M_ODT1 DDR_A_MA12 DDR_A_MA8 DDR_A_MA9 DDR_A_MA5

DDR_A_MA14 R163 47_0402_5%
DDR_A_BS2 R72 47_0402_5%
DDR_CKE0 R73 47_0402_5%

Layout Note:
Place these resistor closely DIMMA,all trace length<1000 mil

Layout Note:
Place these resistor closely DIMMA,all trace length Max=1000 mil

Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

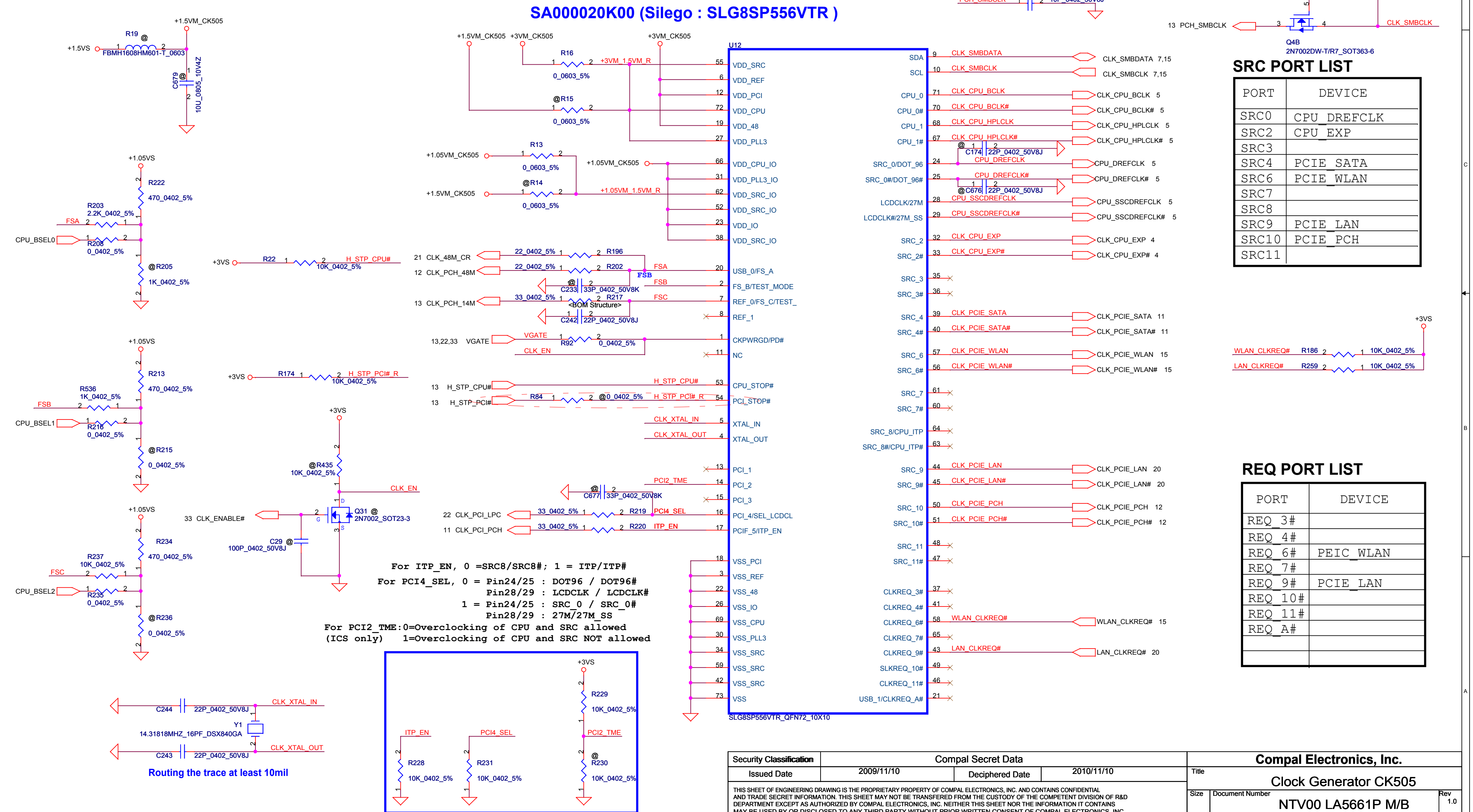
Title: DDRII-SODIMMA

Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 Sheet 7 of 35

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					

SA000020K00 (Silego : SLG8SP556VTR)



SRC PORT LIST

PORT	DEVICE
SRC0	CPU_DREFCLK
SRC2	CPU_EXP
SRC3	
SRC4	PCIE_SATA
SRC6	PCIE_WLAN
SRC7	
SRC8	
SRC9	PCIE_LAN
SRC10	PCIE_PCH
SRC11	

REQ PORT LIST

PORT	DEVICE
REQ_3#	
REQ_4#	
REQ_6#	PEIC_WLAN
REQ_7#	
REQ_9#	PCIE_LAN
REQ_10#	
REQ_11#	
REQ_A#	

For ITP_EN, 0 =SRC8/SRC8#; 1 = ITP/ITP#

For PCI4_SEL, 0 = Pin24/25 : DOT96 / DOT96#
Pin28/29 : LCDCLK / LCDCLK#
1 = Pin24/25 : SRC_0 / SRC_0#
Pin28/29 : 27M/27M_SS

For PCI2_TME:0=Overclocking of CPU and SRC allowed
(ICS only) 1=Overclocking of CPU and SRC NOT allowed

Routing the trace at least 10mil

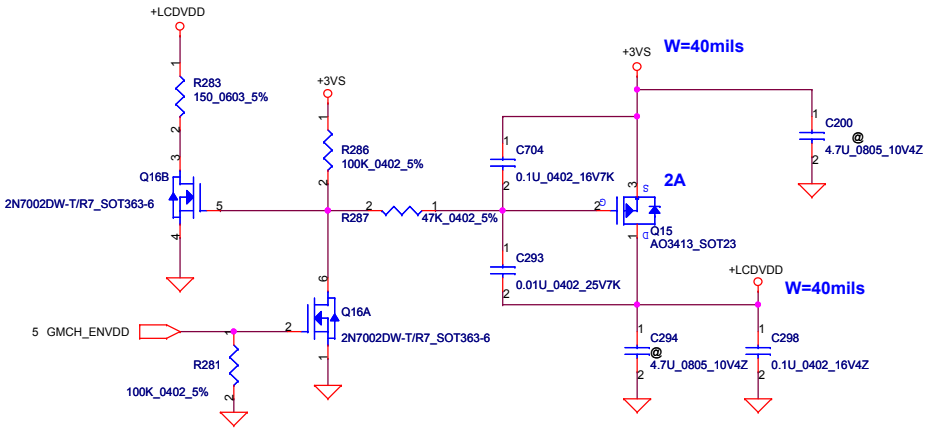
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: Clock Generator CK505

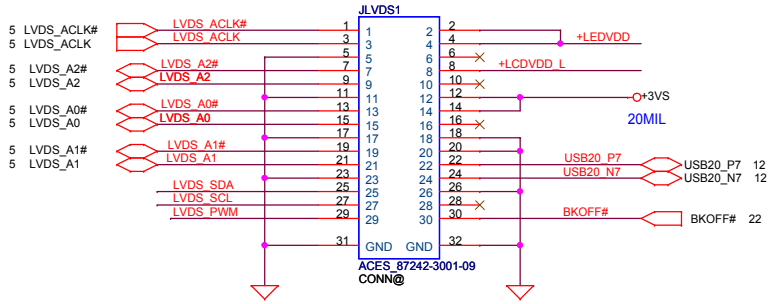
Size | Document Number: NTV00 LA5661P M/B | Rev 1.0

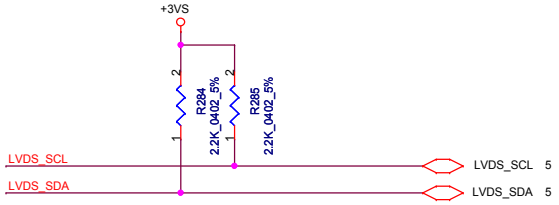
LCD POWER CIRCUIT



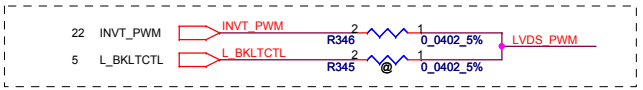
LED/PANEL BD. Conn.

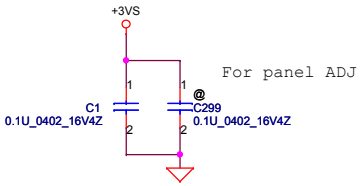
Combine INT.CARMERA with LVDS

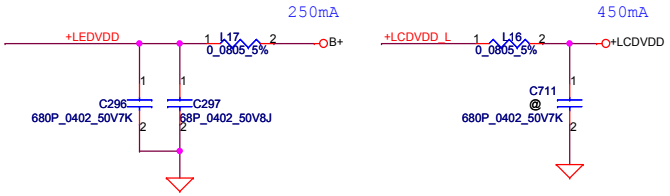




Option panel brightness control







Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

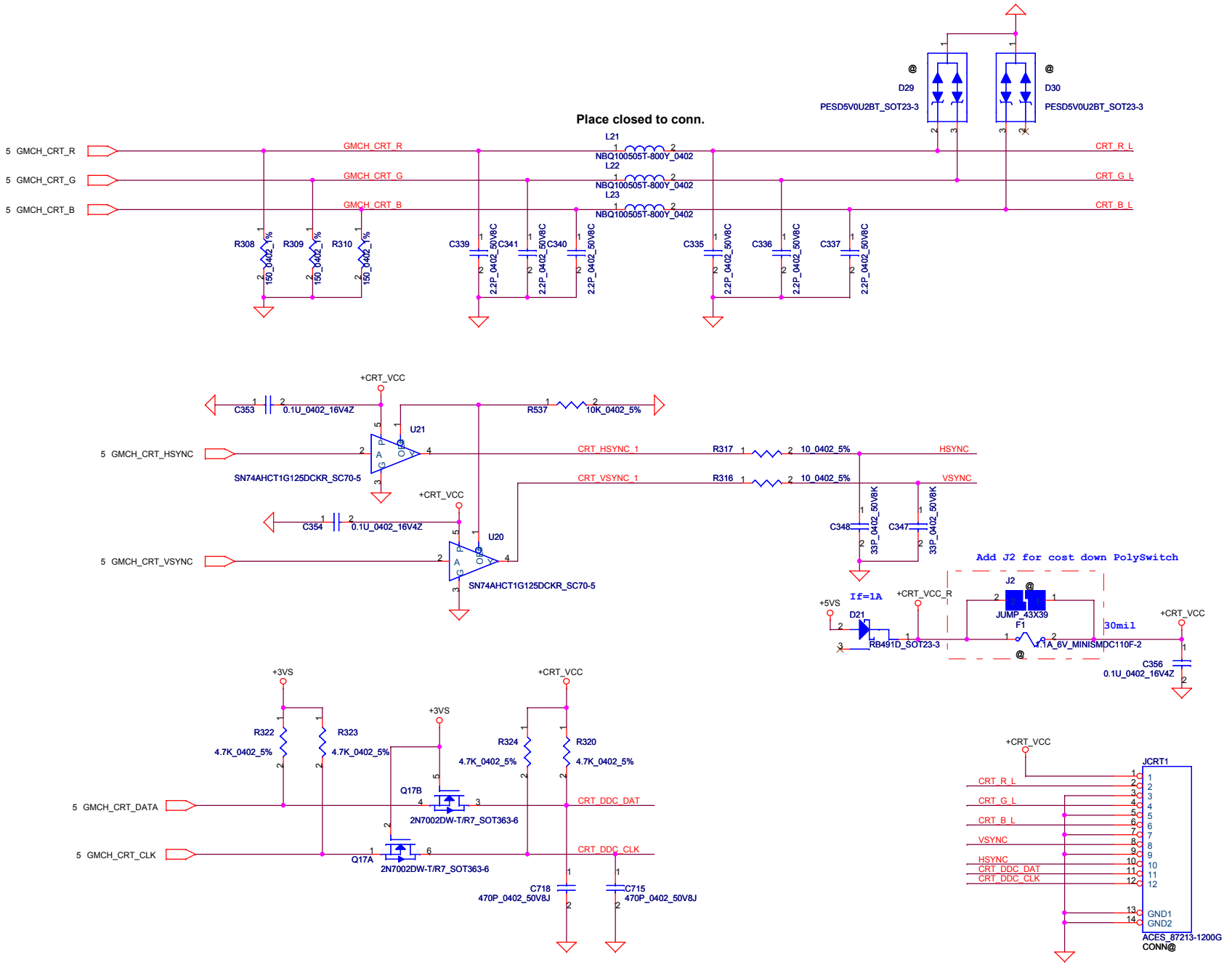
Compal Electronics, Inc.

Title: LVDS /INVERTER

Size	Document Number	Rev
	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 Sheet 9 of 35

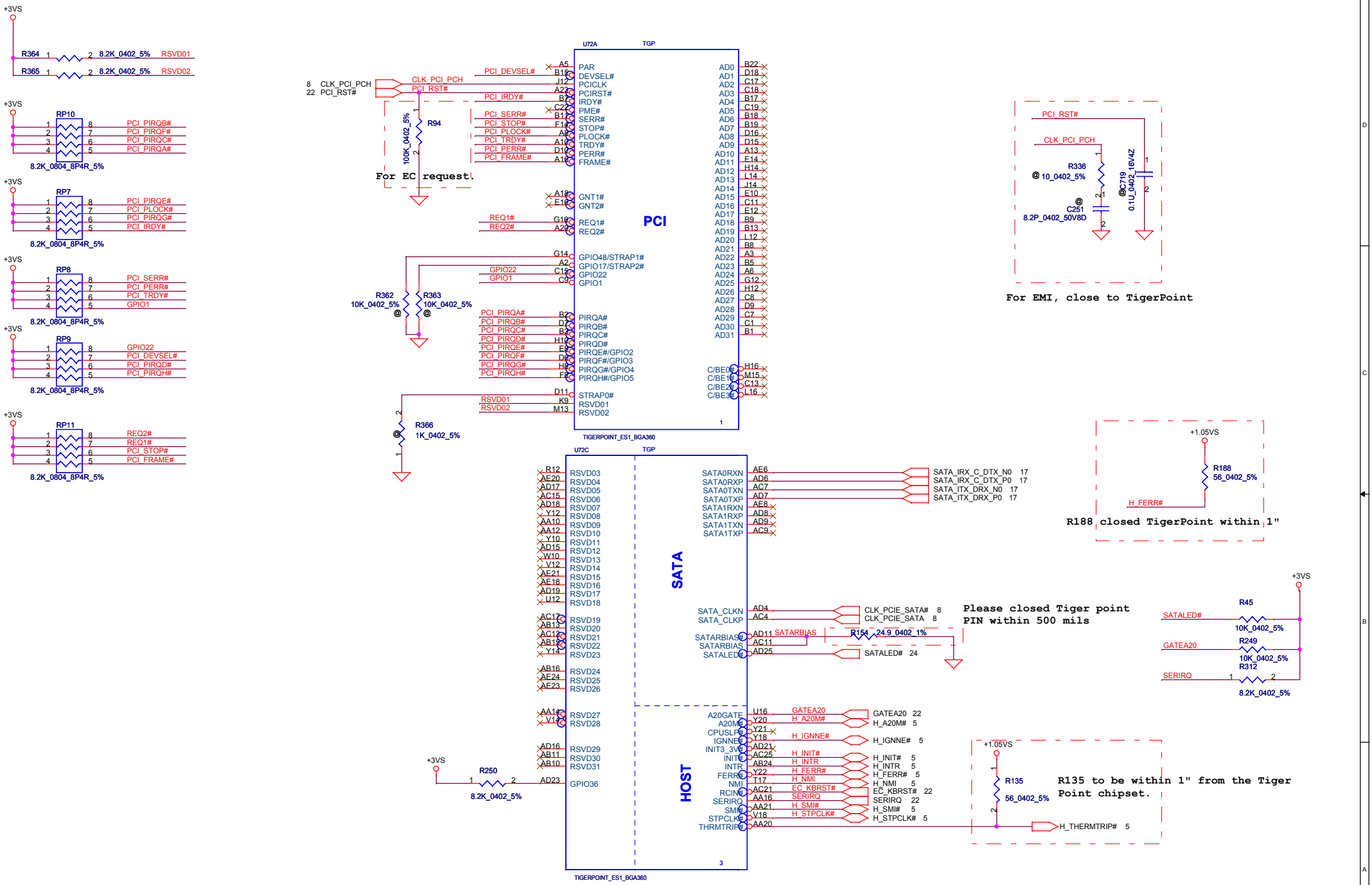
CRT CONNECTOR



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

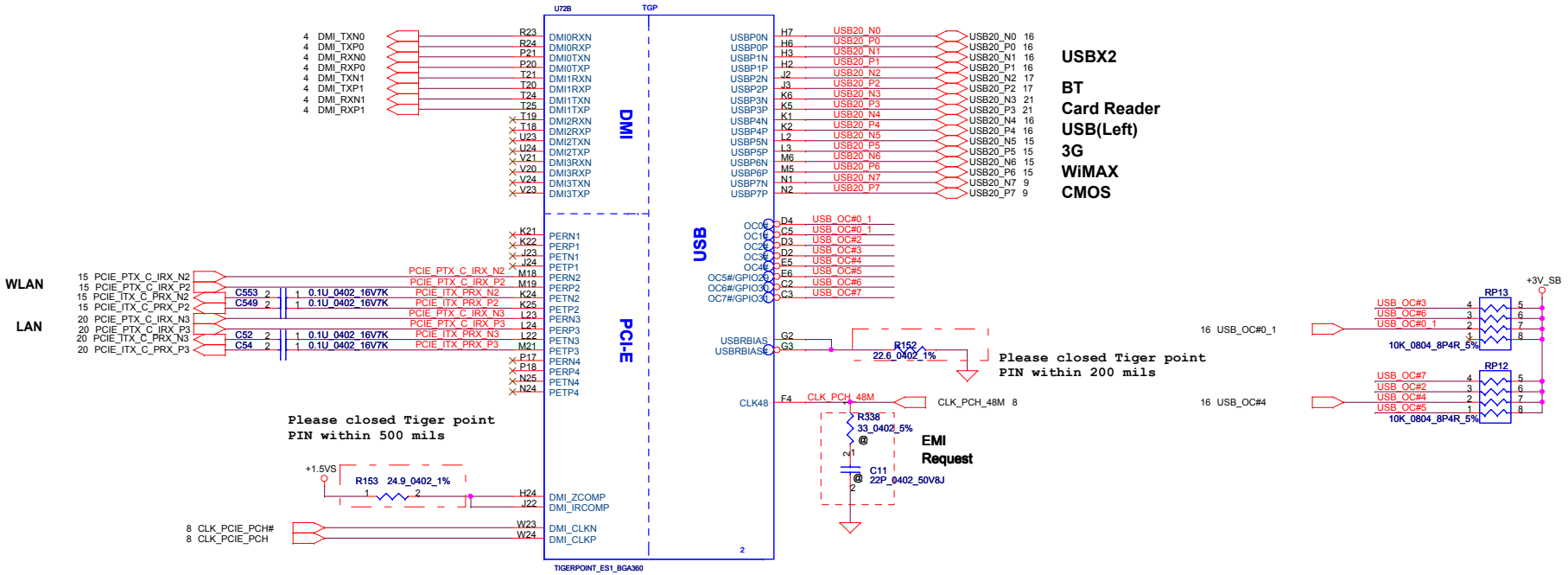
Title	CRT PORT	
Size	Document Number: NTV00 LA5661P M/B	Rev: 1.0
Date: Thursday, January 07, 2010	Sheet 10 of 35	



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title	Tigerpoint(1/4)	
Size	Document Number	Rev
	NTV00 LA5661P M/B	1.0
Date: Thursday, January 07, 2010	Sheet 11 of 35	



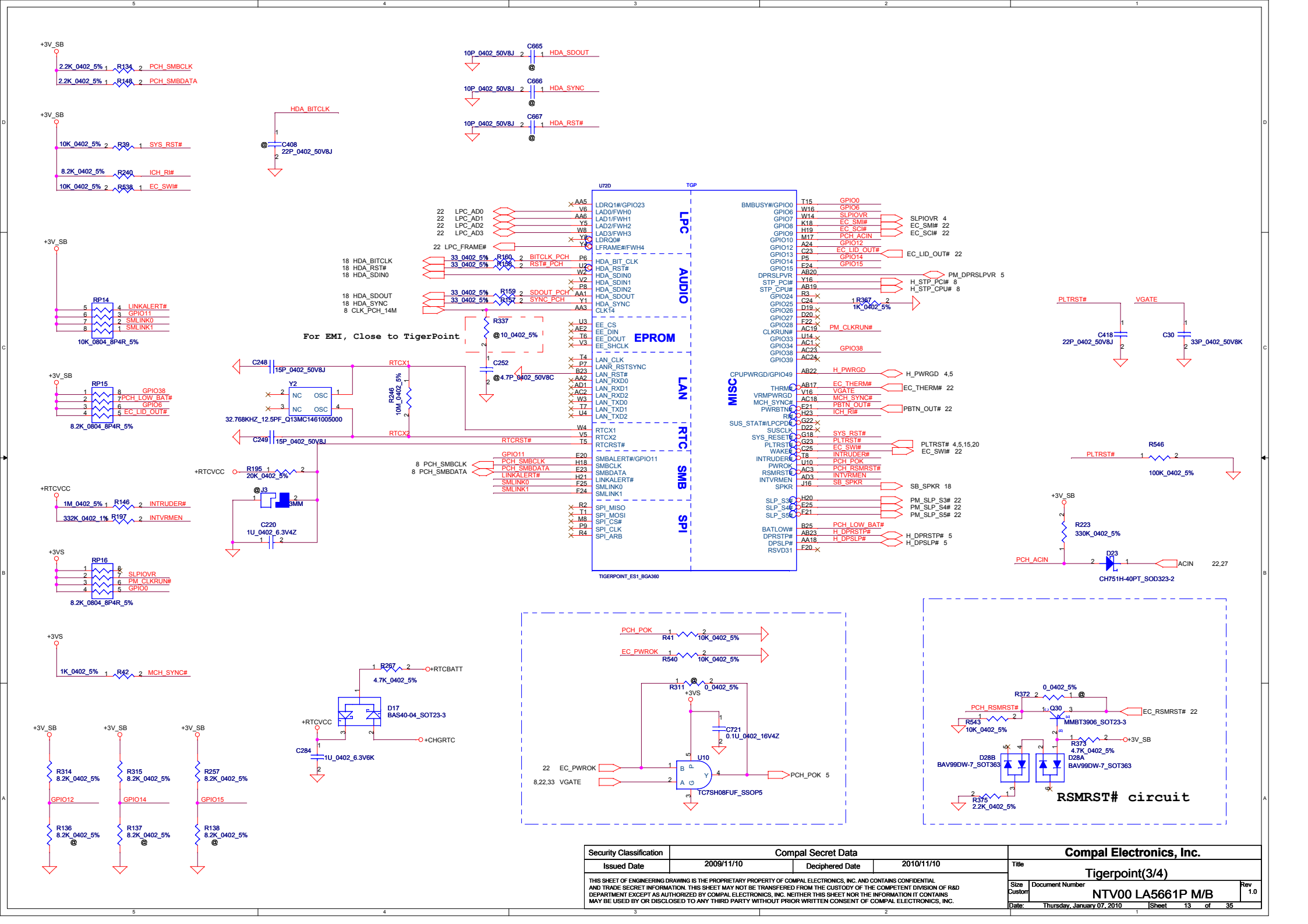
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: Tigerpoint(2/4)

Size: Custom | Document Number: NTV00 LA5661P M/B | Rev: 1.0

Date: Thursday, January 07, 2010 | Sheet 12 of 35



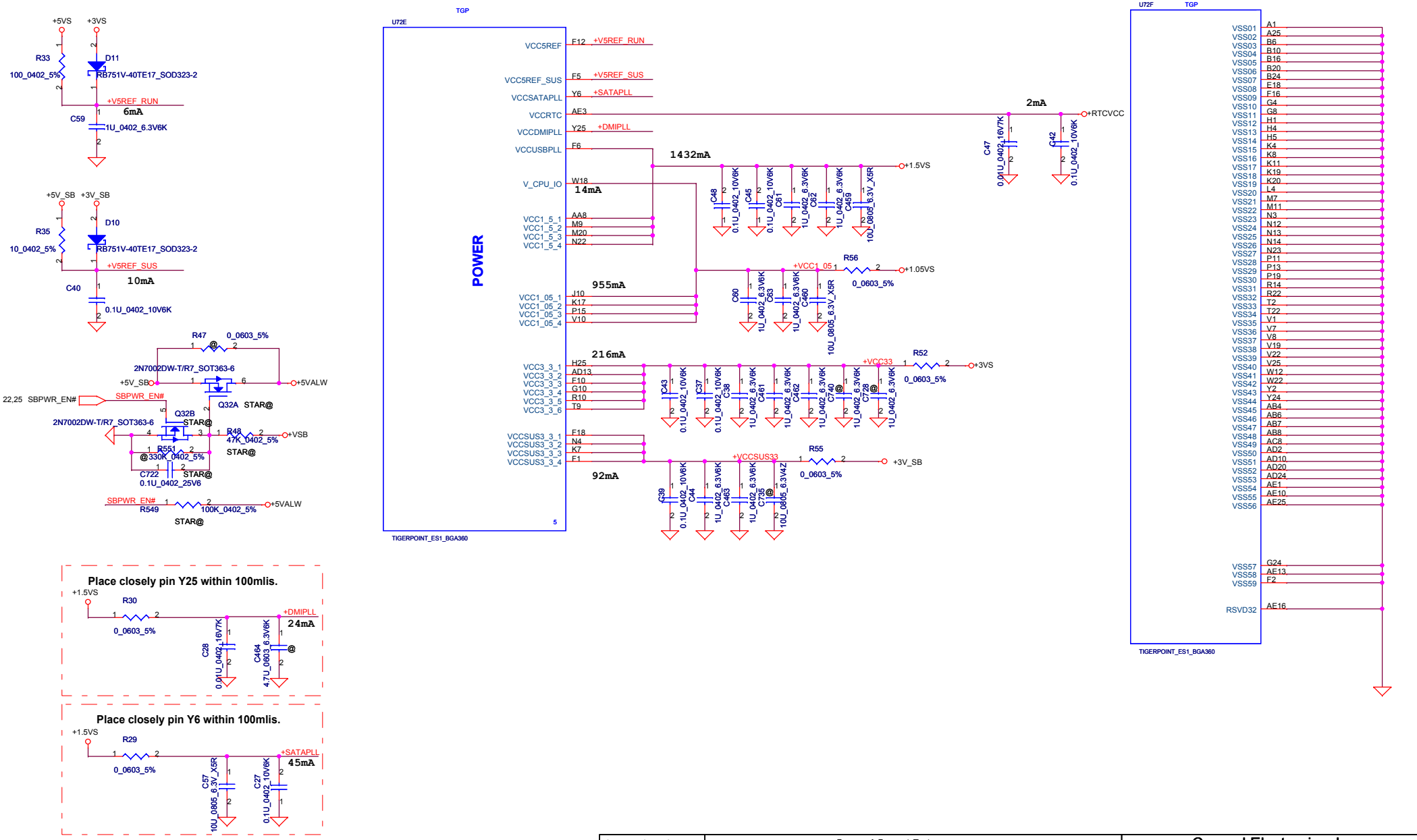
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: Tigerpoint(3/4)

Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 Sheet 13 of 35



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

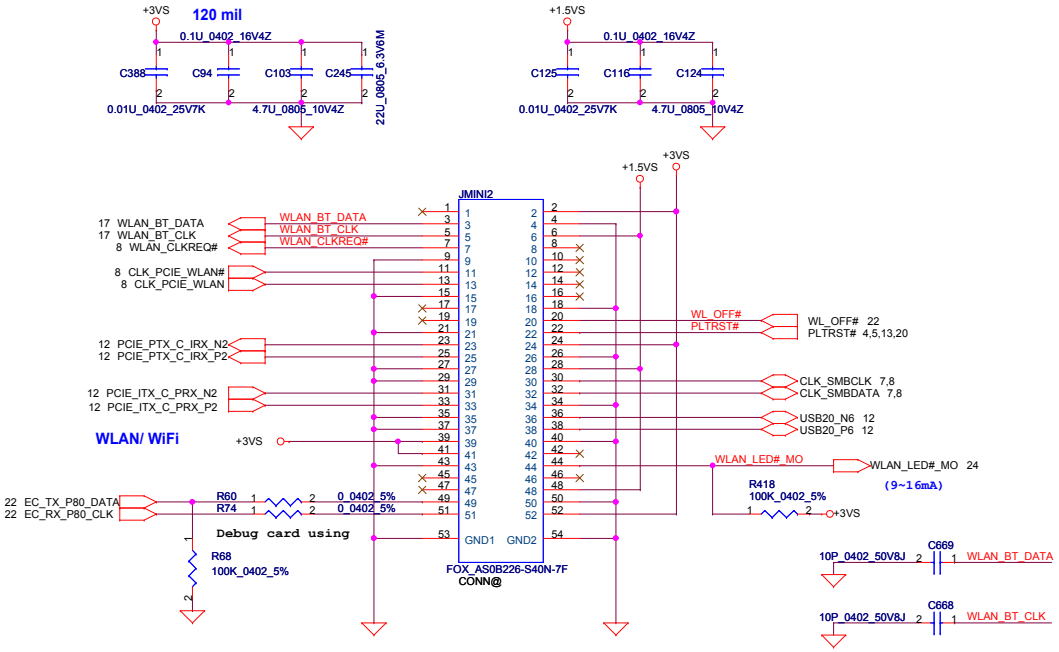
Compal Electronics, Inc.

Title: Tigerpoint(4/4)

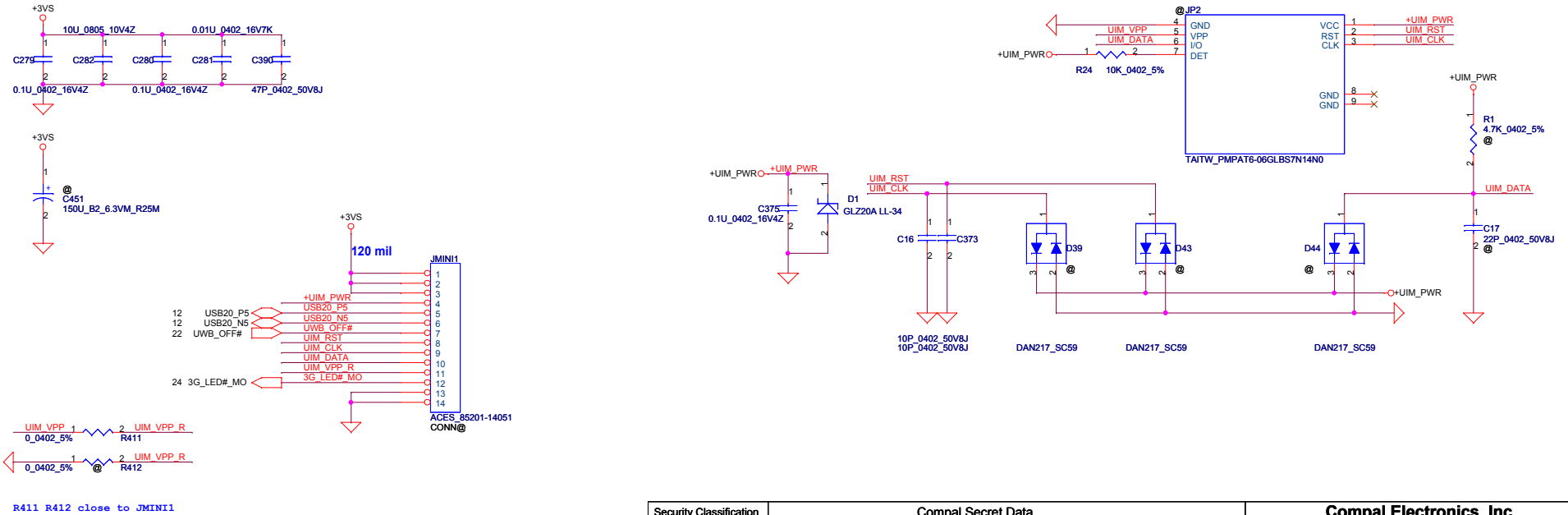
Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 | Sheet 14 of 35

Mini-Express Card for WLAN



Mini-Express Card for 3G



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

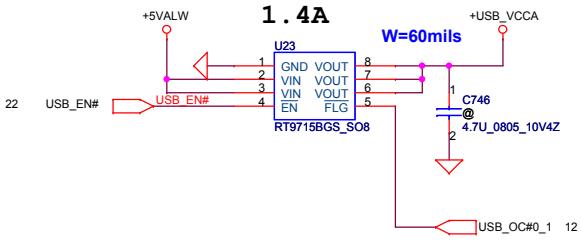
Compal Electronics, Inc.

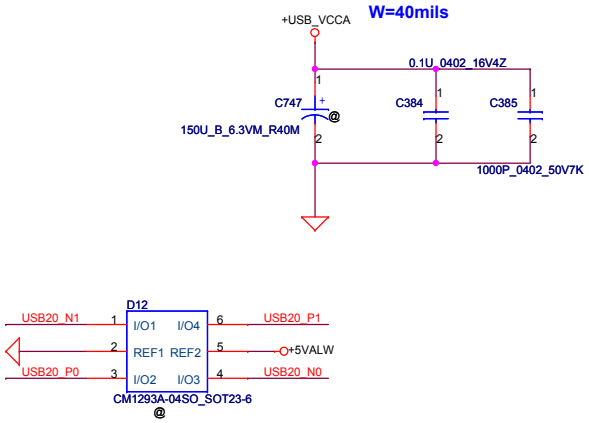
Title: WLAN/3G

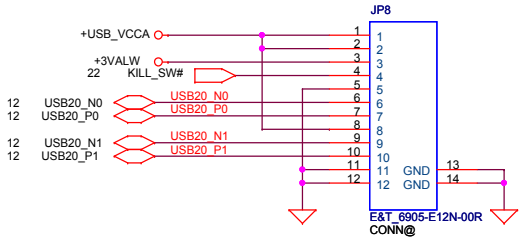
Size	Document Number	Rev
	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 Sheet 15 of 35

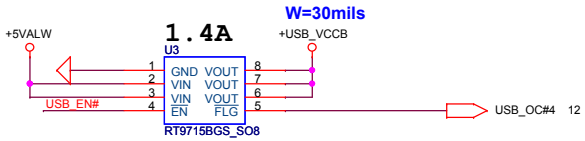
USB X2

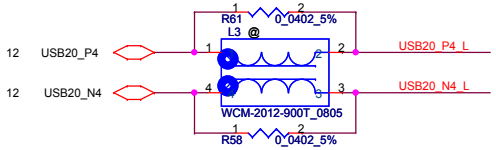


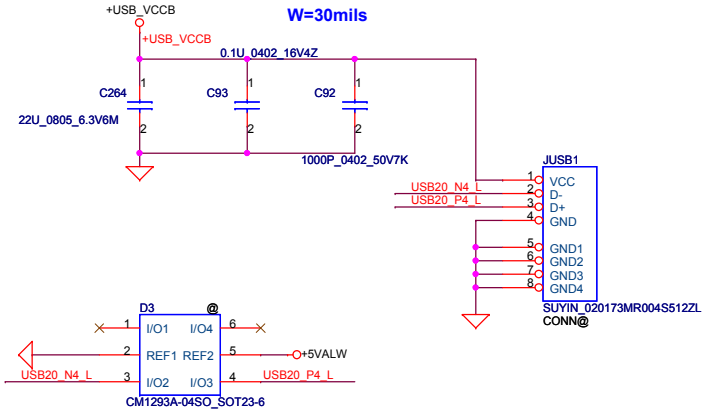




USB Board--Left







Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

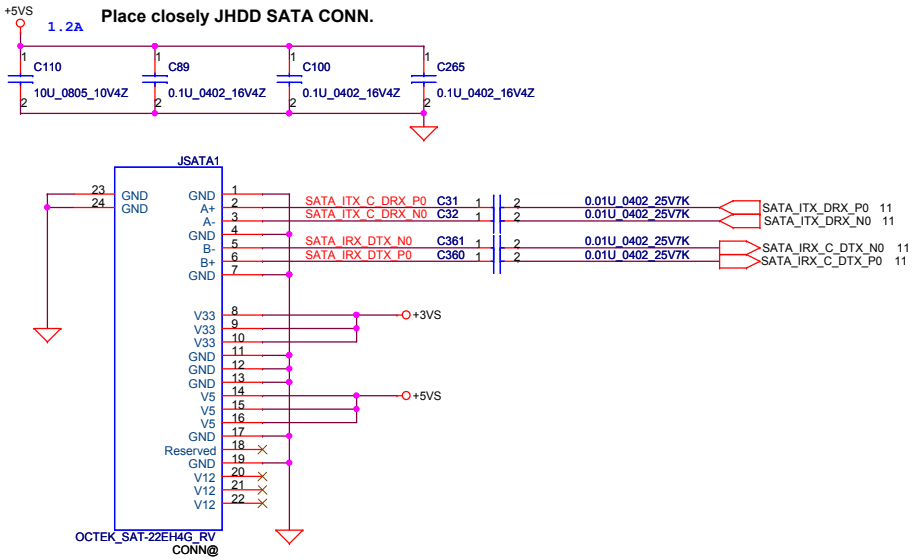
Title: USB Conn

Size | Document Number: NTV00 LA5661P M/B | Rev: 1.0

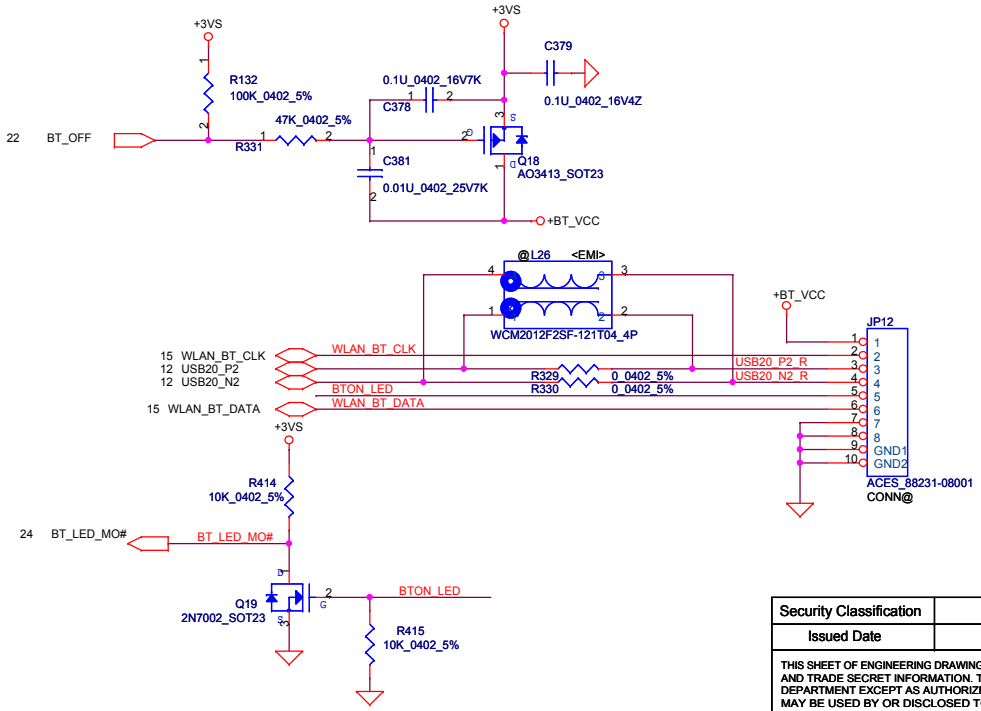
Date: Thursday, January 07, 2010 | Sheet 16 of 35

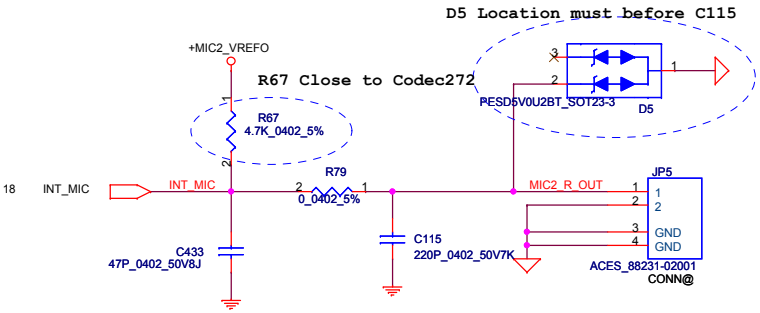
SATA Conn.

Place closely JHDD SATA CONN.



BlueTooth Interface





Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

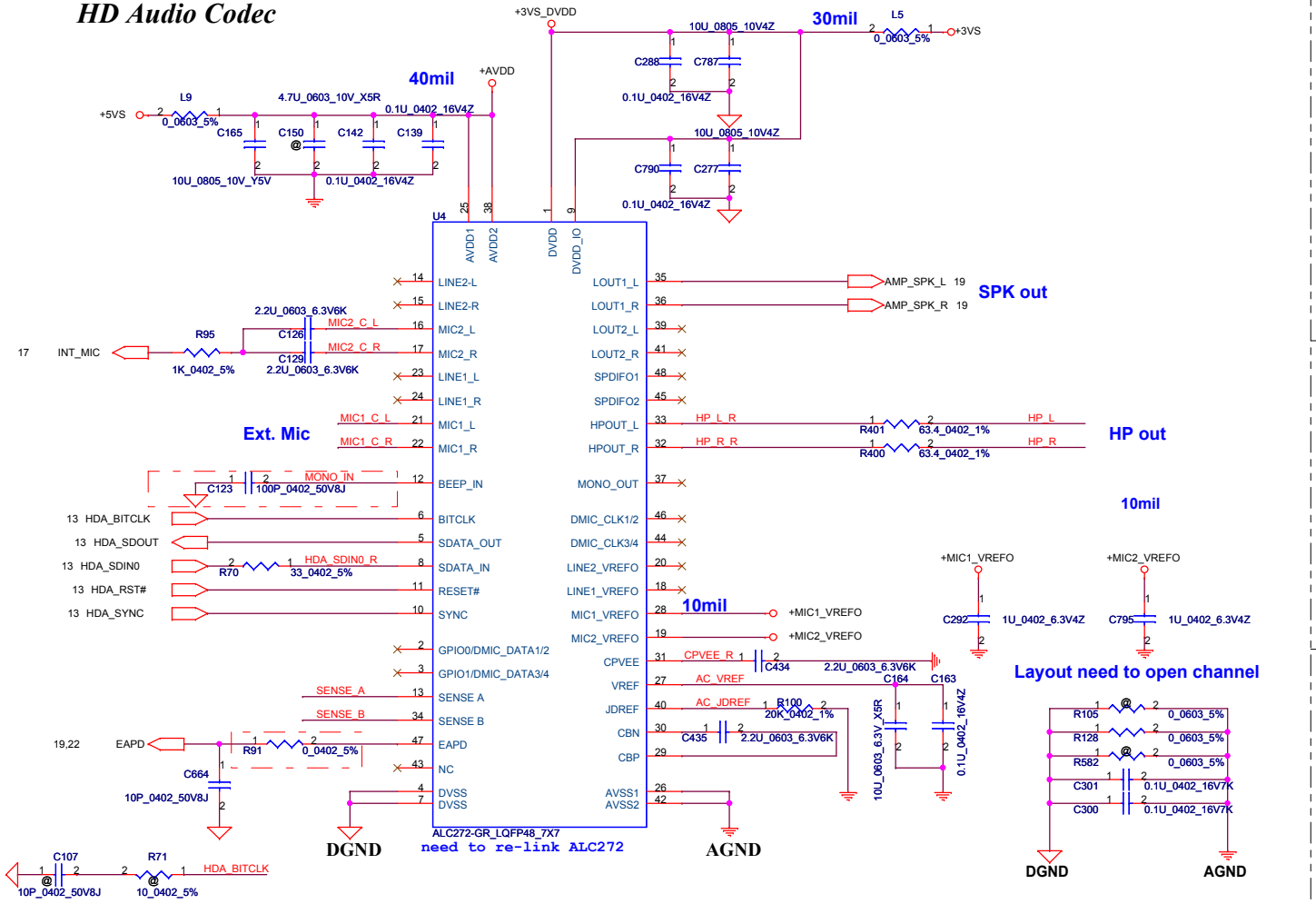
Compal Electronics, Inc.

Title: SATA /BT/Int MIC

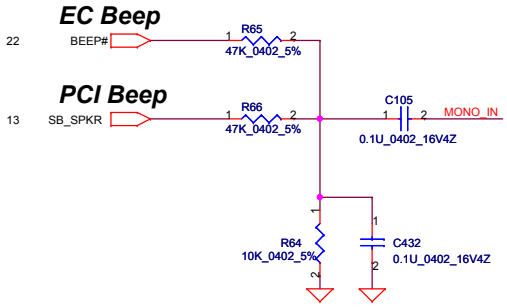
Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 Sheet 17 of 35

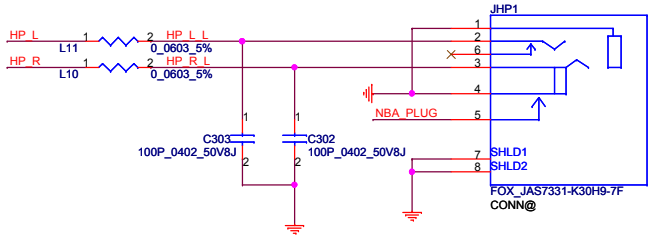
HD Audio Codec



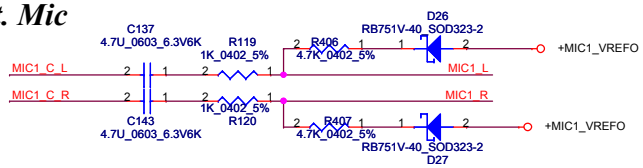
Beep sound



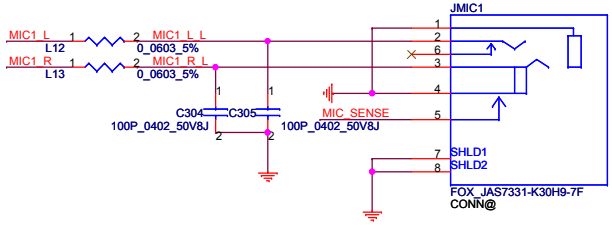
Head Phone JACK



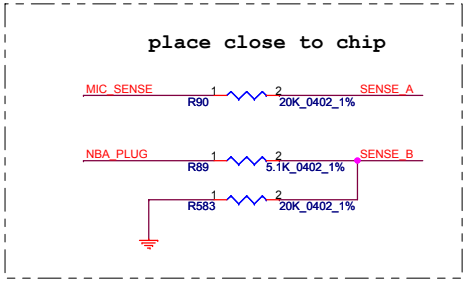
Ext. Mic



Ex.MIC JACK



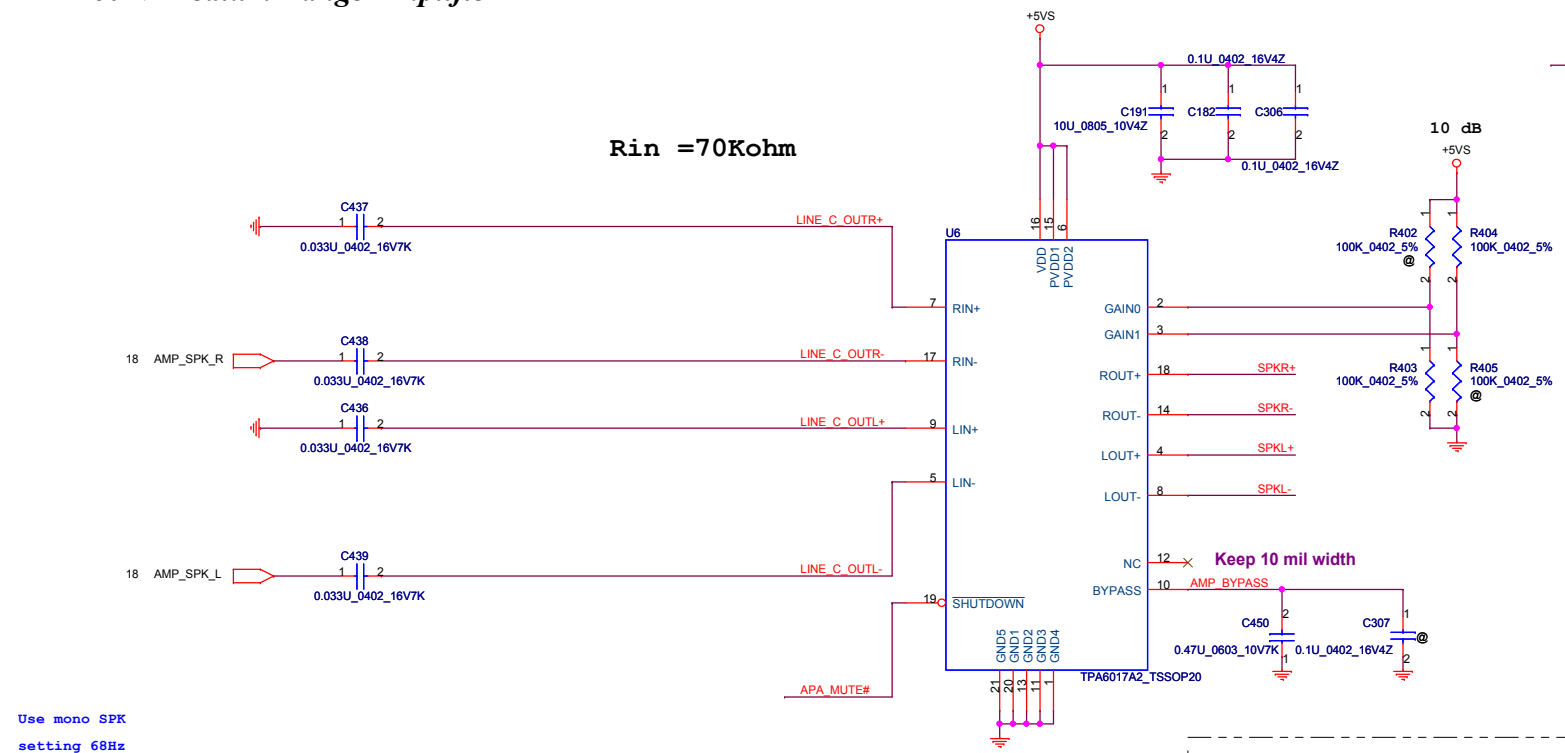
Sense Pin	Impedance	Codec Signals	Function
SENSE A	39.2K	PORT-A (PIN 39, 41)	
	20K	PORT-B (PIN 21, 22)	Ext. MIC
	10K	PORT-C (PIN 23, 24)	
	5.1K	PORT-D (PIN 35, 36)	SPK out
SENSE B	39.2K	PORT-E (PIN 14, 15)	
	20K	PORT-F (PIN 16, 17)	Int. MIC
	10K	PORT-H (PIN 37)	
	5.1K	PORT-I (PIN 32, 33)	Headphone out



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.	
Title	ALC272-GR Codec/HP/Ext. Jack
Size: Custom	Document Number: NTV00 LA5661P M/B
Rev	1.0
Date: Thursday, January 07, 2010	Sheet 18 of 35

TPA6017 Medium Range Amplifier



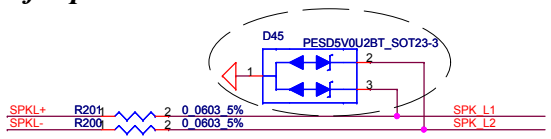
GAIN0	GAIN1	Av(db)	Rin(ohm)
0	0	6	90K
0	1	10	70K
1	0	15.6	45K
1	1	21.6	25K

Use mono SPK
setting 68Hz
F=1/2πRC --> -3db
C=0.033U,R=70K,F=68Hz

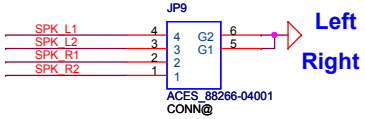
APA_MUTE# — R409 0_0402_5% — EC_MUTE# 22

APA_MUTE# — R410 @ 0_0402_5% — EAPD 18,22

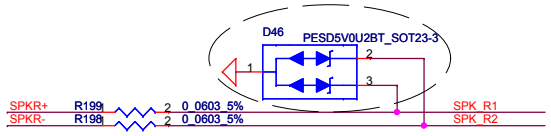
Left Speaker Connector



7/3 Change to SCA00000T00 for ESD request



Right Speaker Connector



7/3 Change to SCA00000T00 for ESD request

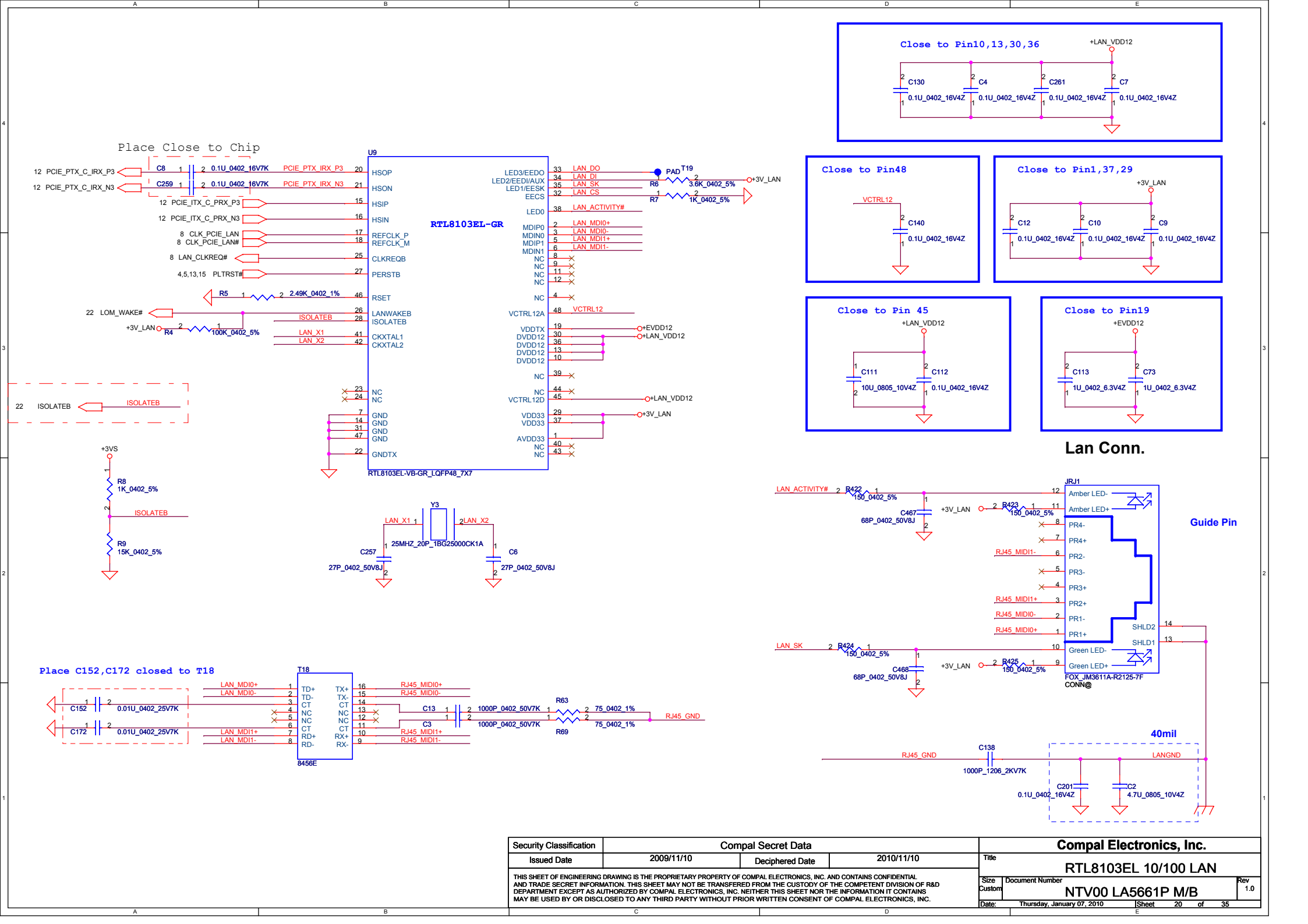
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: AMP/VR/Audio Jack/MIC

Size: Custom | Document Number: NTV00 LA5661P M/B | Rev: 1.0

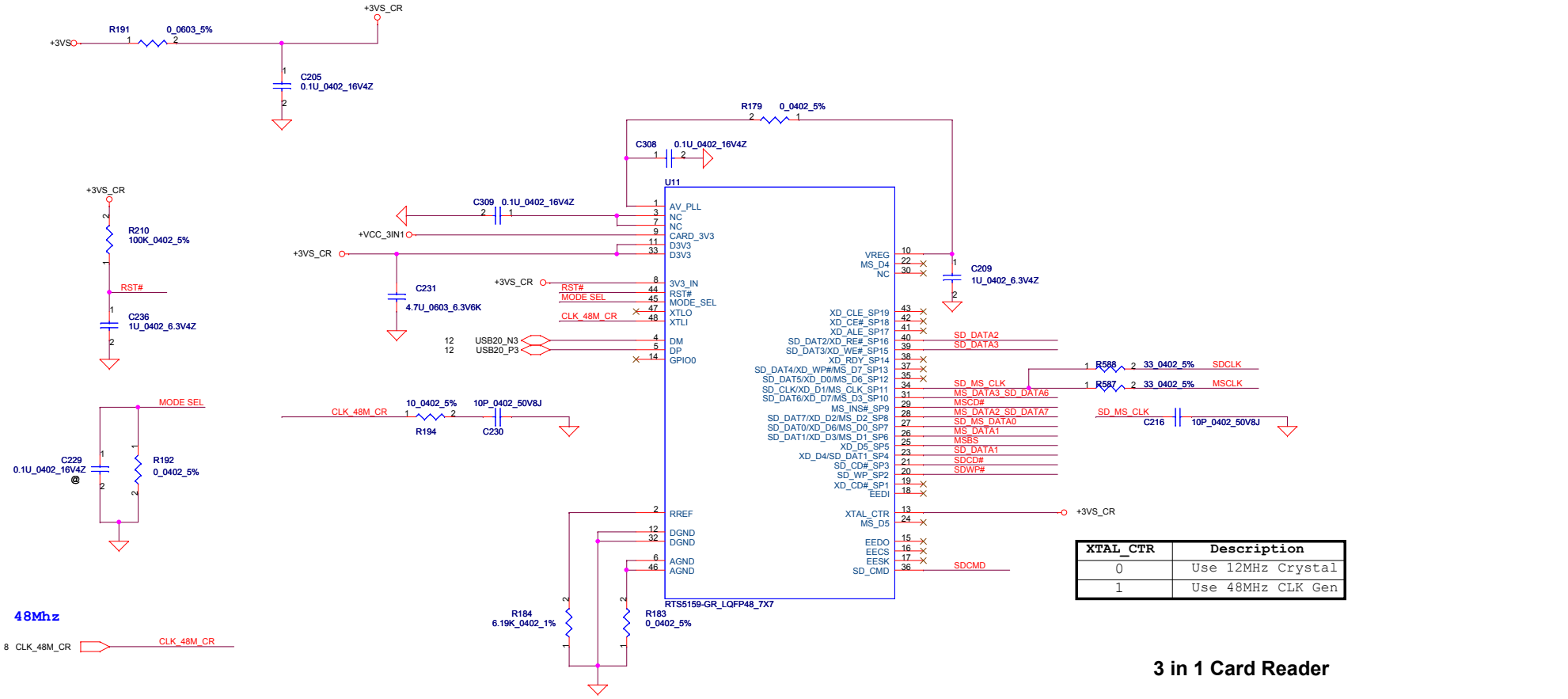
Date: Thursday, January 07, 2010 | Sheet 19 of 35



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

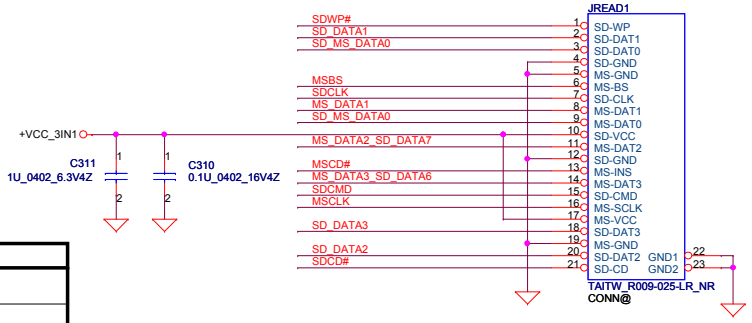
Compal Electronics, Inc.

Title	RTL8103EL 10/100 LAN
Size: Custom	Document Number: NTV00 LA5661P M/B
Rev	1.0
Date:	Thursday, January 07, 2010
Sheet	20 of 35



XTAL_CTR	Description
0	Use 12MHz Crystal
1	Use 48MHz CLK Gen

3 in 1 Card Reader



R	C	USB AUTO DE-LINK	MS FORMATTER	Description
0	NC	YES		Recommended
NC	47P	YES	YES	
NC	NC			Compatible with RTS5158E
NC	680P	YES		LED ON
10K	180P			LED ON
10K	680P		YES	

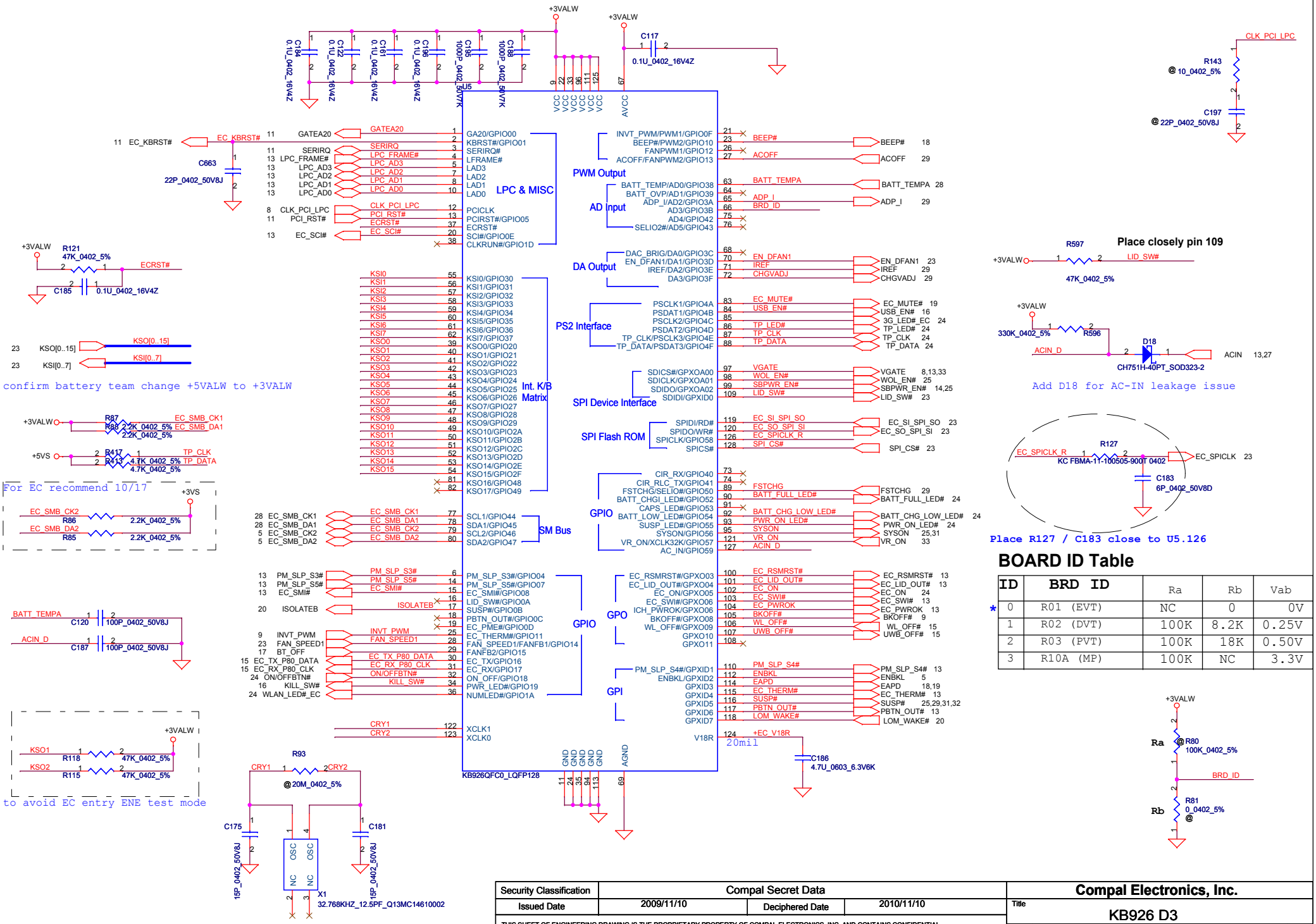
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: RTS5159 Card Reader

Size: Custom | Document Number: NTV00 LA5661P M/B | Rev: 1.0

Date: Thursday, January 07, 2010 | Sheet 21 of 35



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

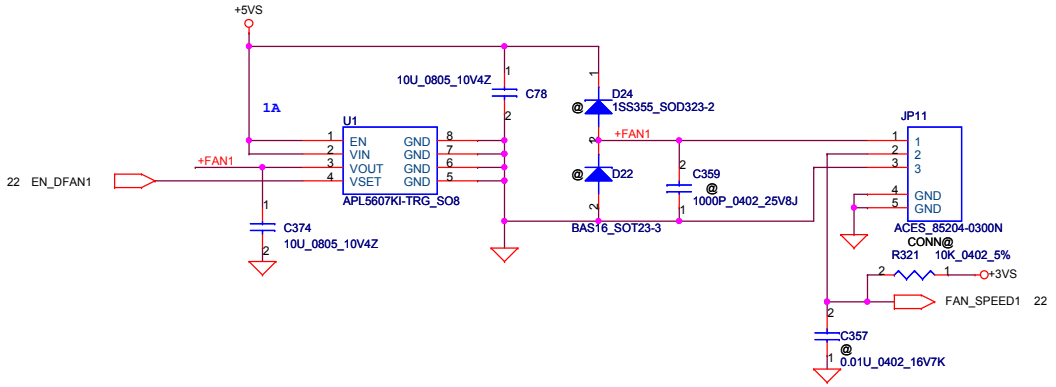
Compal Electronics, Inc.

Title: KB926 D3

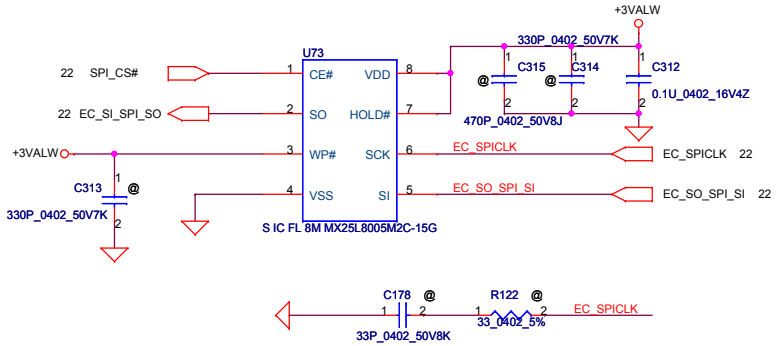
Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 | Sheet 22 of 35

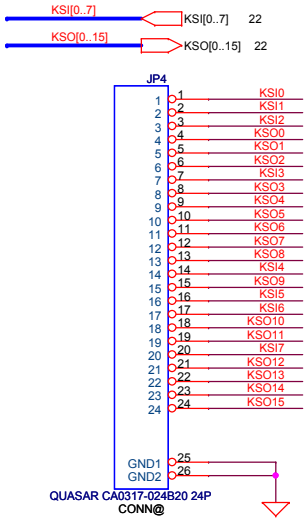
FAN Control Circuit

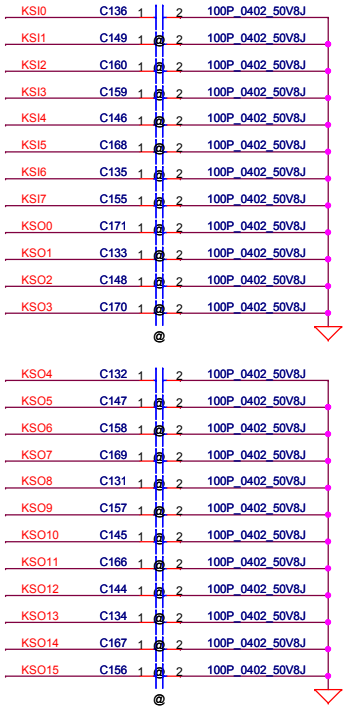


SPI Flash (16Mb*1)

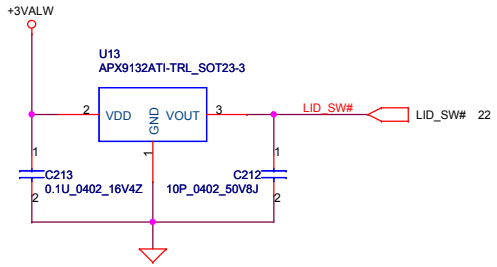


KEYBOARD CONN .





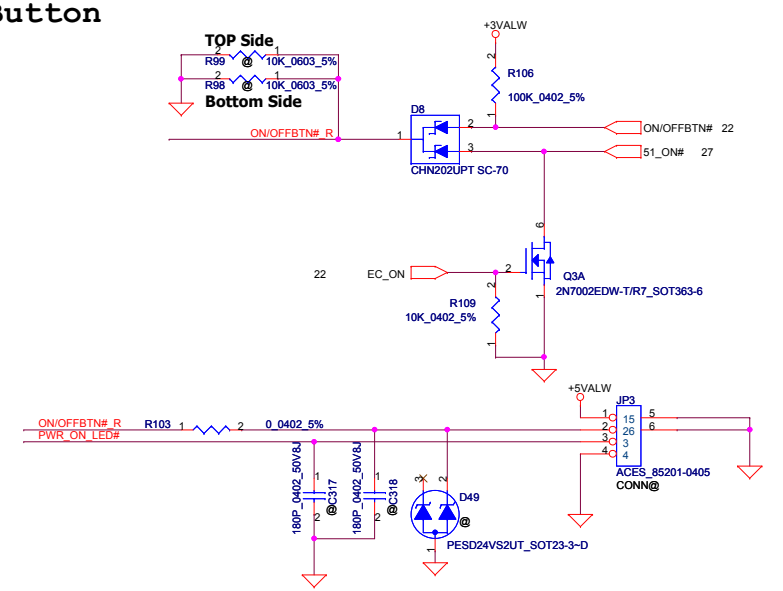
Lid SW



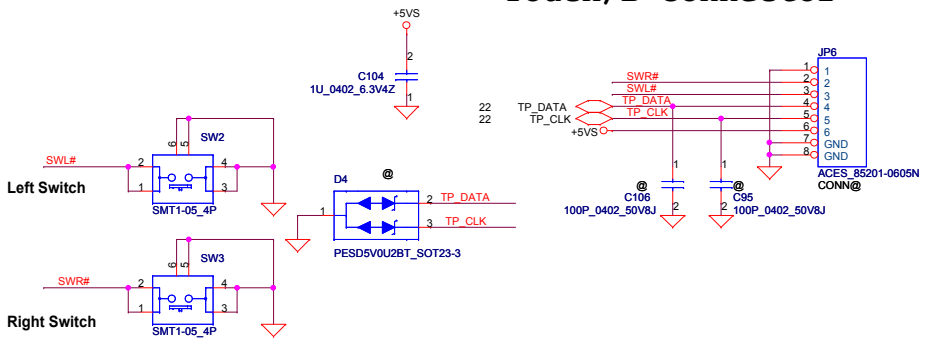
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Title	SPI ROM//KB//FAN/Lid SW		
Size	Document Number	NTV00 LA5661P M/B	Rev 1.0
Date:	Thursday, January 07, 2010	Sheet 23 of 35	

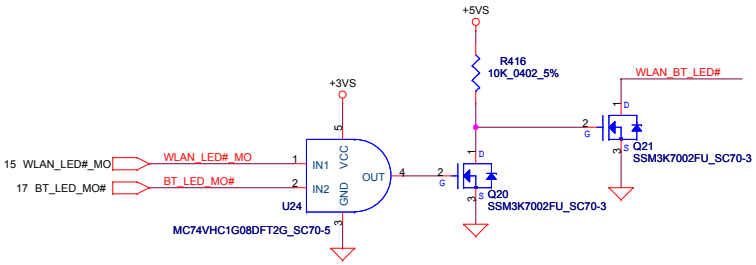
Power Button



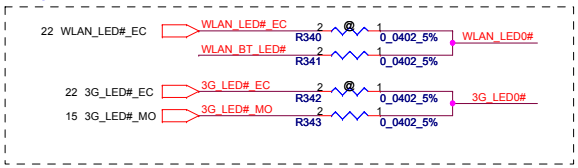
Touch/B Connector



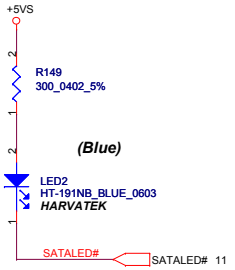
ISPD



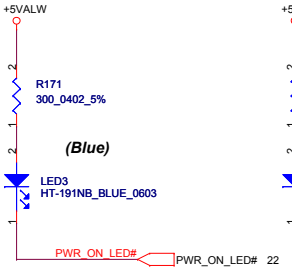
Option control LED



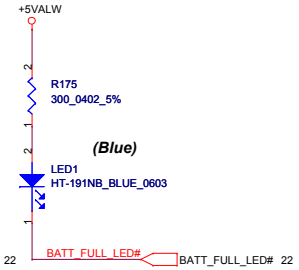
HDD_LED



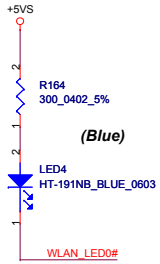
Power_LED



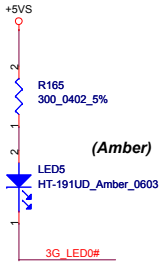
Charge_LED



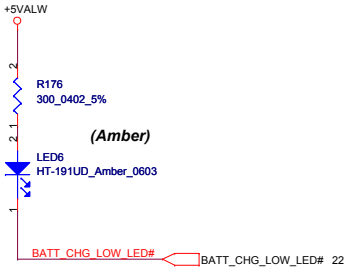
WLAN_LED



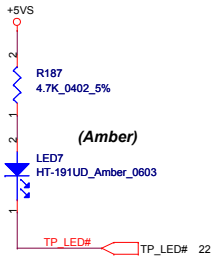
3G_LED



Charge_LED



TP_LED



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

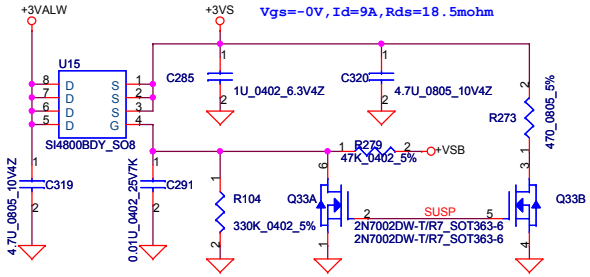
Compal Electronics, Inc.

Title: ON/OFF /TP Conn/LEDS/ISPD

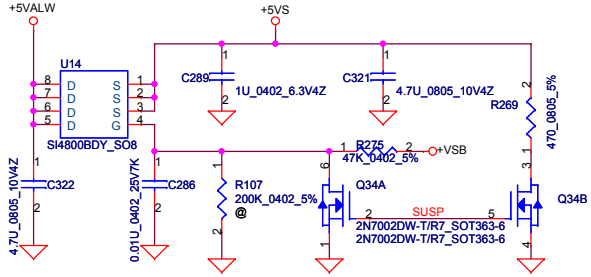
Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 Sheet 24 of 35

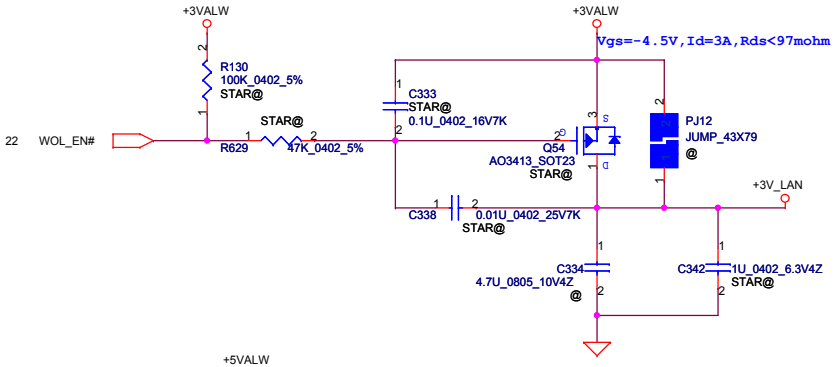
+3VALW TO +3VS



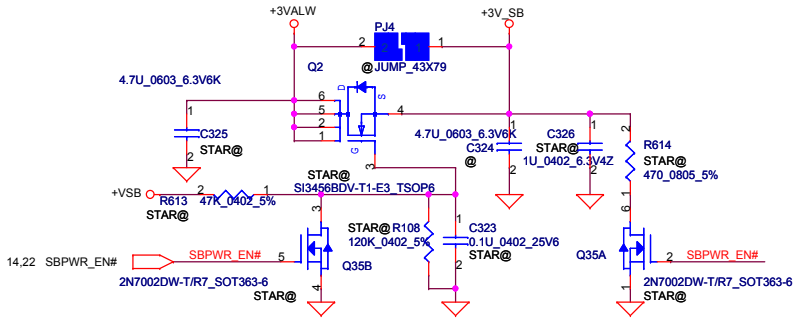
+5VALW TO +5VS

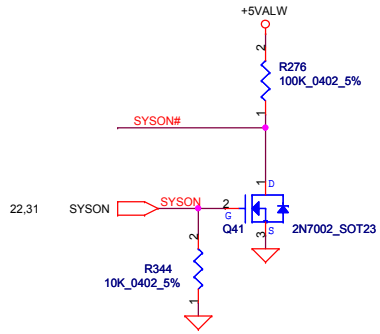


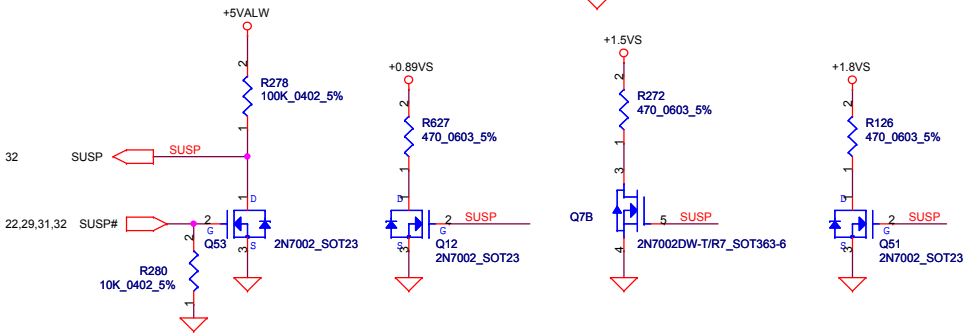
+3VALW TO +3V_LAN

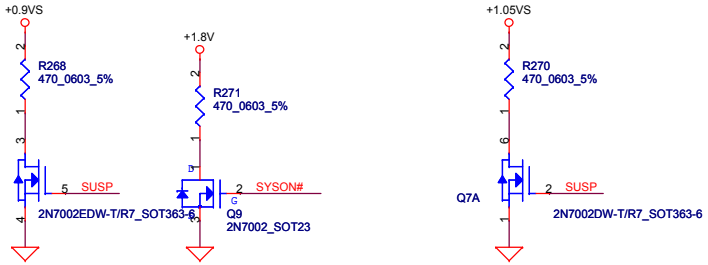


+3VALW TO +3V_SB

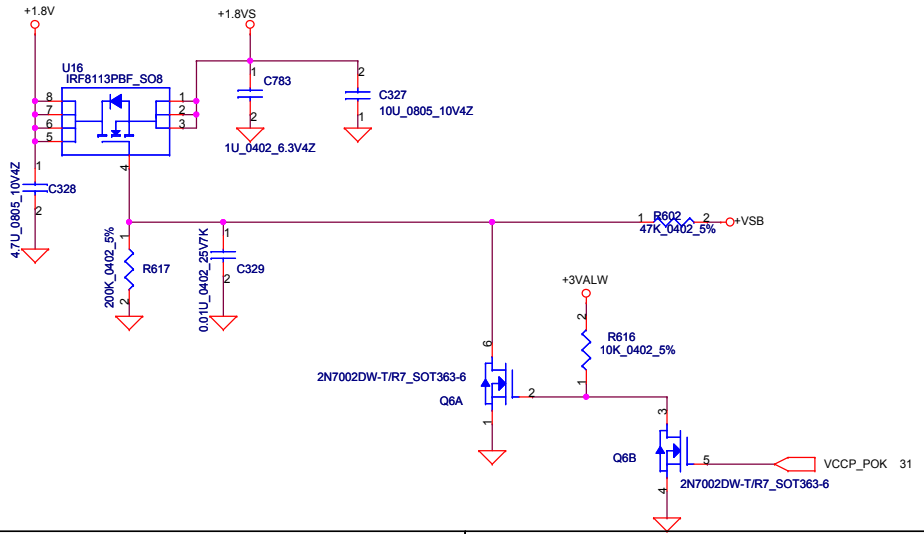








+1.8V TO +1.8VS



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: DC-DC INTERFACE

Size: Custom | Document Number: NTV00 LA5661P M/B | Rev: 1.0

Date: Thursday, January 07, 2010 | Sheet 25 of 35

H_6P6 H2

02/12 H2 change to H_6P6

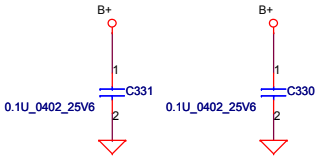
H_2P5 H15 H11 H4 H9

H_3P3 H8 H6 H7 H5

01/06 H_3P8 change to H_3P3

H_3P3 H12 H13

01/06 H_3P1 change to H_3P3



H_7P0X5P0 H14

02/12 H_7P0X5P0N change to H_7P0X5P0

H_3P1X4P1N H16 H10

01/06 Add a H_3P1X4P1N

H_2P9N H3

01/06 H_2P9N change to H_2P7N

03/11 H_2P7N change to H_2P9N

FM1 FM2 FM4 FM3 FIDUCIAL_C40M80

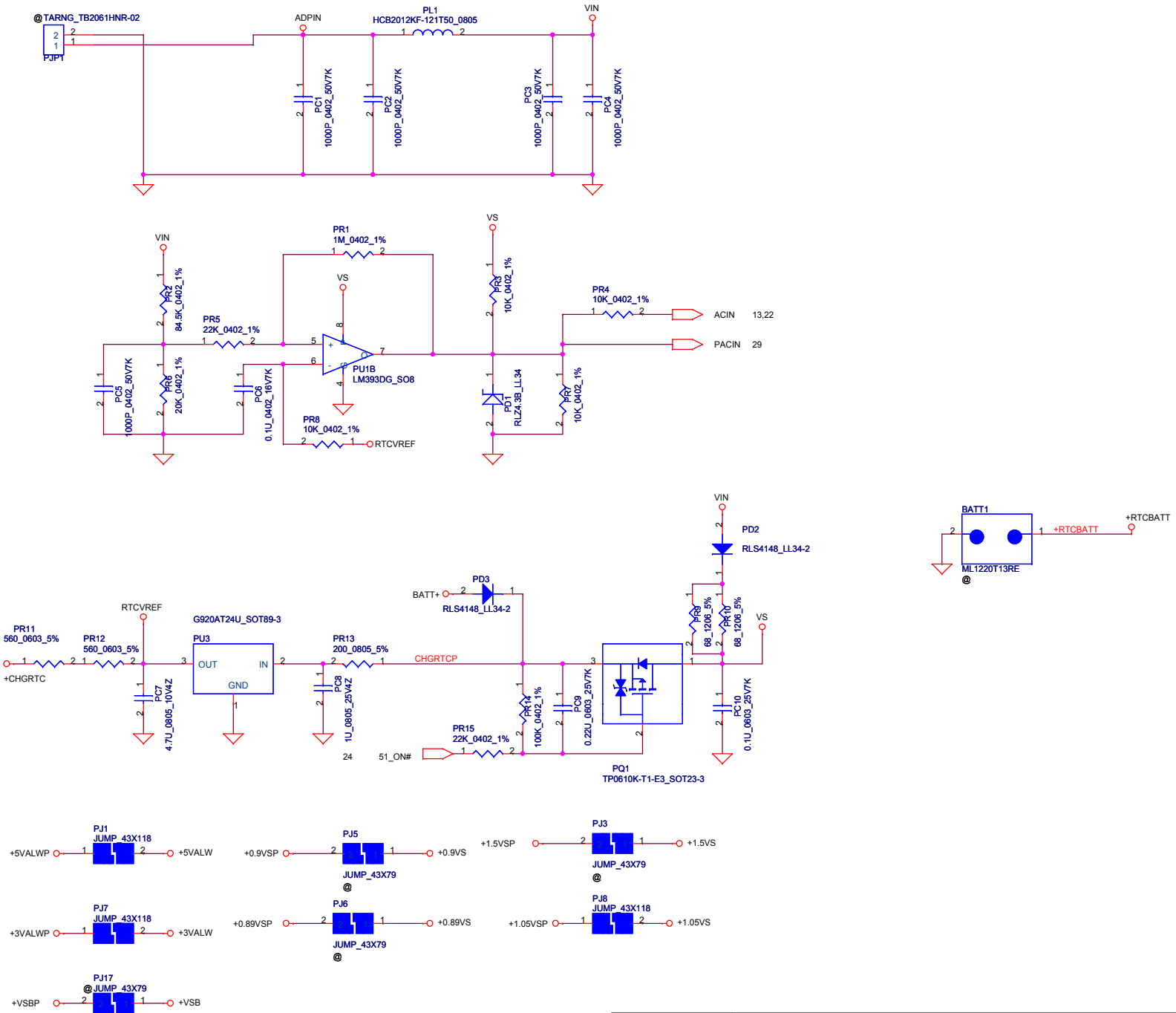
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: DC INTERFACE

Size: Custom | Document Number: NTV00 LA5661P M/B | Rev: 1.0

Date: Thursday, January 07, 2010 | Sheet 26 of 35



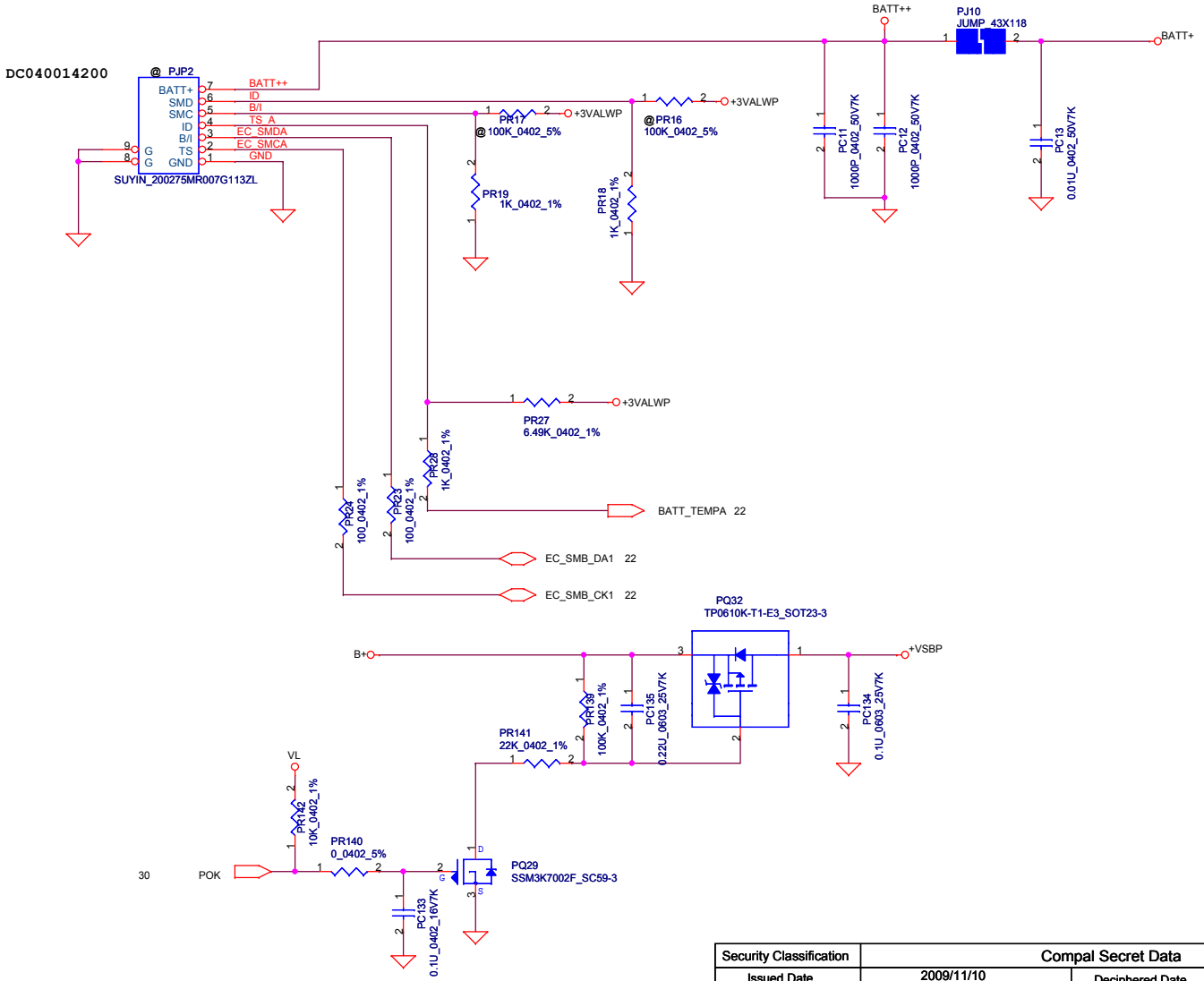
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: **DCIN/DETECTOR**

Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

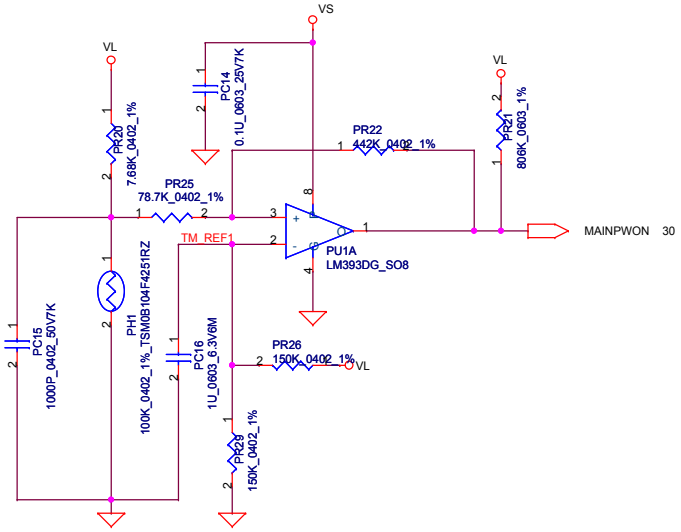
Date: Thursday, January 07, 2010 | Sheet 27 of 35



PH1 under CPU botten side :

CPU thermal protection at 95 degree C

Recovery at 75 degree C



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

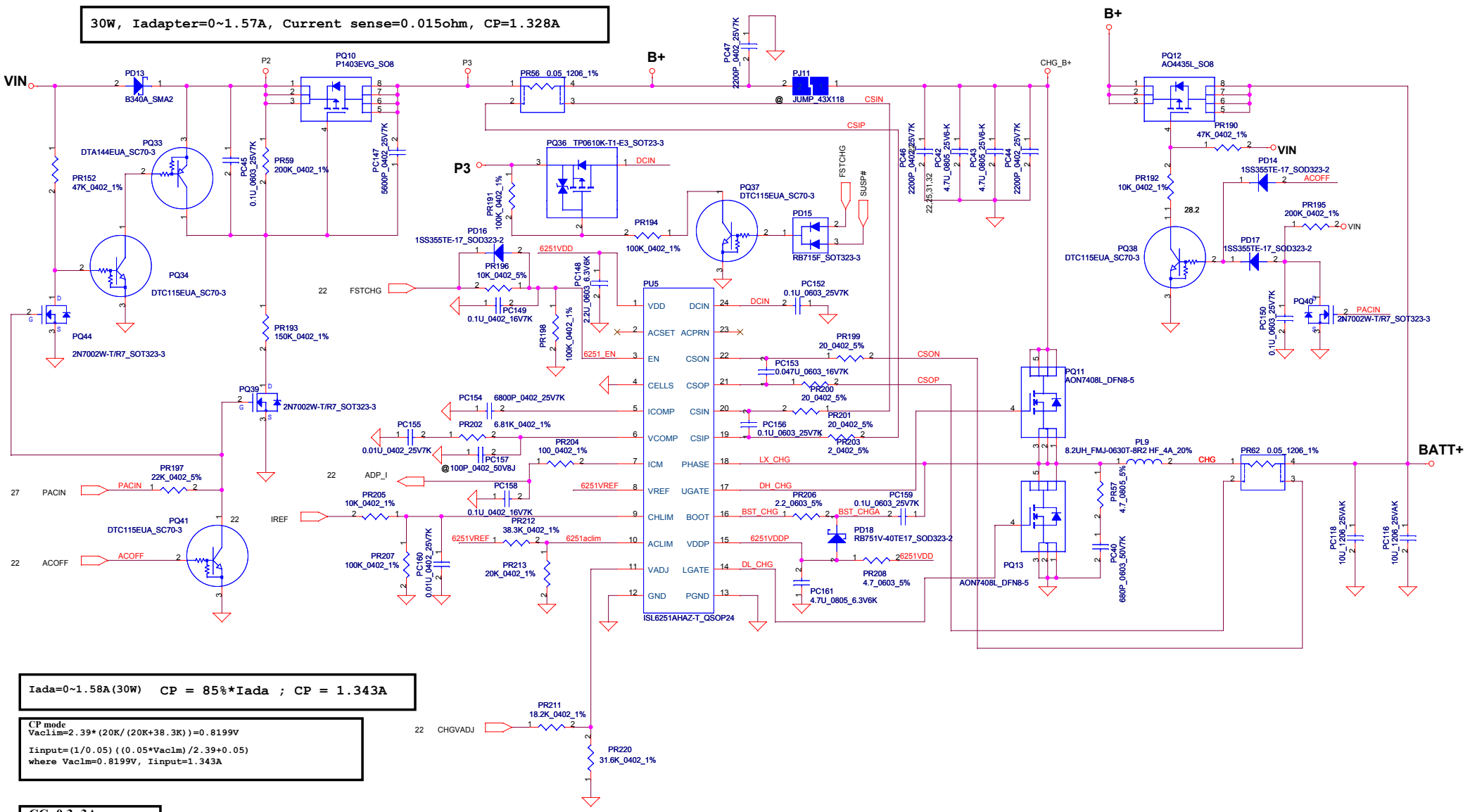
Compal Electronics, Inc.

Title: **BATTERY CONN. / OTP**

Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 Sheet 28 of 35

30W, Iadapter=0~1.57A, Current sense=0.015ohm, CP=1.328A



Iada=0~1.58A(30W) CP = 85%*Iada ; CP = 1.343A

CP mode
Vaclim=2.39*(20K/(20K+38.3K))=0.8199V

Iinput=(1/0.05)((0.05*Vaclm)/2.39+0.05)
where Vaclm=0.8199V, Iinput=1.343A

CC=0.3~3A
IREF=1.1*Icharge
IREF=0.33V~3.3V

BATT Type	Charging Voltage (0x15)	CV mode
Normal 3S LI-ON Cells	12600mV	12.60V

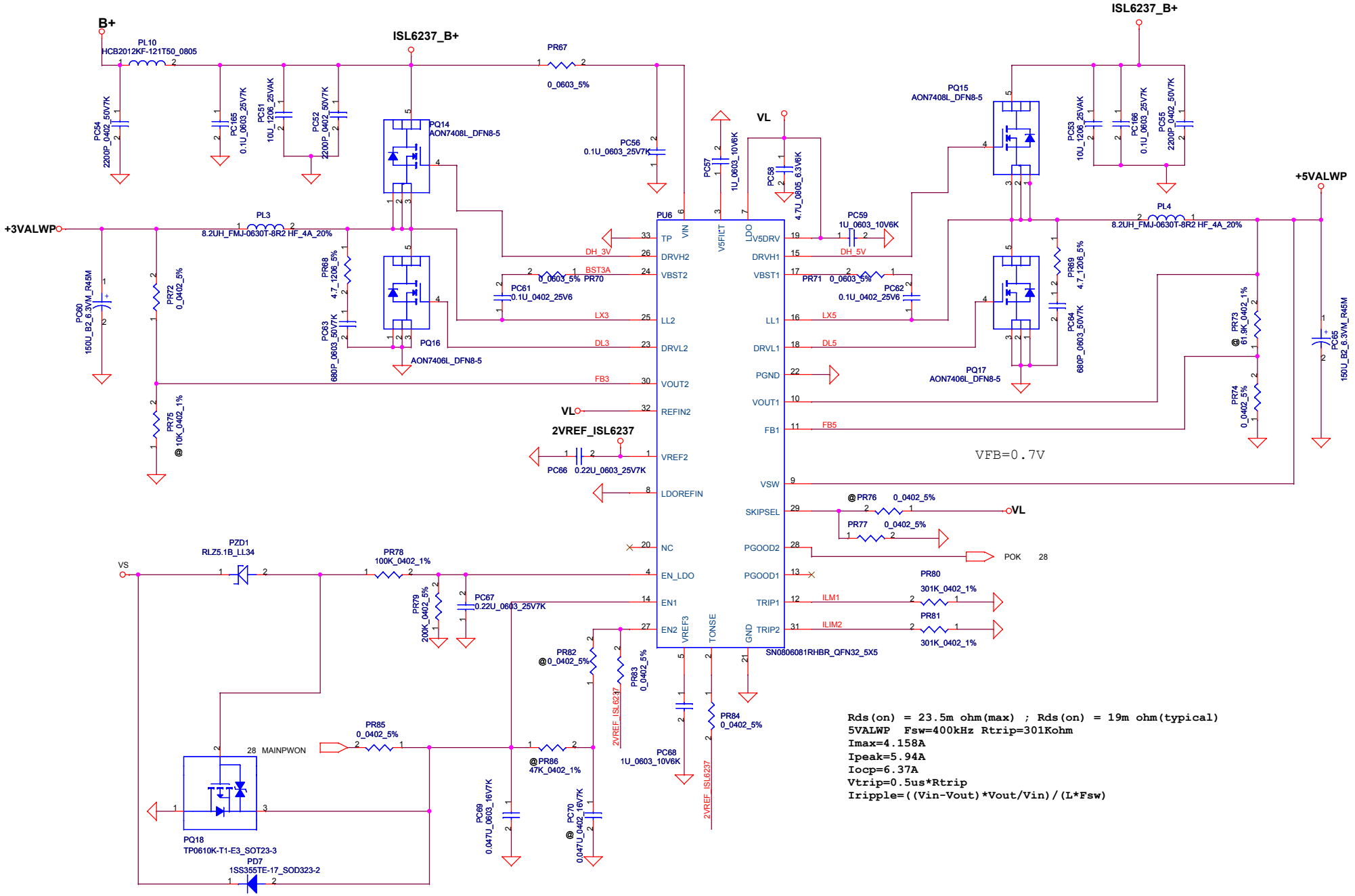
VADJ-->VREF-->4.41V

VADJ--->Ground--->3.39V

Vcell=(0.175*VADJ+3.99)

Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.			
Title: CHARGER			
Size	Document Number: NTV00 LA5661P M/B		Rev: 1.0
Date: Thursday, January 07, 2010	Sheet 29 of 35		



Rds(on) = 23.5m ohm(max) ; Rds(on) = 19m ohm(typical)
5VALWP Fsw=400kHz Rtrip=301Kohm
Imax=4.158A
Ipeak=5.94A
Iocp=6.37A
Vtrip=0.5us*Rtrip
Iripple=((Vin-Vout)*Vout/Vin)/(L*Fsw)

Rds(on) = 23.5m ohm(max) ; Rds(on) = 19m ohm(typical)
3.3VALWP Fsw=300kHz Rtrip=301K
Imax=4.319A
Ipeak=6.17A
Iocp=6.43A
Vtrip=0.5us*Rtrip
Iripple=((Vin-Vout)*Vout/Vin)/(L*Fsw)

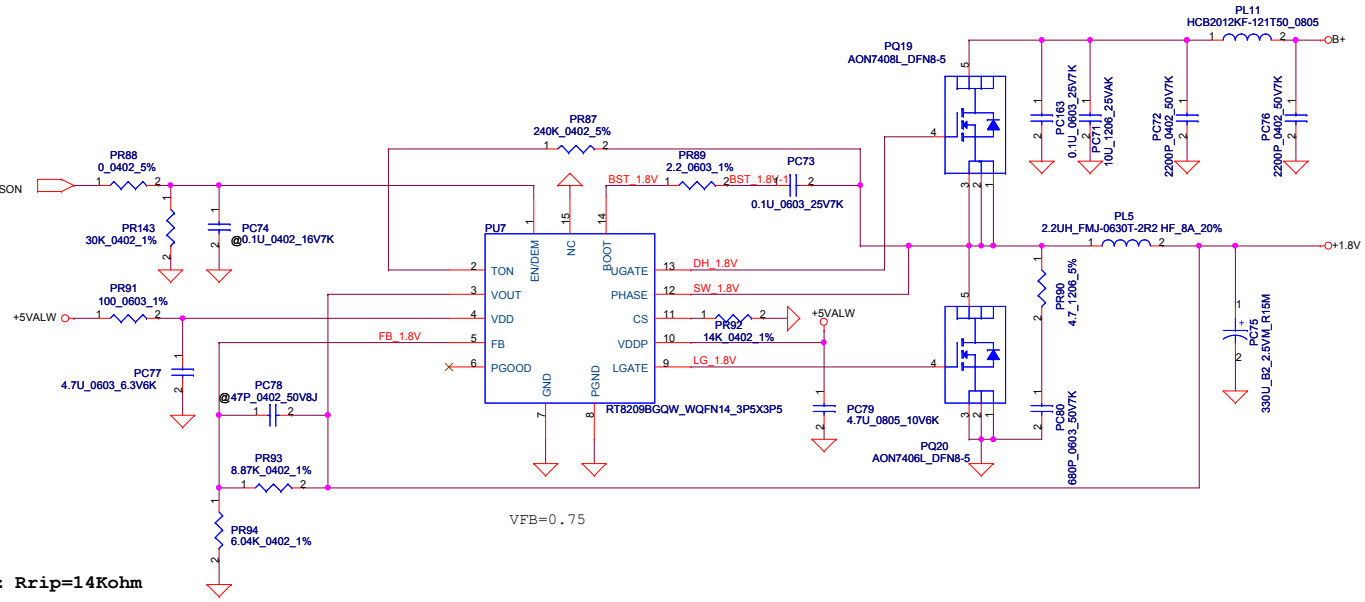
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

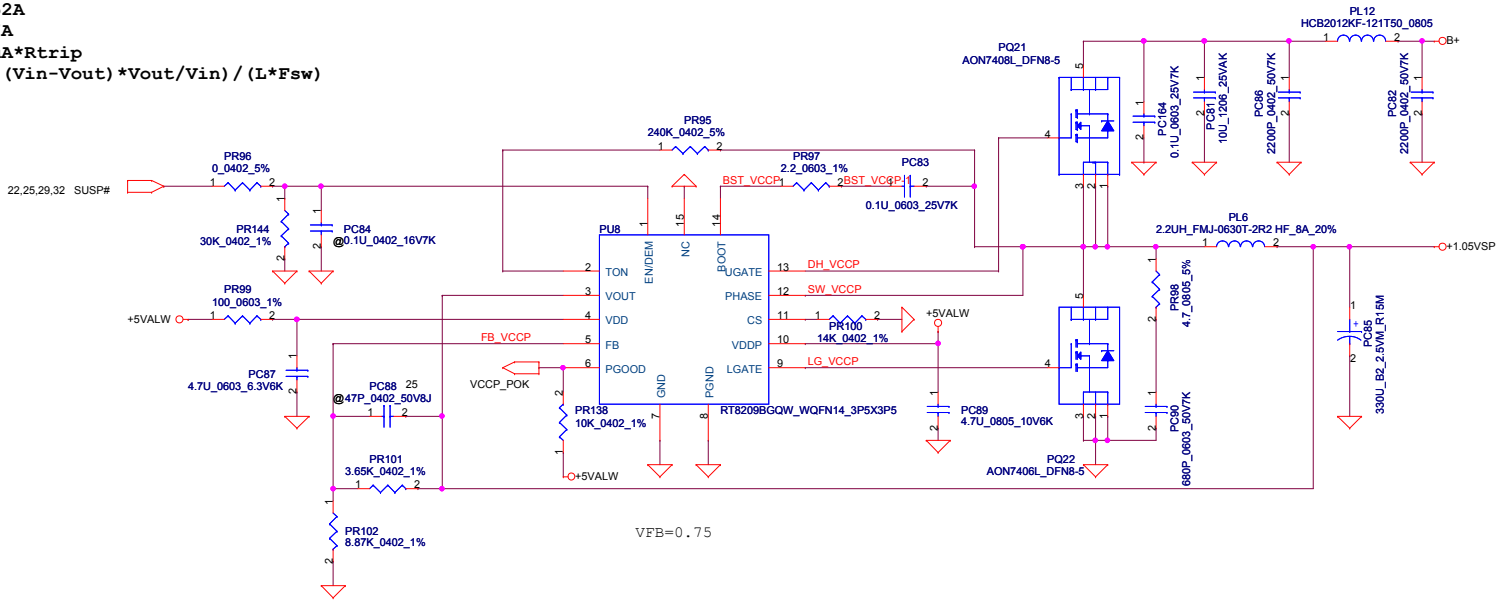
Title: **+5VALWP/+3VALWP**

Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 Sheet 30 of 35



1.8VP Fsw=334kHz Rrip=14Kohm
Imax=2.464A
Ipeak=3.52A
Iocp=6.37A
Vtrip=10uA*Rtrip
Iripple=((Vin-Vout)*Vout/Vin)/(L*Fsw)



VCCPP(1.05V) Fsw=338kHz Rtrip=14Kohm
Imax=2.4493A
Ipeak=3.499A
Iocp=6.01A
Vtrip=10uA*Rtrip
Iripple=((Vin-Vout)*Vout/Vin)/(L*Fsw)

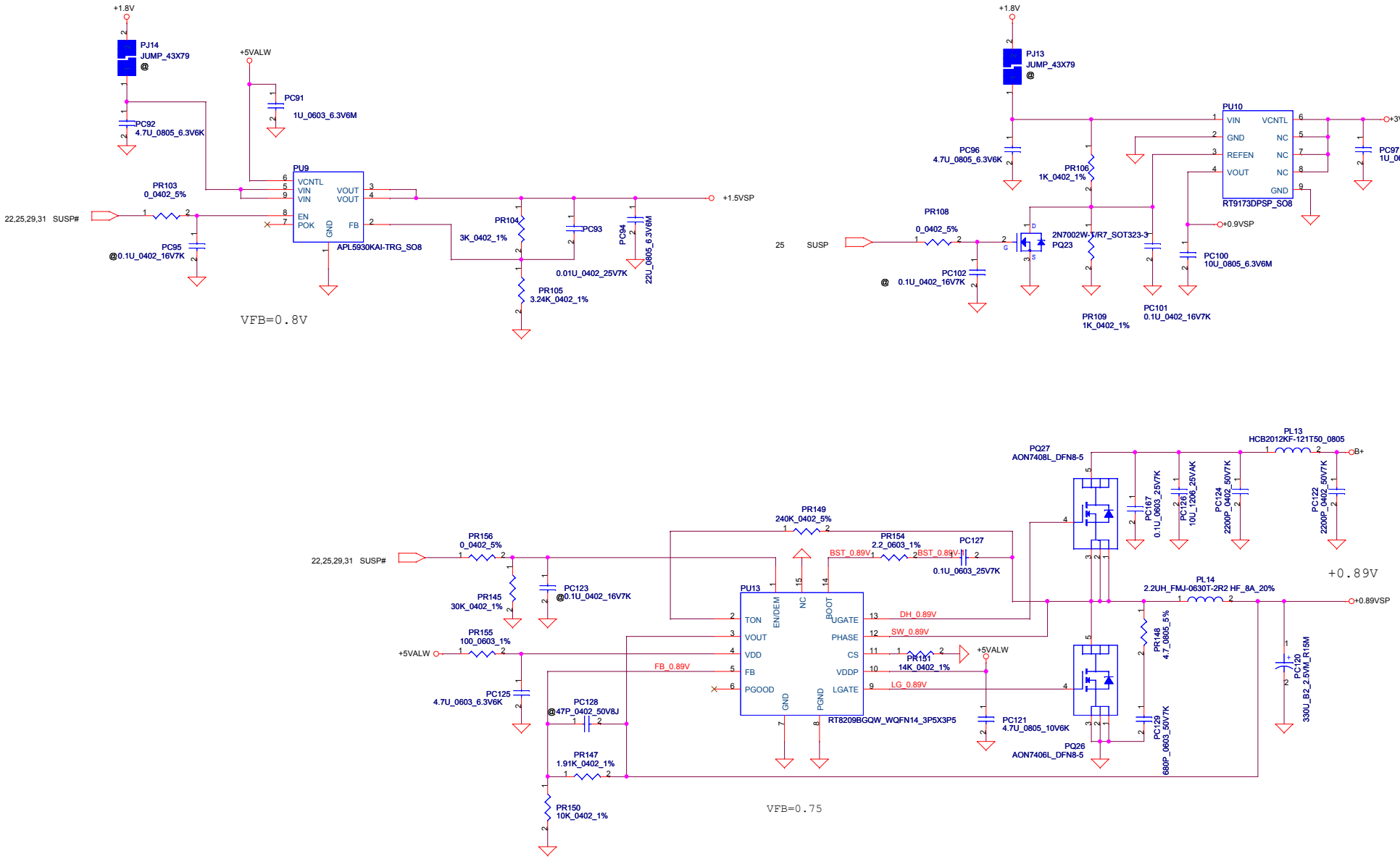
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: 1.05VP/1.8VP

Size: Custom | Document Number: NTV00 LA5661P M/B | Rev: 1.0

Date: Thursday, January 07, 2010 | Sheet 31 of 35



0.89VP Fsw=339kHz Rrip=14Kohm
Imax=1.848A
Ipeak=2.64A
Iocp=5.92A
Vtrip=10uA*Rtrip
Iripple=((Vin-Vout)*Vout/Vin)/(L*Fsw)

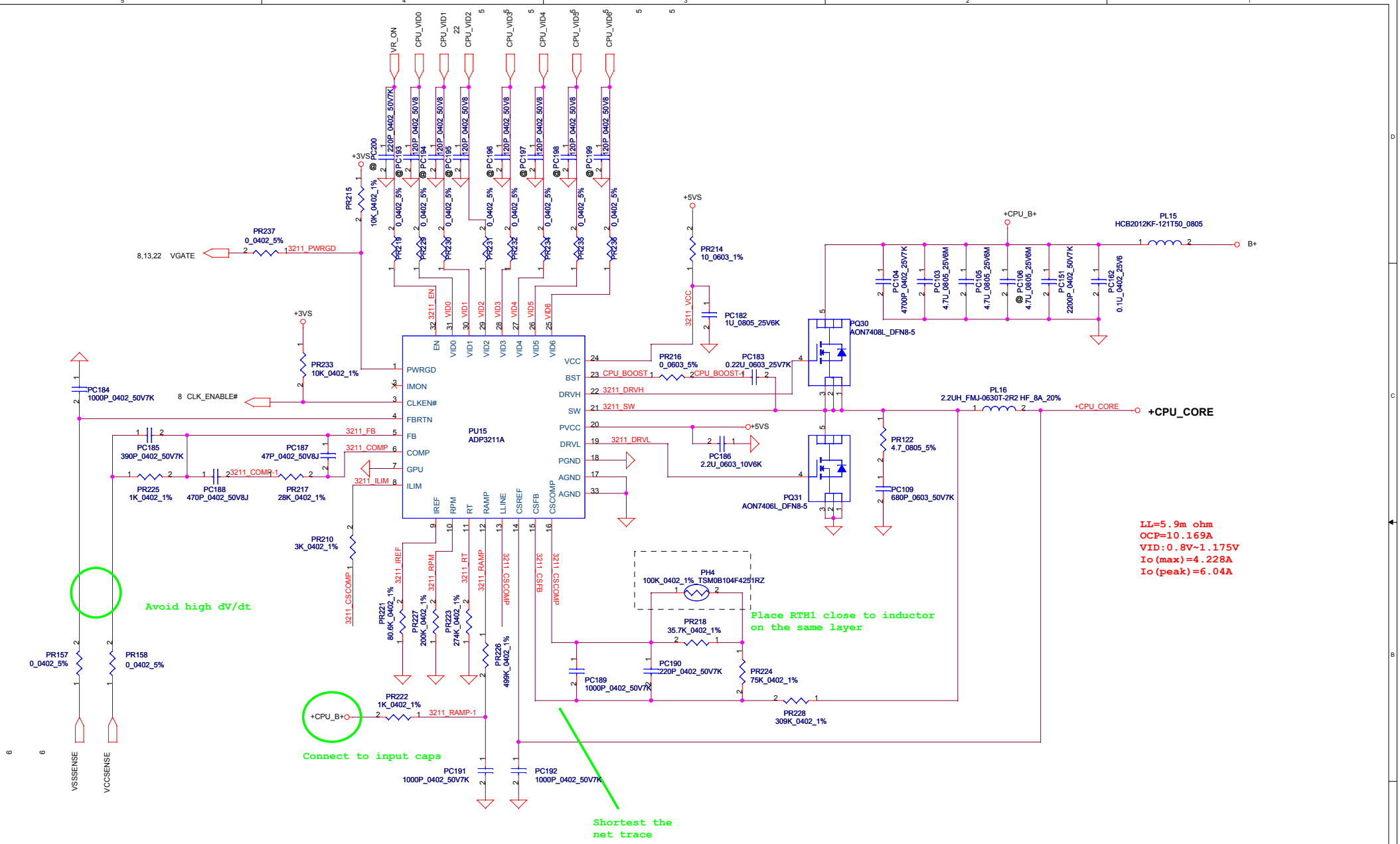
Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.

Title: 2.5VSP/0.9VSP/1.5VSP

Size	Document Number	Rev
Custom	NTV00 LA5661P M/B	1.0

Date: Thursday, January 07, 2010 Sheet 32 of 35



Security Classification	Compal Secret Data		
Issued Date	2009/11/10	Deciphered Date	2010/11/10

Compal Electronics, Inc.			
Title	+CPU_CORE		
Size: Custom	Document Number: NTV00 LA5661P M/B		Rev: 1.0
Date: Thursday, January 07, 2010	Sheet 33 of 35		

Page	Reason for change	Modify list
EVT-2	Change PC77,PC87,PC125 from 10V to 6.3V	
	Add PR233 for enable ClK_GEN by HW request	
	Add snubber for EMI request	Add PR57, PC40, PR68, PC63, PR69, PC64, Add PR90, PC80, PR98, PC90, PR148, PC129, PR122, PC109
	Change CPU OCP from 6A to 9A, PR210 from 1.8K to 2.61K	Change PR210 from 1.8K to 2.61K
	Change PC77, PC87, PC125 from 10V to 6.3V for standard part	
DVT	Romve BattOVP function, EC support	Del PU4, PC115,PC117,PR138,PR139,PR140,PR141
	Combine OTP to LM393	DEL PD5
	Change OTP from 89 to 92 degree for thermal request	Change PR20 from 10K to 8.87K
	Change PL15 to common part	
PVT	shortage in factory	Change PC9,PC135 from 0.22U_1206 to 0.22U_0603 Change PC42,PC43 from 0.22U_1206 to 0.22U_0805 Change PC66 from 0.22U_0603_10V7K to 0.22U_0603_25V7K
	HW request	Add B+>>+VSB circuit and +VSB jump
		Add PGOOD circuit in PU8
	change net name	change CLK_EN# to CLK_ENABLE#, +VCCPP to +1.05VSP, +VCCP to +1.05VS, SPOK to POK, BATT_TEMP to BATT_TEMPA
	cost consideration	change PU7,PU8,PU13 from TPS51117RGYR to RT8209BGQW
	prevent noise coupling	change PR101 13.7k to 3.65k and PR102 31.6k to 8.87k change PR93 30.1k to 8.87k and PR94 20.5k to 6.04k change PR147 5.9k to 1.91k and PR94 31.6k to 10k
	prevent floating	Add 30K resistance between EN pin and GND in PU7,8,13
	adjust sequence	change PR21 from 100K to 806K
	HW circuit request	change page-off connector to port
	OCP modify for power budget	change PR80,81 from 210K to 270K and PR92 from 14.7K to 10K and PR210 from 2.61K to 3K
	cost consideration	take off PC98 and CPU_CORE jump
PreMP	increase OTP setting point	change PR20 from 8.87K to 7.68K

Compal Electronics, Inc.			
Title: PIR (PWR)			
Size: Custom	Document Number: NTV00 LA5661P M/B		Rev: 1.0
Date: Thursday, January 07, 2010	Sheet 34 of 35		

PIR (Product Improve Record)

SCHEMATIC CHANGE LIST
REVISION CHANGE: 0.4

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
1	12/02	6	Change C278 footprint from B2 to D2	Cost down
2	12/02	5	Add R193,R221,R209,R214,R218,R224 closed to Processor Pin	EMI request
3	12/03	14	Remove R562 let +VCC1_5 connect to +1.5VS directly	Layout shape non-enough
4	12/03	7	Add C589,C46,C559,C610,C41,C547,C344,C628,C542	Layout signal dirty
5	12/03	13	Add C665,C666,C667	Layout signal dirty
6	12/03	15	Add C668,C669	Layout signal dirty
7	12/08	6	Change C278 PN to SGA00001Q80	Power request

SCHEMATIC CHANGE LIST
REVISION CHANGE: 1.0

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
1	12/28	13	Change BT_OFF to EC Pin29	Leverage DVT
2	12/28	14	R47 reserve	BOM change
3	12/28	13	C408 reserve	BOM change
4	12/28	16	C747 reserve	BOM change
5	12/28	23	Change U73 PN to SA00000XT00	BIOS request
6	12/28	22	Change RP17 to R87,R88,R413,R417	EC request

Compal Electronics, Inc.

Title: PIR

Size | Document Number: NTV00 LA5961P M/B | Rev: 1.0

Date: Thursday, January 07, 2010 | Sheet 35 of 35