ZZZ

DA80000LX10

PCB

Compal Confidential

PBJ30 Schematics Document

Nvdia(T20) + DDRII

2011-04-12

REV: 1.0 (PVT)

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2011/4/1	Deciphered Date	2008/09/20

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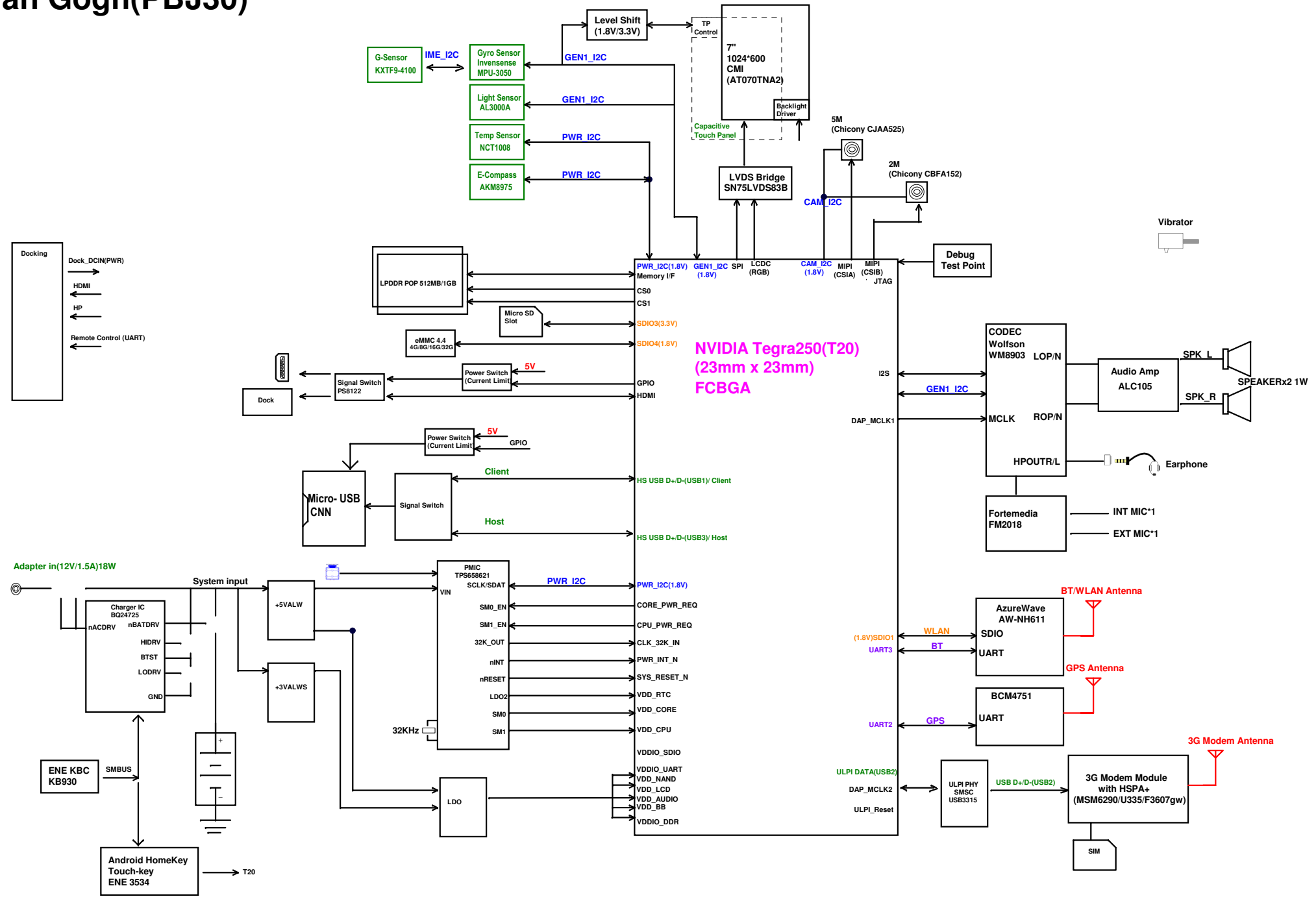
NVIDIA Tegra250(T20) System Block Diagram
Van Gogh(PBJ30)



Voltage Rails

Power Plane	Description
VIN	Adapter power supply (19V)
B+	AC or battery power rail for power circuit.
+1.2VS_SM0	Core voltage for CPU
+1.0VS_SM1	CPU voltage for CPU
+1.1VS_LDO1	AVDD_PLL power rail
+1.2VS_LDO2	T20 RTC power rail
+1.8VS_LDO4	T20 system power rail
+3.3VS_LDO3	T20 USB power rail
+2.85VS_LDO5	Core voltage for EMMC
+2.85VS_LDO6	Core voltage for CAMERA
+3.3VS_LDO7	T20 HDMI power rail
+1.8VS_LDO8	T20 HDMI PLL power rail
+2.85VS_LDO9	T20 DDR RX power rail
+3VALW	3.3V always on power rail
+3VS	3.3V switched power rail for standby mode
+5VALW	5V always on power rail
+1.8VS	1.8V always on power rail
+1.8VS_S3	1.8V switched power rail for standby mode
+3.3VS_RTC	RTC power

PWR_I2C address

Device	Address
PMU	0110 100x b
e-Compass	0001 100x b
Temperature sensor	1001 100x b

CAM_I2C address

Device	Address
Camera 5M	0111 101x b
Camera 2M	0111 100x b
LED Flash	0110 011x b

GEN1_I2C

Device	Address
Audio Codec	0011 010x b
Light sensor	0011 100x b
Gyro	1101 000x b
G-sensor	0001 111x b
Touch-Pad	1100 111x b

TS_I2C

Device	Address

GEN2_I2C

Device	Address
EC	1011 000x b

AP_SMB

Device	Address

EC_SMB

Device	Address
Echo Cancellation	1100 000x b

IME_I2C

Device	Address

DDC_I2C

HDMI_DDC_I2C

Device	Address

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Title: **Notes List**

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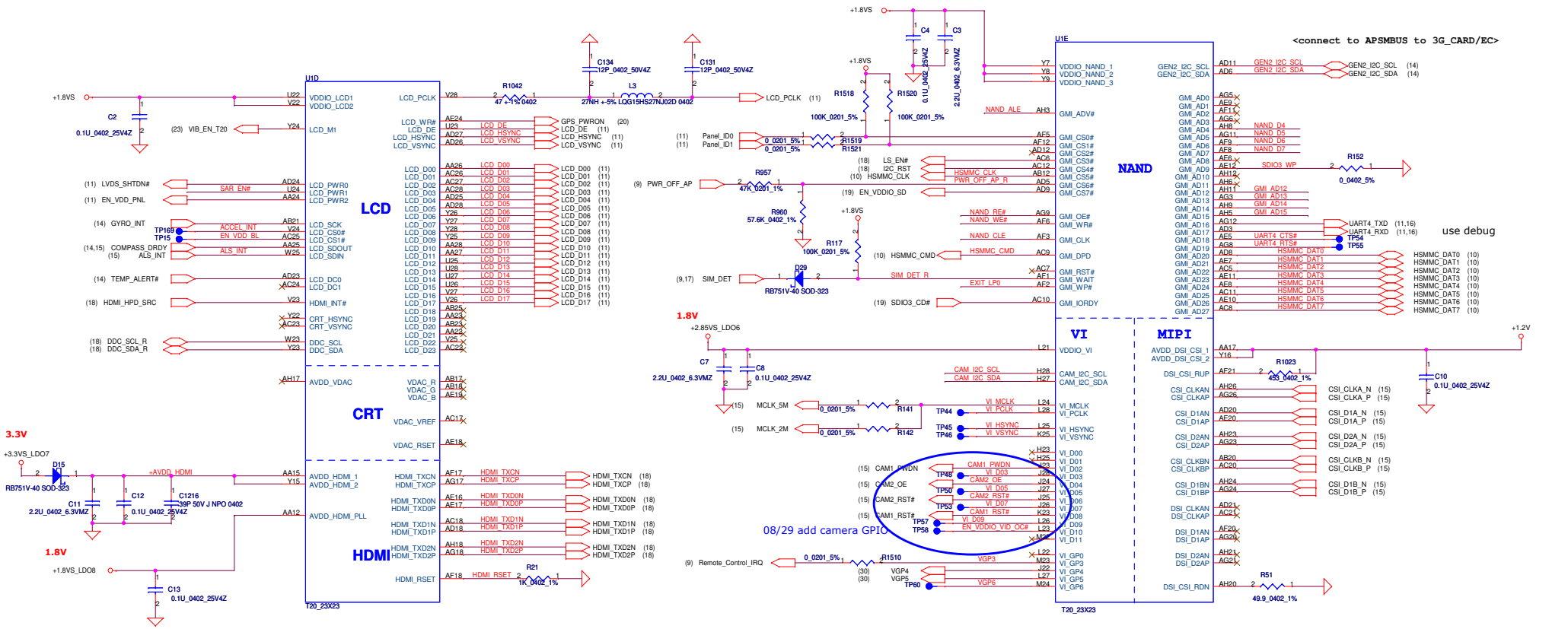

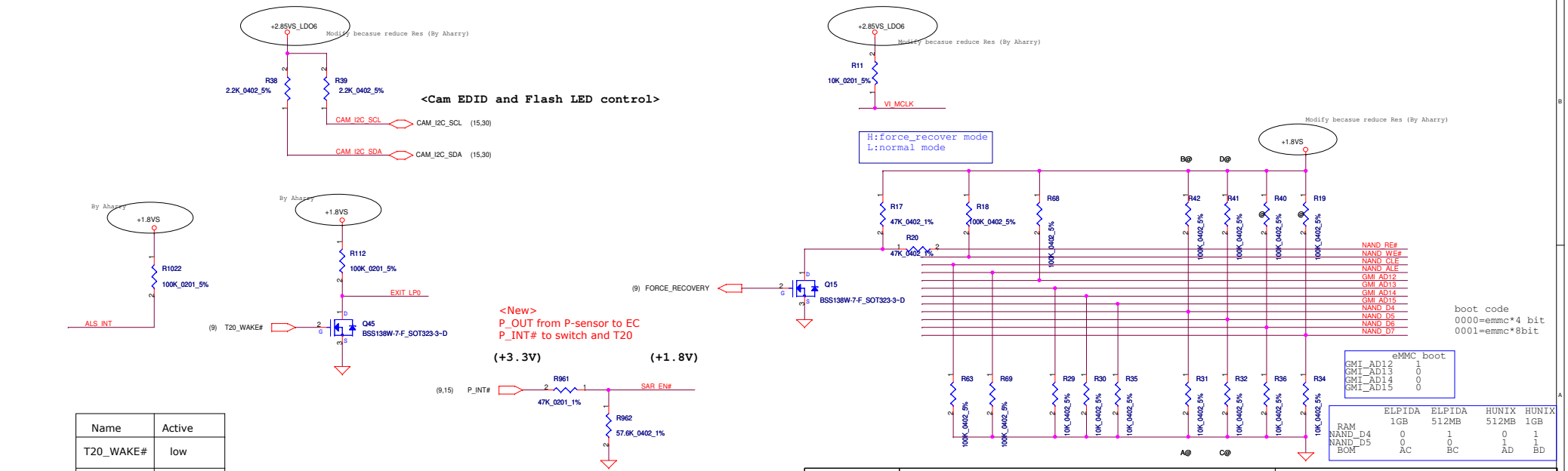

Name	Active
T20_WAKE#	low
EXIT_LP0	High

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Title: T20(1/4)LCD/CRT/HDMI/NAND

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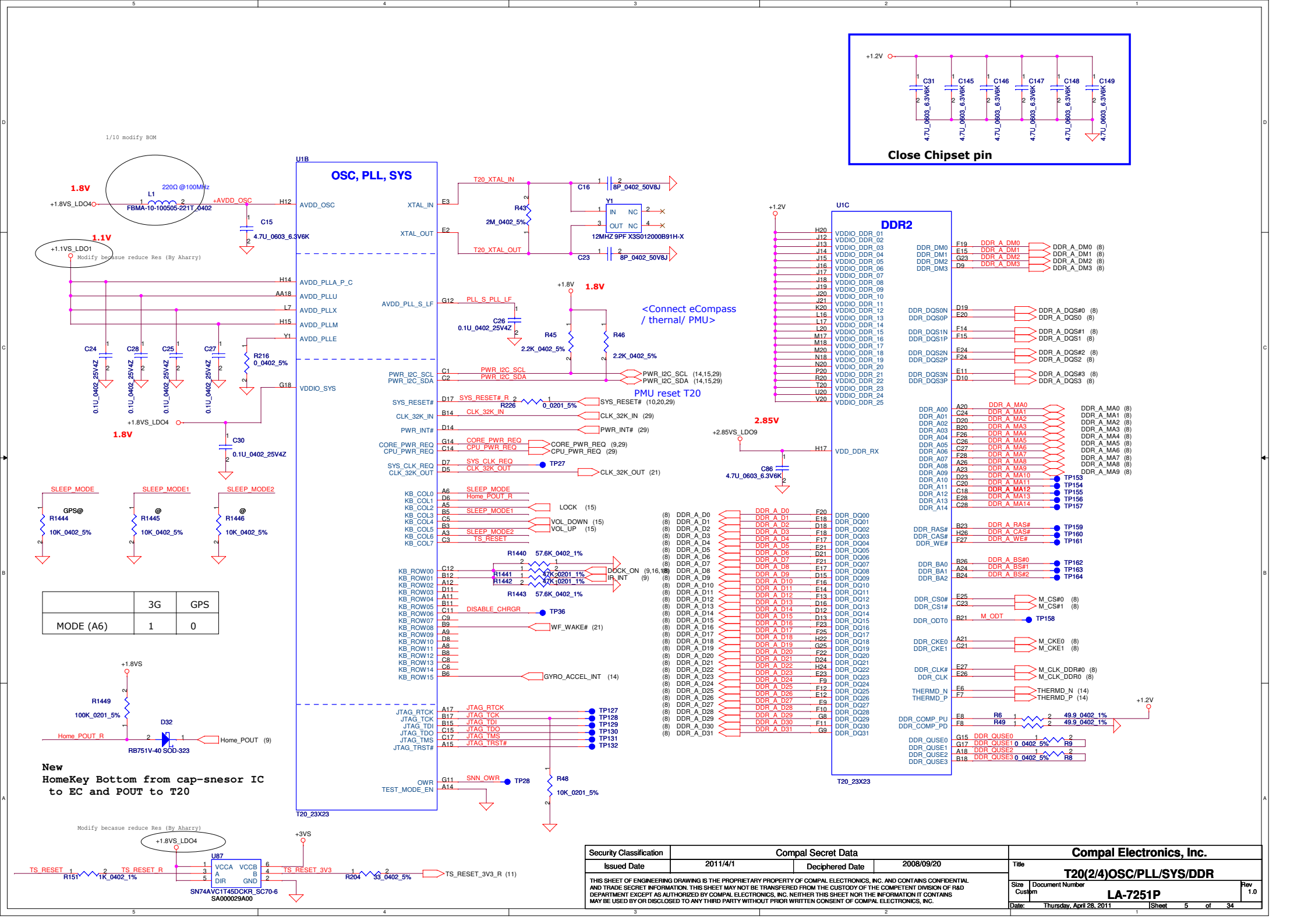
1/10 modify BOM
1.8V
+1.8VS_LDO4
L1
220Ω @100MHz
FBMA-10-100505-221T_0402
+AVDD_OSC
C15
4.7U_0603_6.3V6K
1.1V
+1.1VS_LDO1
Modify becasue reduce Res (By Aharry)
U1B
OSC, PLL, SYS
AVDD_OSC
AVDD_PLLA_P_C
AVDD_PLLU
AVDD_PLLX
AVDD_PLLM
AVDD_PLLE
VDDIO_SYS
XTAL_IN
XTAL_OUT
AVDD_PLL_S_LF
T20_XTAL_IN
T20_XTAL_OUT
C16
8P_0402_50V8J
C23
8P_0402_50V8J
R43
2M_0402_5%
Y1
12MHZ 9PF X3S012000B91H-X
C24
C28
C25
C27
0.1U_0402_25V4Z
R216
0_0402_5%
C30
0.1U_0402_25V4Z
PLL_S_PLL_LF
C26
0.1U_0402_25V4Z
R45
2.2K_0402_5%
R46
2.2K_0402_5%
<Connect eCompass / thernal/ PMU>
PWR_I2C_SCL
PWR_I2C_SDA
PWR_I2C_SCL (14,15,29)
PWR_I2C_SDA (14,15,29)
PMU reset T20
SYS_RESET#
SYS_RESET# R
R226
0_0201_5%
SYS_RESET# (10,20,29)
CLK_32K_IN
CLK_32K_IN (29)
PWR_INT#
PWR_INT# (29)
CORE_PWR_REQ
CPU_PWR_REQ
CORE_PWR_REQ (9,29)
CPU_PWR_REQ (29)
SYS_CLK_REQ
CLK_32K_OUT
TP27
CLK_32K_OUT (21)
SLEEP_MODE
SLEEP_MODE1
SLEEP_MODE2
Home_POUT_R
LOCK (15)
VOL_DOWN (15)
VOL_UP (15)
TS_RESET
R1440
57.6K_0402_1%
R1441
47K_0201_1%
R1442
47K_0201_1%
R1443
57.6K_0402_1%
DOCK_ON (9,16,38)
IR_INT (9)
DISABLE_CHRGR
TP36
WF_WAKE# (21)
GYRO_ACCEL_INT (14)
JTAG_RTCK
JTAG_TCK
JTAG_TDI
JTAG_TDO
JTAG_TMS
JTAG_TRST#
TP127
TP128
TP129
TP130
TP131
TP132
OWR
TEST_MODE_EN
SNN_OWR
TP28
R48
10K_0201_5%
T20_23X23
GPS@
R1444
10K_0402_5%
@
R1445
10K_0402_5%
@
R1446
10K_0402_5%
3G
GPS
MODE (A6)
1
0
+1.8VS
R1449
100K_0201_5%
D32
RB751V-40 SOD-323
Home_POUT (9)
New
HomeKey Bottom from cap-snesor IC
to EC and POUT to T20
Modify becasue reduce Res (By Aharry)
+1.8VS_LDO4
U87
SN74AVC1T45DCKR_SC70-6
SA000029A00
TS_RESET
R151
1K_0402_1%
TS_RESET_R
+3VS
TS_RESET_3V3
R204
33_0402_5%
TS_RESET_3V3_R (11)
+1.2V
C31
C145
C146
C147
C148
C149
4.7U_0603_6.3V6K
Close Chipset pin
U1C
DDR2
VDDIO_DDR_01
VDDIO_DDR_02
VDDIO_DDR_03
VDDIO_DDR_04
VDDIO_DDR_05
VDDIO_DDR_06
VDDIO_DDR_07
VDDIO_DDR_08
VDDIO_DDR_09
VDDIO_DDR_10
VDDIO_DDR_11
VDDIO_DDR_12
VDDIO_DDR_13
VDDIO_DDR_14
VDDIO_DDR_15
VDDIO_DDR_16
VDDIO_DDR_17
VDDIO_DDR_18
VDDIO_DDR_19
VDDIO_DDR_20
VDDIO_DDR_21
VDDIO_DDR_22
VDDIO_DDR_23
VDDIO_DDR_24
VDDIO_DDR_25
VDD_DDR_RX
DDR_DM0
DDR_DM1
DDR_DM2
DDR_DM3
DDR_A_DM0 (8)
DDR_A_DM1 (8)
DDR_A_DM2 (8)
DDR_A_DM3 (8)
DDR_DQS0N
DDR_DQS0P
DDR_A_DQS#0 (8)
DDR_A_DQS0 (8)
DDR_DQS1N
DDR_DQS1P
DDR_A_DQS#1 (8)
DDR_A_DQS1 (8)
DDR_DQS2N
DDR_DQS2P
DDR_A_DQS#2 (8)
DDR_A_DQS2 (8)
DDR_DQS3N
DDR_DQS3P
DDR_A_DQS#3 (8)
DDR_A_DQS3 (8)
DDR_A00
DDR_A01
DDR_A02
DDR_A03
DDR_A04
DDR_A05
DDR_A06
DDR_A07
DDR_A08
DDR_A09
DDR_A10
DDR_A11
DDR_A12
DDR_A13
DDR_A14
DDR_A_MA0 (8)
DDR_A_MA1 (8)
DDR_A_MA2 (8)
DDR_A_MA3 (8)
DDR_A_MA4 (8)
DDR_A_MA5 (8)
DDR_A_MA6 (8)
DDR_A_MA7 (8)
DDR_A_MA8 (8)
DDR_A_MA9 (8)
TP153
TP154
TP155
TP156
TP157
2.85V
+2.85VS_LDO9
C86
4.7U_0603_6.3V6K
DDR_RAS#
DDR_CAS#
DDR_WE#
TP159
TP160
TP161
DDR_BA0
DDR_BA1
DDR_BA2
TP162
TP163
TP164
DDR_CS0#
DDR_CS1#
M_CS#0 (8)
M_CS#1 (8)
DDR_ODT0
M_ODT
TP158
DDR_CKE0
DDR_CKE1
M_CKE0 (8)
M_CKE1 (8)
DDR_CLK#
DDR_CLK
M_CLK_DDR#0 (8)
M_CLK_DDR0 (8)
THERMD_N
THERMD_P
THERMD_N (14)
THERMD_P (14)
DDR_COMP_PU
DDR_COMP_PD
R6
R49
49.9_0402_1%
DDR_QUSE0
DDR_QUSE1
DDR_QUSE2
DDR_QUSE3
R9
R8
0_0402_5%
T20_23X23
DDR_A_D0
DDR_A_D1
DDR_A_D2
DDR_A_D3
DDR_A_D4
DDR_A_D5
DDR_A_D6
DDR_A_D7
DDR_A_D8
DDR_A_D9
DDR_A_D10
DDR_A_D11
DDR_A_D12
DDR_A_D13
DDR_A_D14
DDR_A_D15
DDR_A_D16
DDR_A_D17
DDR_A_D18
DDR_A_D19
DDR_A_D20
DDR_A_D21
DDR_A_D22
DDR_A_D23
DDR_A_D24
DDR_A_D25
DDR_A_D26
DDR_A_D27
DDR_A_D28
DDR_A_D29
DDR_A_D30
DDR_A_D31
DDR_DQ00
DDR_DQ01
DDR_DQ02
DDR_DQ03
DDR_DQ04
DDR_DQ05
DDR_DQ06
DDR_DQ07
DDR_DQ08
DDR_DQ09
DDR_DQ10
DDR_DQ11
DDR_DQ12
DDR_DQ13
DDR_DQ14
DDR_DQ15
DDR_DQ16
DDR_DQ17
DDR_DQ18
DDR_DQ19
DDR_DQ20
DDR_DQ21
DDR_DQ22
DDR_DQ23
DDR_DQ24
DDR_DQ25
DDR_DQ26
DDR_DQ27
DDR_DQ28
DDR_DQ29
DDR_DQ30
DDR_DQ31
Security Classification
Compal Secret Data
Issued Date
2011/4/1
Deciphered Date
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Title
T20(2/4)OSC/PLL/SYS/DDR
Size
Custom
Document Number
LA-7251P
Rev
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Date:
Thursday, April 28, 2011
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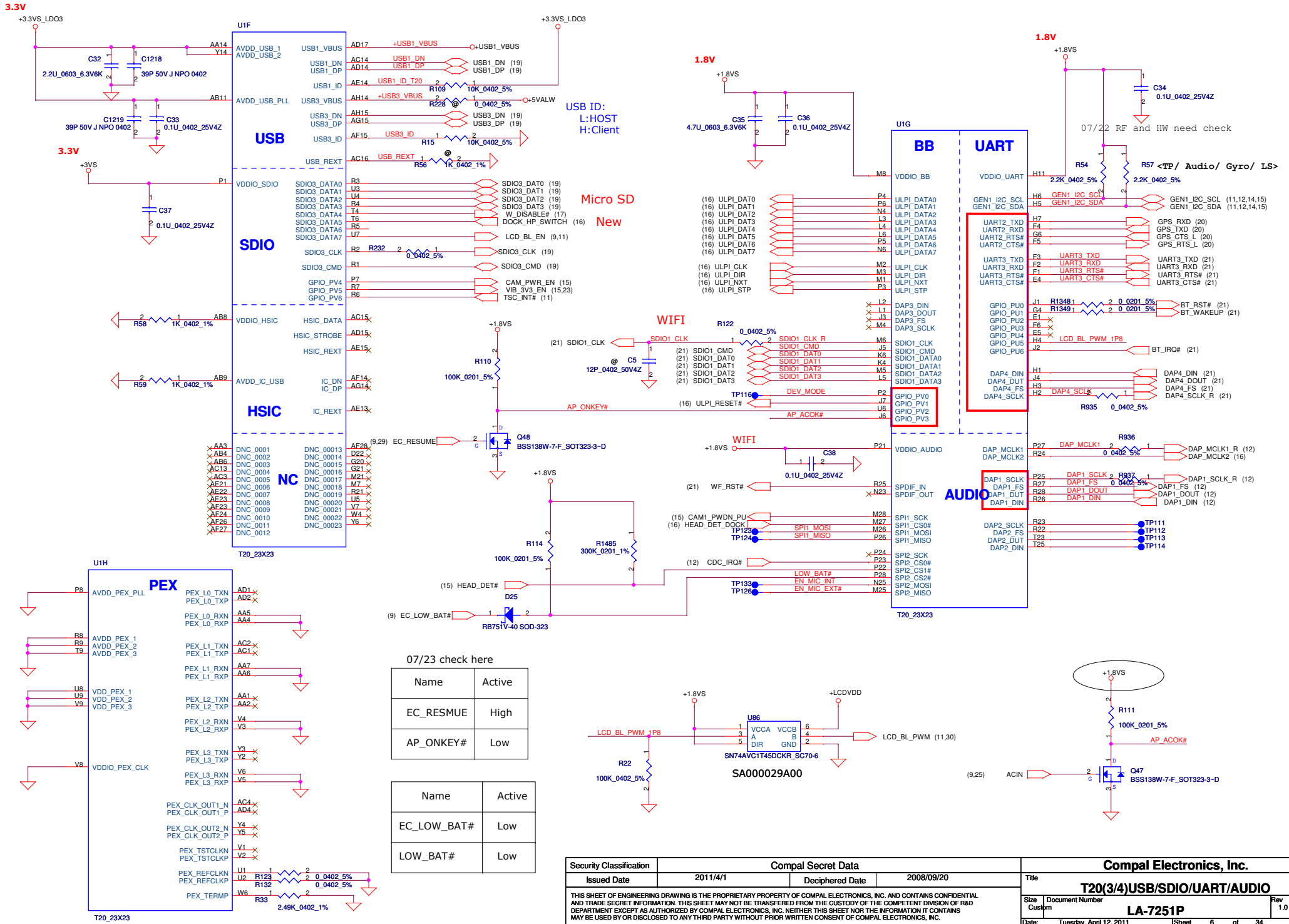
3.3V
+3.3VS_LDO3
U1F
USB
SDIO
HSIC
NC
T20_23X23
USB ID:
L:HOST
H:Client
Micro SD
New
WIFI
1.8V
+1.8VS
U1G
BB
UART
AUDIO
07/22 RF and HW need check
U1H
PEX
07/23 check here
Name
Active
EC_RESMUE
High
AP_ONKEY#
Low
EC_LOW_BAT#
Low
LOW_BAT#
Low
SA000029A00
Compal Secret Data
2011/4/1
2008/09/20
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T20(3/4)USB/SDIO/UART/AUDIO
LA-7251P
Tuesday, April 12, 2011
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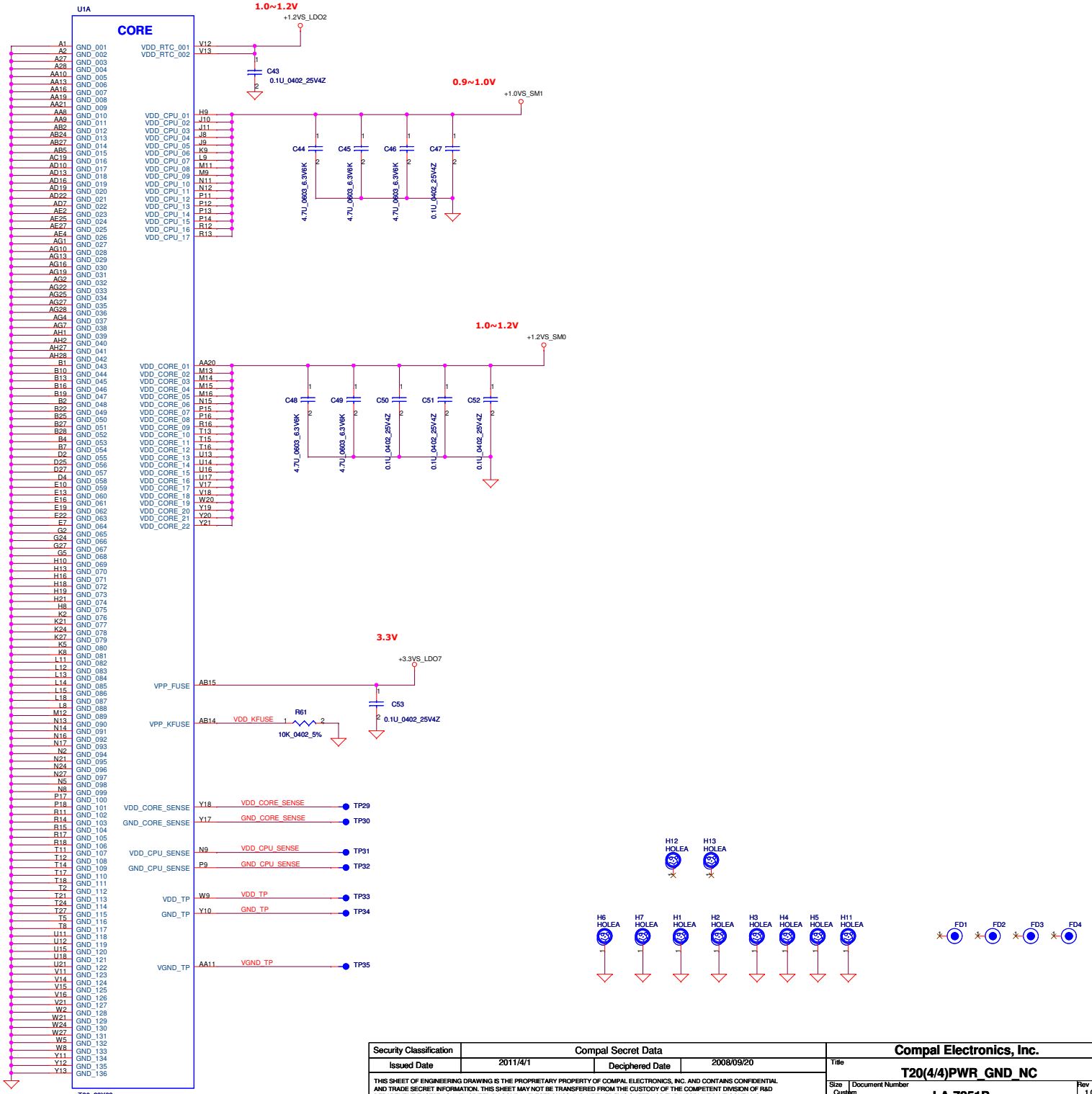

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Title: **T20(4/4)PWR_GND_NC**

Size	Document Number	Rev
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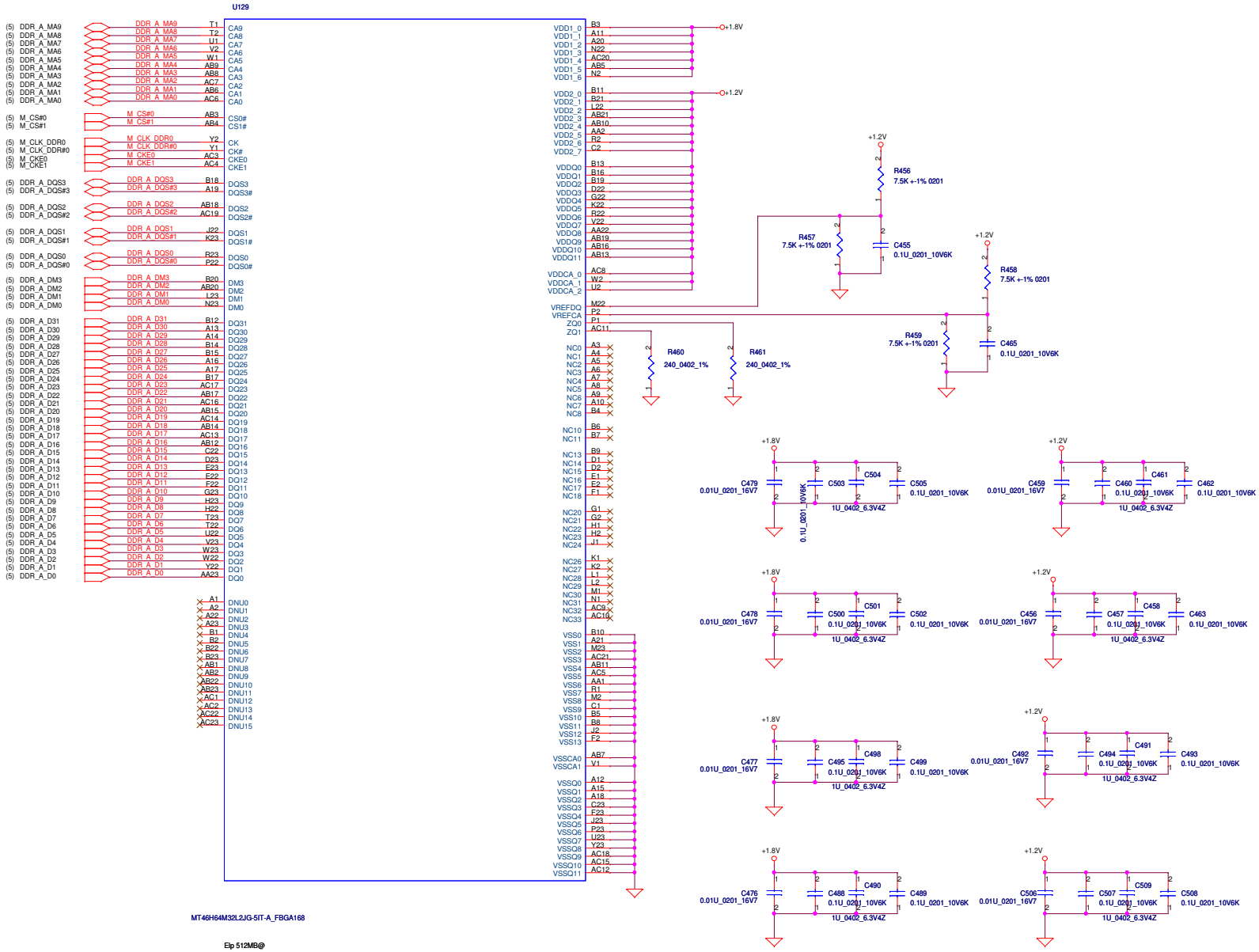

U129 Hyn 512MB@ SA00004JD10 (512MB Hynix)

U129 Elp 1G@ SA000048Q20 (1G Elpida)

U129 Hyn 1G@ SA00004MJ00 (1G Hynix)

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Title: **DDRII-DEVICE DOWN(1/2)**

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Modfiy KBC926 to KBC930(BGA)
9/24 by Harry

U134
KB930BF-A1_LFBGA128

LPC & MISC
PWM Output
AD Input
DA Output
PS2 Interface
Int. K/B Matrix
SPI Device Interface
SPI Flash ROM
SM Bus
GPIO
GPO
GPI

(New)
VCOMPWM
STANDBY# (22)
SM0_PG#
ACOFF
BATT_TEMP_EC (31)
ADP_I (25)
BoardID
EXT_MIC_EC (15)
BL_OVP (30)

<APSMBUS to T20/3G_CARD>
AP_SMB_SCL (14,17)
AP_SMB_SDA (14,17)

T20_WAKE# (4)
DOCK_DET_L# (16)
SIM_EN# (17)
3VS_EN
+3VS

FWR#SPI_SI
FRD#SPI_SO
SPI_CLK
FSEL#SPICS#

<pull-high at P16>
IRDA_INT (16)
IR_WAKE

CHARGE_LED0# (15)
EC_OE_OFF (18)
HomeKey_LED_EN# (23)
<New>

P_INT# (4,15)
ACIN (6,25)
<New>
P_OUT from P-sensor to EC
P_INT# to switch and T20

EC_RESUME_R
EC_RESUME (6,29)
3G_EN# (17)
EC_ON (22)
FM2018_PWR_DN# (13)
FORCE_RECOVERY (4)
PWR_OFF_AP (4)
EC_FM2010_LDO (13)
DOCK_ON (5,16,18)

Remote_Control_IRQ (4)
HOT_RST# (16)
SIM_DET (4,17)
SKIPSEL (26)
+USB_VOUT_R (19)

New
<ACIN# is EC to turn off LCD panel PWR>

(New) Home_POUT (5)
(New) ACIN# (30)
(New) LCD_RST# (11)
(New) EC_LCD_AVDD_EN (11)
(New) HomeKey_INT (23)
(New) HomeKey_RST (23)
SYSTEM_RESET# (29)
EC_LOW_BAT# (6)
LCD_BL_EN (6,11)
LCD_BLEN_EC (30)
IR_INT (5)

EC_SMB_CK1 (13,18,23,24,25)
EC_SMB_DA1 (13,18,23,24,25)

FM2018_RST# (13)
POUT (15)
FM2018_EN (12)

HDMI_HPD (18)
HDMI_HPD2 (18)
TP_LDO_EN (11)
INVT_PWM
EC_TX_P80_DATA
EC_RX_P80_CLK
ON/OFF# (22)
PWR_SUSP_LED# (15)
TEMP_THERM# (14)

XCLKI
XCLKO

<New>
IRQ_CODEC to EC
EC use RESET# to change MICP0/MICP1

BOARD ID Table

	ID	BRD ID	Rb	Vab-Min	Vab-Typ	Vab-Max
	VCC		3.3V			
	Ra		100K			
PBJ30	0	R01 (EVT)	0	0V	0V	0V
	1	R02 (DVT)	8.2K	0.216V	0.250V	0.289V
	2	R03 (DVT2)	18K	0.436V	0.503V	0.538V
	3	R10(PVT-WIFI)	33K	0.712V	0.819V	0.875V
	4	R20(DVT2-3G)	56K	1.036V	1.185V	1.264V
	5	R30(PVT-3G)	100K	1.453V	1.650V	1.759V
	6		200K	1.935V	2.200V	2.341V
	7		NC	2.500V	3.3V	3.3V

11/08 Setting board ID

Board ID	Rb
0 (EVT)	0
1 (DVT)	8.2K
2 (DVT2)	18K

Compal Electronics, Inc.

EC ROM

U136
MX25L1005AMC-12G_SOP8
SA00003FL10

(Debug Connector follow pBJ20)
JP57
MOLEX 514410893 8P H1.1 FPC S H-CONN
CONN@

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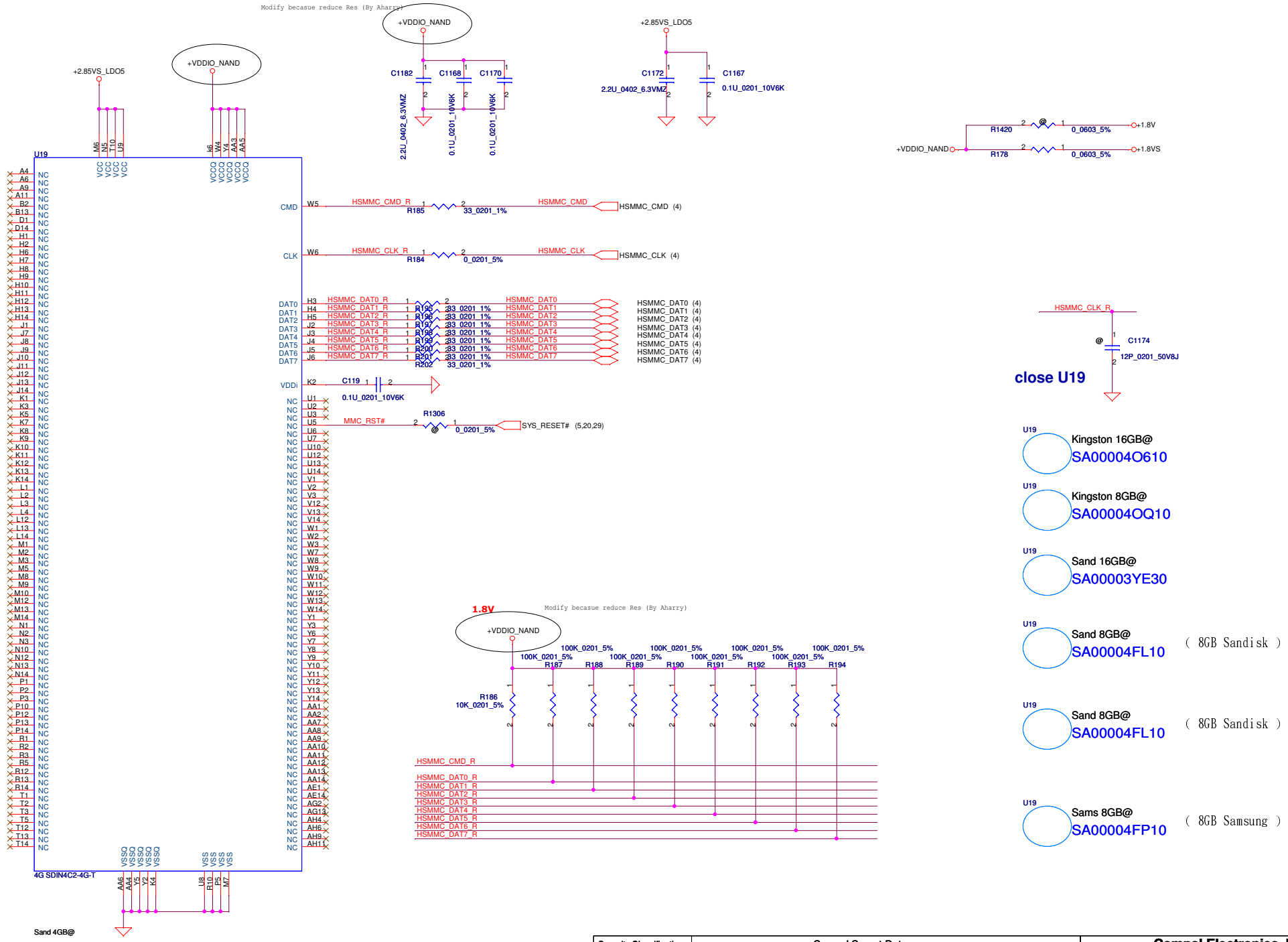
Title: ENE/BIOS
Size: Custom | Document Number: LA-7251P | Rev: 1.0
Date: Tuesday, April 12, 2011 | Sheet 9 of 34



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Compal Electronics, Inc.

Title: **EMMC**

Size: Custom | Document Number: **LA-7251P** | Rev: 1.0

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12/06 Modify P/N

1.8V level

LVDS Bridge

U150 — SN75LVDS83BZQLR_BGA56P-NH

1 : Rising edge
0 : Falling edge

LED flash

D31 — LUW-FQ6N.01-MYMZ-R_WHITE

JP69 — ACES_88194-0441 CONN@

debug for SW

(Reserve from EC)

07/16 add for RF

Close JLVDS3

(Reserve for use PBJ20 panel)
R1345/ R1455/R1026/R1459

JLVDS3 — ACES_88716-4001

PIN4 - REG pin

STBYB=1 "Normal mode"
STBYB=0 "timing control"

1/12 modify
CMI FPC pin define is GND
2nd's FPC need define NC
CMI --> L
2nd --> H

SELB=1 ,6bit
SELB=0, 8bit

PBJ30 New 11/17

(Reserve from EC)

LCD POWER CIRCUIT

(Reserve from T20)

280mA

Pin36/ 37 is no used for CMI panel
vender suggestion to GND

U97 — APL3511DBI-TRG_SOT23-5

Q50 — BSS138W-7-F_SOT323-3-D

L6 — FBMA-L11-201209-221LMA30T_0805

U153 — APL3511DBI-TRG_SOT23-5

JP58 — ACES_50521-0084N-P01 CONN@

(Touch-Panel CNN)
11/17 follow CMI Ld.Chia mail

11/23 CP reply
Cp.Wang@chimei-innolux.com

Level shift

Modify becasue reduce Res (By Aharry)

U102 — PCA9306DCUR_VSSOP8

Security Classification	Compal Secret Data		
Issued Date	2011/4/1	Deciphered Date	2008/09/20

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Compal Electronics, Inc.

Title: **LCD Panel/LS/LED Flash**

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Date: Tuesday, April 12, 2011 | Sheet 11 of 34

Close U113.10

Close U113.40

Close U113.39

Close U113.24

Audio Codec

U113 WM8903LGEFK-RV_QFN40_5X5

AMP.

U143 APA2605QAI-TRG_QFN20_4X4

Int. Speaker Conn.

ACES_88266-04001 JP55

Security Classification	Compal Secret Data
Issued Date	2011/4/1
Deciphered Date	2008/09/20

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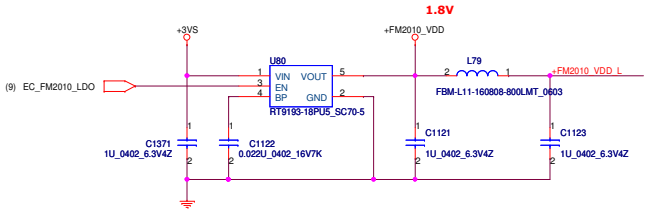
Compal Electronics, Inc.

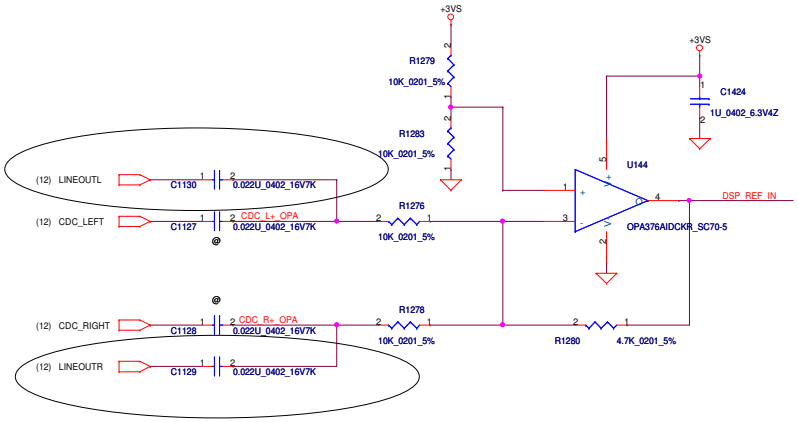
Title: Audio Codec

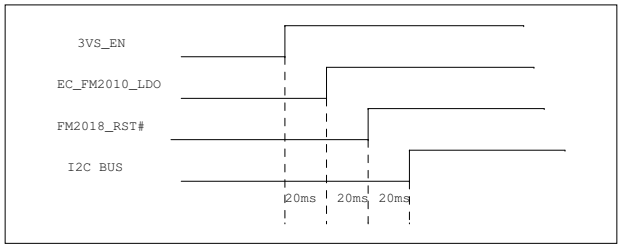
Size: C | Document Number: LA-7251P | Rev: 1.0

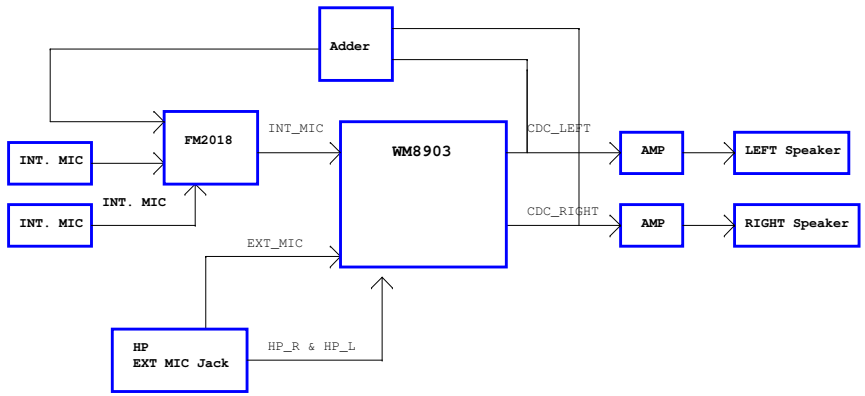
Date: Thursday, April 21, 2011 | Sheet 12 of 34

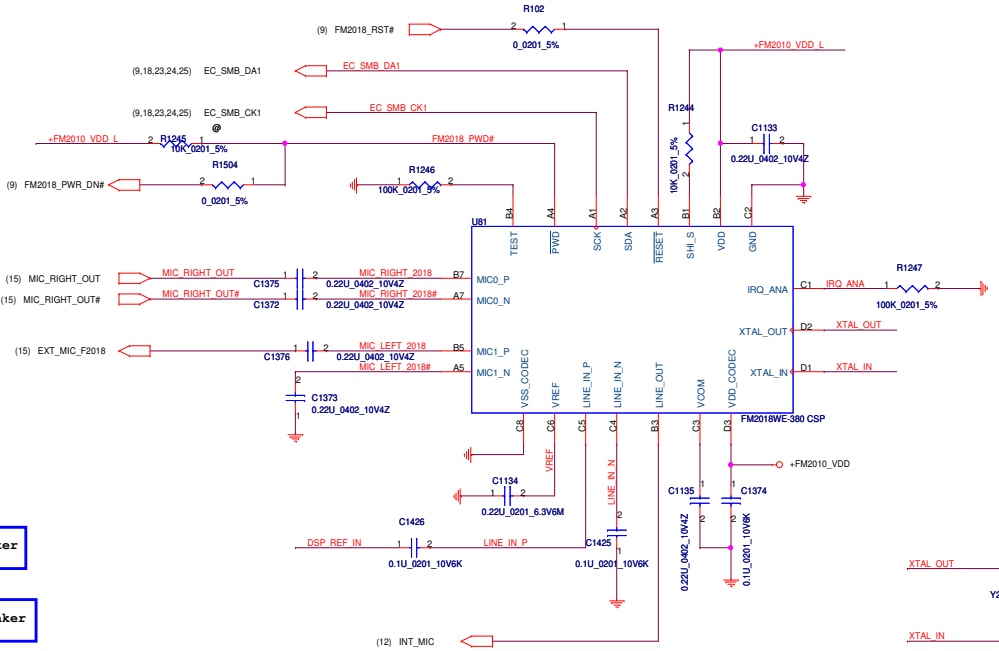
12/06 Modify P/N

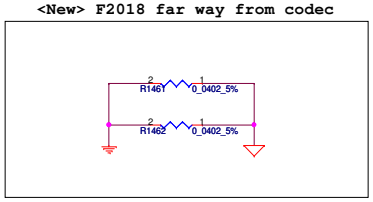












Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2011/4/1	Deciphered Date 2008/09/20	Title FM2010
			Size C / Document Number LA-7251P / Rev 1.0
			Date: Tuesday, April 12, 2011 / Sheet 13 of 34

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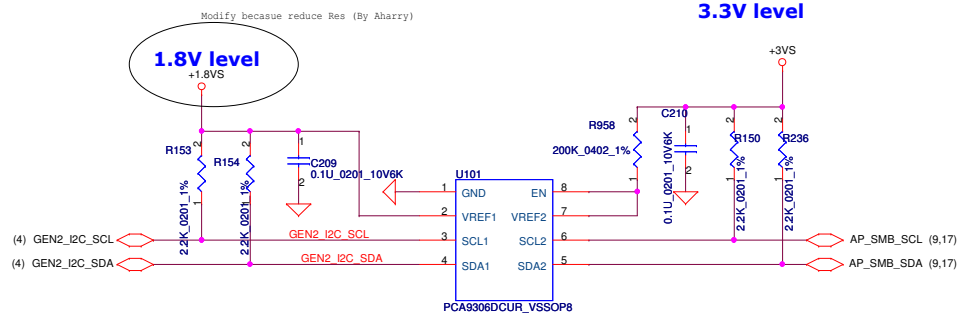
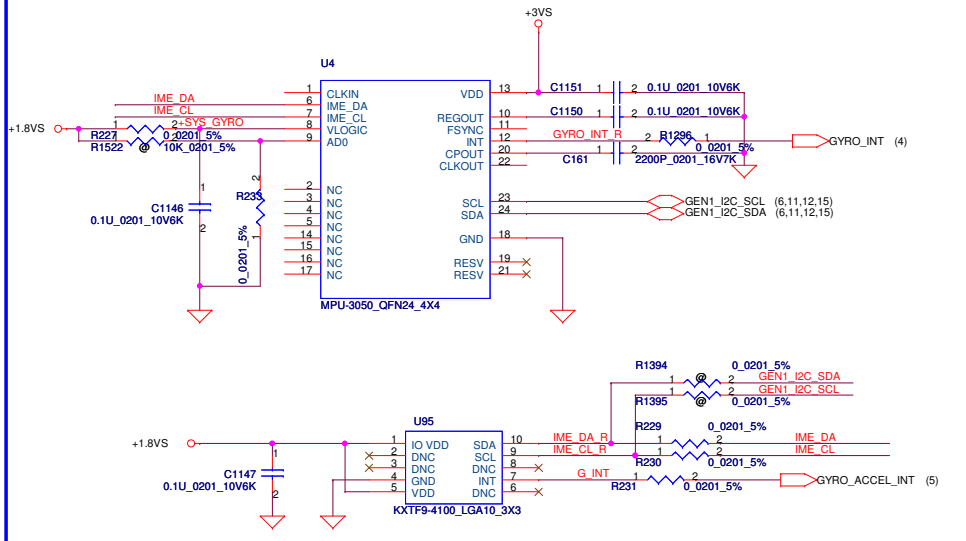
Level shift

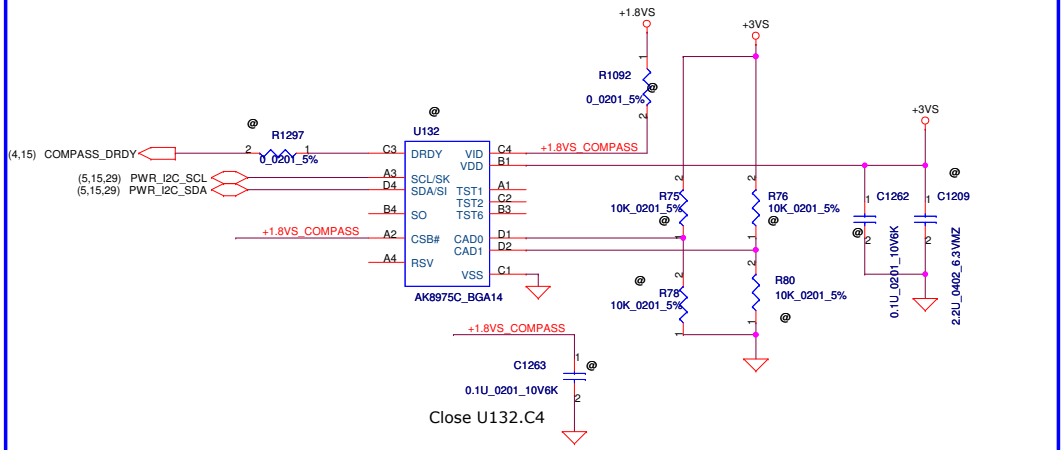


<APSMBUS to T20/3G_CARD>

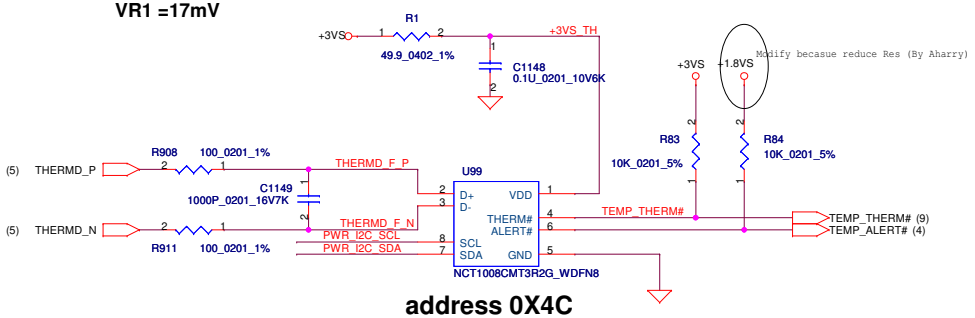
GYRO



Ecompass



max current is 350uA
VR1 =17mV



address 0X4C

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Issued Date	2011/4/1	Deciphered Date	2008/09/20

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Compal Electronics, Inc.

Title: **G-Sensor/Thermal/GYRO**

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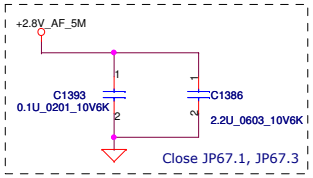
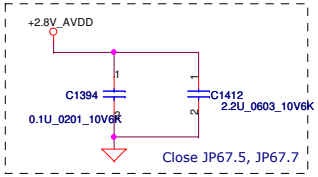
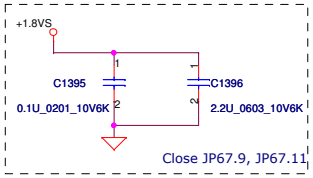
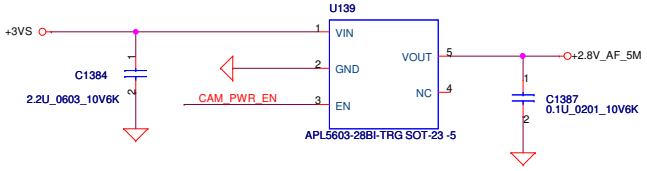
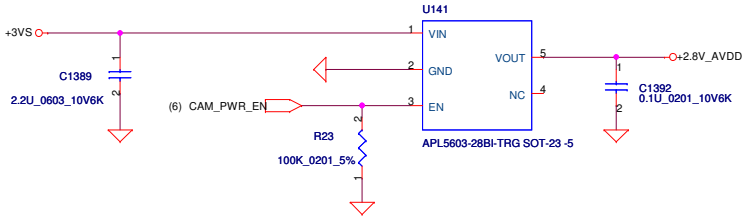
5M Camera

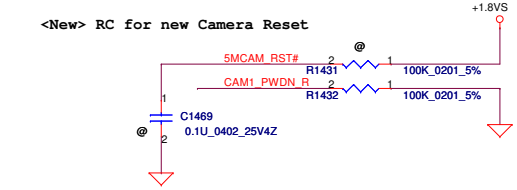


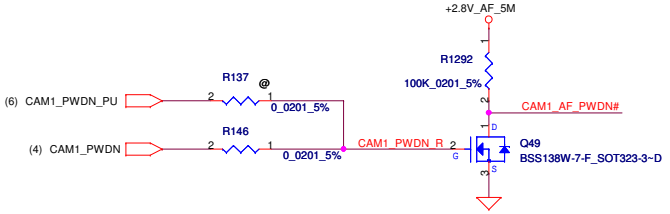


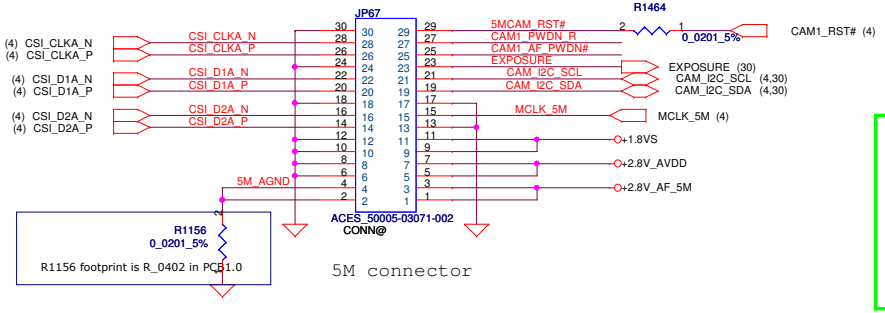




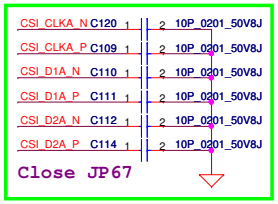








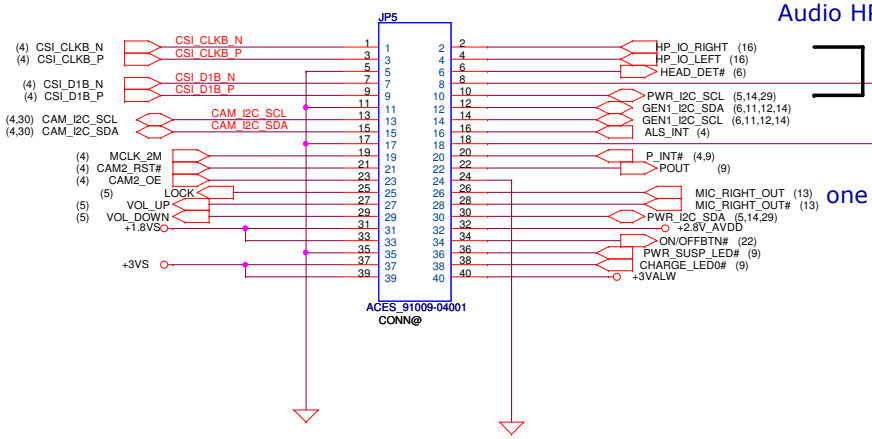
07/16 add for RF



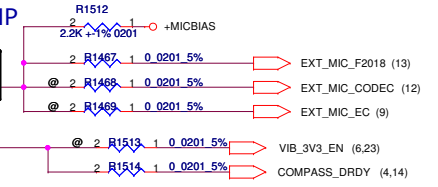
Name	Active
CAM1_RST#	Low
CAM1_PWDN	High
CAM1_AF_PWDN#	Low

To I/O Board

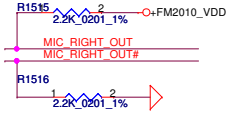
2M Camera



Audio HP



one port MIC



Security Classification	Compal Secret Data		
Issued Date	2011/4/1	Deciphered Date	2008/09/20

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Compal Electronics, Inc.

Title: **5M Camera/ IO board CONN.**

Size	Document Number	Rev
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Docking

<New>From T20
L => Dock_HP
H => MB (Default)

From T20 (SDIO/3V)

POR status =PD

R1470 3G@ SM01000IQ00
R1473 3G@ SM01000IQ00
R1472 3G@ SM01000IQ00
R1474 3G@ SM01000IQ00

IN = H , NO to COM
IN = L , NC to COM

(9) KSO2
(9) KSO3
(9) KSI5
(9) KSI4
(9) KSI6
(9) KSI7

R1486 @ 0_0201_5% KSO2_DOCK
R1487 @ 0_0201_5% KSO3_DOCK
R1488 @ 0_0201_5% KSI5_DOCK
R1489 @ 0_0201_5% KSI4_DOCK
R1490 @ 0_0201_5% KSI6_DOCK
R1491 @ 0_0201_5% KSI7_DOCK

+1.8VS +DOCKIN

R1492 10K_0201_5%

JP12
JAE_DD2R040HP5-DT
CONN@

	G 4	G 3	
	G 2	G 1	
KSO2_DOCK		D-	KSI5_DOCK
KSO3_DOCK	+5 PWR	ID	KSI4_DOCK
	D+	Debug TX	
	Debug RX	IrDA TX	
	Docking Detest	IrDA INT	
	IrDA RX	TMDS CLK-	
	GND	TMDS CLK Shield	
	TMDS CLK+	TMDS Data 0+	
	TMDS Data 0-	TMDS Data 2-	
	TMDS Data 0 Shield	TMDS Data 2 Shield	
	TMDS Data 2+	+12V PWR	
	+12V PWR	N/A	
	+12V PWR	Audio L	
	A GND	Audio Detest	
	Audio R	N/A	
	Utility	Hot Plug Detest	
	+5V PWR	CEC	
	HDMI Indicator	TMDS Data 1-	
	TMDS Data 1 Shield	DDC/CEC GND	
	TMDS Data 1+	SCL	
	SDA		

(9) DOCK_DET_L#
(4,11) UART4_RXD
HDMI_CLK+_DOCK
HDMI_TX0-_DOCK
HDMI_TX2+_DOCK
R1397 1 2 0_0402_5% DOCK_AGND
HP_DOCK_R
KSI6_DOCK
+VDDIO_HDMI
HDMI_TX1+_DOCK
(18) HDMI_DDC_SDA_DOCK

+DOCKIN
+3VALW
R1493 10K_0201_5%

UART4_TXD (4,11)
IRDA_INT (9)
HDMI_CLK-_DOCK
HDMI_TX0+_DOCK
HDMI_TX2-_DOCK
KSI7_DOCK
HP_DOCK_L
HEAD_DET_DOCK
Dock_EXT#
HDMI_HPD_DOCK (18)
HDMI_TX1-_DOCK
HDMI_DDC_SCL_DOCK (18)

R1483 0_0201_5%

+3VS
<11/25 by customer request>
R1494 1K_0402_1%
@
R1509 2 1 10K_0201_5%
<1/27 modify>
DOCK_ON (5,9,18)

+3VALW
R71 10K_0201_5%
DOCK_DET_L#

+3VS
GPS@ 0_0201_5% R1470
0_0201_5% R1473 GPS@
U3 @
TS5A22364YZPR_DSBGA10
(12) HP_RIGHT
(6) DOCK_HP_SWITCH
(12) HP_LEFT
HP_DOCK_R
HP_DOCK_L
HP_IO_LEFT (15)
HP_IO_RIGHT (15)
GPS@ 0_0201_5% R1472
0_0201_5% R1474 GPS@
HP_DOCK_R

11/17 11/17

<New>HP_Dock
H -->plug in
L -->plug out
(pull-down 47k in Dock side)

When
Dock-In -> HP_Det is 0.24V
Dock-out ->HP_Det is 1.8V

+1.8VS
R182 300K_0201_1%
C1484 330P 50V K X7R 0201 @
HEAD_DET_DOCK
HEAD_DET_DOCK (6)

HDMI_CLK-_DOCK → L95 → HDMI_CLK-_DOCK_R (18)
HDMI_CLK+_DOCK → L95 → HDMI_CLK+_DOCK_R (18)
WCM-2012-900T_0805
HDMI_TX0-_DOCK → L96 → HDMI_TX0-_DOCK_R (18)
HDMI_TX0+_DOCK → L96 → HDMI_TX0+_DOCK_R (18)
WCM-2012-900T_0805
HDMI_TX1-_DOCK → L97 → HDMI_TX1-_DOCK_R (18)
HDMI_TX1+_DOCK → L97 → HDMI_TX1+_DOCK_R (18)
WCM-2012-900T_0805
HDMI_TX2-_DOCK → L98 → HDMI_TX2-_DOCK_R (18)
HDMI_TX2+_DOCK → L98 → HDMI_TX2+_DOCK_R (18)
WCM-2012-900T_0805

(9) HOT_RST#
R27 1K_0201_1%
HOT_RST#_R
SW6 PTCLG-T-V-T-R(409)_5P
R1291 100K_0201_5%
D7 PJSOT05C 3P C/A SOT-23
+3VALW

ULPI

+3VS_ULPI
3G@ C1452 33P 50V J NPO 0402
C1453 3G@ 39P 50V J NPO 0402
C1454 3G@ 2.2U_0402_6.3VMZ
C1455 3G@ 0.1U_0402_25V4Z

+1.8VS_ULPI
C1456 3G@ 39P 50V J NPO 0402
C1457 3G@ 0.1U_0402_25V4Z

close to U149

U149 3G@
USB3315C-CP-TR_QFN24_4X4

TP172	VBUS	VDDIO	+1.8VS_ULPI_VDDIO
+3VS R1398 3G@ 0_0402_5% +3VS_ULPI	VBAT	VDD1.8	+1.8VS_ULPI
	VDD3.3	DATA[7]	ULPI_DAT7 (6)
		DATA[6]	ULPI_DAT6 (6)
		DATA[5]	ULPI_DAT5 (6)
		DATA[4]	ULPI_DAT4 (6)
		DATA[3]	ULPI_DAT3 (6)
		DATA[2]	ULPI_DAT2 (6)
		DATA[1]	ULPI_DAT1 (6)
		DATA[0]	ULPI_DAT0 (6)
(17) USB2_N	DM	STP	ULPI_STP (6)
(17) USB2_P	DP	NXT	ULPI_NXT (6)
		DIR	ULPI_DIR (6)
TP173	ID	CLKOUT	ULPI_CLK_R → ULPI_CLK (6)
	CPEN	RESETB	ULPI_RESET#_R → ULPI_RESET# (6)
		REFCLK	DAP_MCLK2_R → DAP_MCLK2 (6)
	GND_FLAG	RBIAS	

R1396 3G@ 0_0402_5% +1.8VS
R1399 3G@ 0_0402_5% +1.8VS
R1400 3G@ 10_0402_5%
R1401 3G@ 0_0201_5%
R1403 0_0402_5%
C1451 @ 33P 50V J NPO 0402
R1404 3G@ 6.8K_0402_1%
R1402 @ 10K_0402_5%
+1.8VS_ULPI_VDDIO
ULPI_RESET#_R

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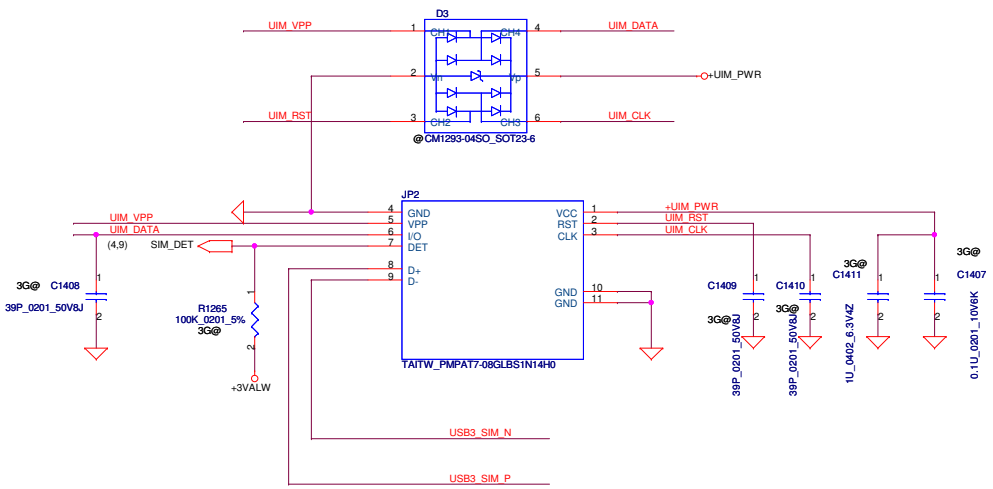
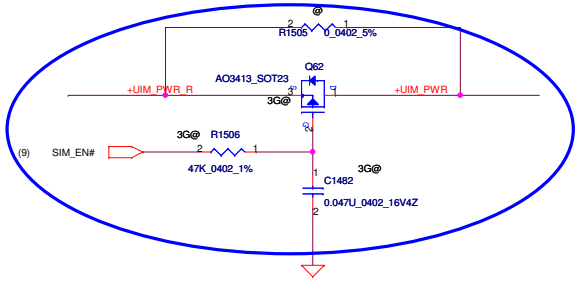
Security Classification	Compal Secret Data		
Issued Date	2011/4/1	Deciphered Date	2008/09/20

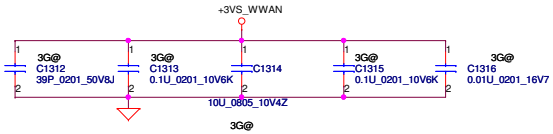
Compal Electronics, Inc.
Title: Docking/ULPI
Size: Custom | Document Number: LA-7251P | Rev: 1.0
Date: Tuesday, April 12, 2011 | Sheet 16 of 34

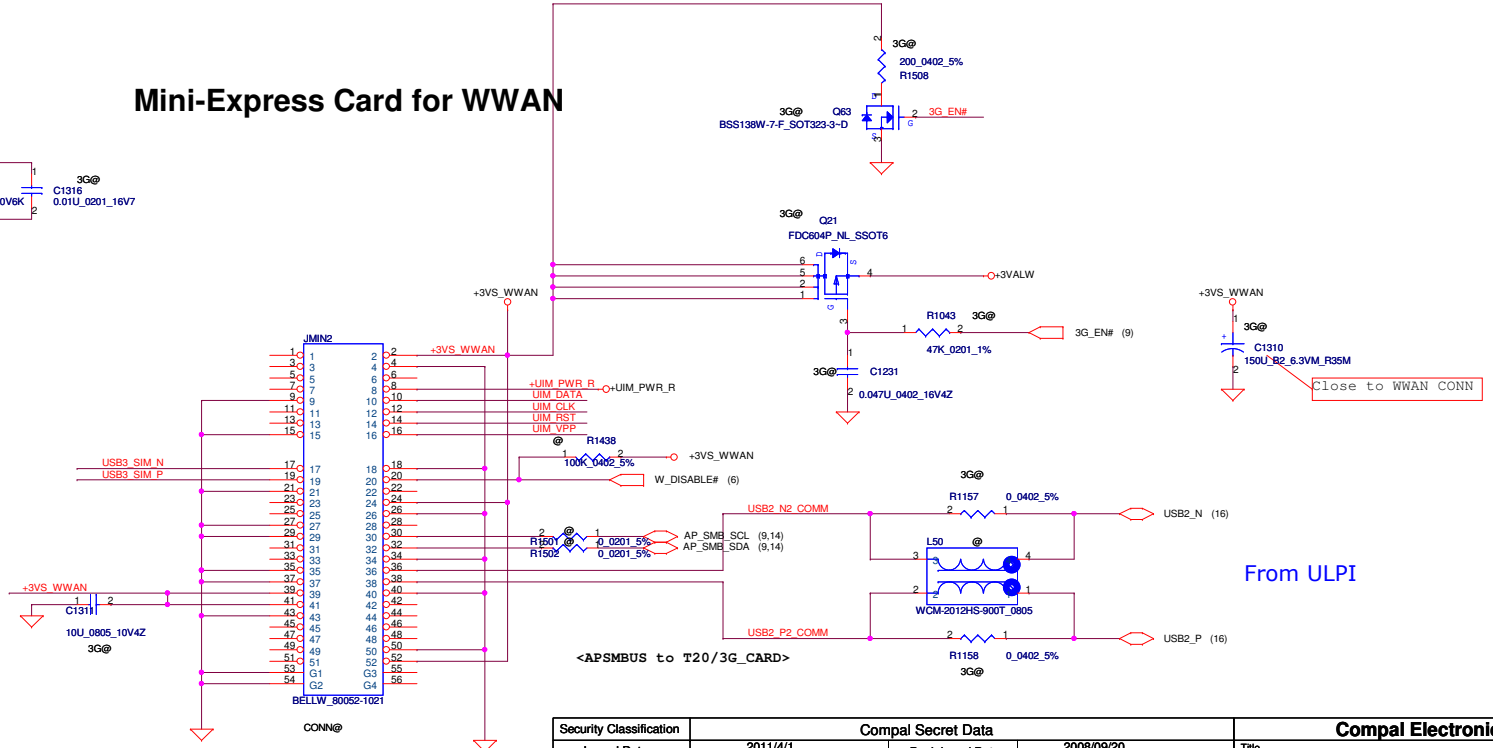
SIM CARD





Mini-Express Card for WWAN





Security Classification	Compal Secret Data		
Issued Date	2011/4/1	Deciphered Date	2008/09/20

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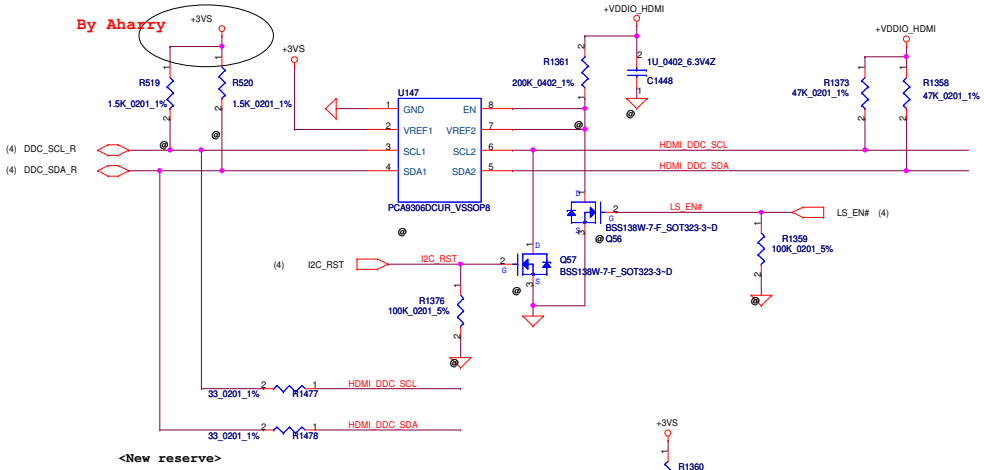
Compal Electronics, Inc.

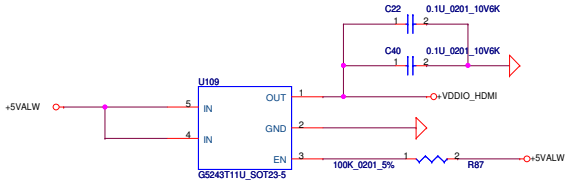
Title: **3G card**

Size: Custom | Document Number: **LA-7251P** | Rev: 1.0

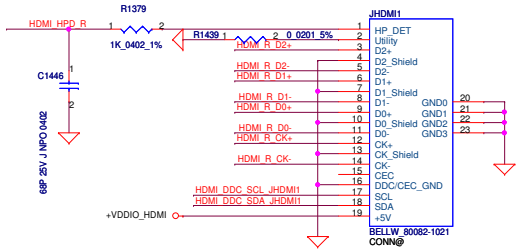
Date: Thursday, April 28, 2011 | Sheet 17 of 34

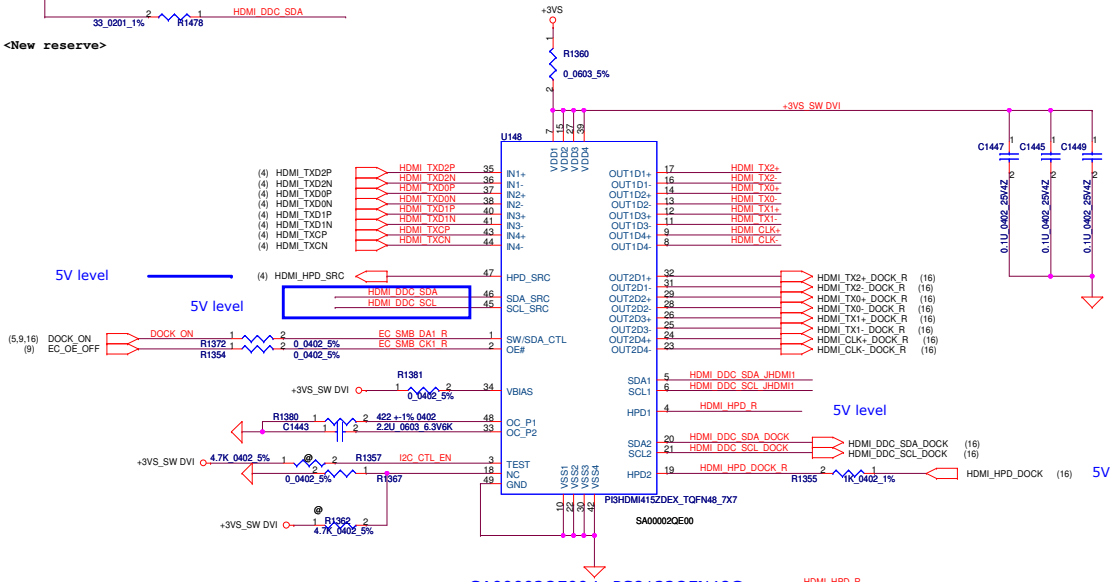
HDMI CEC Controller



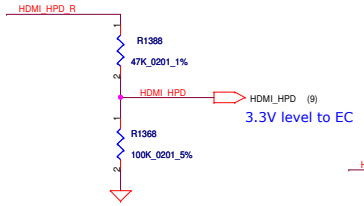


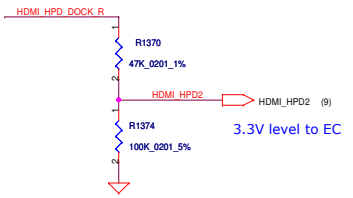
HDMI Type D Connector

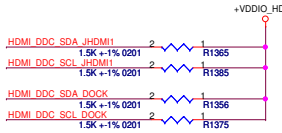


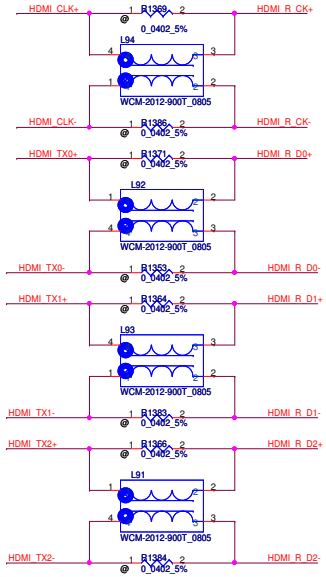


SA00002QE00 is PS8122QFN48G
HPD1 and HPD2 internal pull low 120K









Pin1 SW	Port 1	Port 2
0	Enable	Z
1	Z	Enable

PS8122 I2C control mode use

PS8122 I2C Device Address Seting:
I2C_ADDR=LOW, 9E/9F (default)
I2C_ADDR=HIGH, BE/BF

Pin compare with 415 & 8122

Pin Number	415	8122
1	SW	SW/SDA_CTL
2	OE#	OE#/SDA_CTL
3	Test	I2C_CTL_EN
18	NC	MODE/I2C_ADDR
33	OC_P2	CEXT
48	OC_P1	REXT

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Issued Date	2011/4/1	Deciphered Date	2008/09/20

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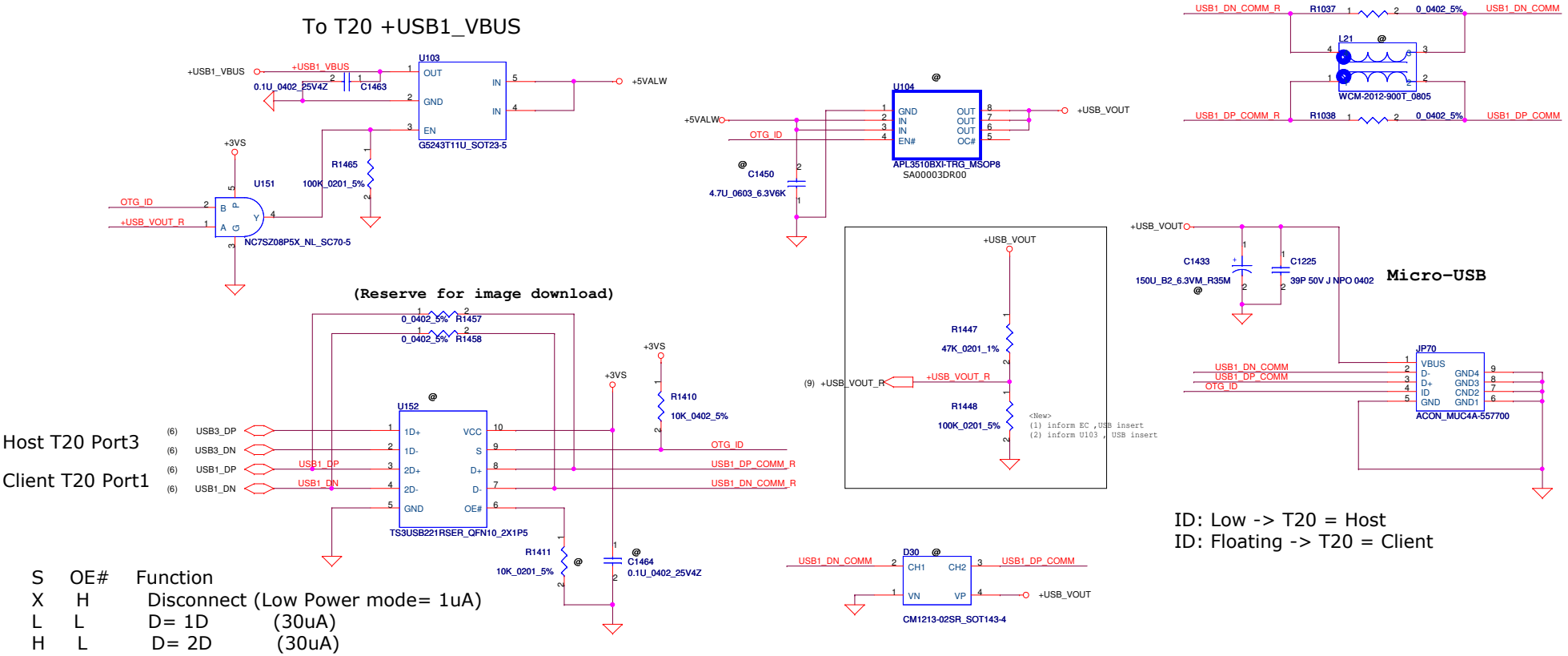
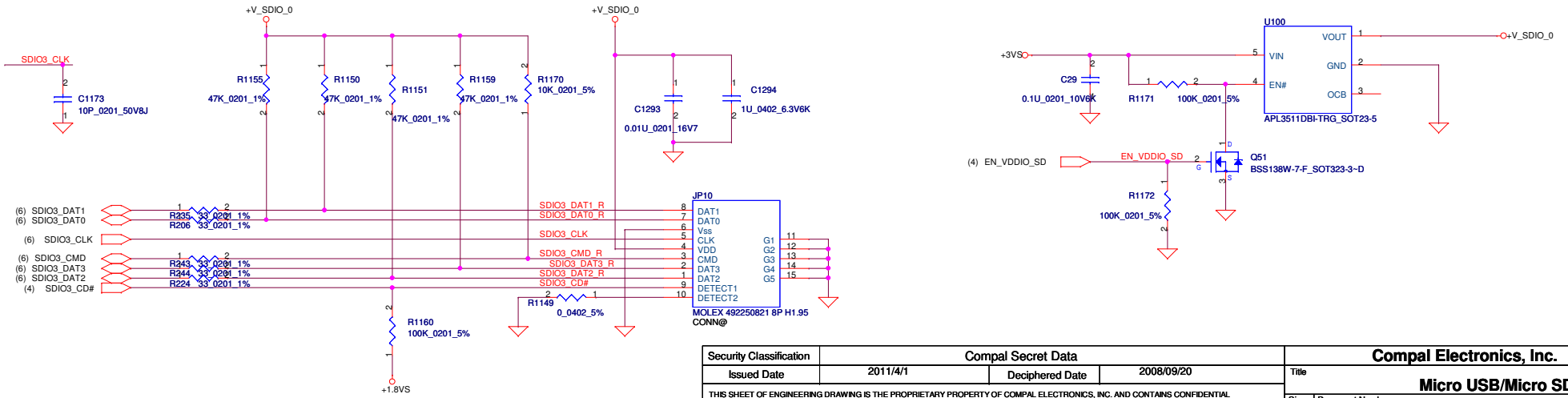
Compal Electronics, Inc.	
Title	HDMI
Size C	Document Number LA-7251P Rev 1.0
Date: Tuesday, April 12, 2011	Sheet 18 of 34

Micro USB



S	OE#	Function
X	H	Disconnect (Low Power mode= 1uA)
L	L	D= 1D (30uA)
H	L	D= 2D (30uA)

Micro SD



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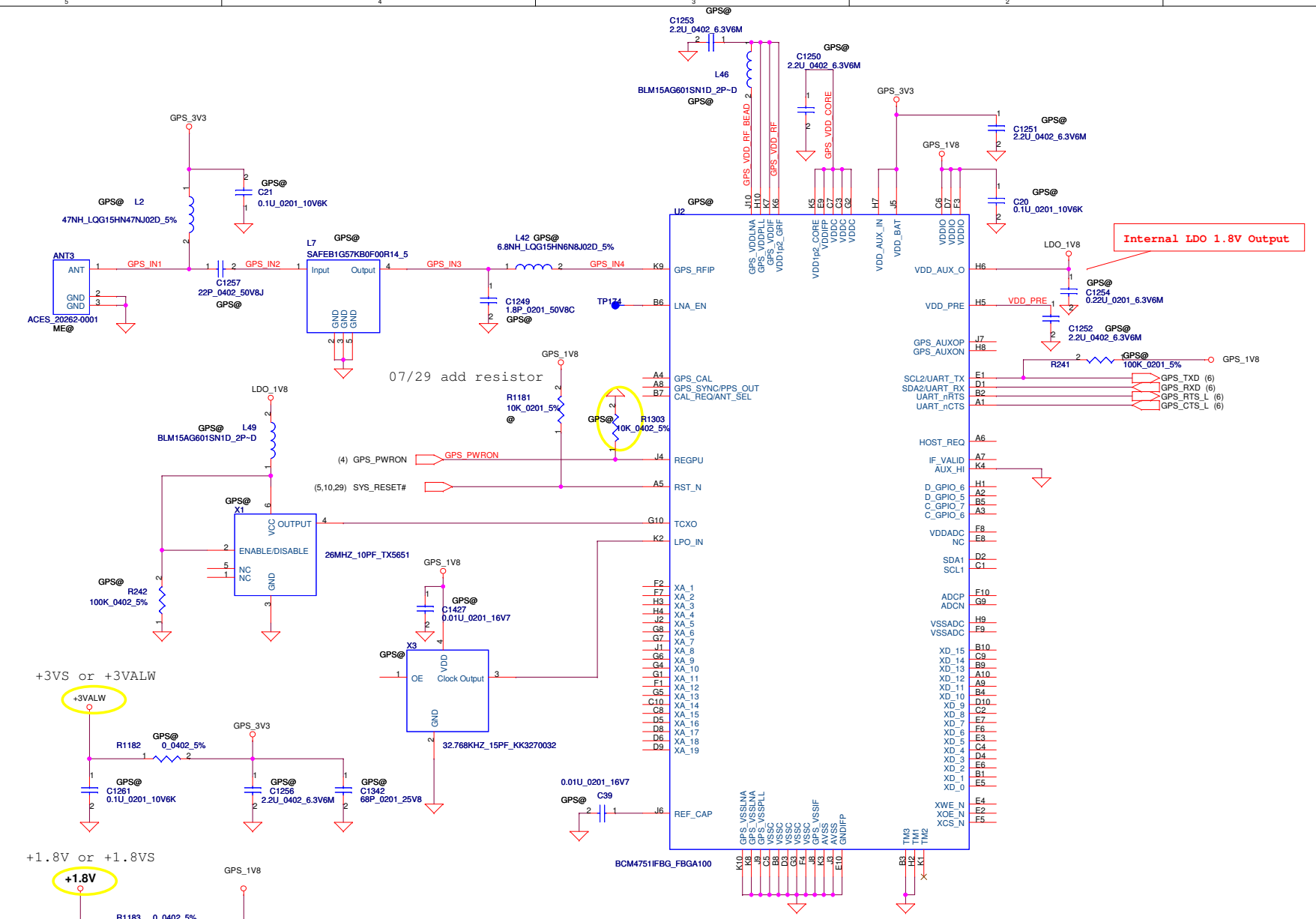
Compal Electronics, Inc.			
Title	Micro USB/Micro SD		
Size: Custom	Document Number: LA-7251P		Rev: 1.0
Date: Tuesday, April 12, 2011	Sheet 19 of 34		



Security Classification	Compal Secret Data		
Issued Date	2011/4/1	Deciphered Date	2008/09/20

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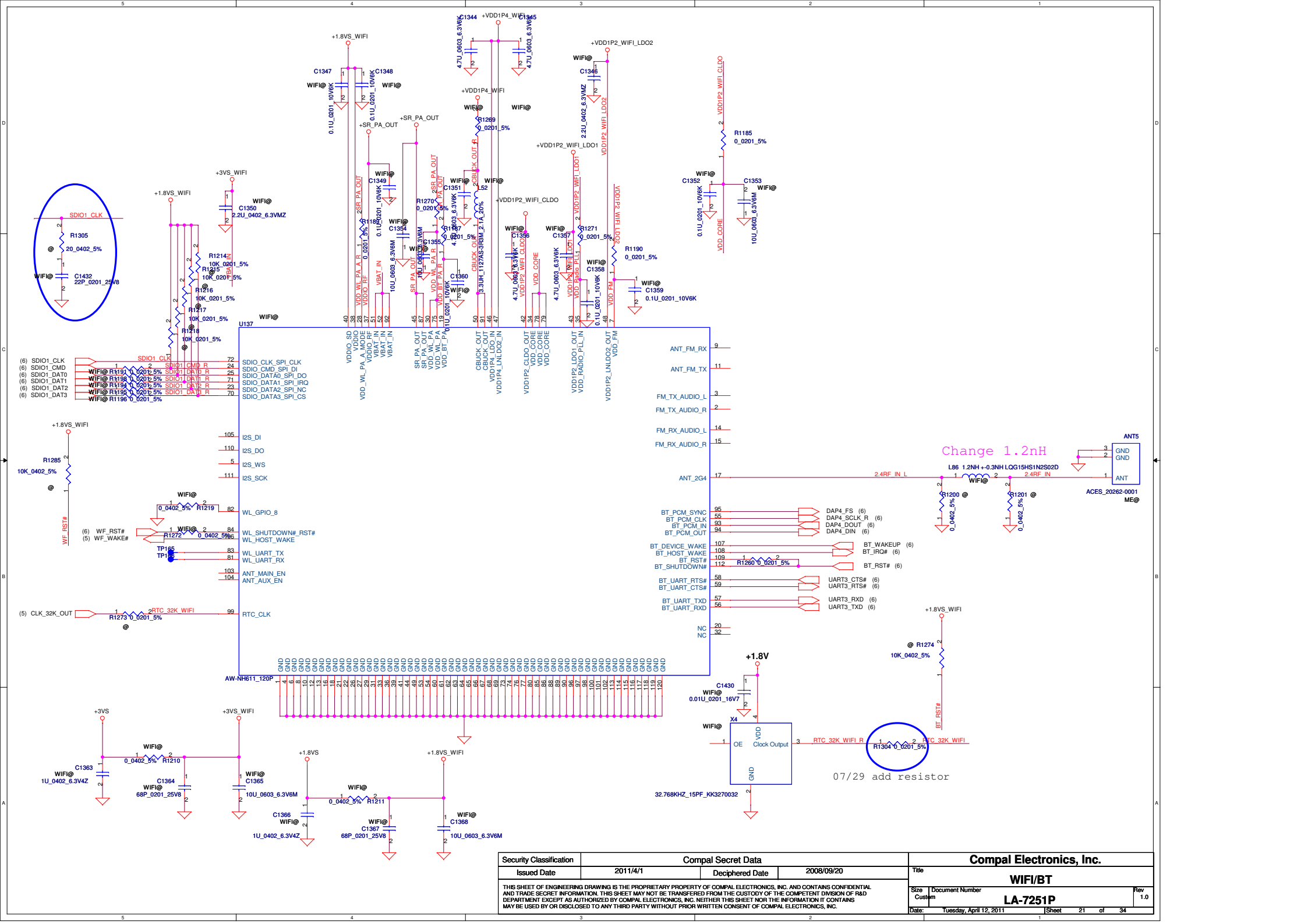
Compal Electronics, Inc.

Title	GPS	
Size: Custom	Document Number: LA-7251P	Rev: 1.0
Date: Tuesday, April 12, 2011	Sheet 20 of 34	



Security Classification	Compal Secret Data		
Issued Date	2011/4/1	Deciphered Date	2008/09/20

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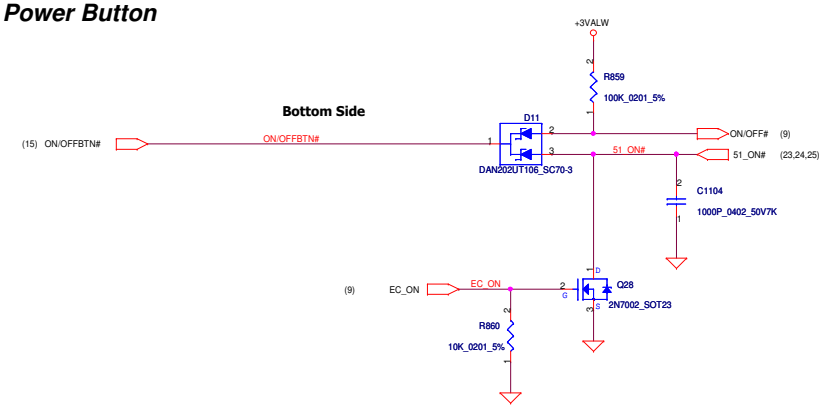
Compal Electronics, Inc.

Title: **WIFI/BT**

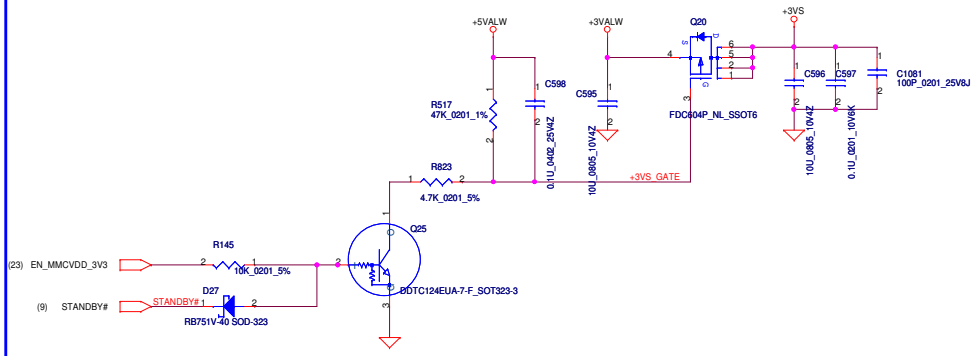
Size	Document Number	Rev
Custom	LA-7251P	1.0

Date: Tuesday, April 12, 2011 | Sheet 21 of 34

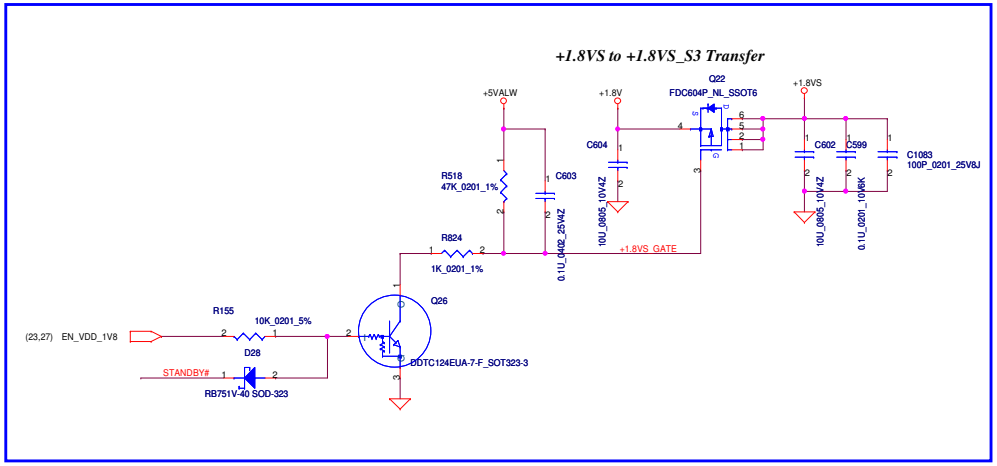
Power Button



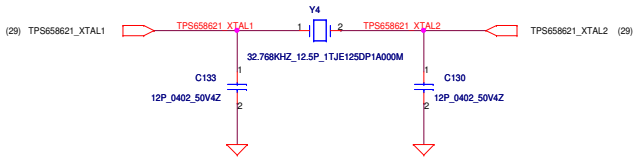
+3VALW to +3VS Transfer



+1.8VS to +1.8VS_S3 Transfer



connect to PMU



Security Classification	Compal Secret Data		
Issued Date	2011/4/1	Deciphered Date	2008/09/20

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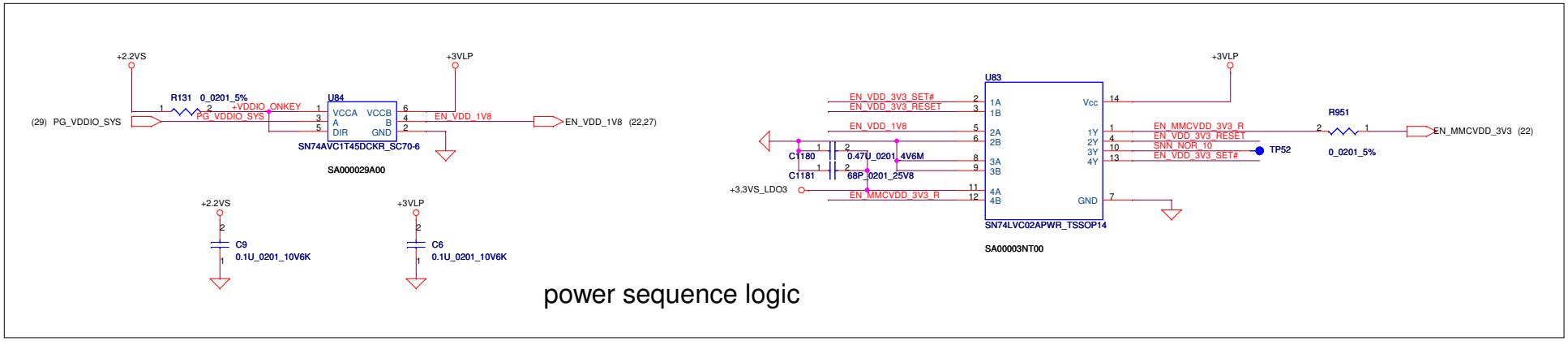
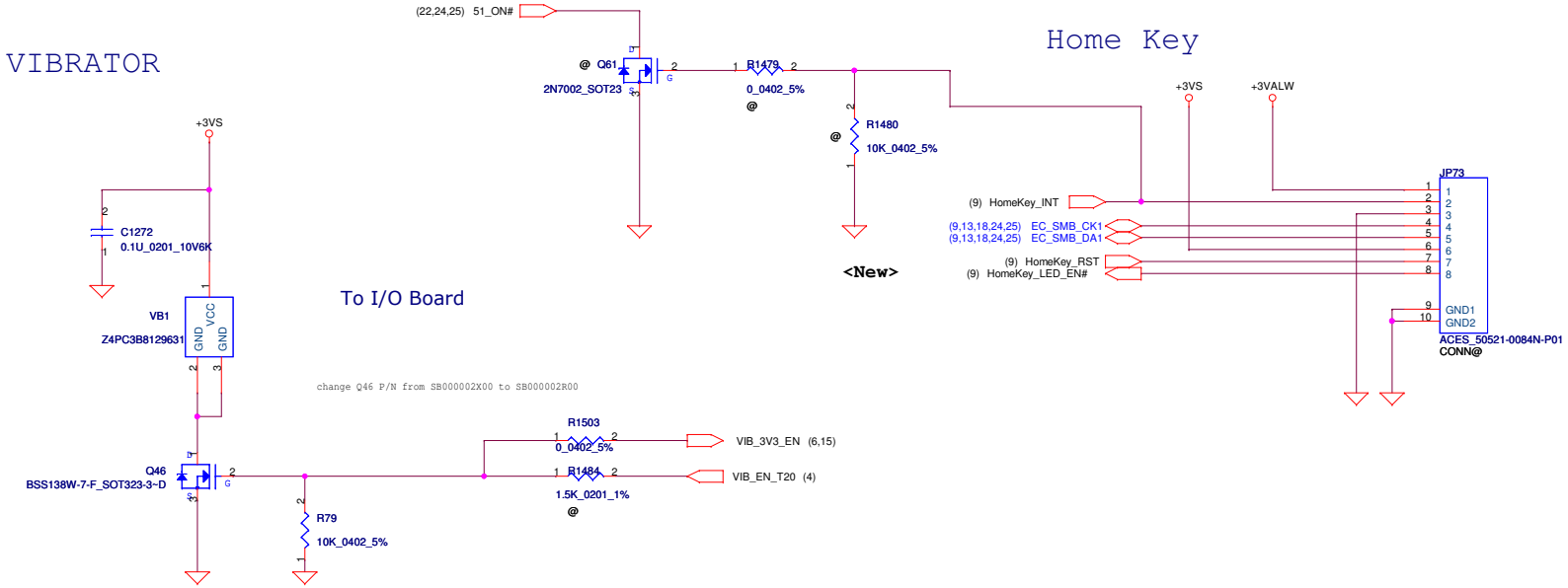
Compal Electronics, Inc.

Title: **DC interface/Power Button**

Size	Document Number	Rev
C	LA-7251P	1.0

Date: Tuesday, April 12, 2011 | Sheet 22 of 34





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Issued Date	2011/4/1	Deciphered Date	2008/09/20

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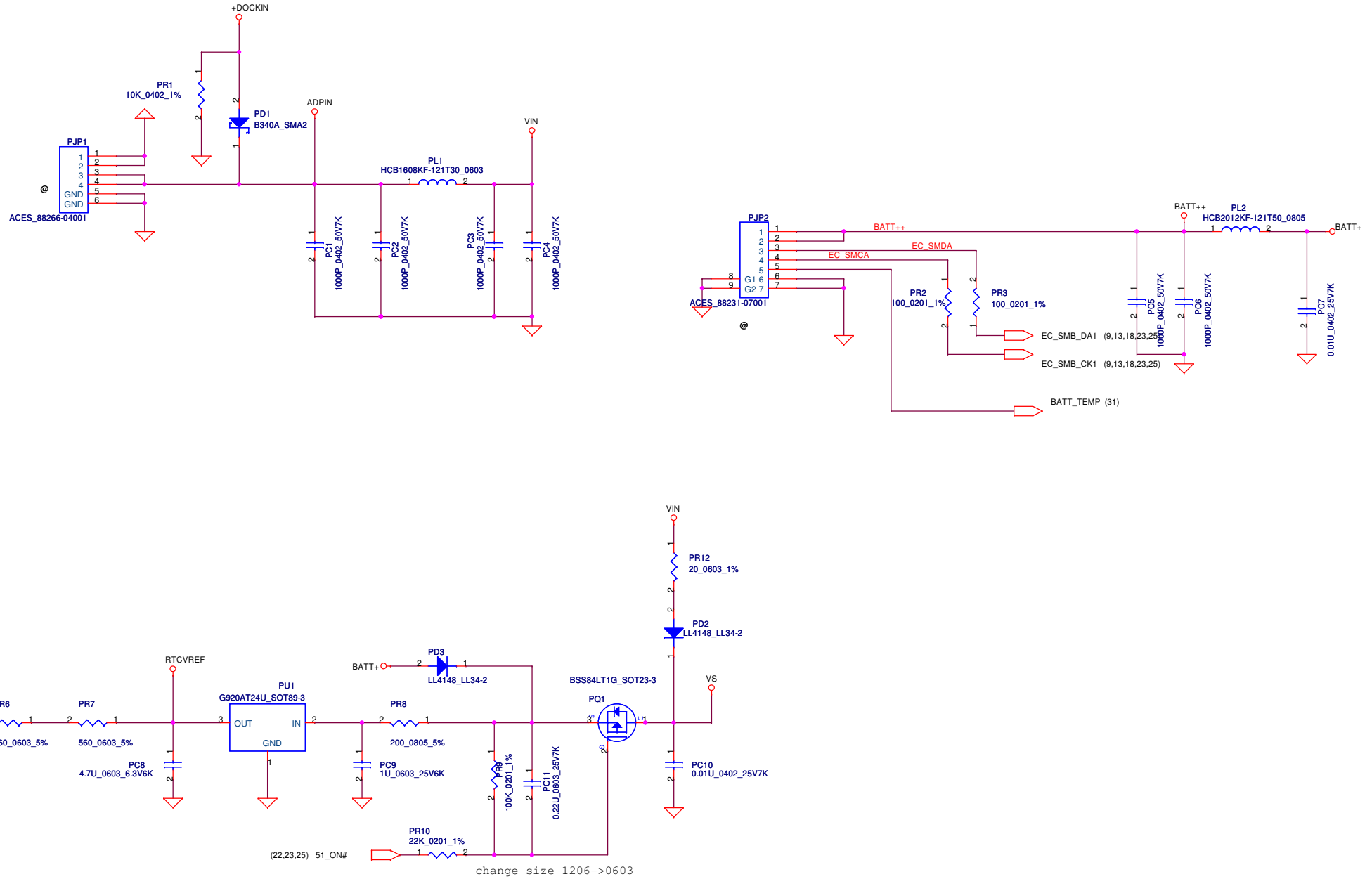
Compal Electronics, Inc.

Title: **Sequence/Vibrator/Home Key**

Size	Document Number	Rev
Custom	LA-7251P	1.0

Date: Tuesday, April 12, 2011 | Sheet 23 of 34



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Issued Date	2006/08/18	Deciphered Date	2008/09/20

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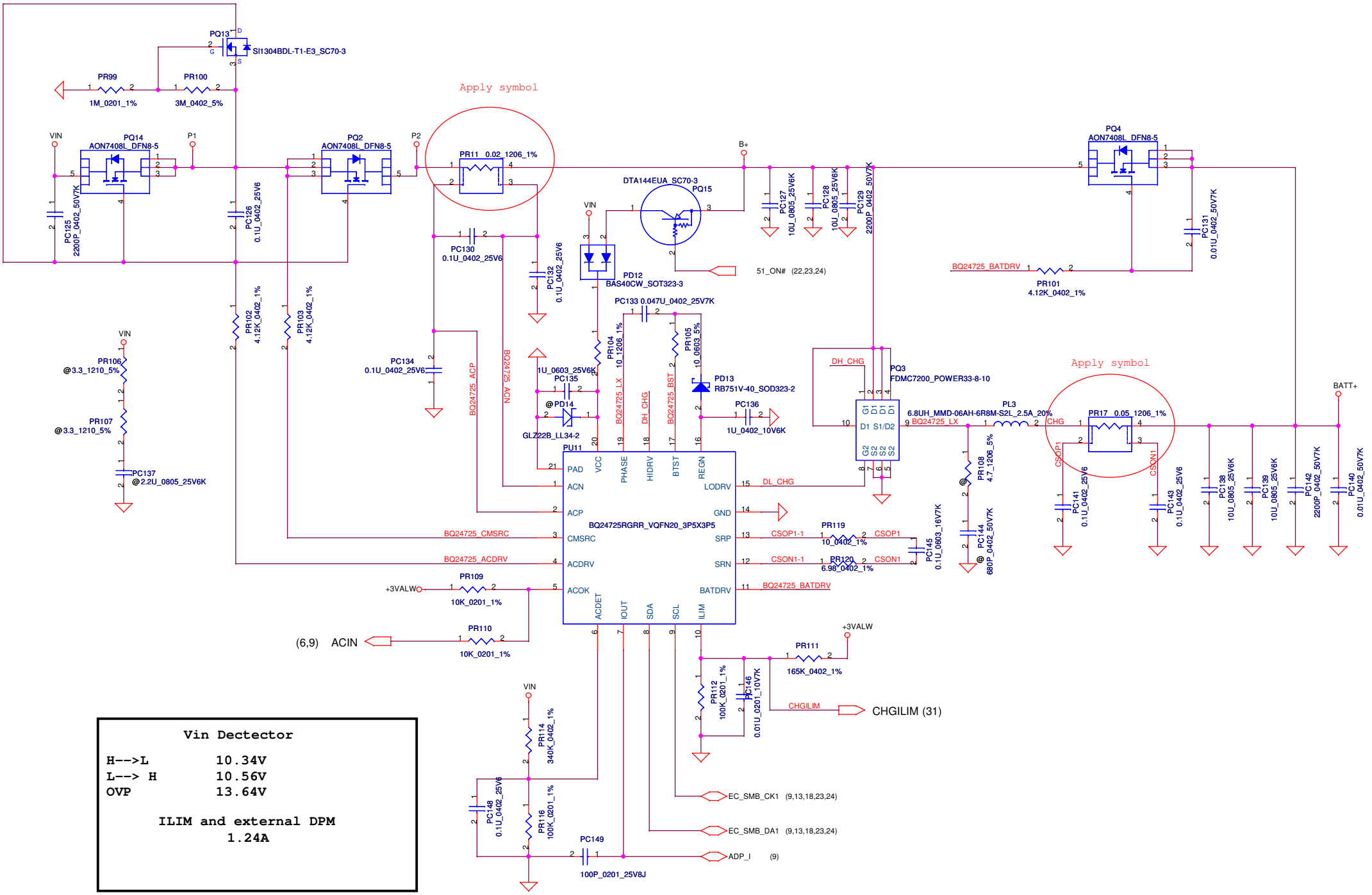
Compal Electronics, Inc.

Title: **DCIN / BATT CONN / RTC**

Size	Document Number	Rev
Custom	LA-7251P	0.1

Date: Thursday, April 21, 2011 Sheet 24 of 34



Vin Dectector

H-->L	10.34V
L--> H	10.56V
OVP	13.64V

ILIM and external DPM
1.24A

Security Classification	Compal Secret Data		
Issued Date	2010/01/25	Deciphered Date	2010/12/31

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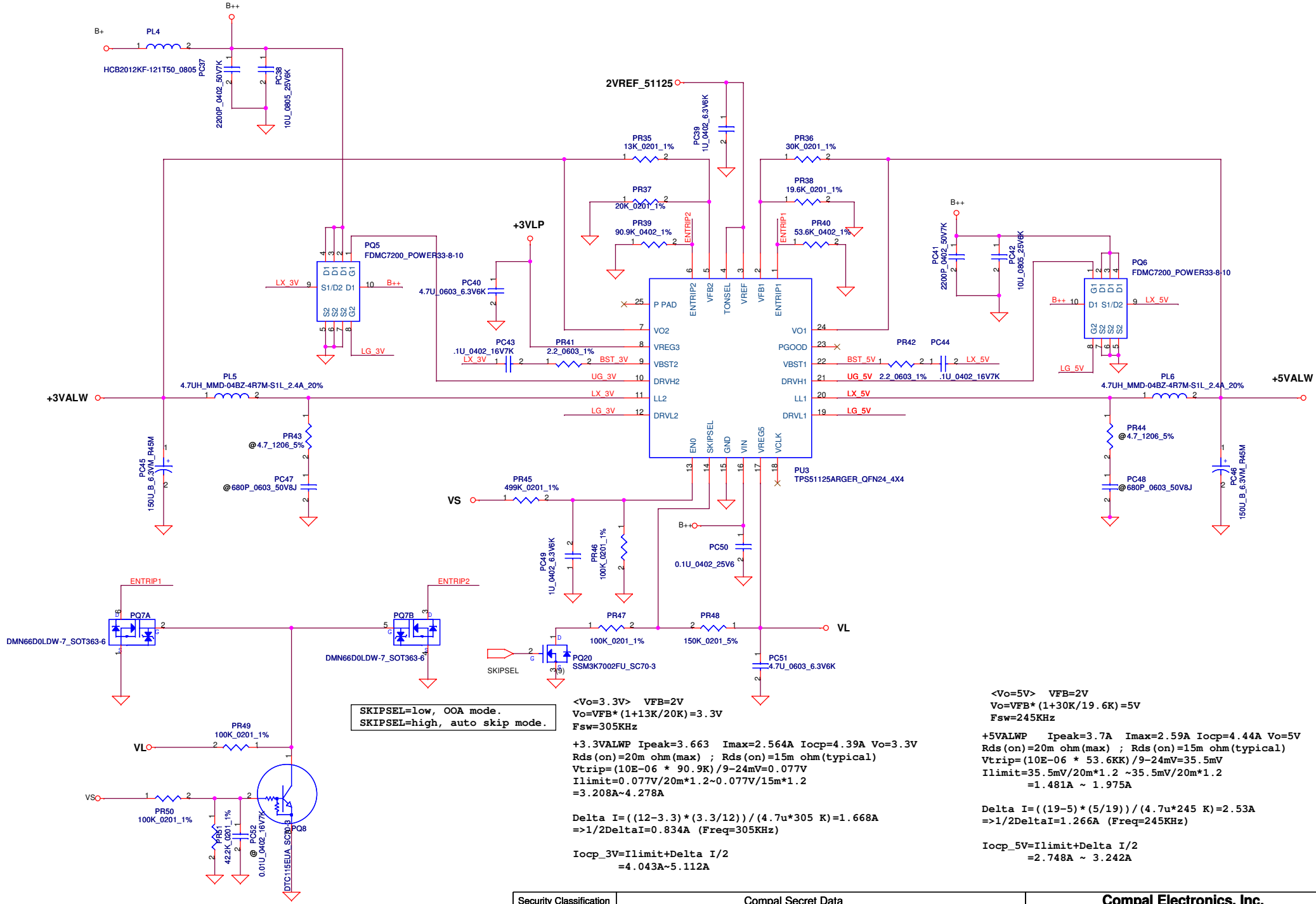
Compal Electronics, Inc.

Title: PWR DCIN / Pre-charge

Size	Document Number	Rev
Custom	LA-7221P	0.1

Date: Thursday, April 21, 2011 Sheet 25 of 34



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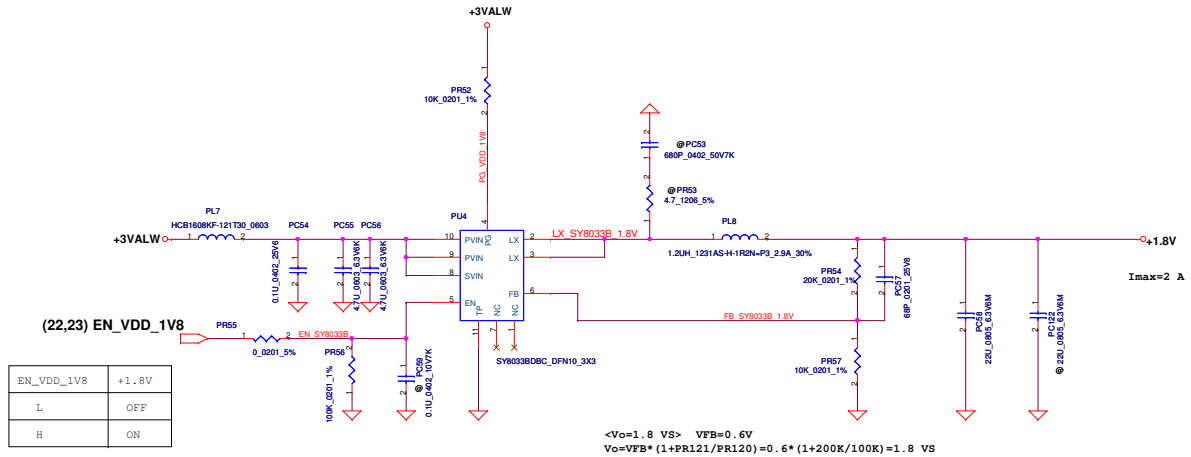
Security Classification	Compal Secret Data		
Issued Date	2006/08/18	Deciphered Date	2008/09/20

Compal Electronics, Inc.

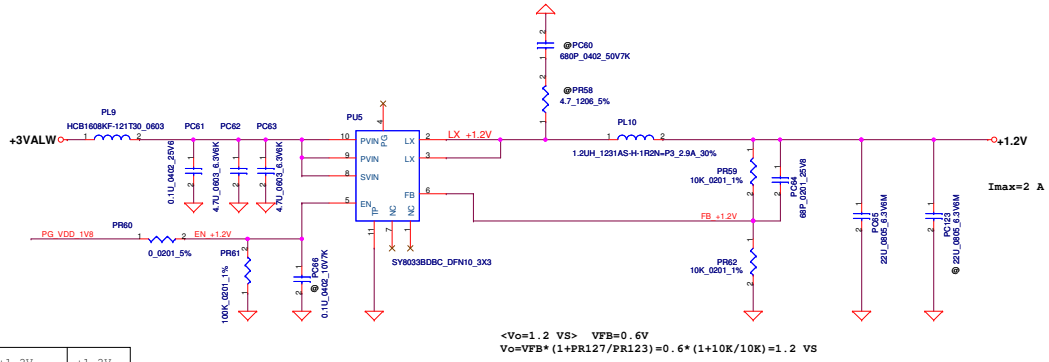
Title: 3VALW_MBP/5VALWP

Size: Custom | Document Number: LA-7251P | Rev: 0.1

Date: Thursday, April 21, 2011 | Sheet 26 of 34



EN_VDD_1V8	+1.8V
L	OFF
H	ON



EN_+1.2V	+1.2V
L	OFF
H	ON

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Issued Date	2006/08/18	Deciphered Date	2008/09/20

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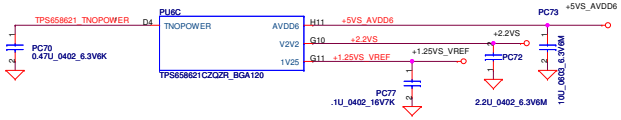
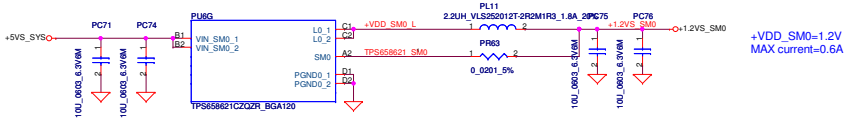
Compal Electronics, Inc.

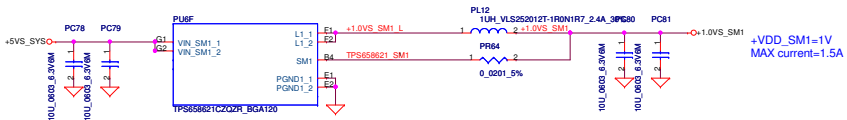
Title: **+1.8VS**

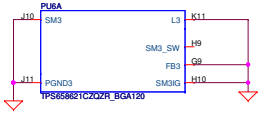
Size: Custom | Document Number: **LA-7251P** | Rev: 0.1

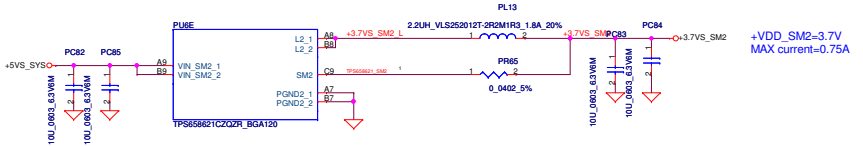
Date: Thursday, April 21, 2011 | Sheet 27 of 34











PMU #1

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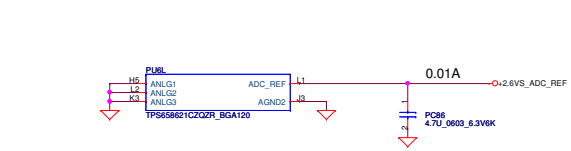
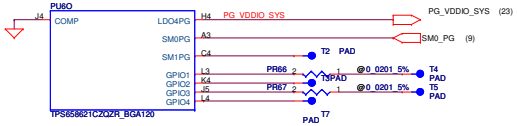
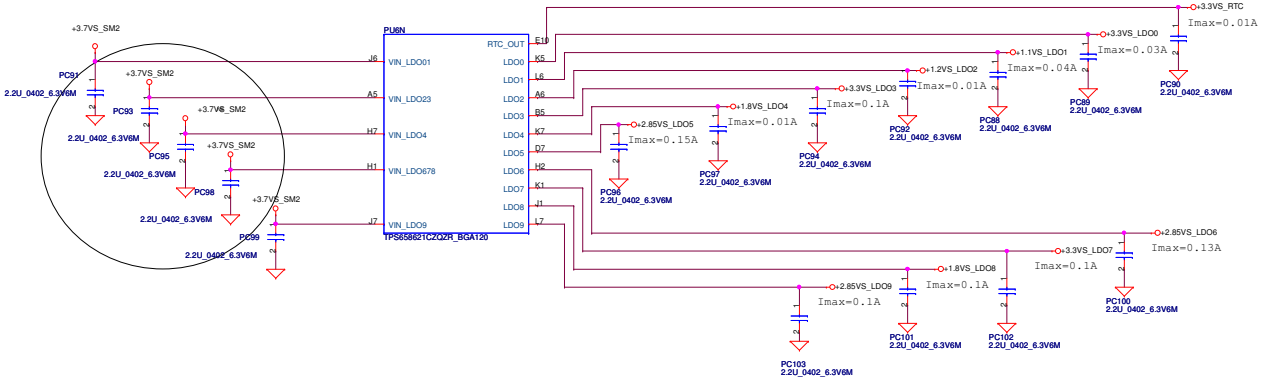
Compal Electronics, Inc.

Title	PMU#1	
Size: Custom	Document Number: LA-7251P	Rev: 0.1
Date: Thursday, April 21, 2011	Sheet 28 of 34	

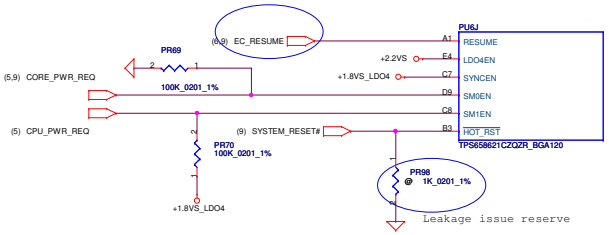


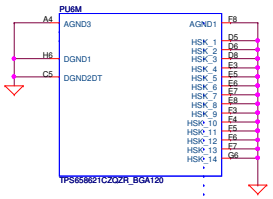


LAYOUT元件擺IC出PIN



接到EC
(POWER BUTTON)





PMU #2

Security Classification	Compal Secret Data		
Issued Date	2006/08/18	Deciphered Date	2008/09/20

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Compal Electronics, Inc.		
Title: PMU#2		
Size: Custom	Document Number: LA-7251P	Rev: 0.1
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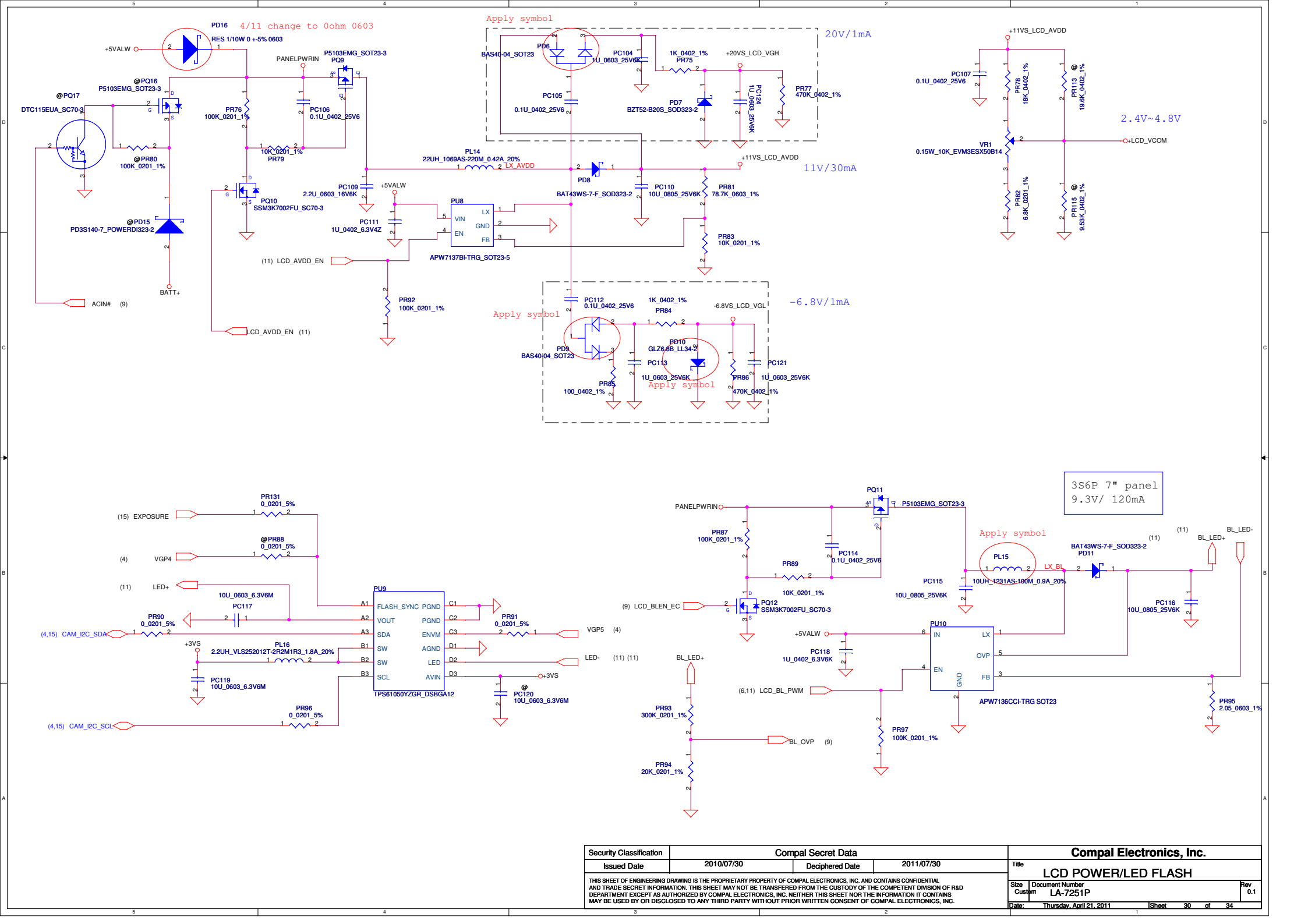

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Compal Electronics, Inc.

Title: LCD POWER/LED FLASH

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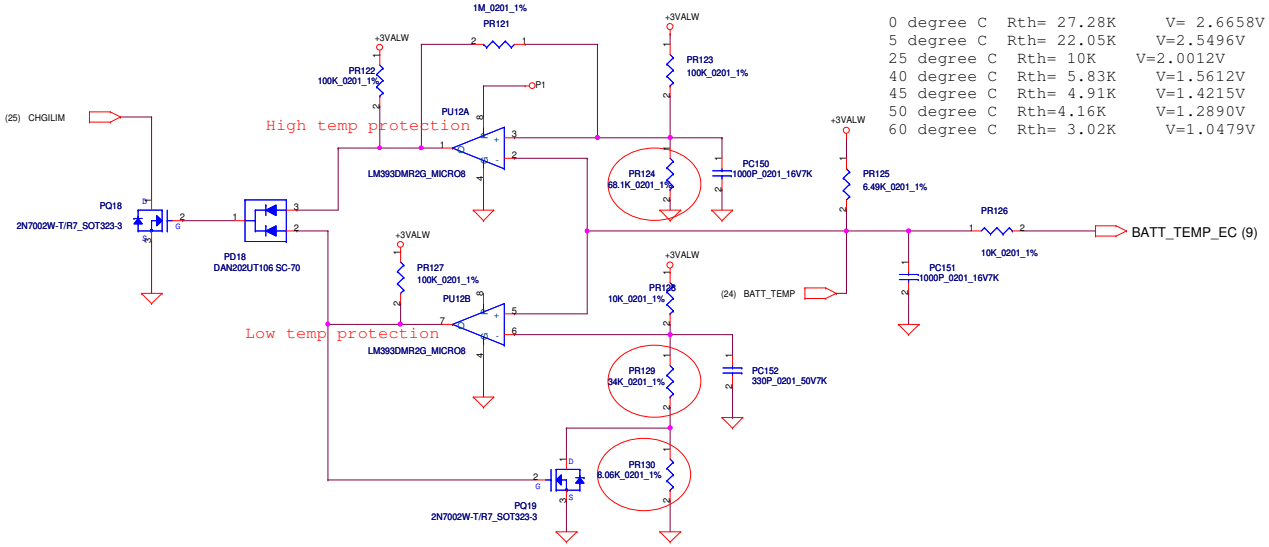
0 degree C protect, 5 degree C recovery.
50 degree C protect, 45 degree C recovery.



0 degree C Rth= 27.28K V= 2.6658V
5 degree C Rth= 22.05K V=2.5496V
25 degree C Rth= 10K V=2.0012V
40 degree C Rth= 5.83K V=1.5612V
45 degree C Rth= 4.91K V=1.4215V
50 degree C Rth=4.16K V=1.2890V
60 degree C Rth= 3.02K V=1.0479V

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

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	Add 1000p to prevent noise coupling at battery TS pin.	Add 1000p to prevent noise coupling at battery TS pin.	0.1	25	Add 1000P_0201_16V at PC153.	2010/11/30	Before EVT
2	Modify HW charger OTP recovert point.	Change OTP setting, 45 degree C protect and 40 degree C recovery.	0.1	25	Change PR115 from 6.81K_0402_1% to 30.9K_0402_1%	2010/11/30	Before EVT
3	Prevent battery reverse and damage the charger IC.	Follow FAE's suggestion, add resistors before SRN and SRP.	0.1	25	Add 10_0402_1% at PR119. Add 6.98_0402_1% at PR120.	2010/11/30	Before EVT
4	Apply new PN for PD10.	Apply new PN for PD10.	0.1	30	Change PD10 from GLZ5.1B to GLZ6.8B.	2010/11/30	Before EVT
5	Modify +3VALWP OCP design	Modify +3VALWP OCP design	0.1	26	Change PR39 from 53.6K_0402_1% to 100K_0402_1%	2010/12/07	Before EVT
6	Design change	Modify BQ24725 schematic	0.1	25	Change PR120 from 6.81_0402_1% to 6.98_0402_1%	2010/12/07	Before EVT
7	Change to common PN	Change to common PN	0.1		Change PC9,PC104,PC113,PC121,PC124 from SE000009R80 to SE000006900	2010/12/07	Before EVT
8	Change to common PN	Change to common PN	0.1		Change PC50,PC107 from SE00000G8N0 to SE00000G880	2010/12/07	Before EVT
9	Change to common PN	Change to common PN	0.1		Change PC38,PC42,PC110,PC115,PC116 from SE00000QKN0 to SE00000QK00	2010/12/07	Before EVT
10	For common part	PD1 3A SMA diode SCS00001I80 shortage issue	0.1	24	Change PD1 from SCS00001I80 to SCS00000W00	2010/12/07	Before EVT
11	For common part	Change BL choke to common PN	0.2	30	Change PL15 from SH00000B200(1127AS) to SH00000MX00(1231AS)	2010/12/30	EVT
12	For common part	Change cap PN to common PN	0.2	25	Change PC136 from SE000000U00(1u_0402_16V) to SE00000QL10(1u_0402_10v)	2010/12/30	EVT
13	Raise VGH voltage from 18V to 20V.	Raise VGH voltage from 18V to 20V.	0.2	30	Change PD7 zener diode from LLZ20A(18V) to GLZ22B(20V)	2010/12/30	EVT
14	For common part	Change diode PN to common PN	0.2	30	Change PD6,PD9 diode fromBAT54S-7-F to BAS40-04	2010/12/30	EVT
15	For common part	Change CSR PN to common PN	0.2	25	Change PR17 0.05_1206_1% from SD00000S700 to SD00000CI10	2010/12/30	EVT
16	Prevent EC pin damage when BL_OVP	Modify voltage dividor resistor	0.2	30	Change PR94 from 30K to 20K.	2010/12/30	EVT
17	Increase panel power input doide	Increase panel power input doide	0.2	30	Change PD15 and PD16 to PD3S140.	2010/12/30	EVT
18	Charger CP close to IC max value.	Charger CP setting near IC max value, vendor suggest change inpur CSR value lower.	0.2	25	Change PR11 from 50m ohm to 20m ohm.	2010/12/30	EVT
19	Modify charger OTP circuit	Modify it for high and low temp sense.	0.2	25	Delete PU12, PC147, PC153, PR113, PR115 and add PU12,PD18, PQ18,PQ19,PR121,PR122,PR123,PR124,PR125,PR126,PR127,PR128, PR129,PR130,PC150,PC151,PC152.	2010/12/30	EVT
20	Improve TI thermal shutdown issue	From vendor's suggestion, change PC77 from 1u to 0.1u	0.2	28	change PC77 from 1u to 0.1u	2010/12/30	EVT
21	For common part	Change cap PN to common PN	0.2	31	PC150 & PC151 change from SE00000TG00 (1000P_0201_50V7K) to common part SE000007U80 (1000P 16V K X7R 0201)	2011/01/10	EVT
22	For ESD part	Change to include ESD dioed	0.2	30	PQ10 & PQ12 change from SB000006800 (S TR 2N7002W T/R7 1N SOT-323) to SB000009610 (S TR SSM3K7002FU 1N SC70-3)	2011/01/10	EVT
23	For LED flash issue	modify LED flash schematic	0.2a	30	Add net EXPOSURE & add PR131(0_0201_5%) Change PR88 to non-mount	2011/01/11	EVT
24	Modify panel power sequence	Modify panel power sequence	0.2a	30	PR75 change from SD034100180(S RES 1/16W 1K +-1% 0402) to SD034300280(S RES 1/16W 30K +-1% 0402)	2011/01/27	DVT
25	Modify panel power sequence	Modify panel power sequence	0.2a	30	PR84 change from SD034300180(S RES 1/16W 3K +-1% 0402) to SD034100180(S RES 1/16W 1K +-1% 0402)	2011/01/27	DVT
26	Reduce negative current during CC mode to CP mode.	Reduce negative current during CC mode to CP mode.	0.2a	25	Change PC145 from SE000006S80(S CER CAP 2.2U 16V K X5R 0603) to SE026104K80(S CER CAP .1U 16V K X7R 0603)	2011/01/27	DVT
27	For common part	Vendor not support SC2N202U0T4(S DIO DAN202U)	0.3	31	Change PD18 from SC2N202U0T4(S DIO DAN202U) to SC2N202U010 (S DIO DAN202UT106 SC-70)	2011/02/10	PVT
28	Add limit current resistor	Add limit current resistor	0.3	24	Add PR12 (S RES 1/10W 20 +-1% 0603)	2011/02/17	PVT
29							
30							
31							

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EVT

<2010/10/05>

P04 - DEL R211
P05 - DEL R179
P06 - R109 Change to 0-ohm
ADD NET: USB1_ID
DEL NET: DAP_MCLK1_FM2018
DEL R97
ADD R1348, R1349, R1350, R1351
P09 - ADD R1352 For IR_INT
ADD NET: USB1_ID, IR_INT
P11 - Change U150 package
P12 - C1414, C1415, C1416, C1419 Change to 5600p
DEL R1223, R1221, R1220
P13 - DEL R1250
ADD R1389, R1390, R1391, R1392
P14 - ADD R1394, R1395
P15 - DEL R136, R139, R140, R143, R144
P17 - DEL R1307, R1344
P19 - Modify USB circuit
P23 - DEL R148

<2010/10/08>

P04 - R36, R39 Change package size to 0201(2.2K SD00000TH00)
R117, R1022, R112 Change package size to 0201(100K)
R11 Change package size to 0201(10K)
P05 - R45, R46, R226, R48 Change package size to 0201
P06 - R54, R57, R110, R111, R114, R1348, R1349, R1350, R1351 Change package size to 0201
P08 - R460, 461 Change package size to 0402
P09 - R1161, R1174 Change package size to 0402
R1352 Change package size to 0201
NET: IR_INT Change to IRDA_INT
P11 - R1405 Change package size to 0201
R1208, R1209 Change package size to 0402
P12 - R1224, R1225, R1147, R1145, R1144, R1148, R1059 Change package size to 0402
R1299, R181 Change package size to 0201
P13 - C1375, C1372, C1376, C1373, C1133, C1135 Change package size to 0402
P14 - R1301, R1 Change package size to 0402
R1394, R1395, R1296 Change package size to 0201
P15 - R1292, R23, R37, R44, R47, R52 Change package size to 0201
P16 - R28 Change package size to 0402
R1401 Change package size to 0201
P17 - R1157, R1158 Change package size to 0402
P18 - R1368, R1374, R1388, R1370, R1365, R1385, R1356, R1375 Change package size to 0201
P19 - R1393, R1406, R1172 Change package size to 0201
D30 NET Change to +USB_VOUT
P22 - C598, C603, R67 Change package size to 0402
R859, R860 Change package size to 0201

<2010/10/12>

P16 - Add R1407 for DOCK_DET_R#
Add R1408, Q58 for HEAD_R_DET#

<2010/10/15>

P04 - Add NET: LS_EN#, I2C_RST
P09 - Add NET: EC_OE_OFF
P18 - R1376, R1359, R1373, R1358, R1363, R1382 Change package size to 0201
R519, R520 mount
Update JHDMI connector
P19 - Del U151, C1463, C1464, R1406
P20 - Del R50, R53, R55, R60
P21 - Del R1202~R1209
Updata Power Schematic

<2010/10/21>

P11 - C121(4.7uF) Change package size to 0603
P16 - DEL U133
P19 - C121(4.7uF) Change package size to 0603
ADD Q59
P23 - ADD U3, U5

<2010/11/01>

P04 - NET: HDMI_HPD_R change to HDMI_HPD_SRC
P15 - CAM2_OE pull down(High active for 2M camera)
P19 - ADD U151, U152, R1411, C1464

<2010/11/03>

P04 - ADD NET: DOCK_ON
P09 - ADD NET: HDMI_HPD, HDMI_HPD2, DOCK_ON
P11 - Modify U97 package to S023-5
Modify JP58(Touch Panel) Library
P12 - Modify JP55 Library
P13 - Modify internal MIC Library
P16 - Modify SW6 Library
P18 - DEL R1377, R1378, R1409
Modify U109 package to S023-5
P19 - Modify U97 package to S023-5

<2010/11/05>

P16 - Modify JP12(Docking) Library
P19 - Modify JP70(Micro USB) Library
Update power circuit

<2010/11/08>

P04 - DEL R931, C1217
P09 - ADD R1412~R1419 and Q59, Q60
P10 - ADD R1420
P11 - ADD D31 for LED Flash
P12 - ADD R1421~R1425 and C1465, C1466
P13 - ADD JMIC1, JMIC2, R1426~R1430 for DMIC
P15 - DEL 5M Camera circuit
P17 - ADD RF switch circuit
P18 - ADD R1439
P22 - DEL Power Button circuuit
P23 - DEL P-Sensor circuuit

<2010/11/09>

P15 - Update JP2 Pin arrangement
P17 - Remove RF switch circuit to IO board
P22 - Add Power Button circuit

<2010/11/15>

P04 - DEL NET: DOCK_ON
Change NET: PROX_INT# to P_INT#
P05 - ADD NET: DOCK_ON, IR_INT, Home_POUT, Home_LED_ON
ADD R1444~R1446, R1449, D32
P06 - Change R109 to 10K-ohm
Change NET: USB1_ID to +AVDD_USB
P09 - DEL R1177~R1179
DEL NET: USB1_ID, DOCK_DET_L#, SLEEP_MODE
ADD NET: POUT, IR_INT, FM2018_EN, P_INT#
P11 - Change NET: LED- to BL_LED-, LED+ to BL_LED+
Change JP58 Pin arrangement
P12 - Swap D5, D6
P13 - Remove MIC circuit
P15 - Change NET: +5VALW to +3VALW
P16 - DEL R1407, R72
P17 - Swap L50
P18 - Change L91~L94 to SM070001S00
Swap L93, L94 for layout
P19 - Change JP70 library
ADD R1447, R1448
P23 - ADD JP72 for Home Key

<2010/11/17> By Harry

P12- add C54/C55/R245/R246
P12 - add R182(Head_DET#) pull-high on MB

<2010/11/18> By Harry

update Power schematic

<2010/11/22> By Harry

Page9 add EC ESB BUS

<2011/02/11>

P14 - ADD R1522
Update power circuit

<2011/02/18>

P09 - ADD R1528
P12 - ADD Q64~Q66, R1523~R1527
DEL R1495, R1498
P16 - ADD C1484
Update power circuit

<2011/03/03>

P09 - change R1417 to 33K-ohm(Board ID)
P12 - Q64~Q66 change to SB00000BS00
R1496 change to 25.5K-ohm
R1500 change to 46.4K-ohm
P16 - mount: U149, C1452~C1457, R1396, R1398, R1404 for 3G SKU
P18 - nu-mount: R1363, R1382, R1357, R1362
mount: R1372, R1354, R1367
change R1496 to 422-ohm
change R1373, R1358 to 47K-ohm
P23 - change JP73.1 NET to +3VALW
nu-mount: Q61, R1479, R1480

<2011/03/08>

P03 - modify I2C address table
P05 - R1444 change to 3G@
P09 - modify board ID table
P12 - Change R245, R246 to 9.1-ohm for 3G@
P14 - nu-mount U132
P15 - nu-mount: R1513
mount: R1514
P16 - Change R1470, R1472 to 600-ohm at 100MHz for 3G@
P19 - nu-mount: C1433, C1450

<2011/04/28>

P05 - Change R1444 to SD028100280

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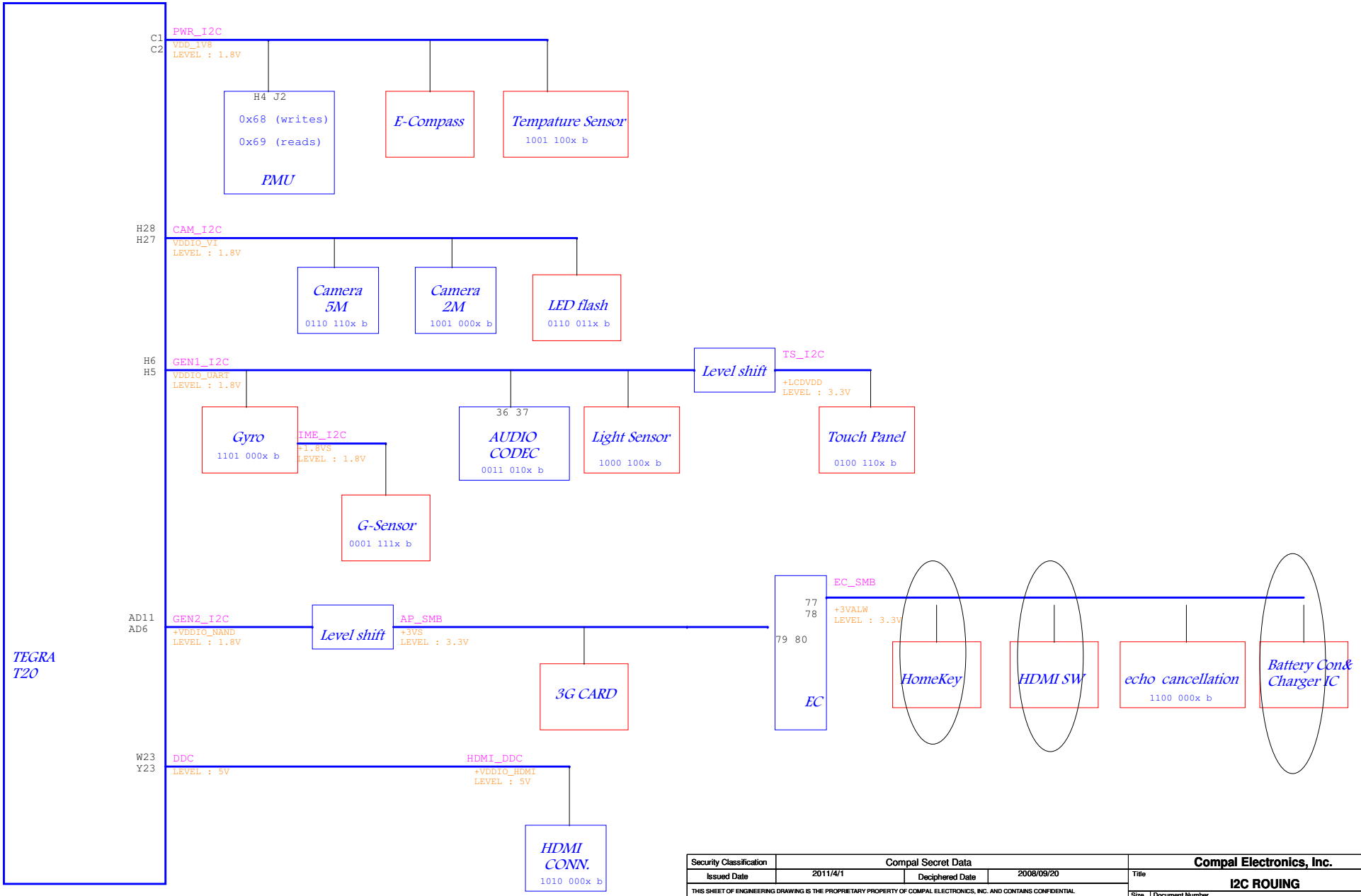
PBJ30(VanGogh) I2C Routing



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