Model Name: KAL80

PCB NO: LA-4232P

BOM P/N:

Half Penny Bridge 13.3
Compal Confidential

Schematic Document

Cantiga + ICH9

2009 / 06 / 01 Rev:1.0(A00)

Security Classification	Compal Secret Data		
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Compal Electronics, Inc.

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Compal confidential

File Name : LA-4232P

Half Penny Bridge 13.3

ZZZ1
PCB

CRT
+CRT_VCC P.16

LVDS Panel Interface
+LCDVDD
+3VS
B+ P.16

Thermal Sensor
ADT7421ARMZ
+3VS P.4

Fan conn
+5VS P.4

Penryn -4MB (Socket P)
uFCPGA-478 CPU
+CPU_CORE
+VCCP
+1.5VS P.4,5,6

H_A#(3..35)
H_D#(0..63)
FSB
800/1066 MHz 1.05V

CK505 SM IC -72
Clock Generator
CS9LPRS387BKLFT
+1.05VS_CK505
+3VS_CK505 P.15

nVidia
NB9M-GS
+1.8VS
+VGA_CORE
+1.1V_GFX_PCIE
+3VS P.31,32,33,34

VRAM x 2
+1.8VS P.35

Intel Cantiga MCH
1329pin BGA
+3VS_DAC_CRT
+3VS_DAC_BG
+1.05VS_DPLLA
+1.05VS_DPLLB
+VCCP
+1.8V_TXLVDS P.7,8,9,10,11,12

DDR2 667/800MHz 1.8V
Dual Channel

DDR2-SO-DIMM X2
BANK 0, 1, 2, 3
+1.8V +0.9VS P.13,14

DMI X4
C-Link

Intel ICH9-M
676pin BGA
+RTCVCC
+1.5VS
+VCCP
+3VALW P.17,18,19,20

USB2.0
Azalia
SATA 0
SATA 1

PCI-E BUS

USB conn x 4
+5VALW P.29

FingerPrinter
+3VS P.29

Felica Conn
+5VS P.29

BT Conn
+3VS P.29

Camera
+5VS +3VS P.29

Express Card
+3VS +1.5VS P.26

Mini-Card-1
+1.5VS +3VS P.23

10/100/1000 LAN
REALTEK
RTL8111DL
+LAN_IO P.21

Mini-Card-1
(WLAN)
+1.5VS
+3VS P.23

CardBus Controller
O2MICRO OZ888
+1.8VS_CB
+3VS_PHY P.30

Express Card
+1.5VS
+3VS P.26

1394

Media Card
+3VS_CR

RJ45/11 CONN

LPC
TPM
SLB 9635
+3VS P.28

LPC
LPC BUS

Mini-Card-2
(WLAN)
+1.5VS
+3VS P.23

ENE KB926
+3VALW
+EC_AVCC P.27

Digital Mic P.24

Audio CODEC
92HD81
+3VS
+5VS P.24

Audio Jack P.24

SATA HDD Connector
+5VS P.22

CDROM Conn.
+5VS P.22

Touch Pad CONN.
+5VS P.28

Int.KBD P.28

BIOS(System/EC)
+3VALW P.27

Power On/Off CKT. P.28

DC/DC Interface CKT.
+5VS P.36

Power Circuit DC/DC P.36~P.45

RTC CKT.
+RTCVCC P.39

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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 +VGA_CORE +1.8VS +1.1VS +0.9VGA
S0	0	0	0	0
S1	0	0	0	0
S3	0	0	0	X
S5 S4/AC	0	0	X	X
S5 S4/ Battery only	0	X	X	X
S5 S4/AC & Battery don't exist	X	X	X	X

Symbol Note :

: means Digital Ground

: means Analog Ground

@ : means just reserve , no build
CONN@: connect
VGA@: discrete component
UMA@: uma component
TPM@: TPM compoent

PCI EXPRESS	DESTINATION
Lane 1	NA
Lane 2	GLAN RTL8111DL
Lane 3	MINI CARD-2 WLAN
Lane 4	EXPRESS CARD
Lane 5	CARD READER OZ888
Lane 6	NA

SATA	DESTINATION
Lane 0	HDD
Lane 1	ODD
Lane 4	NA
Lane 5	NA

	USB PORT#	DESTINATION
ICH9-M	0	JUSBP1
	1	CAMERA
	2	JUSBP3(SINGLE)
	3	Felica
	4	Blue Tooth
	5	Finger Printer
	6	JMINI2-WLAN
	7	Express card
	8	JUSBP3(DUEL TOP)
	9	JUSBP3(DUEL BOTTOM)
	10	NA
	11	NA

SMBUS Control Table

	SOURCE	INVERTER	BATT	SERIAL EEPROM	THERMAL SENSOR (CPU)	SODIMM	CLK CHIP	MINI CARD	LCD
SMB_EC_CK1 SMB_EC_DA1	KB926	X	V	V	X	X	X	X	X
SMB_EC_CK2 SMB_EC_DA2	KB926	X	X	X	V	X	X	X	X
SMB_CK_CLK1 SMB_CK_DAT1	ICH9	X	X	X	X	V	V	X	X
LCD_CLK LCD_DAT	Cantiga	X	X	X	X	X	X	X	V

I2C / SMBUS ADDRESSING

DEVICE	HEX	ADDRESS
DDR SO-DIMM 0	A0	10100000
DDR SO-DIMM 1	A4	10100100
CLOCK GENERATOR (EXT.)	D2	11010010

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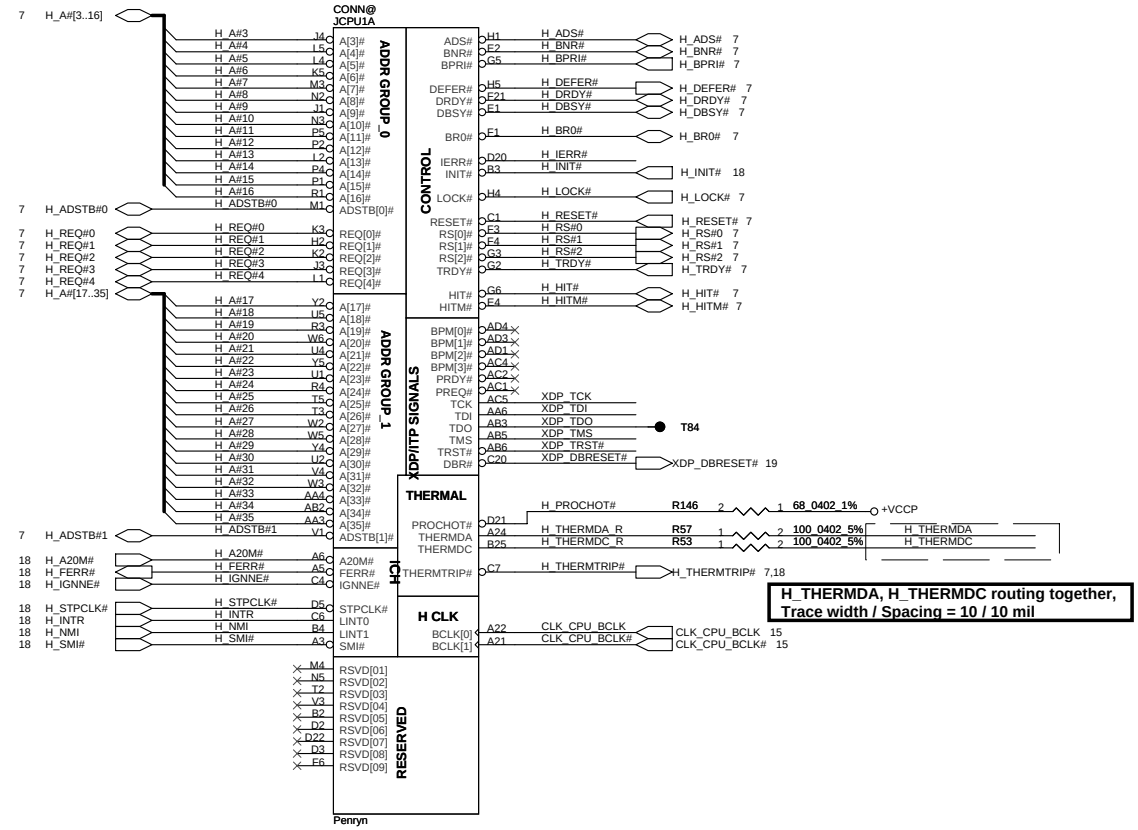

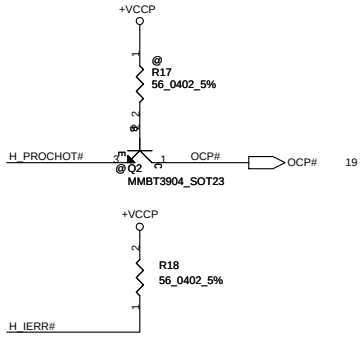

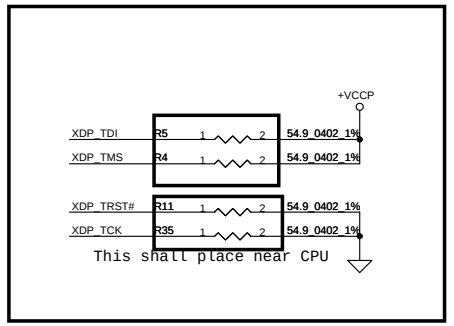

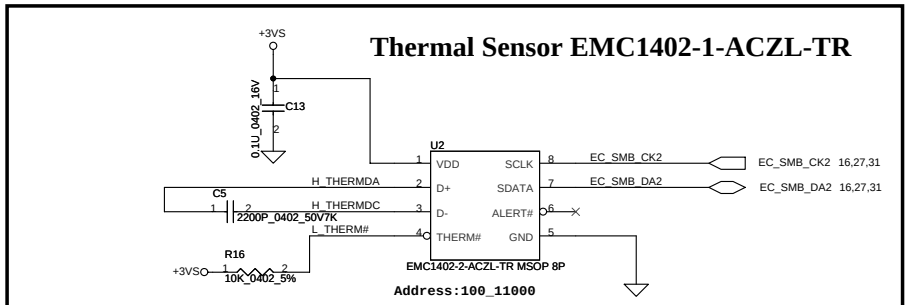

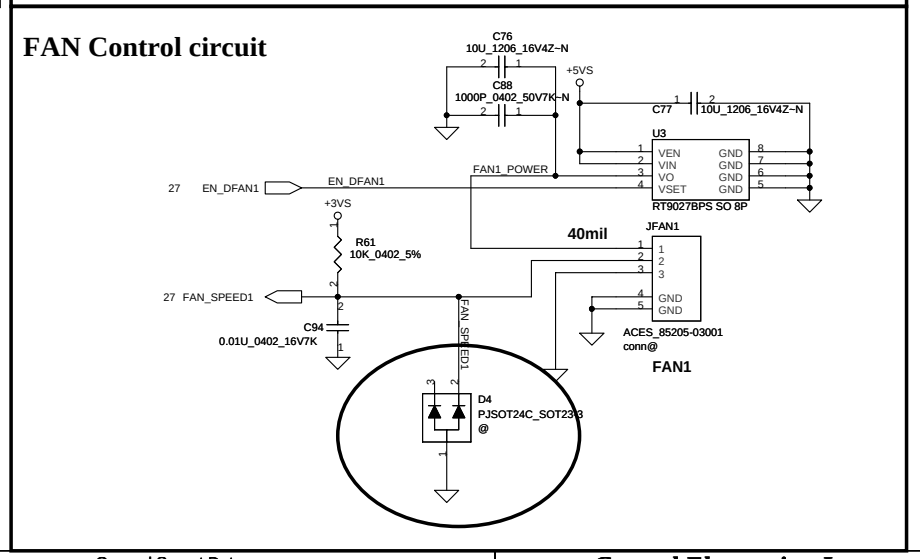

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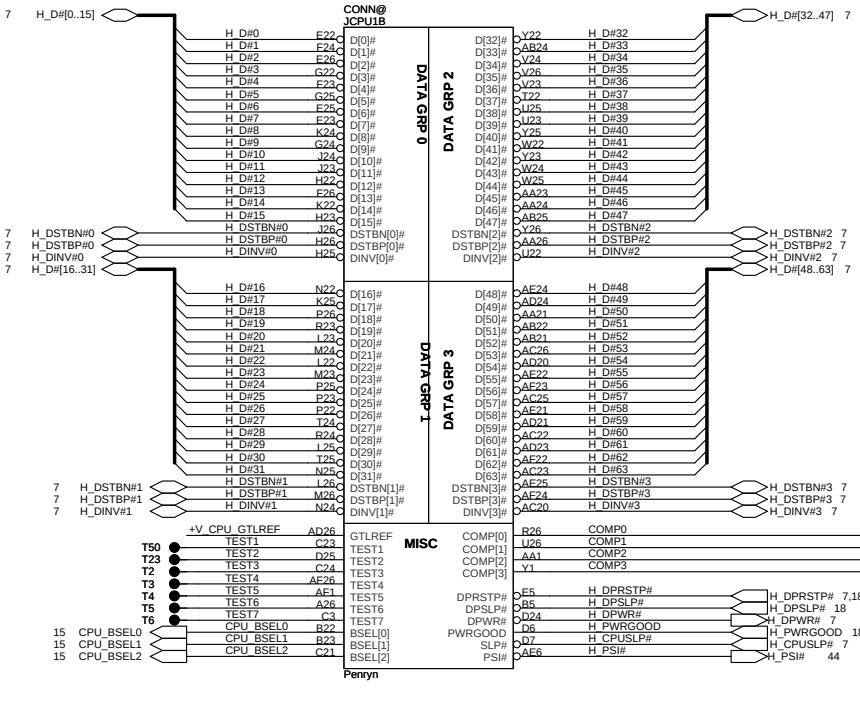
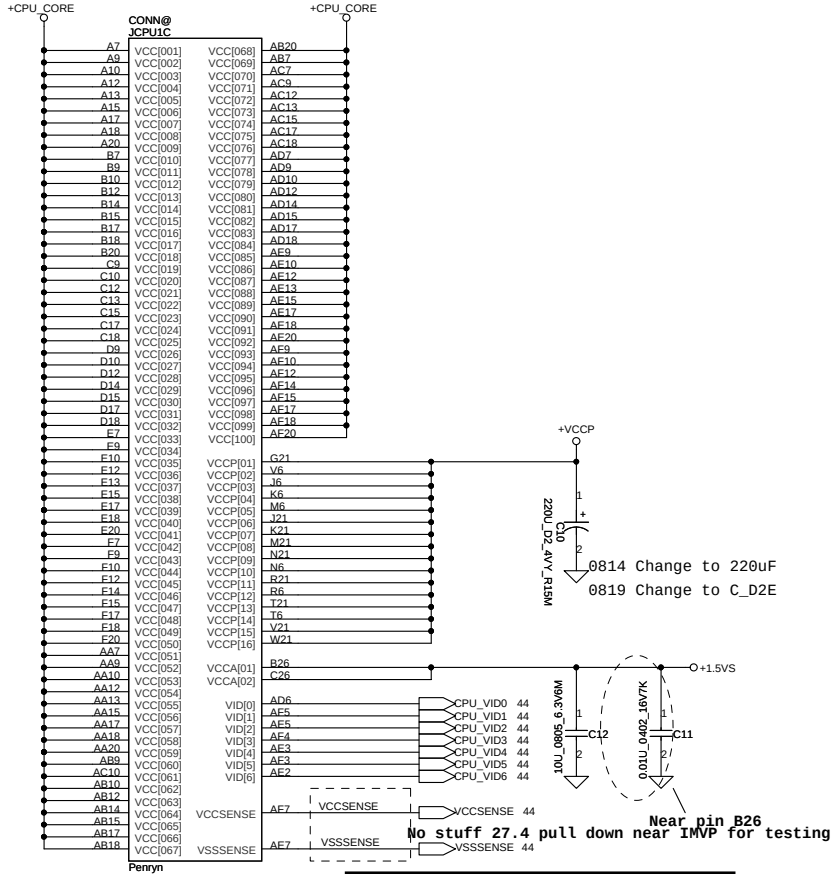




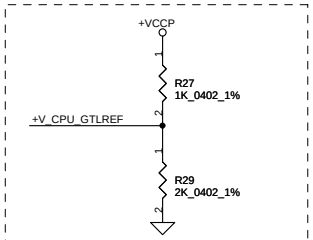
layout note: Rout H_DPRSTP# from ICH9 to IMVP6 then to GMCH & CPU

layout note: Route TEST3 & TEST5 traces on ground referenced layer to the TPs

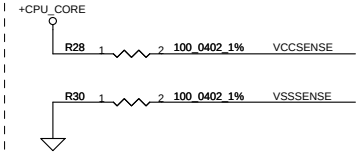
CPU_BSEL	CPU_BSEL2	CPU_BSEL1	CPU_BSEL0
166	0	1	1
200	0	1	0
266	0	0	0

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 21 mils. COMP[1,3] trace width is 5

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



Close to CPU pin AD26 within 500mils.



Close to CPU pin within 500mils.

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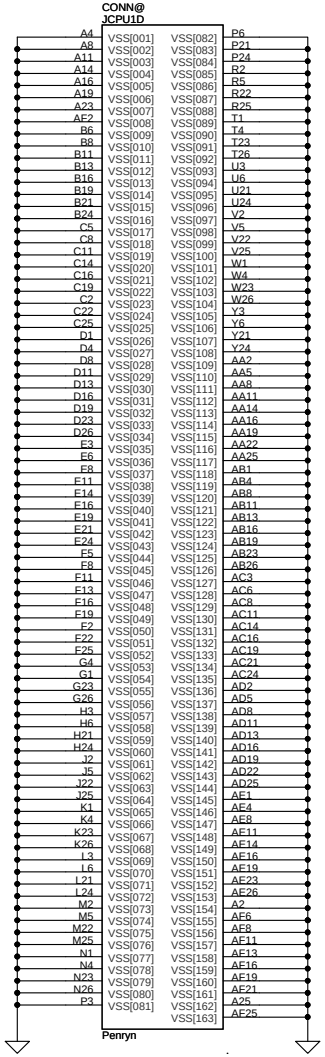
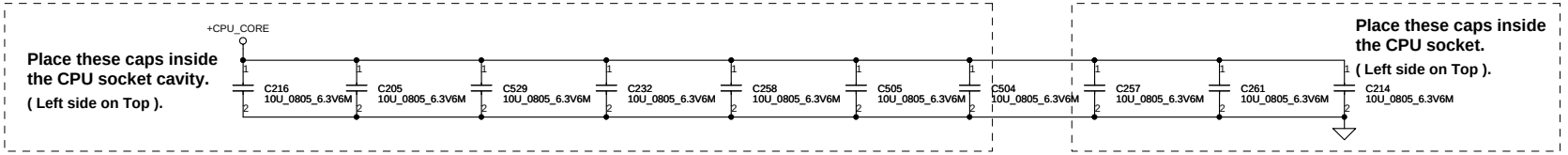
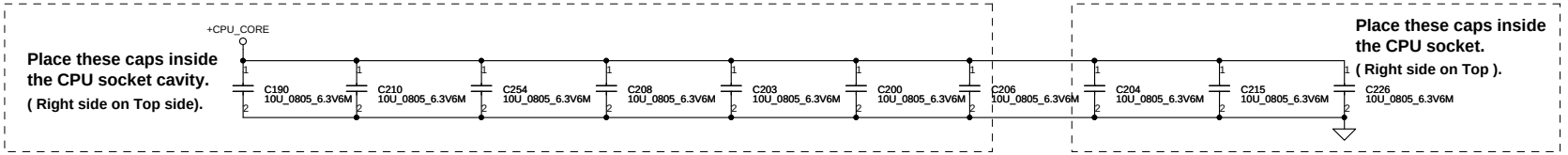
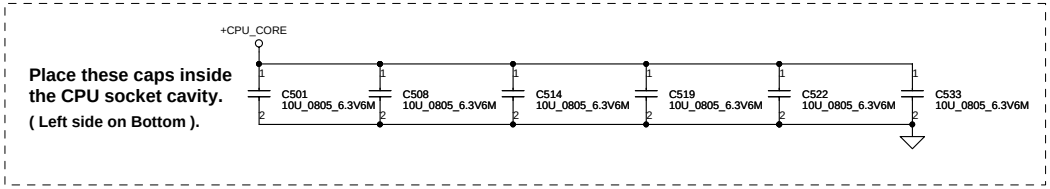
High Frequence Decoupling

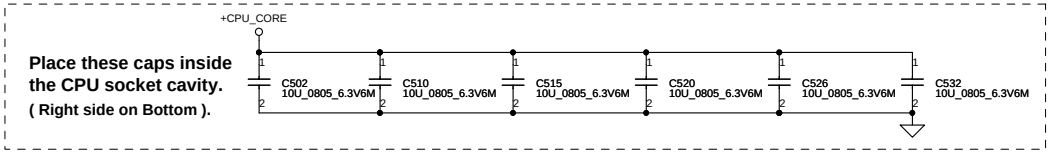
10uF 0805 X5R -> 85 degree.

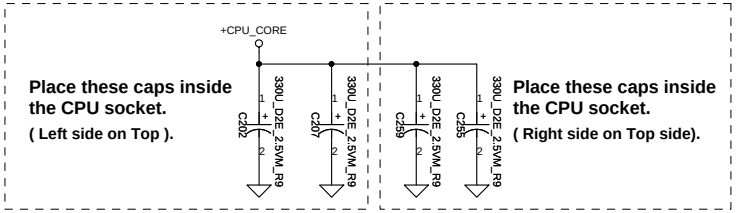






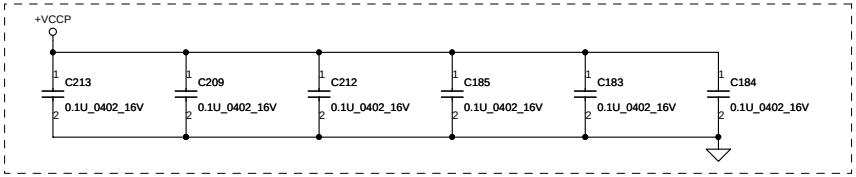






ESR <= 1.5m ohm

Capacitor > 880 uF



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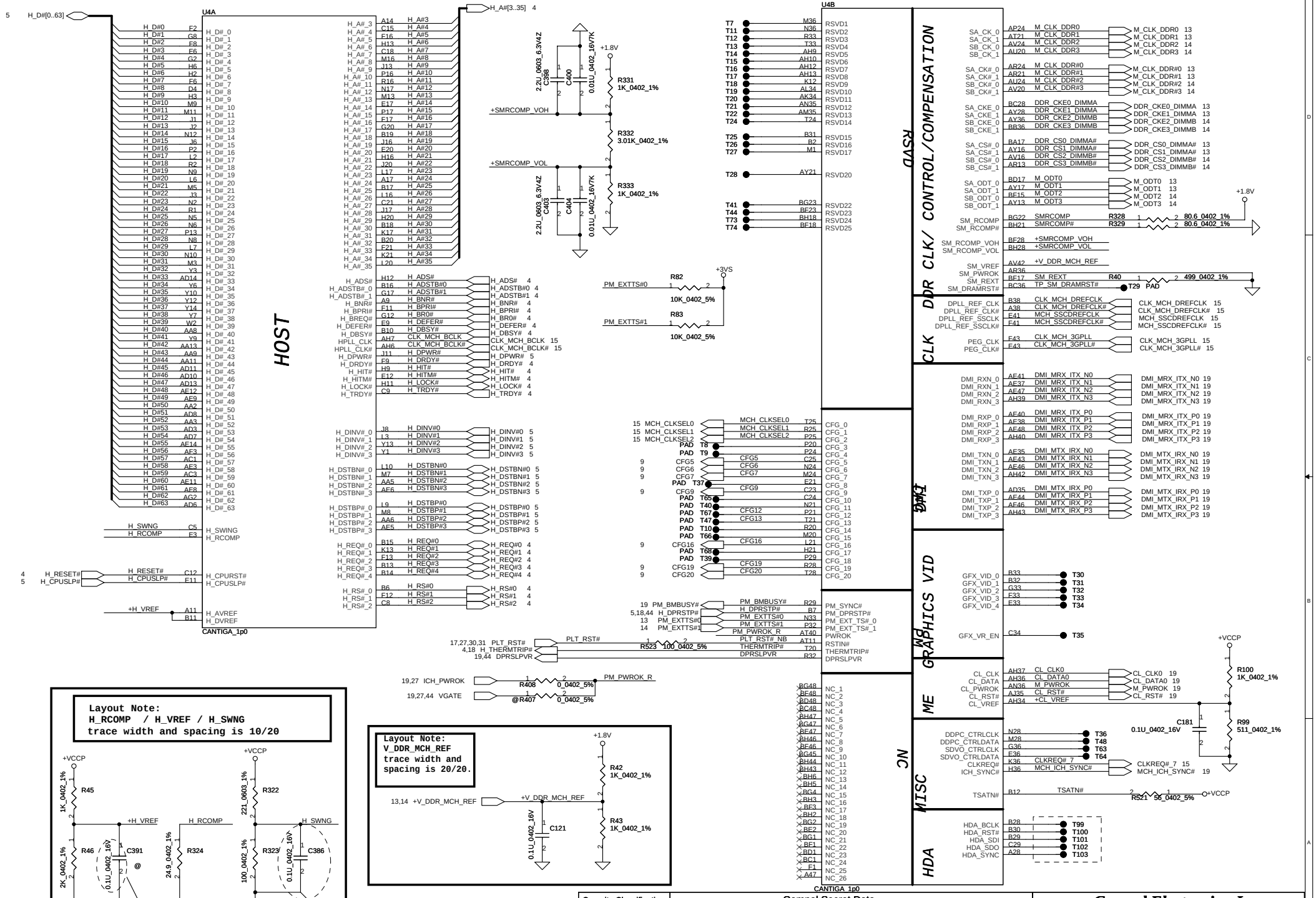

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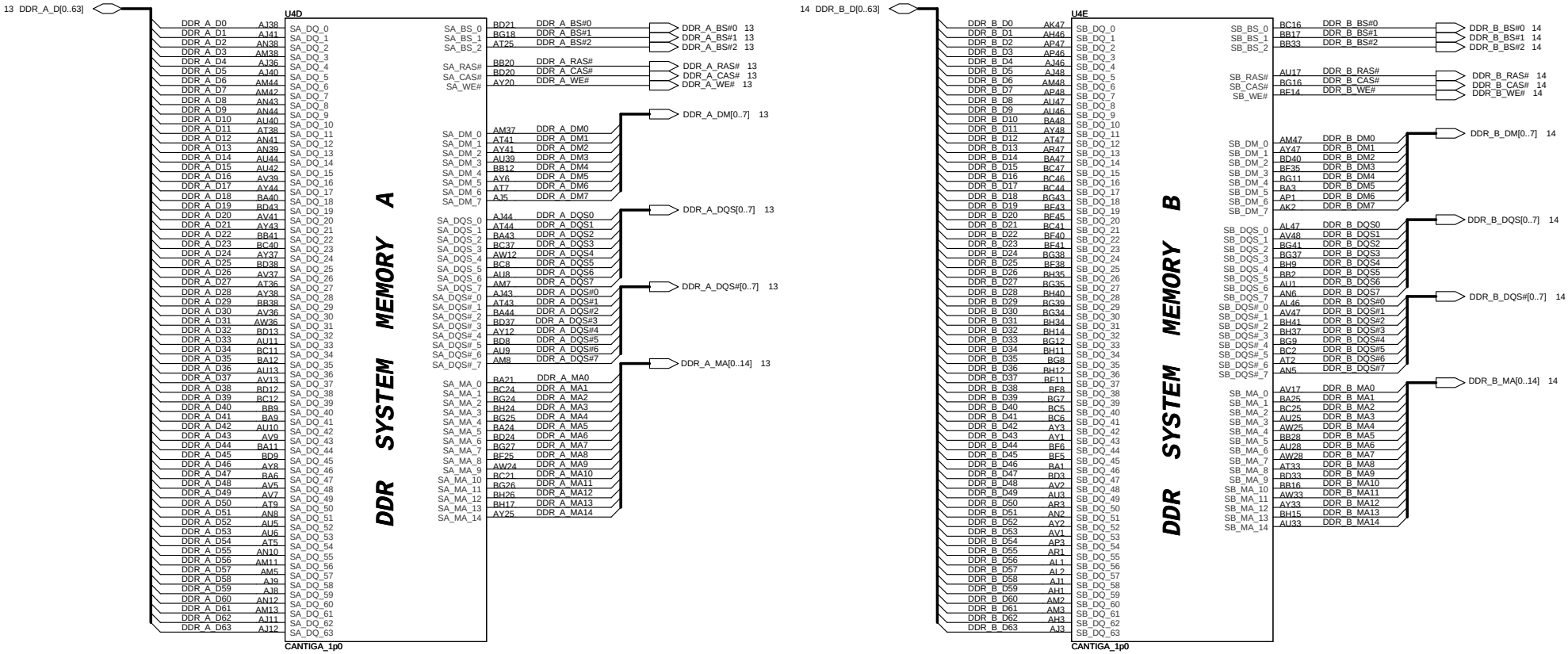

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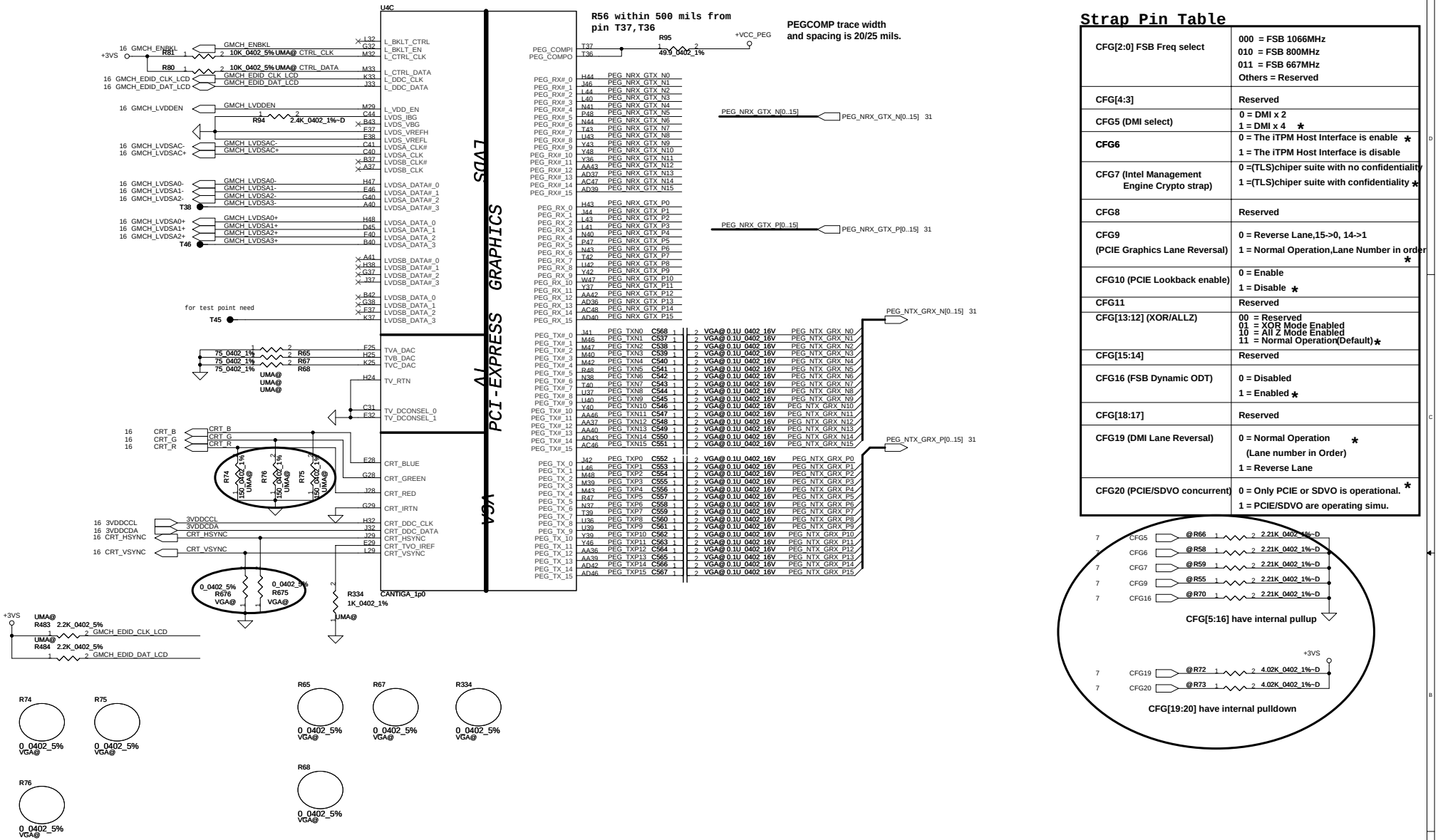

Strap Pin Table

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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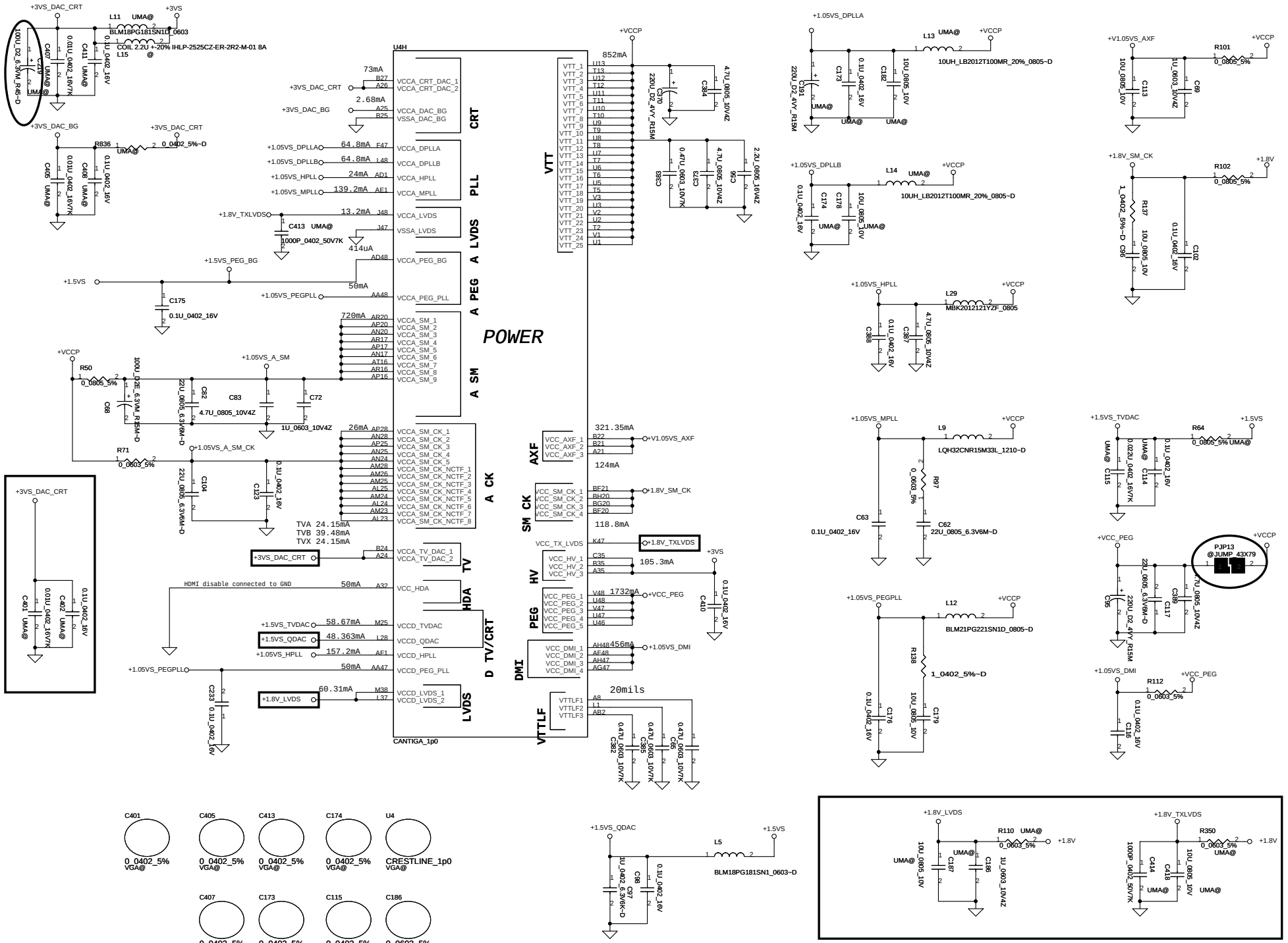

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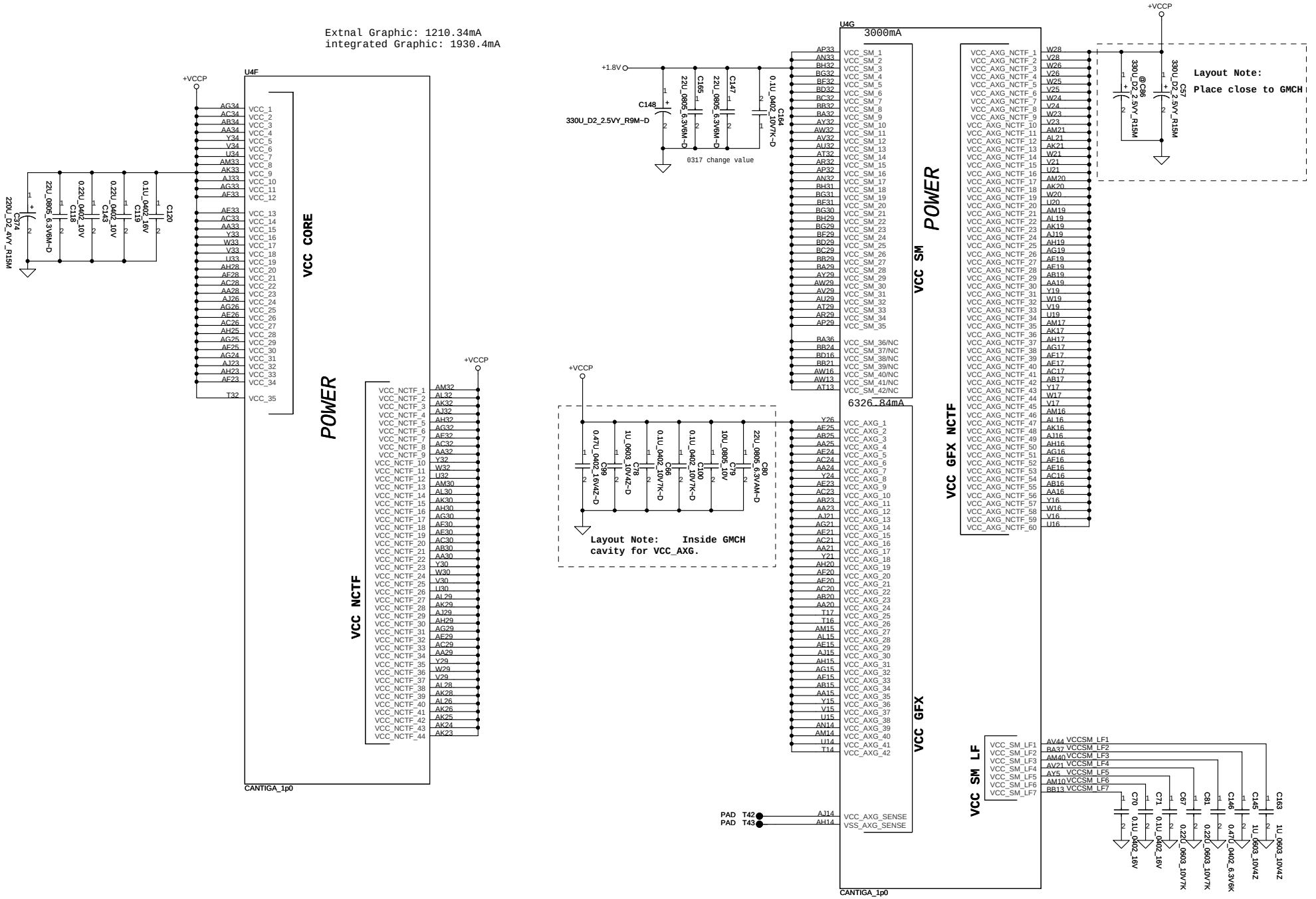
Extnal Graphic: 1210.34mA
integrated Graphic: 1930.4mA



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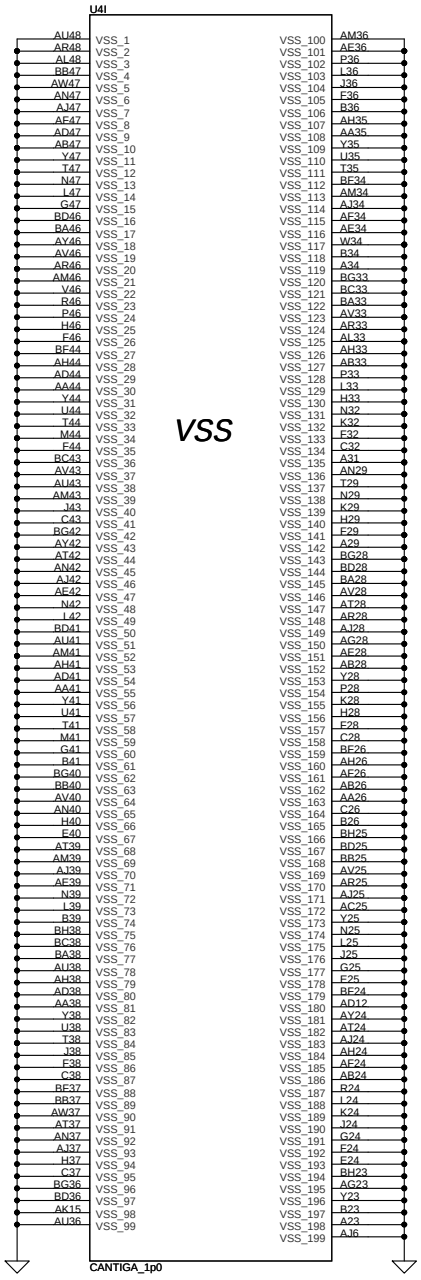

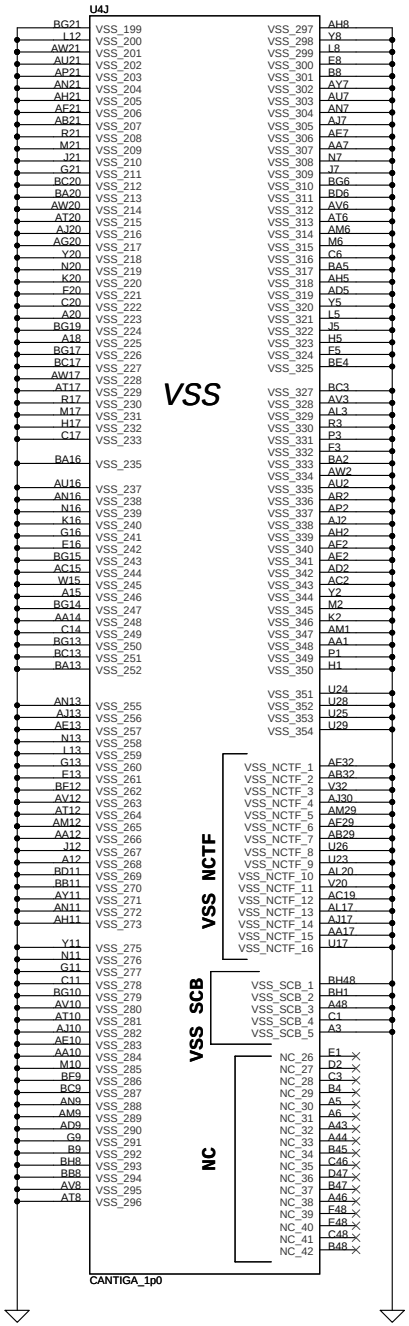

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8 DDR_A_DQS#[0..7]
8 DDR_A_D[0..63]
8 DDR_A_DM[0..7]
8 DDR_A_DQS[0..7]
8 DDR_A_MA[0..13]

Layout Note:
Place near JDIM1

+1.8V

C105 2.2U_0603_6.3V6K
C124 2.2U_0603_6.3V6K
C149 2.2U_0603_6.3V6K
C166 2.2U_0603_6.3V6K
C169 2.2U_0603_6.3V6K
C154 0.1U_0402_16V
C131 0.1U_0402_16V
C130 0.1U_0402_16V
C108 0.1U_0402_16V
C84 330U 2.5V Y D2 @

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

+0.9VS

C106 0.1U_0402_16V
C125 0.1U_0402_16V
C126 0.1U_0402_16V
C127 0.1U_0402_16V
C150 0.1U_0402_16V
C151 0.1U_0402_16V
C167 0.1U_0402_16V
C107 0.1U_0402_16V
C128 0.1U_0402_16V
C129 0.1U_0402_16V
C152 0.1U_0402_16V
C153 0.1U_0402_16V
C168 0.1U_0402_16V

Layout Note:
Place these resistor closely JP41,all trace length Max=1.5"

+0.9VS

RP14 56_0404_4P2R_5%: DDR_A_MA5, DDR_A_MA8
RP13 56_0404_4P2R_5%: DDR_A_MA1, DDR_A_MA3
RP7 56_0404_4P2R_5%: DDR_A_RAS#, DDR_CS0_DIMMA#
RP6 56_0404_4P2R_5%: DDR_A_BS#0, DDR_A_MA10
RP5 56_0404_4P2R_5%: DDR_A_CAS#, DDR_A_WE#
RP1 56_0404_4P2R_5%: DDR_CS1_DIMMA#, M_ODT1
R96 56_0402_5%: DDR_CKE1_DIMMA
RP22 56_0404_4P2R_5%: DDR_A_MA12, DDR_CKE0_DIMMA
RP17 56_0404_4P2R_5%: DDR_A_MA7, DDR_A_MA6
RP15 56_0404_4P2R_5%: DDR_A_MA9, DDR_A_BS#2
RP16 56_0404_4P2R_5%: DDR_A_MA4, DDR_A_MA2
RP8 56_0404_4P2R_5%: DDR_A_MA0, DDR_A_BS#1
RP2 56_0404_4P2R_5%: M_ODT0, DDR_A_MA13
RP23 56_0404_4P2R_5%: DDR_A_MA14, DDR_A_MA11

Close to VREF pins of SO-DIMM

+V_DDR_MCH_REF 7,14
C201 2.2U_0805_16V4Z
C220 0.1U_0402_16V

JDIM2 — FOX_ASOA426-M2RN-7F

	1	VREF	VSS	2	
	3	VSS	DQ4	4	DDR_A_D5
DDR_A_D4	5	DQ0	DQ5	6	DDR_A_D0
DDR_A_D1	7	DQ1	VSS	8	
	9	VSS	DM0	10	DDR_A_DM0
DDR_A_DQS#0	11	DQS0#	VSS	12	
DDR_A_DQS0	13	DQS0	DQ6	14	DDR_A_D6
	15	VSS	DQ7	16	DDR_A_D7
DDR_A_D2	17	DQ2	VSS	18	
DDR_A_D3	19	DQ3	DQ12	20	DDR_A_D13
	21	VSS	DQ13	22	DDR_A_D12
DDR_A_D8	23	DQ8	VSS	24	
DDR_A_D9	25	DQ9	DM1	26	DDR_A_DM1
	27	VSS	VSS	28	
DDR_A_DQS#1	29	DQS1#	CK0	30	M_CLK_DDR0 7
DDR_A_DQS1	31	DQS1	CK0#	32	M_CLK_DDR#0 7
	33	VSS	VSS	34	
DDR_A_D14	35	DQ10	DQ14	36	DDR_A_D11
DDR_A_D15	37	DQ11	DQ15	38	DDR_A_D10
	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	PM_EXTTS#0 7
DDR_A_DQS2	51	DQS2	DM2	52	DDR_A_DM2
	53	VSS	VSS	54	
DDR_A_D18	55	DQ18	DQ22	56	DDR_A_D23
DDR_A_D19	57	DQ19	DQ23	58	DDR_A_D22
	59	VSS	VSS	60	
DDR_A_D29	61	DQ24	DQ28	62	DDR_A_D28
DDR_A_D24	63	DQ25	DQ29	64	DDR_A_D25
	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_D31
DDR_A_D27	75	DQ27	DQ31	76	DDR_A_D30
	77	VSS	VSS	78	
7 DDR_CKE0_DIMMA	79	CKE0	NC/CKE1	80	DDR_CKE1_DIMMA DDR_CKE1_DIMMA 7
	81	VDD	VDD	82	
	83	NC	NC/A15	84	
8 DDR_A_BS#2	85	BA2	NC/A14	86	DDR_A_MA14 DDR_A_MA14 8
	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_BS#1 DDR_A_BS#1 8
8 DDR_A_BS#0	107	BA0	RAS#	108	DDR_A_RAS# DDR_A_RAS# 8
8 DDR_A_WE#	109	WE#	S0#	110	DDR_CS0_DIMMA# DDR_CS0_DIMMA# 7
	111	VDD	VDD	112	
8 DDR_A_CAS#	113	CAS#	ODT0	114	M_ODT0 M_ODT0 7
7 DDR_CS1_DIMMA#	115	NC/S1#	NC/A13	116	DDR_A_MA13
	117	VDD	VDD	118	
7 M_ODT1	119	NC/ODT1	NC	120	
	121	VSS	VSS	122	
DDR_A_D37	123	DQ32	DQ36	124	DDR_A_D32
DDR_A_D36	125	DQ33	DQ37	126	DDR_A_D33
	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_D39
DDR_A_D35	135	DQ34	DQ39	136	DDR_A_D38
DDR_A_D34	137	DQ35	VSS	138	
	139	VSS	DQ44	140	DDR_A_D45
DDR_A_D40	141	DQ40	DQ45	142	DDR_A_D47
DDR_A_D44	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_D41	151	DQ42	DQ46	152	DDR_A_D43
DDR_A_D46	153	DQ43	DQ47	154	DDR_A_D42
	155	VSS	VSS	156	
DDR_A_D49	157	DQ48	DQ52	158	DDR_A_D52
DDR_A_D48	159	DQ49	DQ53	160	DDR_A_D53
	161	VSS	VSS	162	
	163	NC,TEST	CK1	164	M_CLK_DDR1 M_CLK_DDR1 7
	165	VSS	CK1#	166	M_CLK_DDR#1 M_CLK_DDR#1 7
DDR_A_DQS#6	167	DQS6#	VSS	168	
DDR_A_DQS6	169	DQS6	DM6	170	DDR_A_DM6
	171	VSS	VSS	172	
DDR_A_D54	173	DQ50	DQ54	174	DDR_A_D51
DDR_A_D50	175	DQ51	DQ55	176	DDR_A_D55
	177	VSS	VSS	178	
DDR_A_D61	179	DQ56	DQ60	180	DDR_A_D57
DDR_A_D60	181	DQ57	DQ61	182	DDR_A_D56
	183	VSS	VSS	184	
DDR_A_DM7	185	DM7	DQS7#	186	DDR_A_DQS#7
	187	VSS	DQS7	188	DDR_A_DQS7
DDR_A_D59	189	DQ58	VSS	190	
DDR_A_D58	191	DQ59	DQ62	192	DDR_A_D62
	193	VSS	DQ63	194	DDR_A_D63
14,15,19 ICH_SM_DA	195	SDA	VSS	196	
14,15,19 ICH_SM_CLK	197	SCL	SA0	198	
+3VS	199	VDDSPD	SA1	200	

C58 0.1U_0402_16V
C59 2.2U_0603_6.3V6K
R31 10K_0402_5%
R32 10K_0402_5%

SO-DIMM A
REVERSE
Bottom side

Security Classification	Compal Secret Data		
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8 DDR_B_DQS#[0..7]
8 DDR_B_D[0..63]
8 DDR_B_DM[0..7]
8 DDR_B_DQS[0..7]
8 DDR_B_MA[0..13]

Layout Note:
Place near JDIM2

+1.8V
C112 2.2U_0603_6.3V6K
C139 2.2U_0603_6.3V6K
C160 2.2U_0603_6.3V6K
C138 2.2U_0603_6.3V6K
C177 2.2U_0603_6.3V6K
C109 0.1U_0402_16V
C132 0.1U_0402_16V
C133 0.1U_0402_16V
C155 0.1U_0402_16V
C189 330U 2.5V Y D2

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

+0.9VS
C110 0.1U_0402_16V
C134 0.1U_0402_16V
C135 0.1U_0402_16V
C156 0.1U_0402_16V
C157 0.1U_0402_16V
C170 0.1U_0402_16V
C171 0.1U_0402_16V
C111 0.1U_0402_16V
C136 0.1U_0402_16V
C158 0.1U_0402_16V
C137 0.1U_0402_16V
C172 0.1U_0402_16V
C159 0.1U_0402_16V
C199 0.1U_0402_16V

Layout Note:
Place these resistor closely JP42,all trace length Max=1.5"

+0.9VS

RP18	56_0404_4P2R_5%	DDR_B_MA3 / DDR_B_MA1	DDR_B_MA12 / DDR_B_MA9
RP10	56_0404_4P2R_5%	DDR_B_BS#0 / DDR_B_MA10	DDR_B_MA14 / DDR_B_MA11
RP12	56_0404_4P2R_5%	DDR_B_MA0 / DDR_B_BS#1	DDR_B_MA5 / DDR_B_MA8
RP11	56_0404_4P2R_5%	DDR_B_RAS# / DDR_CS2_DIMMB#	DDR_B_MA7 / DDR_B_MA6
RP9	56_0404_4P2R_5%	DDR_B_CAS# / DDR_B_WE#	DDR_B_MA4 / DDR_B_MA2
RP3	56_0404_4P2R_5%	DDR_CS3_DIMMB# / M_ODT3	DDR_B_MA13 / M_ODT2
RP4	56_0404_4P2R_5%		
RP25	56_0404_4P2R_5%	DDR_CKE3_DIMMB	DDR_B_BS#2 / DDR_CKE2_DIMMB
RP24	56_0404_4P2R_5%		
RP26	56_0404_4P2R_5%		
RP19	56_0404_4P2R_5%		
RP21	56_0404_4P2R_5%		
RP20	56_0404_4P2R_5%		

R335 56_0402_5%

Close to VREF pins of SO-DIMM

+V_DDR_MCH_REF 7,13
C221 2.2U_0805_16V4Z
C222 0.1U_0402_16V

JDIM1 — FOX_AS0A426-NARN-7F-N

1	VREF	VSS	2
3	VSS	DQ4	4 DDR_B_D5
DDR_B_D0 5	DQ0	DQ5	6 DDR_B_D4
DDR_B_D1 7	DQ1	VSS	8
9	VSS	DM0	10 DDR_B_DM0
DDR_B_DQS#0 11	DQS0#	VSS	12
DDR_B_DQS0 13	DQS0	DQ6	14 DDR_B_D6
15	VSS	DQ7	16 DDR_B_D7
DDR_B_D2 17	DQ2	VSS	18
DDR_B_D3 19	DQ3	DQ12	20 DDR_B_D12
21	VSS	DQ13	22 DDR_B_D13
DDR_B_D8 23	DQ8	VSS	24
DDR_B_D9 25	DQ9	DM1	26 DDR_B_DM1
27	VSS	VSS	28
DDR_B_DQS#1 29	DQS1#	CK0	30 M_CLK_DDR2 7
DDR_B_DQS1 31	DQS1	CK0#	32 M_CLK_DDR#2 7
33	VSS	VSS	34
DDR_B_D10 35	DQ10	DQ14	36 DDR_B_D14
DDR_B_D11 37	DQ11	DQ15	38 DDR_B_D15
39	VSS	VSS	40
41	VSS	VSS	42
DDR_B_D17 43	DQ16	DQ20	44 DDR_B_D21
DDR_B_D20 45	DQ17	DQ21	46 DDR_B_D16
47	VSS	VSS	48
DDR_B_DQS#2 49	DQS2#	NC	50 PM_EXTTS#1 7
DDR_B_DQS2 51	DQS2	DM2	52 DDR_B_DM2
53	VSS	VSS	54
DDR_B_D18 55	DQ18	DQ22	56 DDR_B_D22
DDR_B_D19 57	DQ19	DQ23	58 DDR_B_D23
59	VSS	VSS	60
DDR_B_D28 61	DQ24	DQ28	62 DDR_B_D29
DDR_B_D25 63	DQ25	DQ29	64 DDR_B_D24
65	VSS	VSS	66
DDR_B_DM3 67	DM3	DQS3#	68 DDR_B_DQS#3
69	NC	DQS3	70 DDR_B_DQS3
71	VSS	VSS	72
DDR_B_D30 73	DQ26	DQ30	74 DDR_B_D26
DDR_B_D31 75	DQ27	DQ31	76 DDR_B_D27
77	VSS	VSS	78
7 DDR_CKE2_DIMMB — DDR_CKE2_DIMMB 79	CKE0	NC/CKE1	80 DDR_CKE3_DIMMB — DDR_CKE3_DIMMB 7
81	VDD	VDD	82
83	NC	NC/A15	84
8 DDR_B_BS#2 — DDR_B_BS#2 85	BA2	NC/A14	86 DDR_B_MA14 — DDR_B_MA14 8
87	VDD	VDD	88
DDR_B_MA12 89	A12	VDD	90 DDR_B_MA11
DDR_B_MA9 91	A9	A11	92 DDR_B_MA7
DDR_B_MA8 93	A8	A7	94 DDR_B_MA6
95	VDD	A6	96
DDR_B_MA5 97	A5	VDD	98 DDR_B_MA4
DDR_B_MA3 99	A3	A4	100 DDR_B_MA2
DDR_B_MA1 101	A1	A2	102 DDR_B_MA0
103	VDD	A0	104
DDR_B_MA10 105	A10/AP	VDD	106 DDR_B_BS#1
8 DDR_B_BS#0 — DDR_B_BS#0 107	BA0	BA1	108 DDR_B_BS#1 8 / DDR_B_RAS# 8
8 DDR_B_WE# — DDR_B_WE# 109	WE#	RAS#	110 DDR_CS2_DIMMB# — DDR_CS2_DIMMB# 7
111	VDD	S0#	112
DDR_B_CAS# 113	CAS#	VDD	114 M_ODT2 — M_ODT2 7
8 DDR_B_CAS# / 7 DDR_CS3_DIMMB# — DDR_CS3_DIMMB# 115	NC/S1#	ODT0	116 DDR_B_MA13
117	VDD	NC/A13	118
7 M_ODT3 — M_ODT3 119	NC/ODT1	VDD	120
DDR_B_D32 121	DQ32	NC	122
DDR_B_D33 123	DQ33	VSS	124 DDR_B_D36
125	VSS	DQ36	126 DDR_B_D37
DDR_B_DQS#4 127	DQS4#	DQ37	128
DDR_B_DQS4 129	DQS4	DM4	130 DDR_B_DM4
131	VSS	VSS	132
DDR_B_D34 133	DQ34	DQ38	134 DDR_B_D39
DDR_B_D35 135	DQ35	DQ39	136 DDR_B_D38
137	VSS	VSS	138
DDR_B_D40 139	DQ40	DQ44	140 DDR_B_D44
DDR_B_D41 141	DQ41	DQ45	142 DDR_B_D45
143	VSS	VSS	144
DDR_B_DM5 145	DM5	DQS5#	146 DDR_B_DQS#5
147	VSS	DQS5	148 DDR_B_DQS5
DDR_B_D42 149	DQ42	VSS	150
DDR_B_D43 151	DQ43	DQ46	152 DDR_B_D46
153	VSS	DQ47	154 DDR_B_D47
DDR_B_D48 155	DQ48	VSS	156
DDR_B_D49 157	DQ49	DQ52	158 DDR_B_D52
159	VSS	DQ53	160 DDR_B_D53
DDR_B_DQS#6 161	NC,TEST	VSS	162
DDR_B_DQS6 163	VSS	CK1	164 M_CLK_DDR3 — M_CLK_DDR3 7
165	DQS6#	CK1#	166 M_CLK_DDR#3 — M_CLK_DDR#3 7
DDR_B_D51 167	DQS6	VSS	168
DDR_B_D50 169	DQ50	DM6	170 DDR_B_DM6
171	VSS	VSS	172
DDR_B_D56 173	DQ51	DQ54	174 DDR_B_D54
DDR_B_D61 175	DQ56	DQ55	176 DDR_B_D55
177	VSS	VSS	178
DDR_B_DM7 179	DQ57	DQ60	180 DDR_B_D60
181	VSS	DQ61	182 DDR_B_D57
DDR_B_D59 183	DM7	VSS	184
DDR_B_D58 185	DQS7#	DQ62	186 DDR_B_DQS#7
187	DQS7	DQ63	188 DDR_B_DQS7
DDR_B_D62 189	DQ58	VSS	190
DDR_B_D63 191	DQ59	SA0	192 DDR_B_D62
193	VSS	SA1	194 DDR_B_D63
13,15,19 ICH_SM_DA — ICH_SM_DA 195	SDA	VSS	196
13,15,19 ICH_SM_CLK — ICH_SM_CLK 197	SCL	VDDSPD	198
+3VSO — 199	VDDSPD	SA2	200 — R33 10K_0402_5% — +3VS

C61 0.1U_0402_16V
C60 2.2U_0603_6.3V6K
R34 10K_0402_5%

SO-DIMM B
REVERSE
Bottom side

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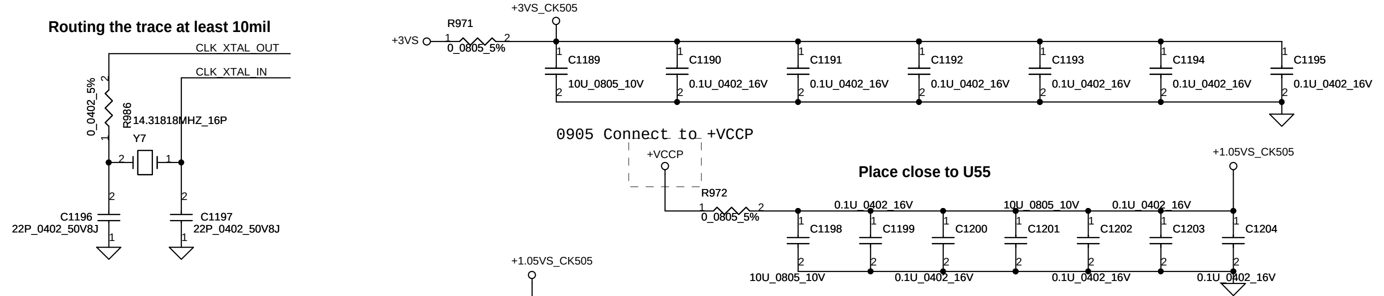
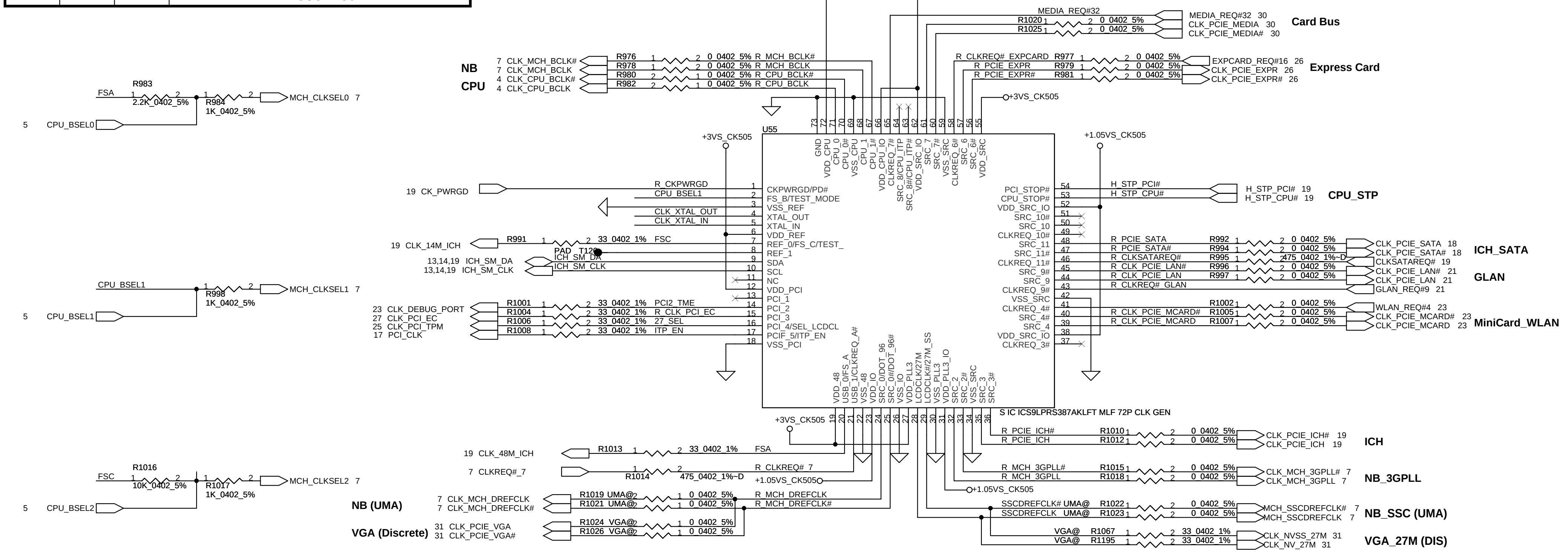
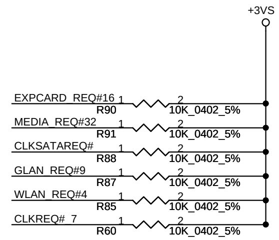
FSC CLKSEL2	FSB CLKSEL1	FSA CLKSEL0	CPU MHz	SRC MHz	PCI MHz	REF MHz	DOT_96 MHz	USB MHz
0	0	0	266	100	33.3	14.318	96.0	48.0
0	0	1	133	100	33.3	14.318	96.0	48.0
0	1	0	200	100	33.3	14.318	96.0	48.0
0	1	1	166	100	33.3	14.318	96.0	48.0
1	0	0	333	100	33.3	14.318	96.0	48.0
1	0	1	100	100	33.3	14.318	96.0	48.0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

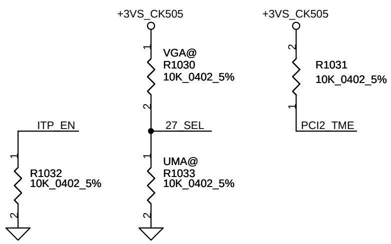
*







ITP_EN	* 0 = SRC8/SRC8# 1 = ITP/ITP#
27_SEL	0 = Enable DOT96 & SRC1(UMA) 1 = Enable SRC0 & 27MHz(DIS)
PCI2_TME	0 = Overclocking of CPU and SRC Allowed *1 = Overclocking of CPU and SRC NOT allowed



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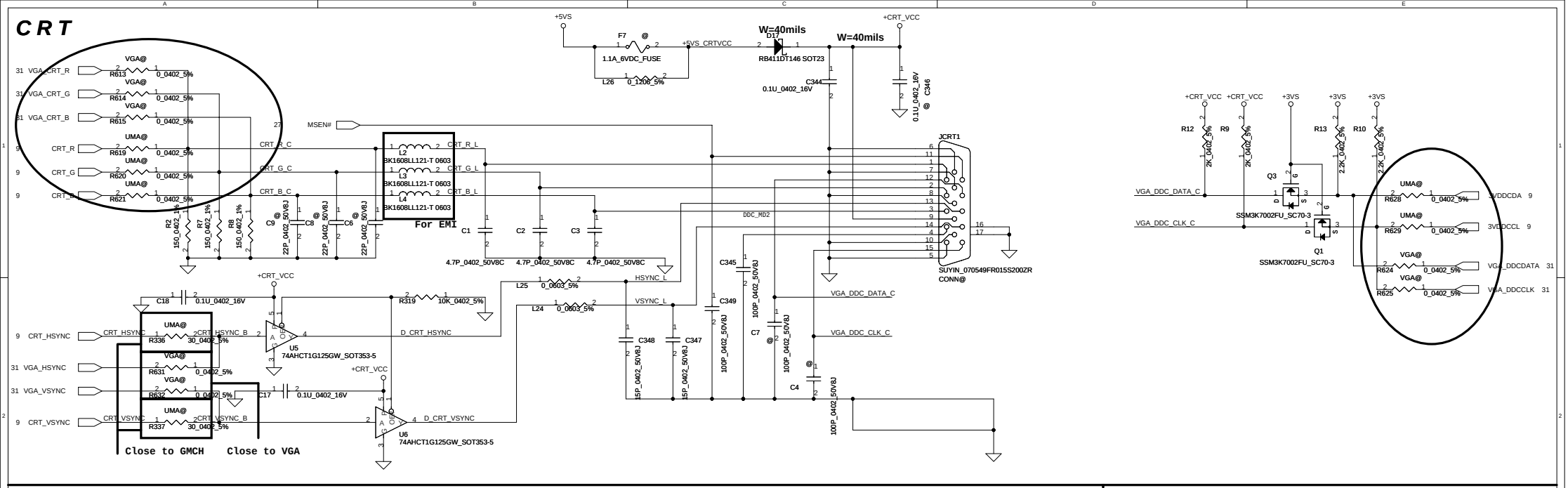
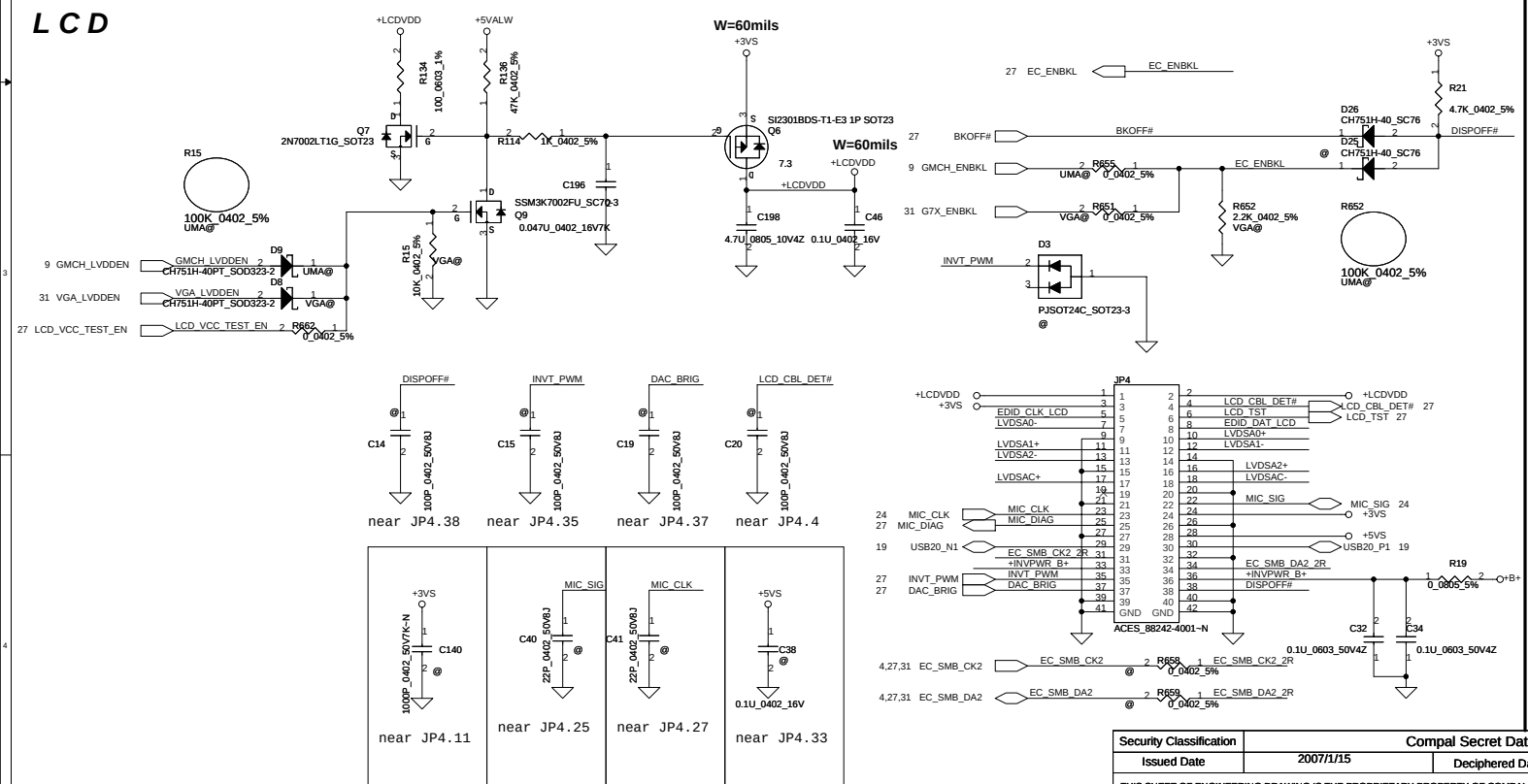
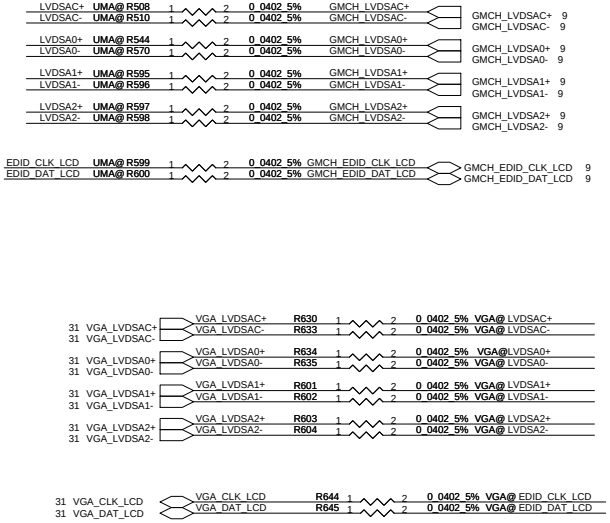
CRT



LCD





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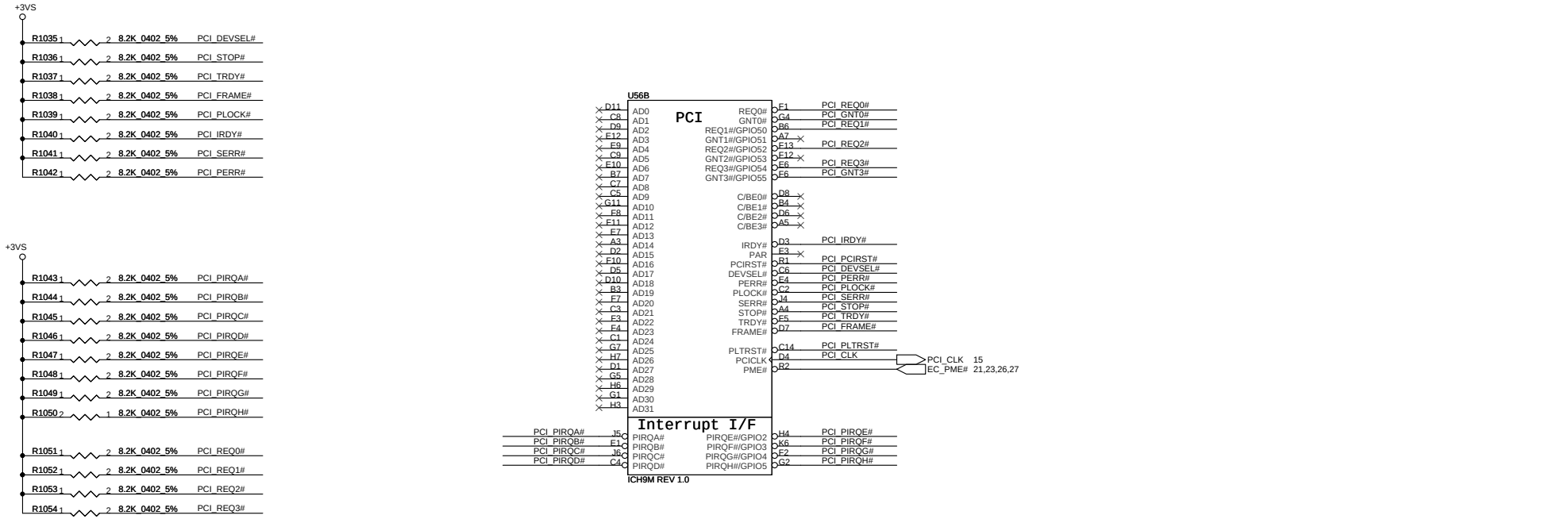
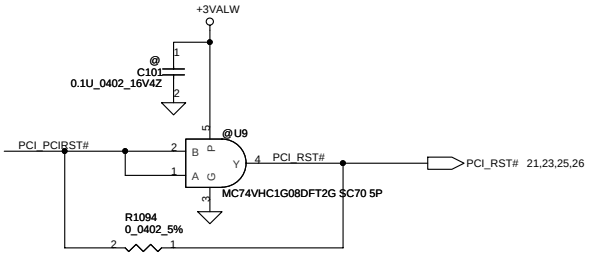
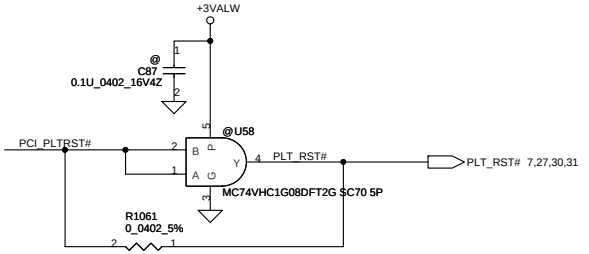
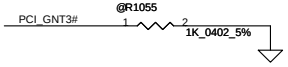


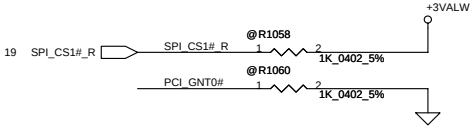




A16 swap override Strap	
PCI_GNT3#	Low= A16 swap override Enble High= Default*



Boot BIOS Strap		
PCI_GNT0#	SPI_CS1#	Boot BIOS Location
0	1	SPI
1	0	PCI
1	1	LPC *



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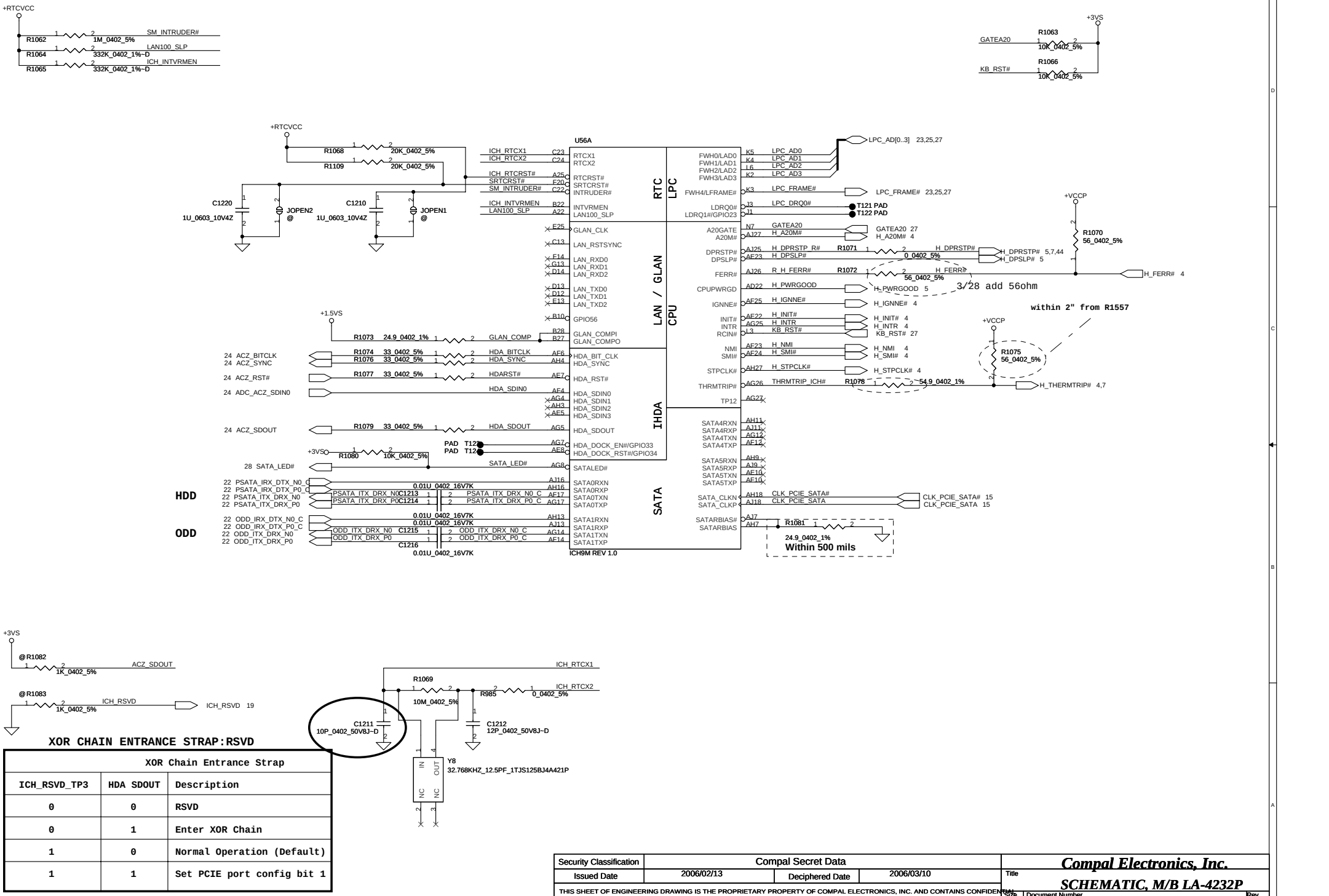

XOR CHAIN ENTRANCE STRAP:RSVD

XOR Chain Entrance Strap		
ICH_RSVD_TP3	HDA SDOUT	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	Normal Operation (Default)
1	1	Set PCIE port config bit 1

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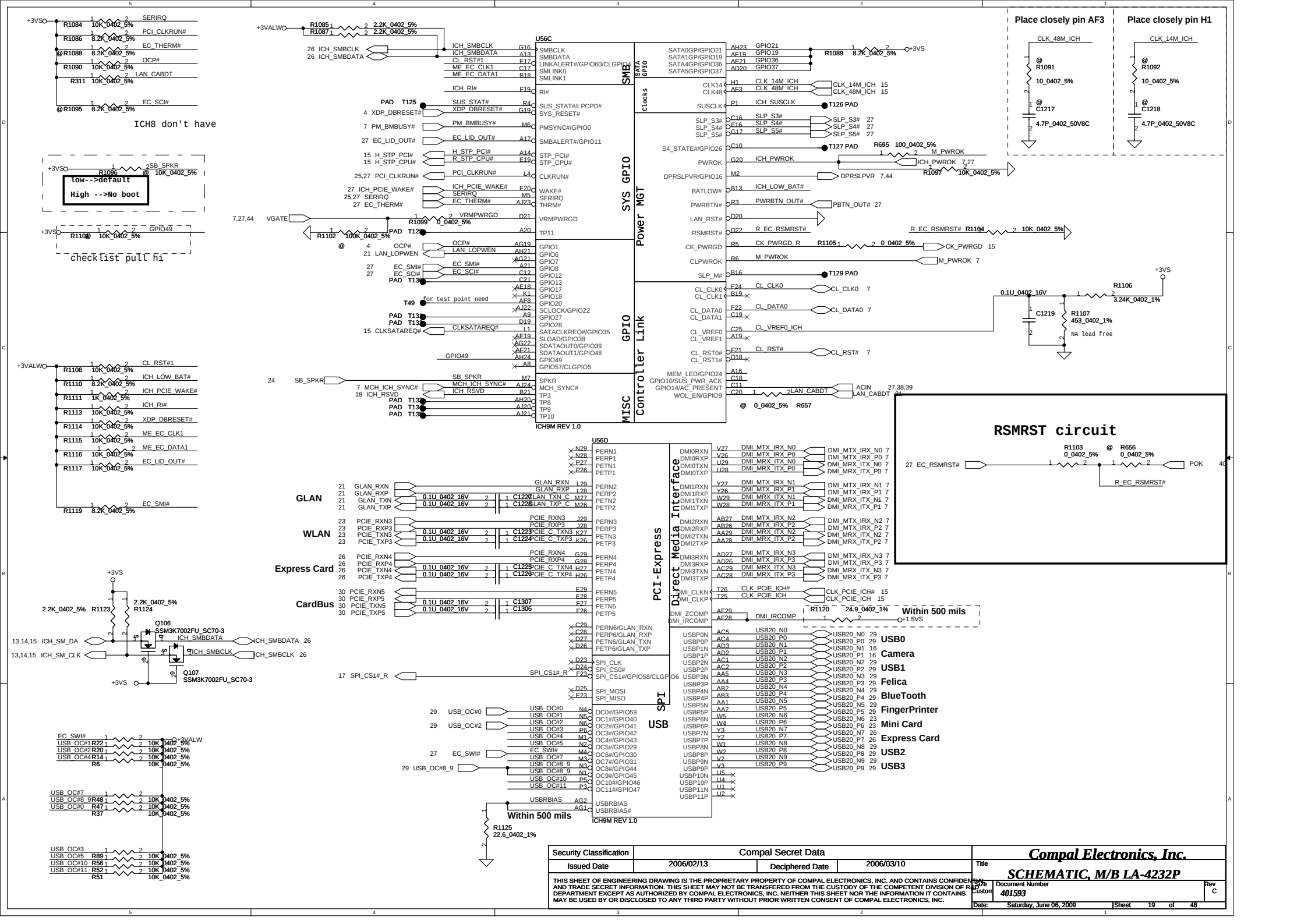

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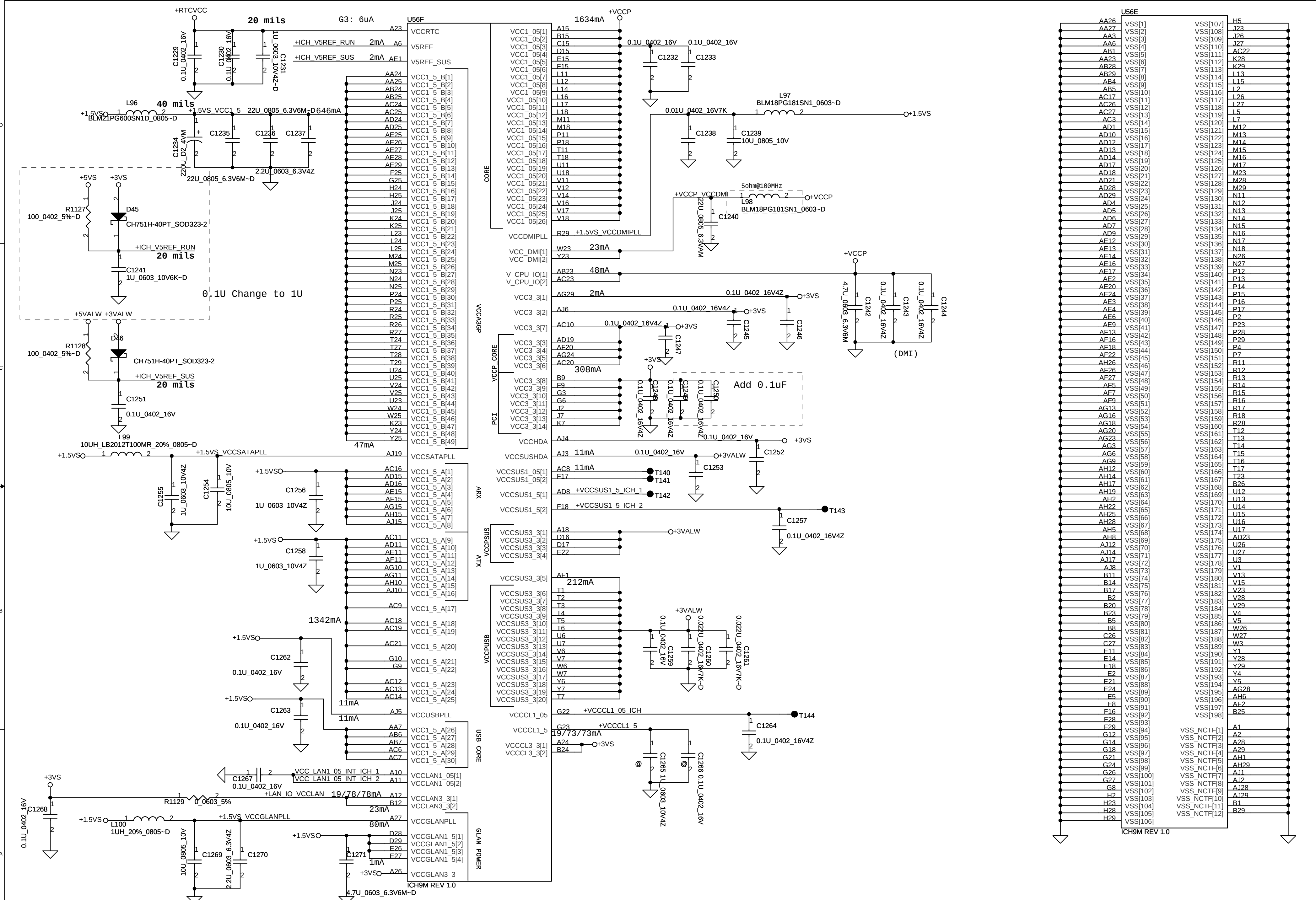

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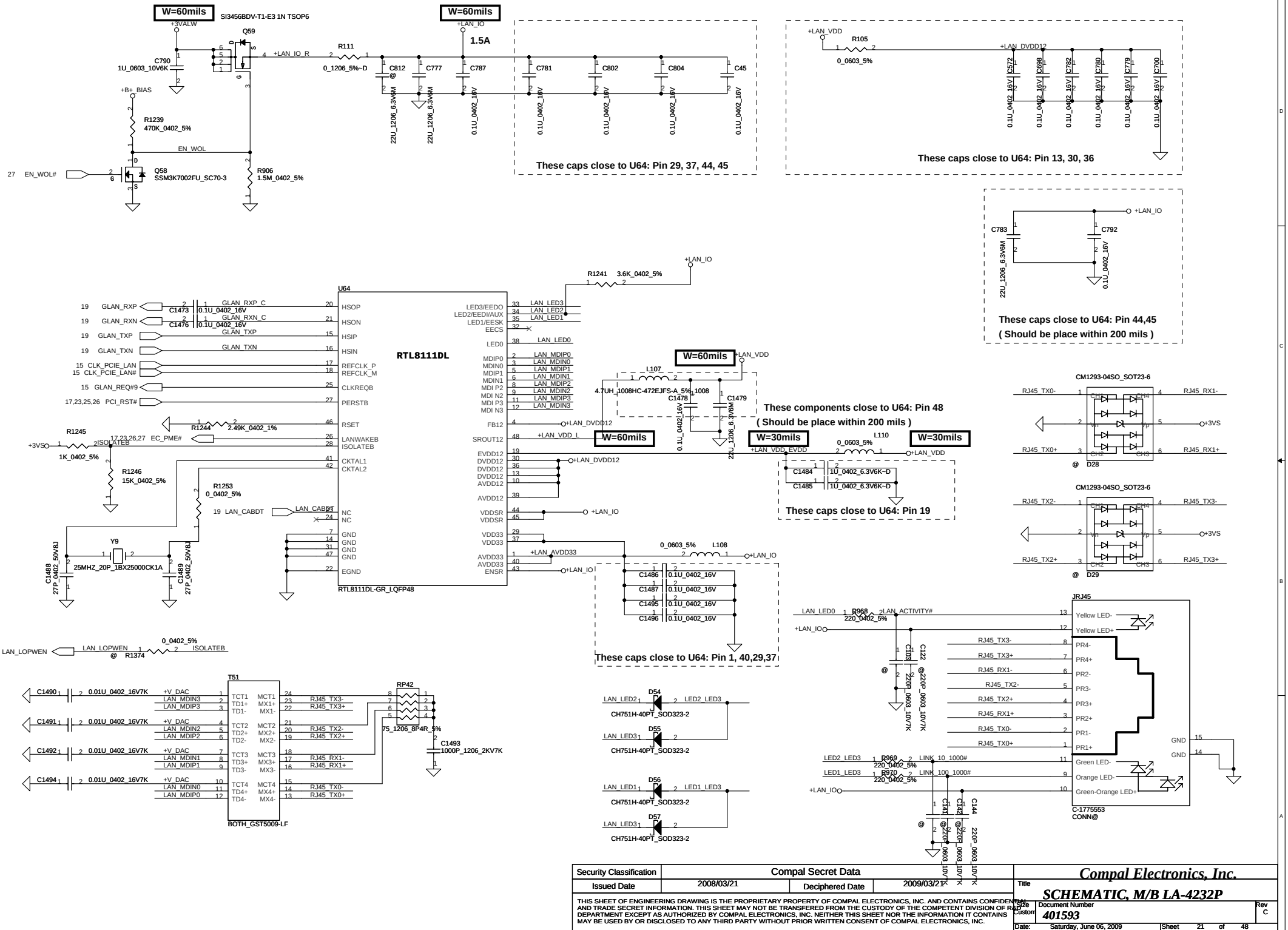

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Issued Date	2008/03/21	Deciphered Date	2009/03/21

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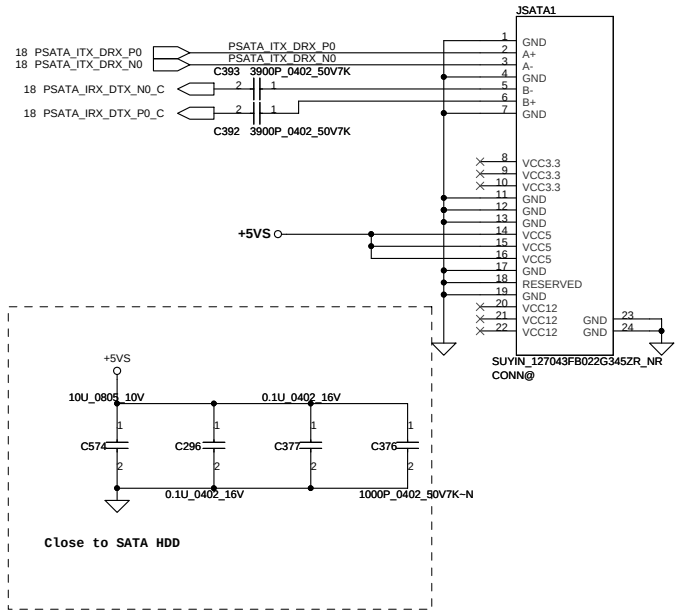
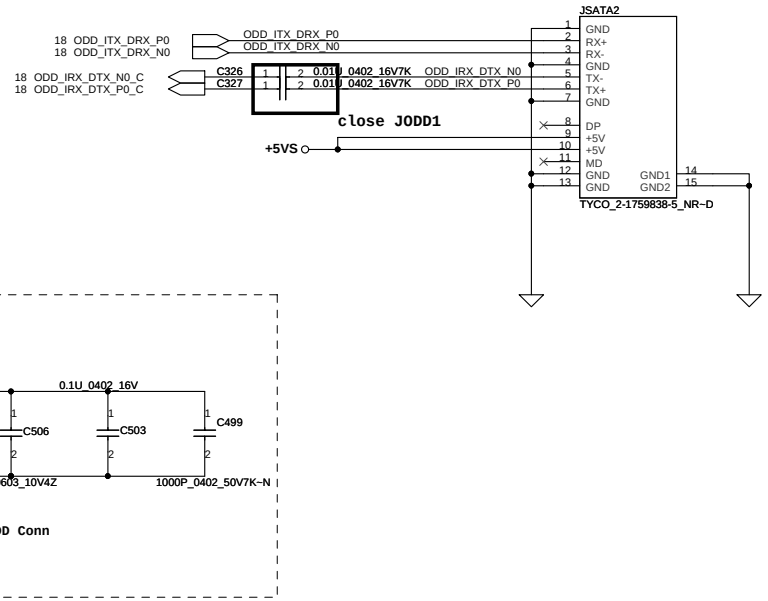
SATA HDD CONN



SATA ODD CONN



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Issued Date	2007/1/15	Deciphered Date	2008/1/15

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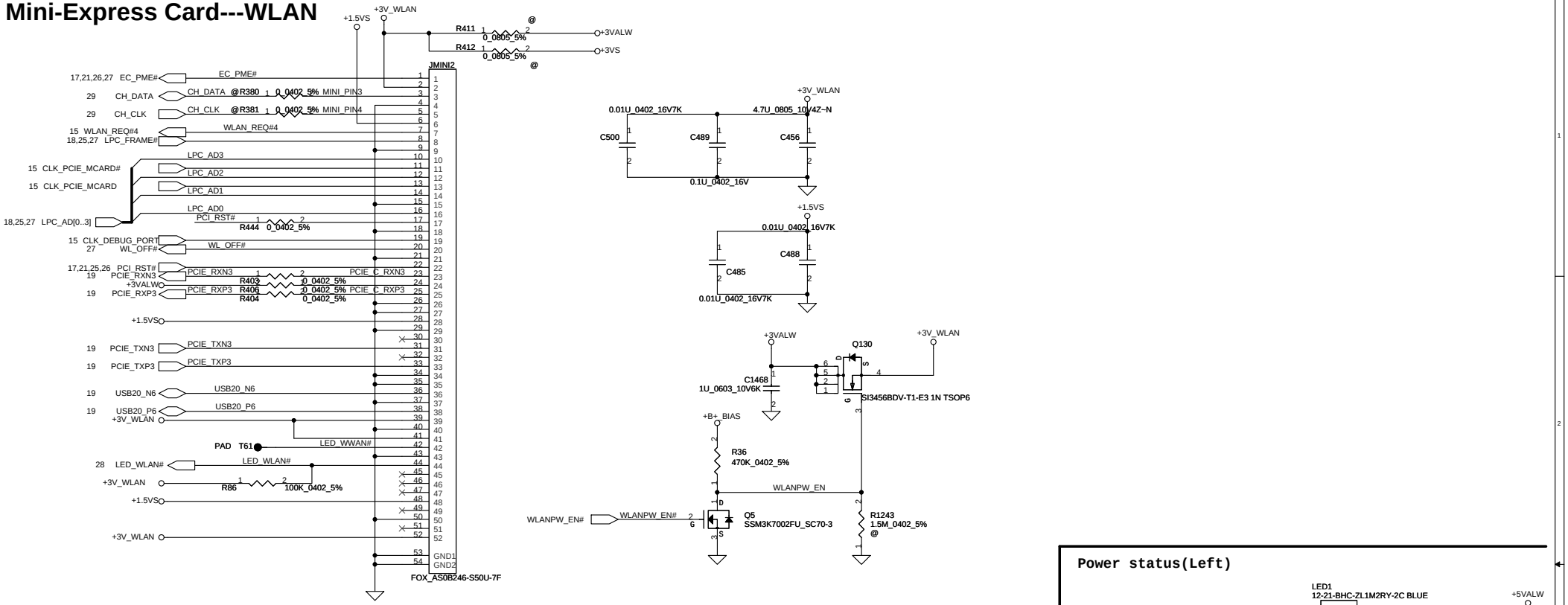
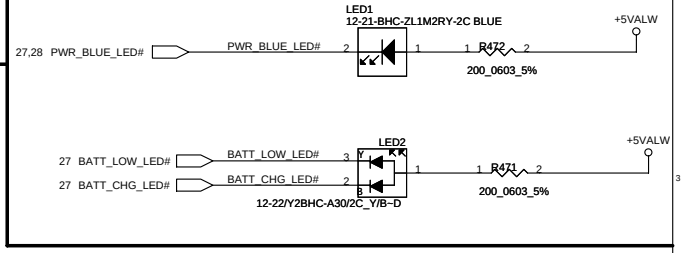
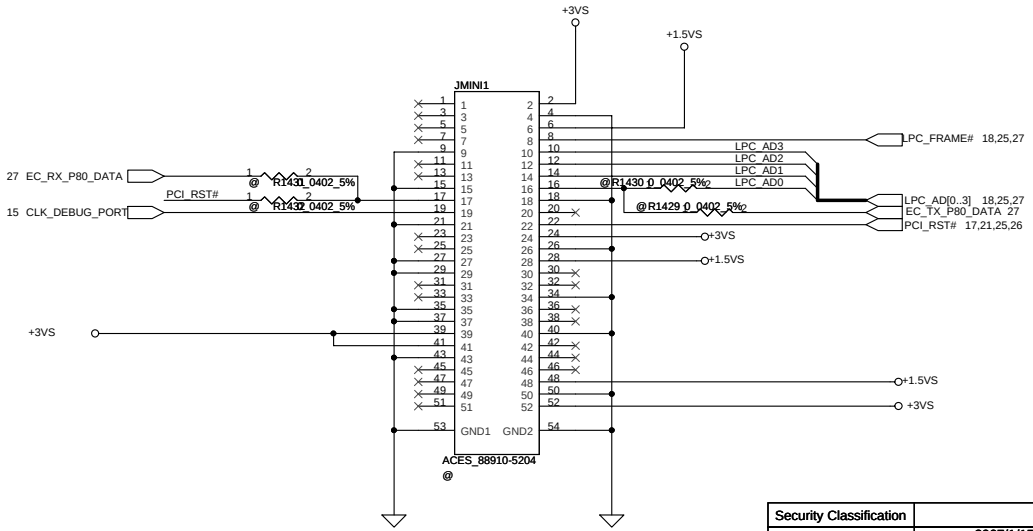
Mini-Express Card---WLAN



Power status(Left)





Security Classification	Compal Secret Data		
Issued Date	2007/1/15	Deciphered Date	2008/1/15

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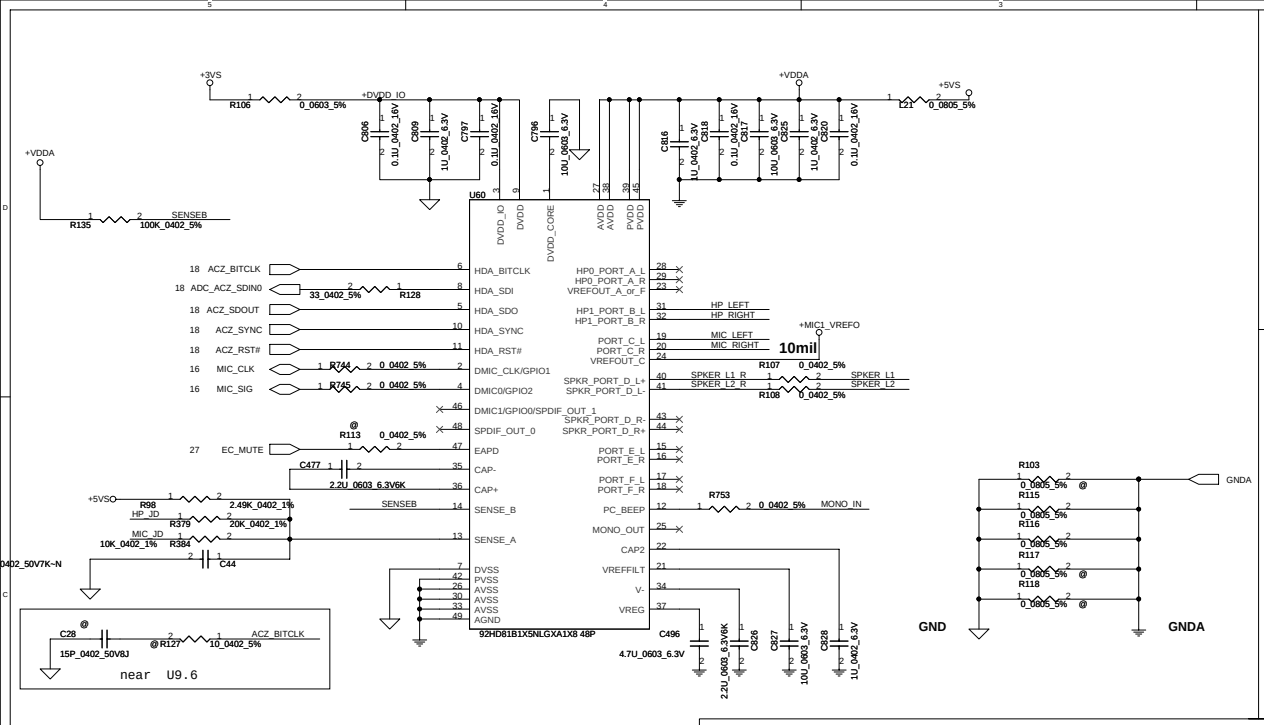

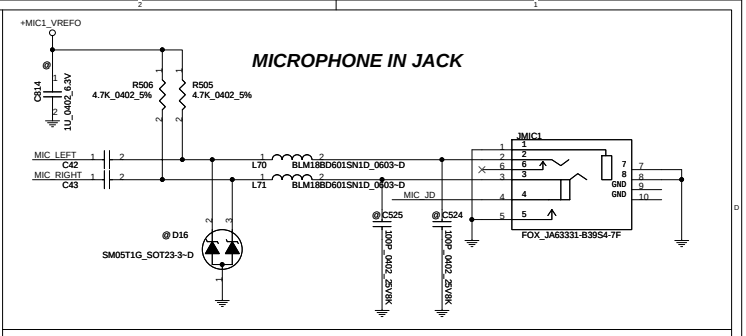

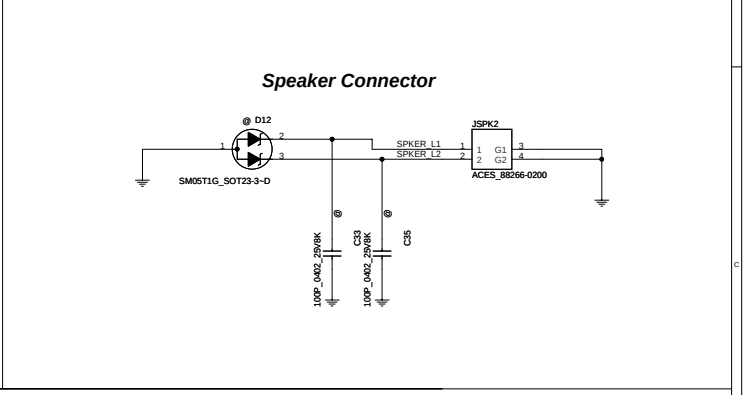

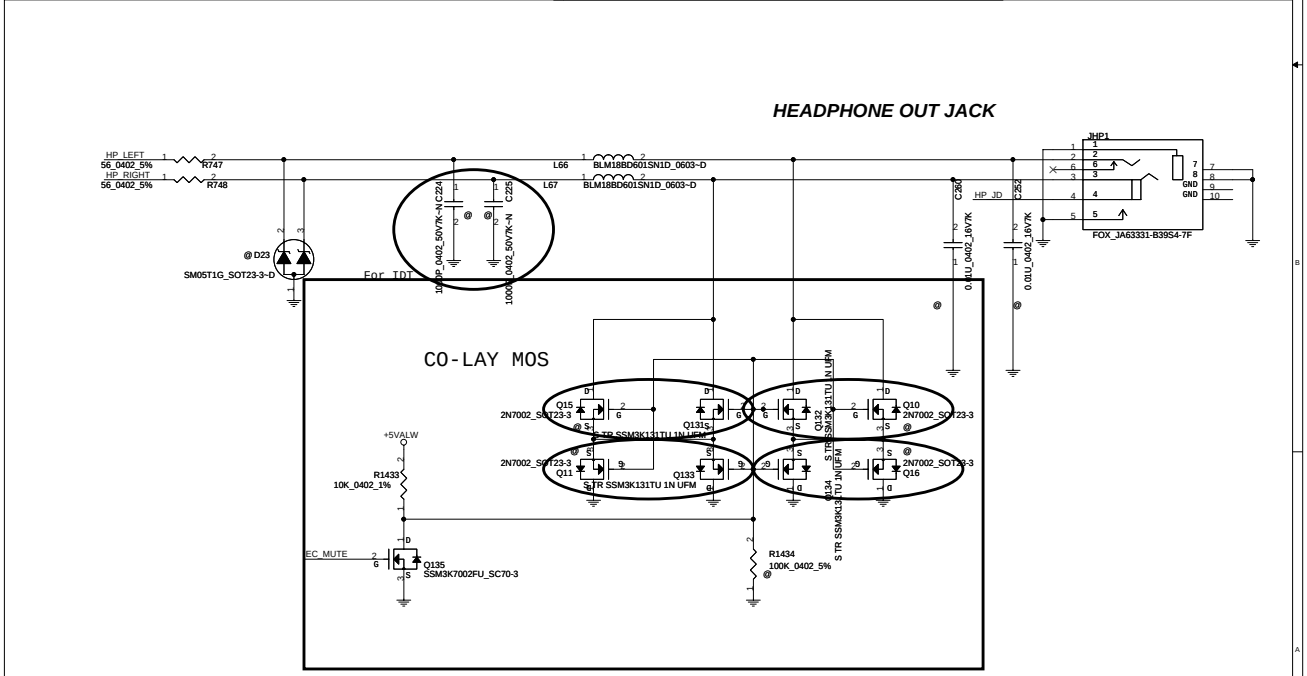

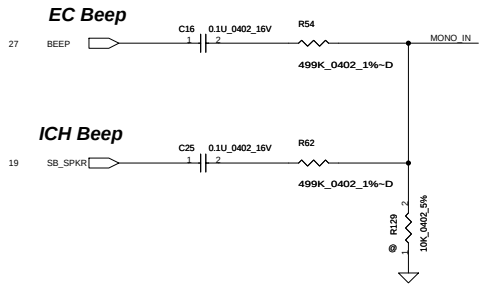

Security Classification	Compal Secret Data		
Issued Date	2006/08/05	Deciphered Date	2007/08/05

Compal Electronics, Inc.	
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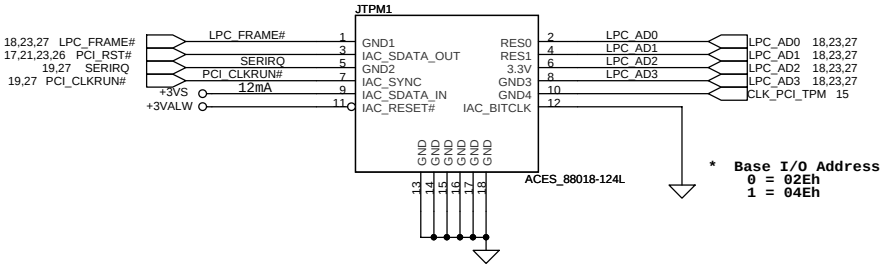
TPM 1.2



Security Classification	Compal Secret Data		
Issued Date	2006/08/05	Deciphered Date	2007/08/05

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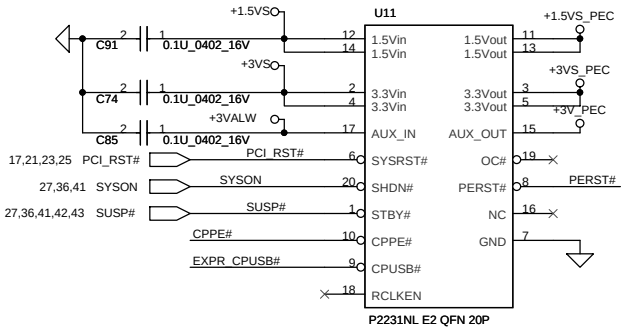
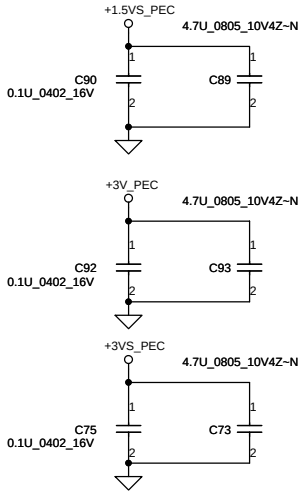
Express card

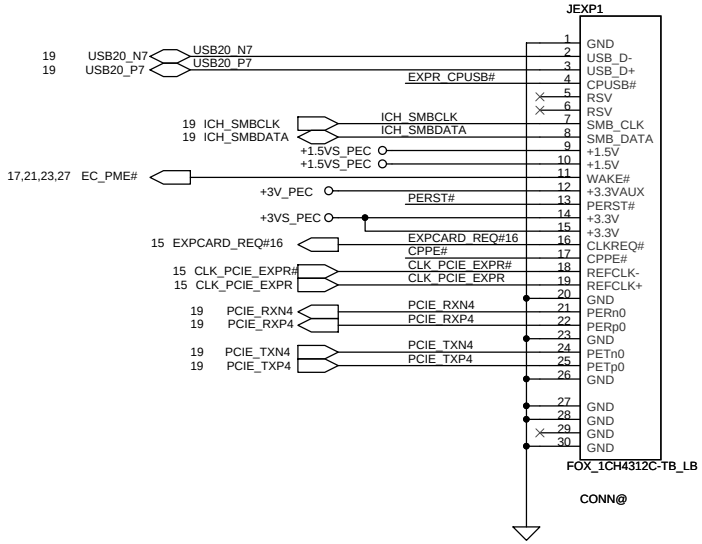
Express Card Power Switch



+1.5V_CARD Max. 650mA, Average 500mA

+3V_CARD Max. 1300mA, Average 1000mA





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Issued Date	2007/1/15	Deciphered Date	2008/1/15

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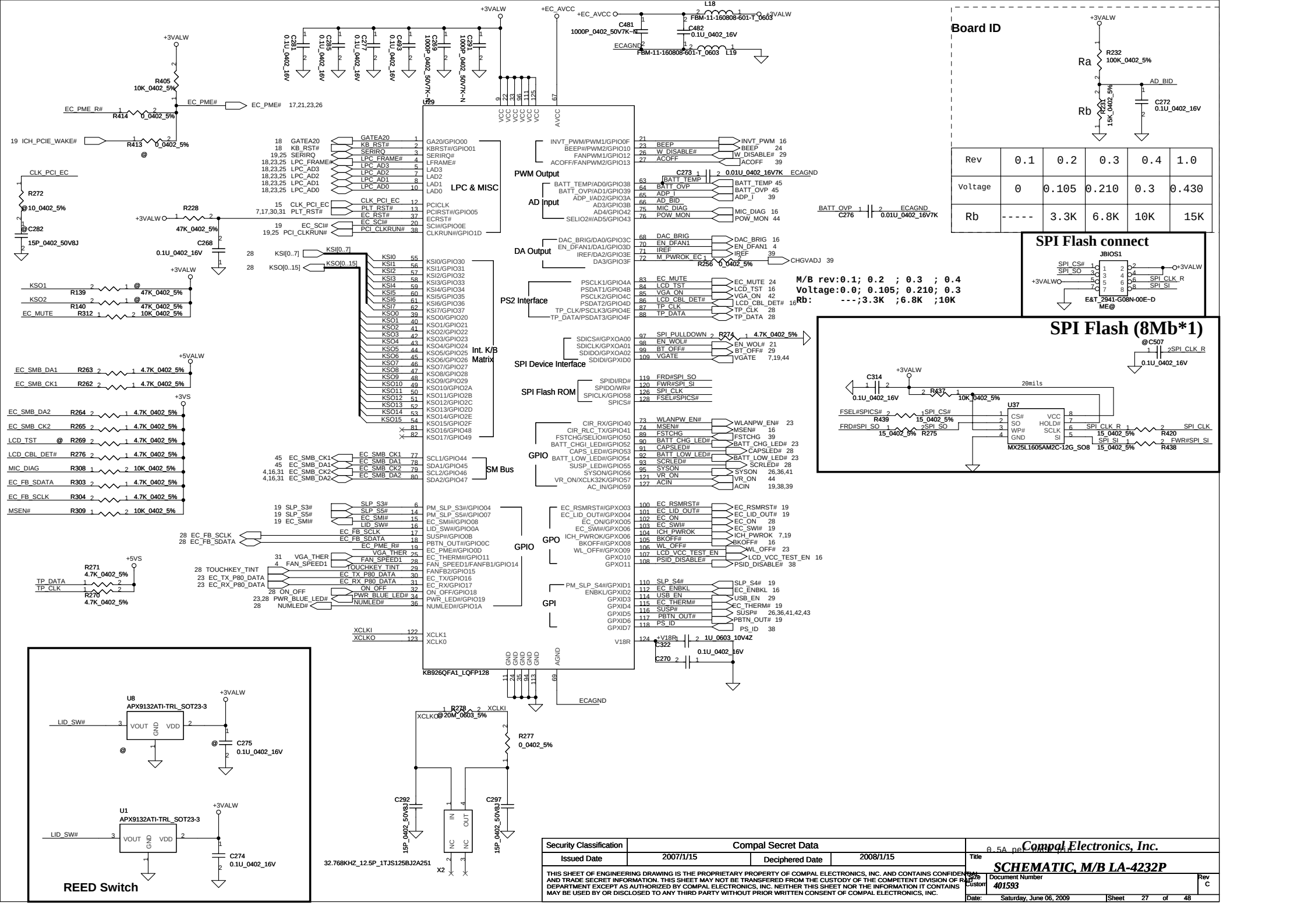
Board ID
Ra
R232
100K_0402_5%
AD_BID
Rb
R231
15K_0402_5%
C272
0.1U_0402_16V
Rev | 0.1 | 0.2 | 0.3 | 0.4 | 1.0
Voltage | 0 | 0.105 | 0.210 | 0.3 | 0.430
Rb | ----- | 3.3K | 6.8K | 10K | 15K
SPI Flash connect
JBIOS1
E&T_2941-G08N-00E-D
ME@
SPI Flash (8Mb*1)
U37
MX25L1605AM2C-12G_SO8
M/B rev:0.1; 0.2 ; 0.3 ; 0.4
Voltage:0.0; 0.105; 0.210; 0.3
Rb: ---;3.3K ;6.8K ;10K
U29
KB926QFA1_LQFP128
REED Switch
U8
APX9132ATI-TRL_SOT23-3
U1
APX9132ATI-TRL_SOT23-3
32.768KHZ_12.5P_1TJS125BJ2A251
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Issued Date | 2007/1/15 | Deciphered Date | 2008/1/15
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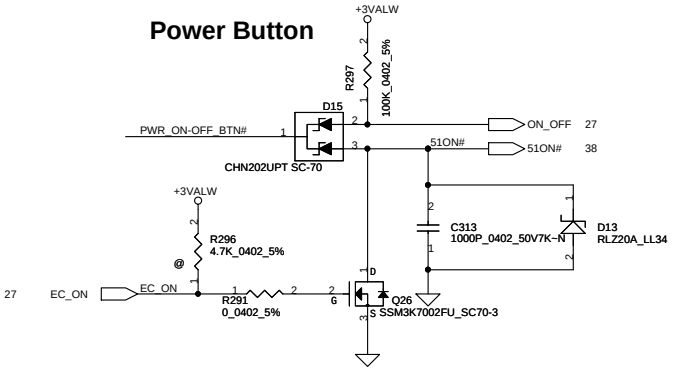
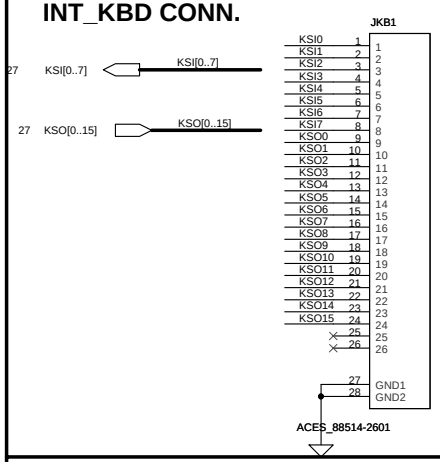
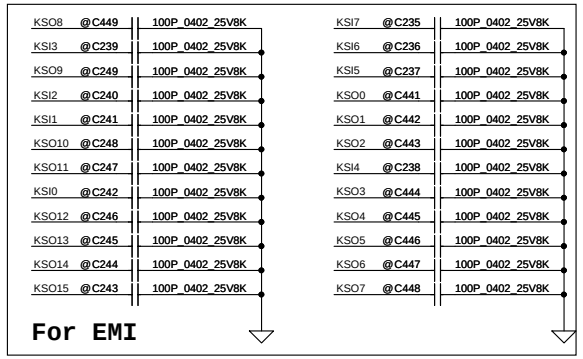
Power Button

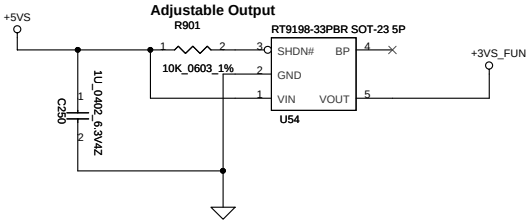


INT_KBD CONN.

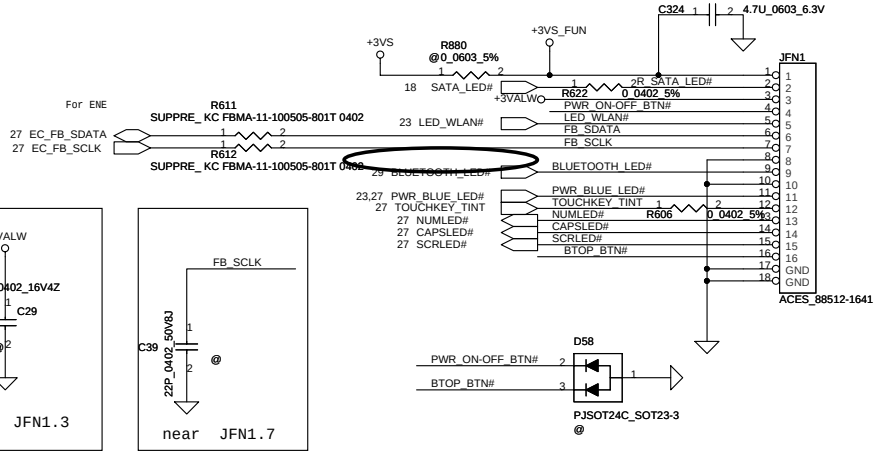




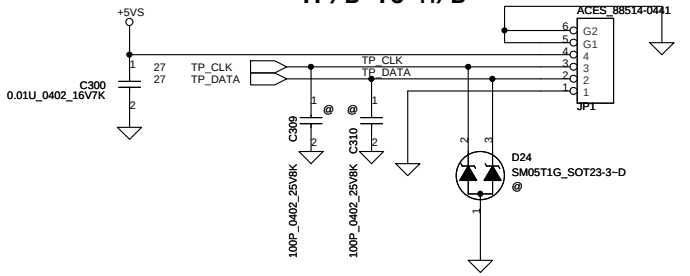
Regulator for ENE sensor



Function/B CONN.



Touch PAD/B CONN.



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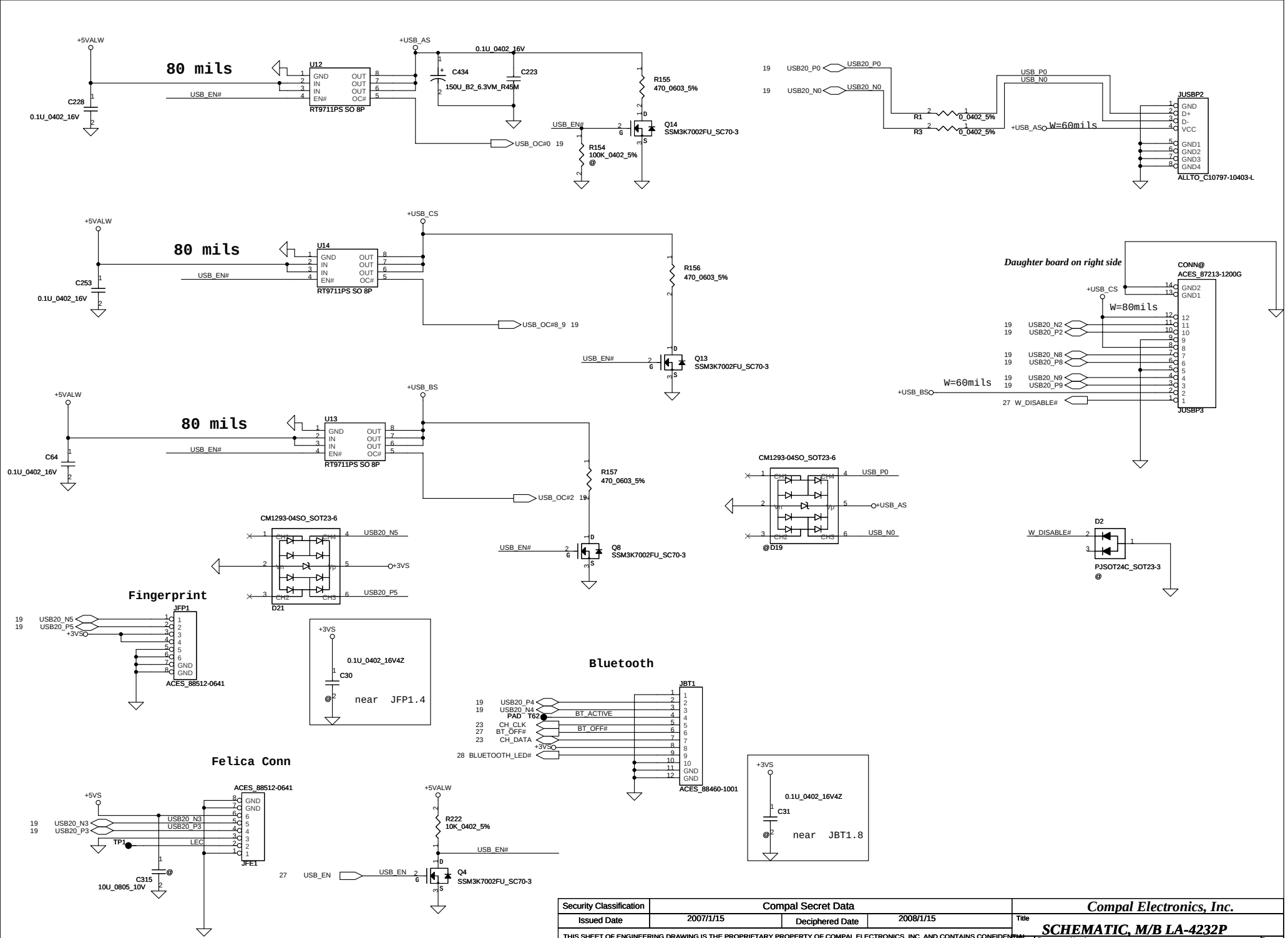

Security Classification	Compal Secret Data		
Issued Date	2007/1/15	Deciphered Date	2008/1/15

Compal Electronics, Inc.

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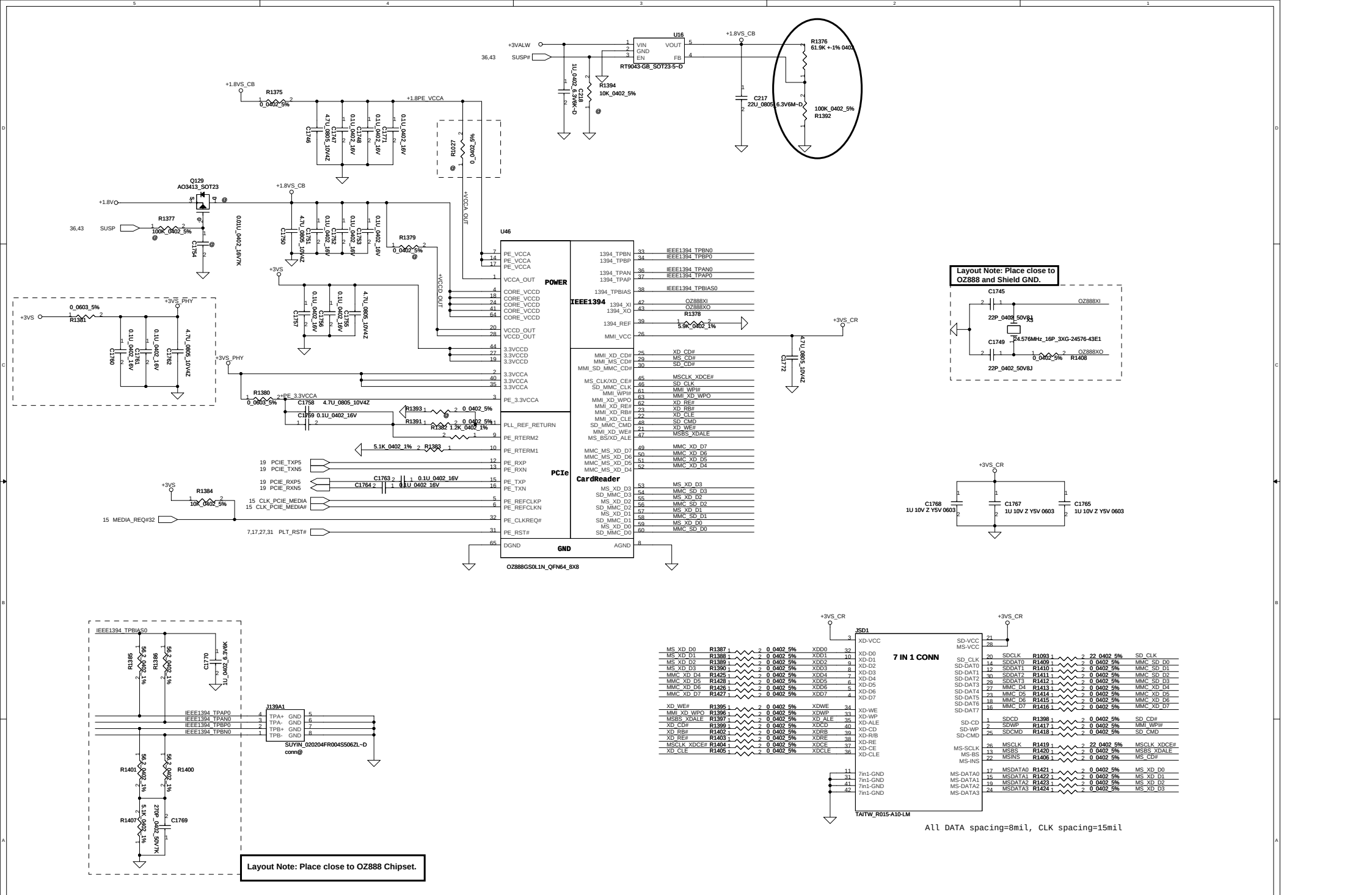

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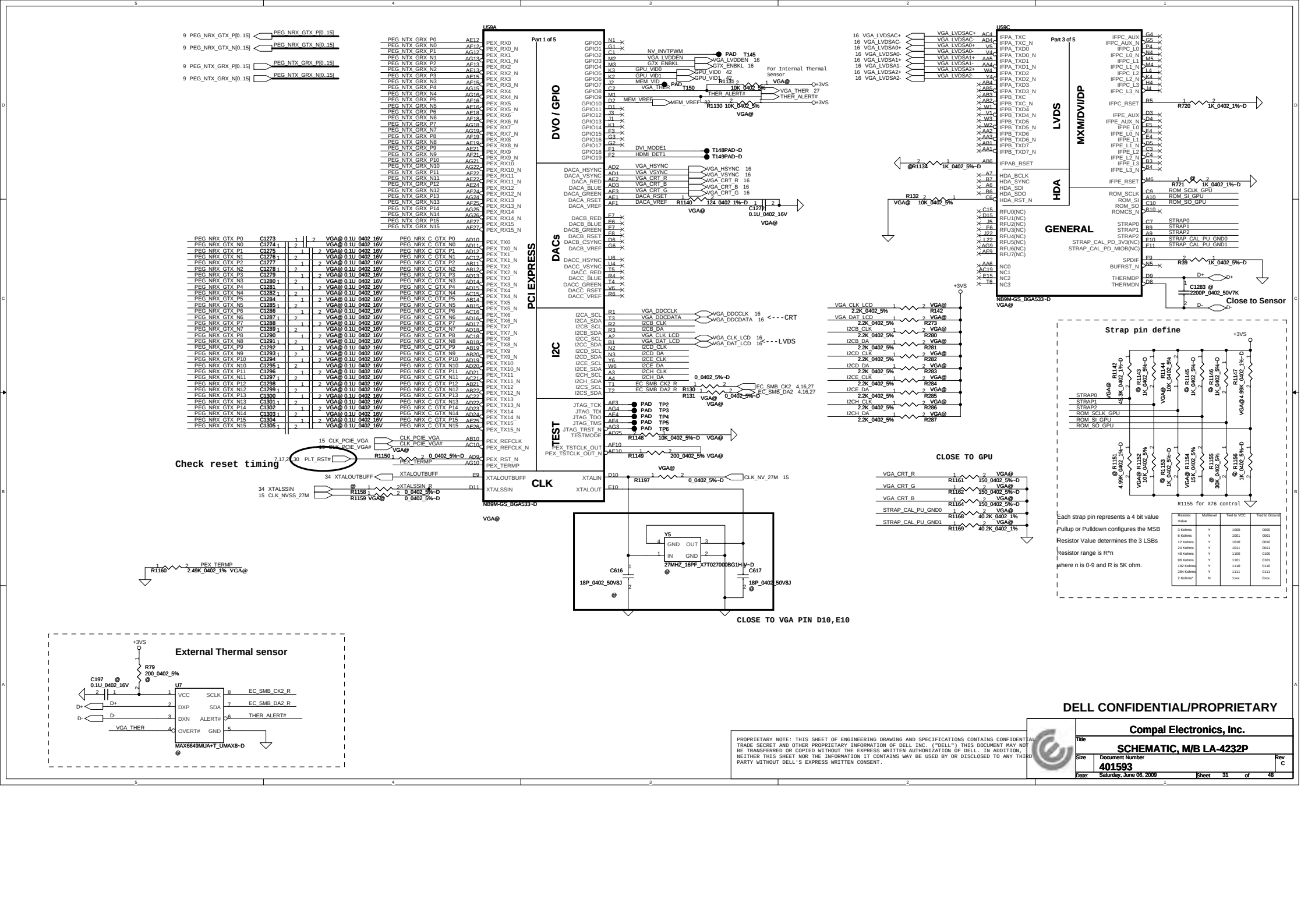
U59A
Part 1 of 5
PCI EXPRESS
DVO / GPIO
DACs
I2C
TEST
CLK
NB9M-GS_BGA533~D
U59C
Part 3 of 5
LVDS
MXM/DVI/DP
HDA
GENERAL
NB9M-GS_BGA533~D
Close to Sensor
Check reset timing
CLOSE TO GPU
CLOSE TO VGA PIN D10,E10
Strap pin define
Each strap pin represents a 4 bit value
Pullup or Pulldown configures the MSB
Resistor Value determines the 3 LSBs
Resistor range is R*n
where n is 0-9 and R is 5K ohm.
External Thermal sensor
MAX6649MUA+T_UMAX8~D
DELL CONFIDENTIAL/PROPRIETARY
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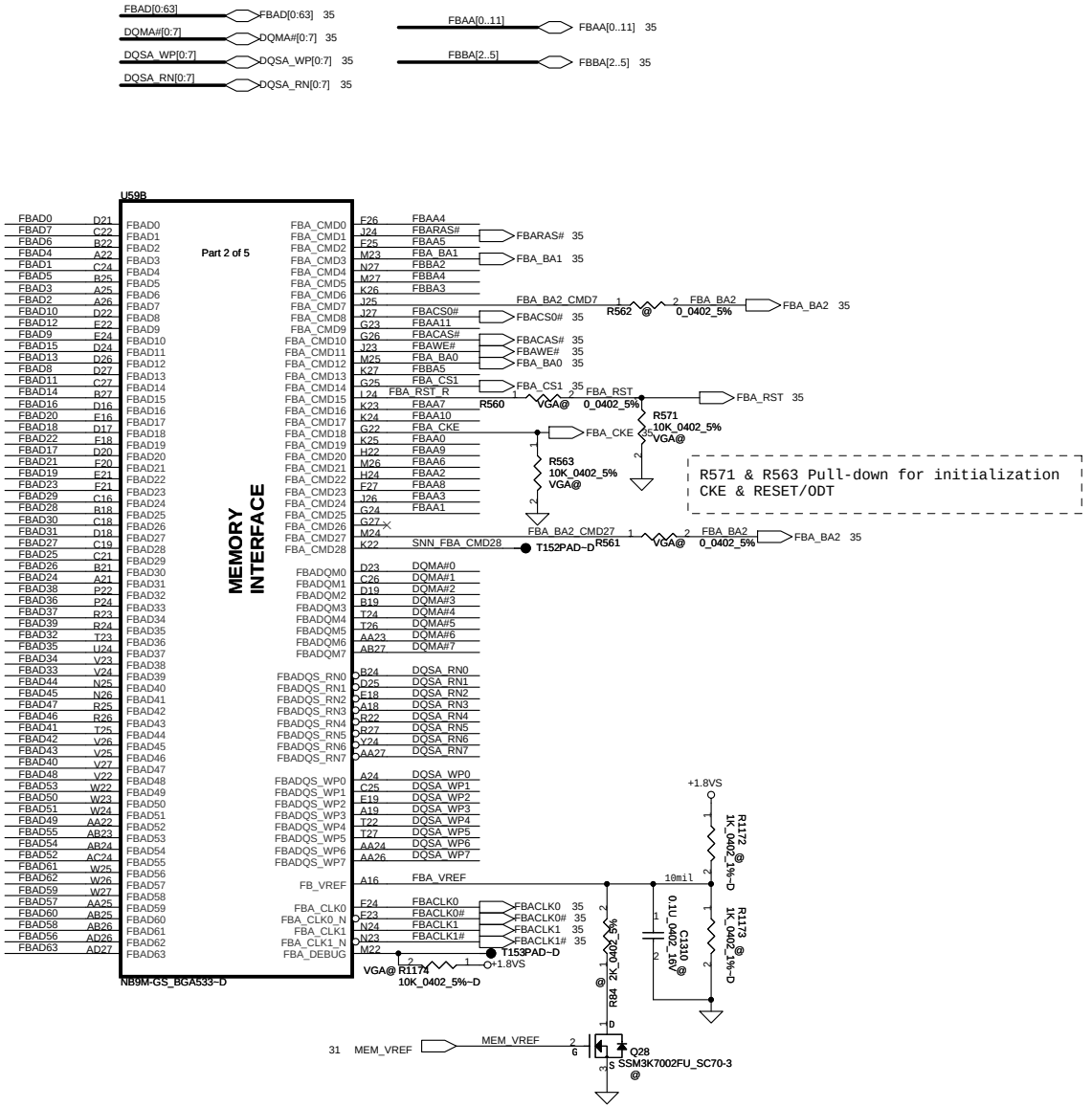

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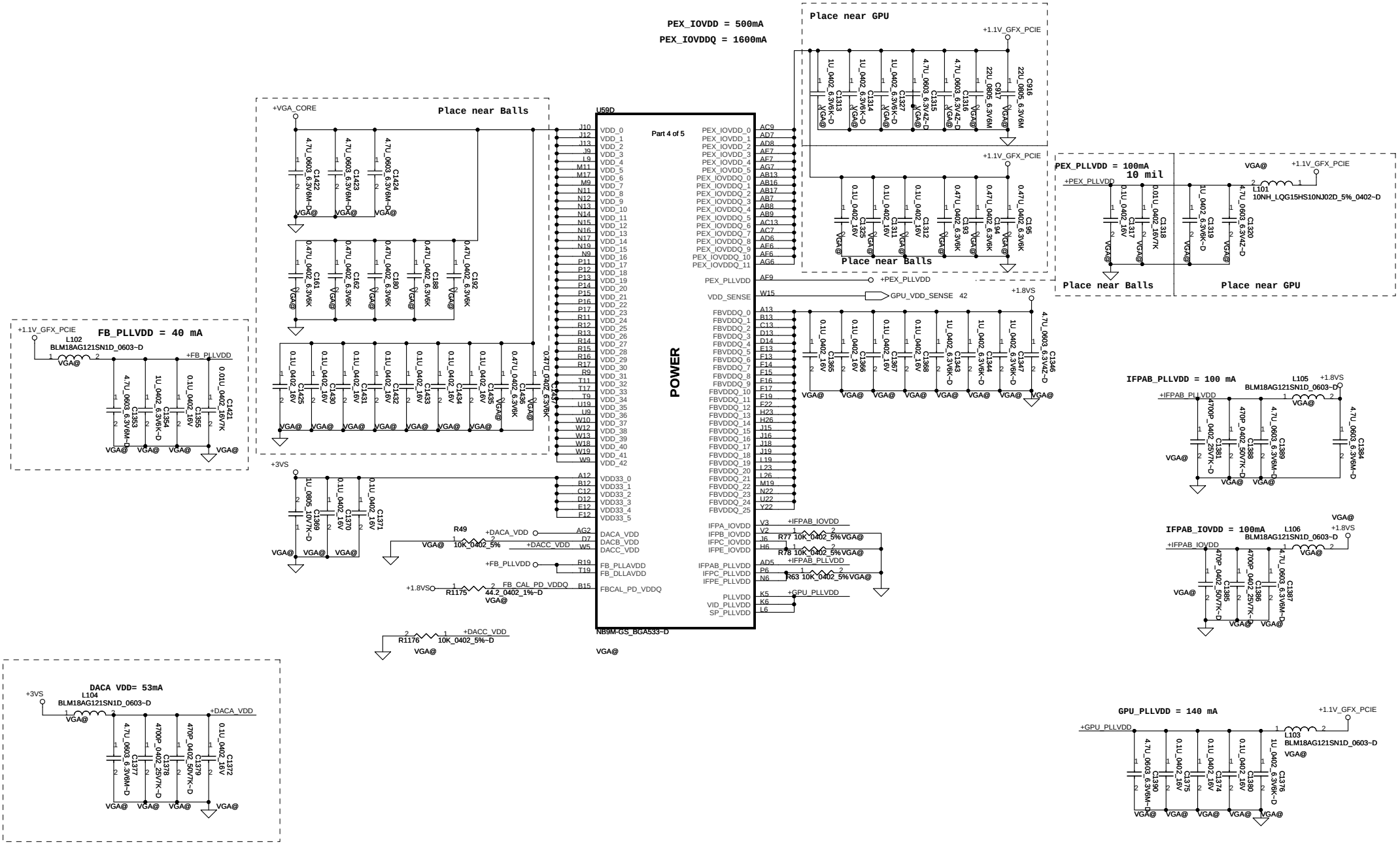

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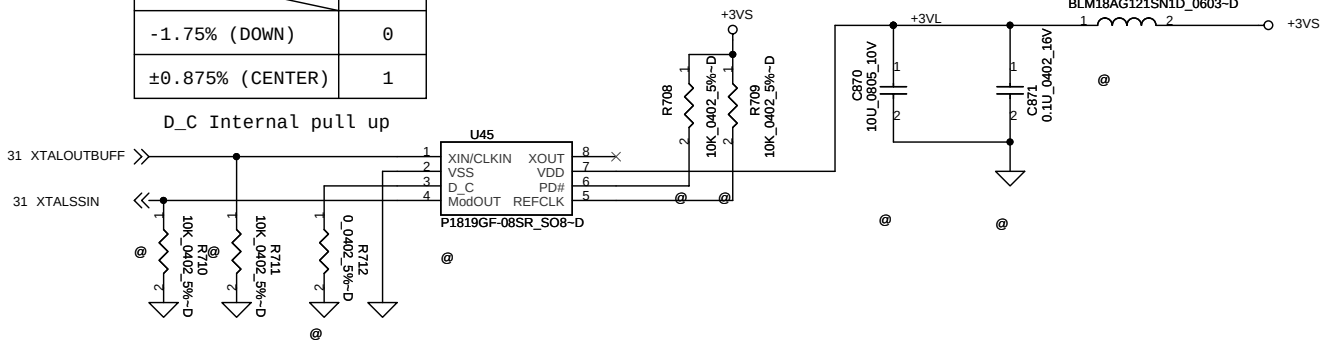
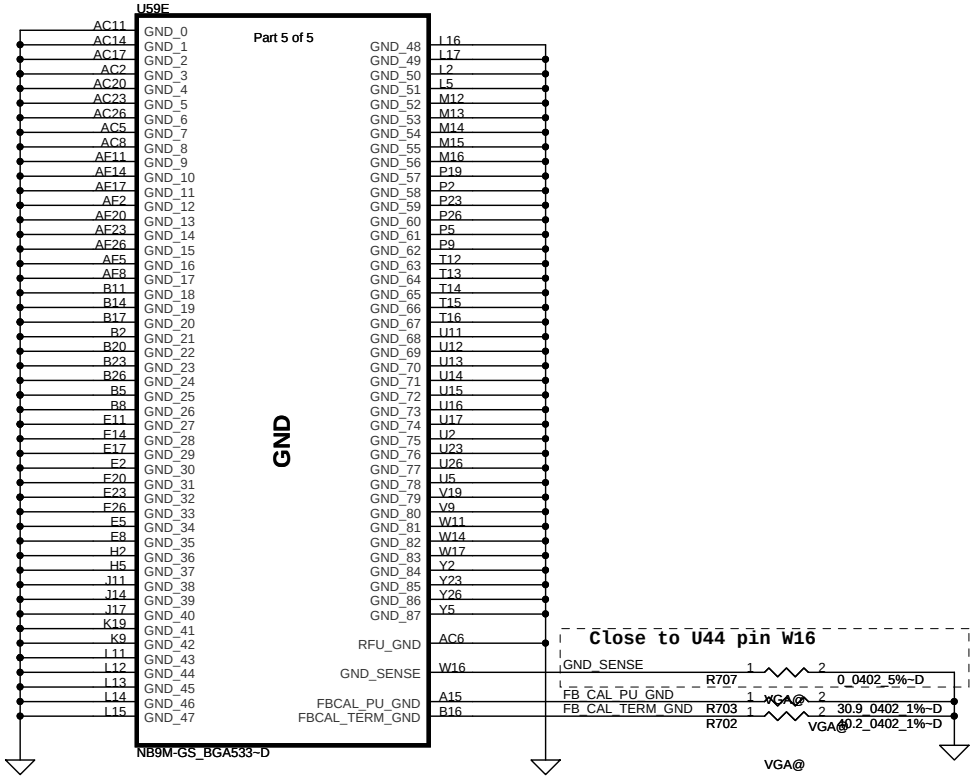
	D_C
-1.75% (DOWN)	0
±0.875% (CENTER)	1

D_C Internal pull up





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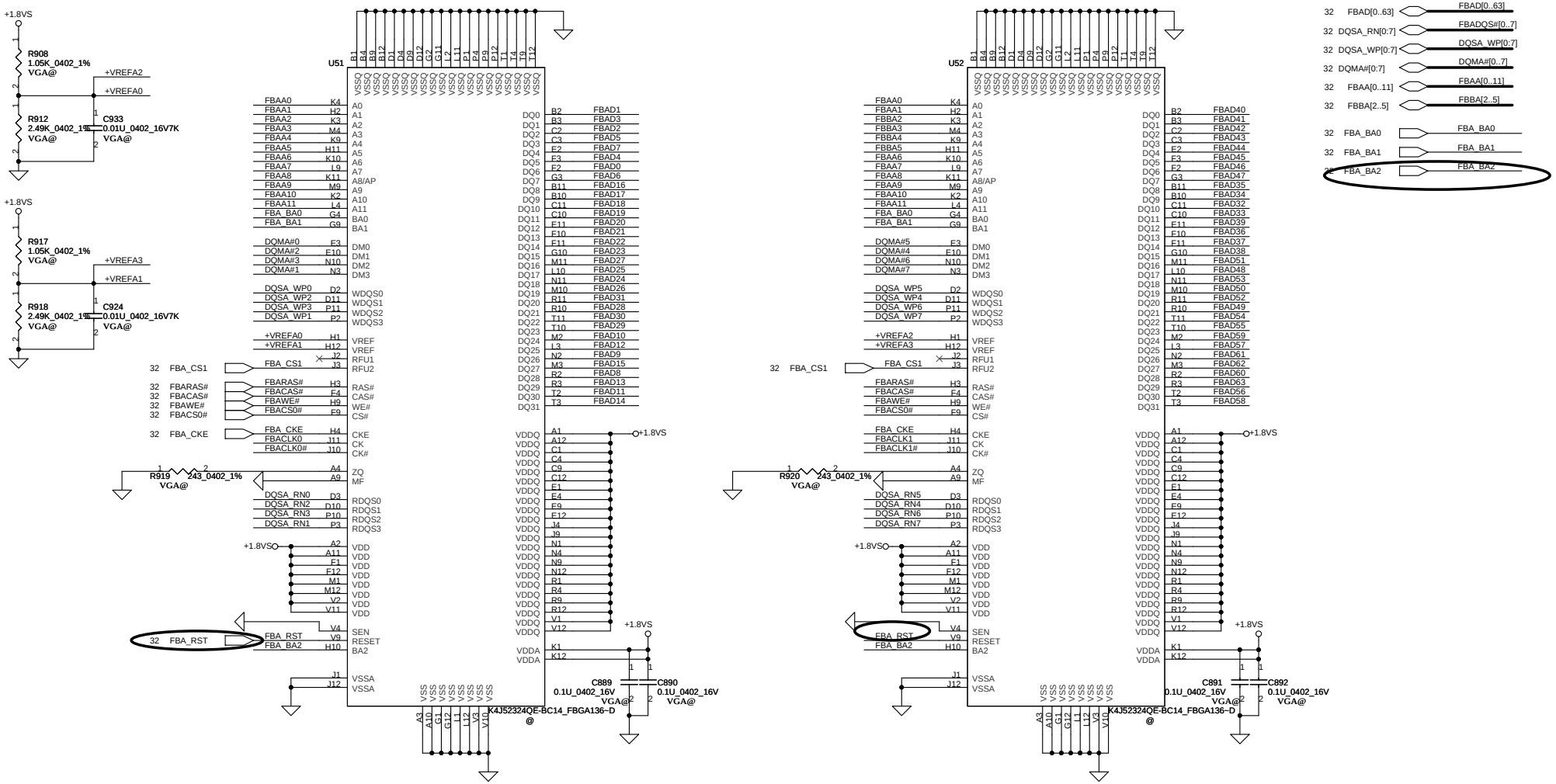
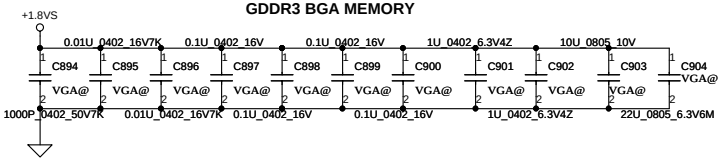
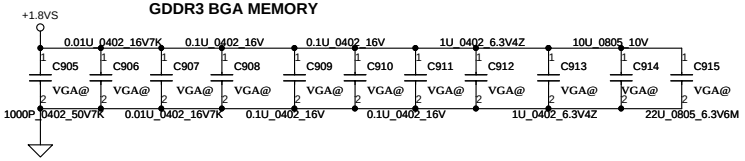


GDDR3 BGA MEMORY

GDDR3 BGA MEMORY





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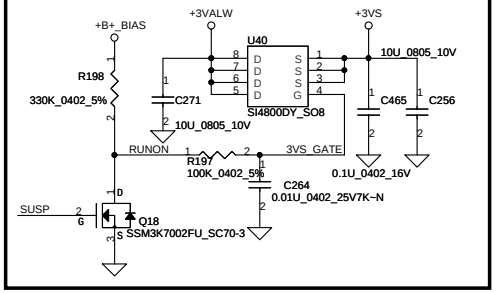
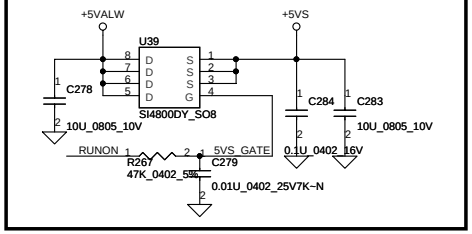
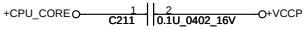
+3VALW to +3VS Transfer

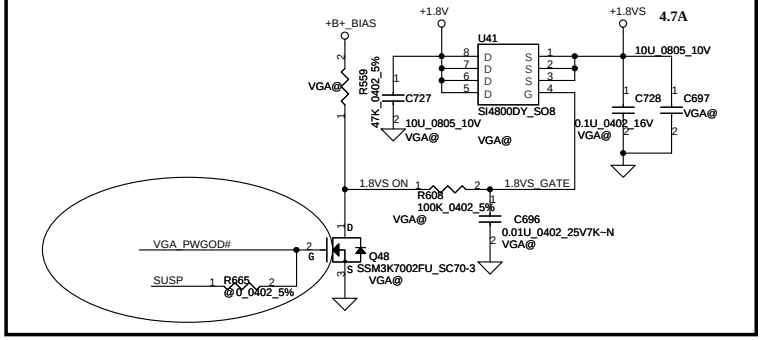


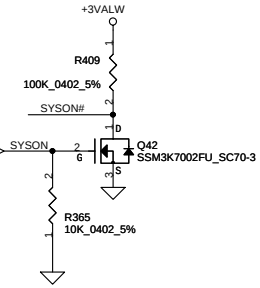
+5VALW to +5VS Transfer

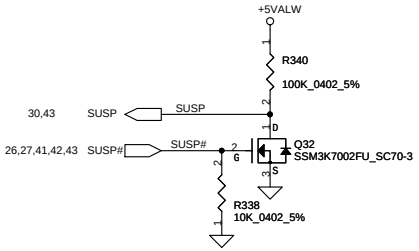


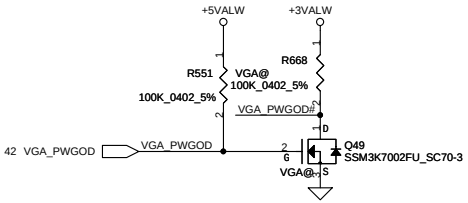


+1.8V to +1.8VS Transfer



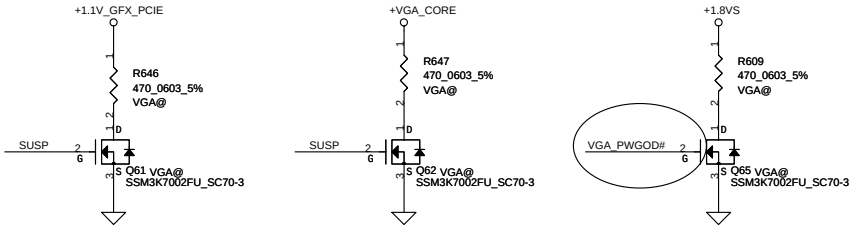




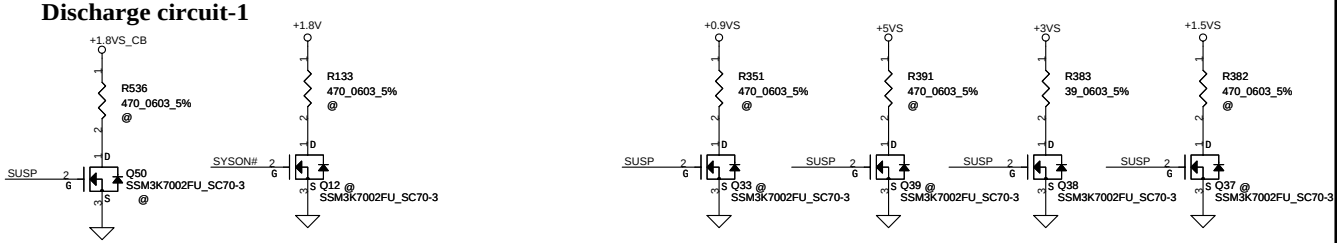


SYSON -> SUSP# -> VGA_ON->VGA_PWGOD

VGA Discharge circuit



Discharge circuit-1



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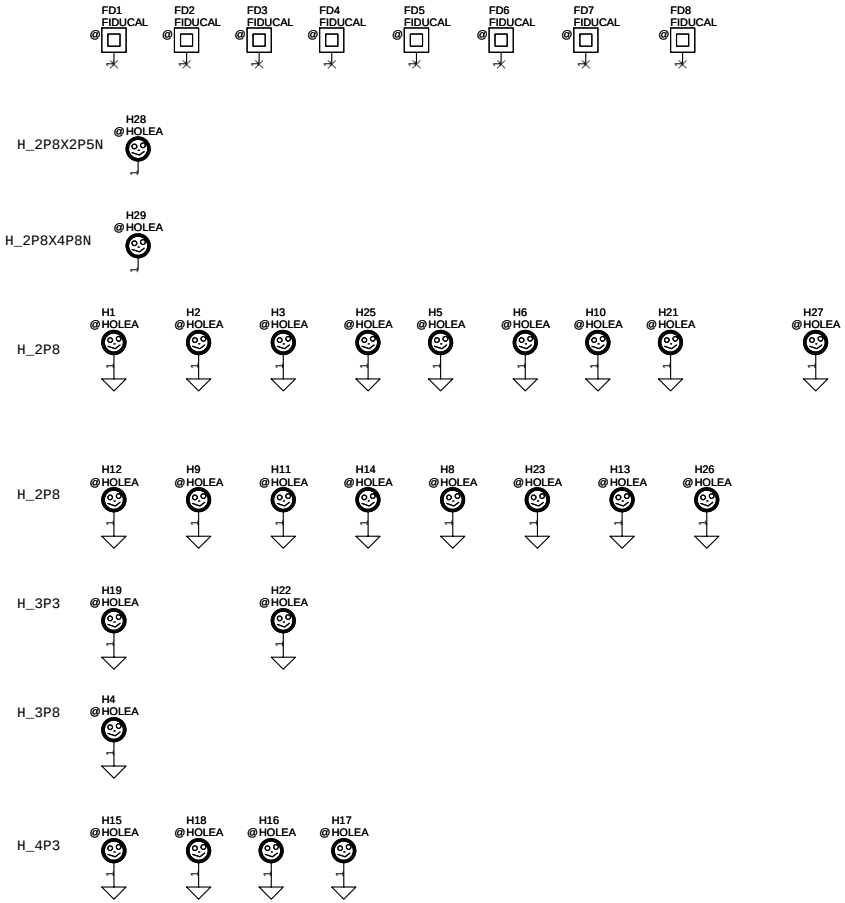

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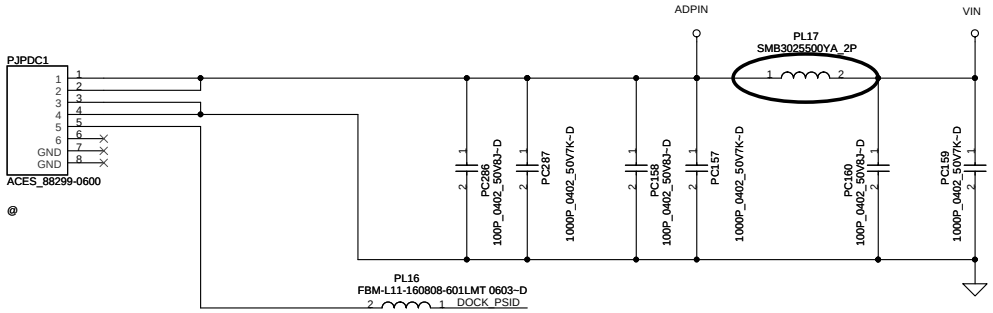
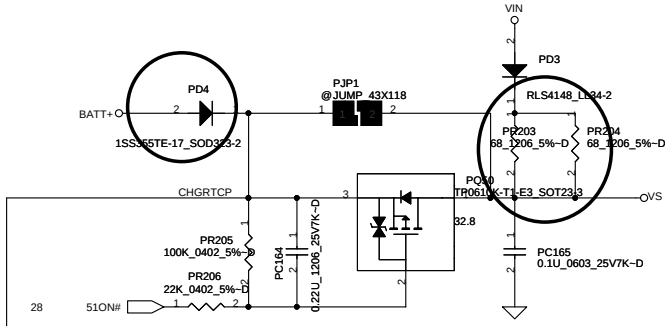
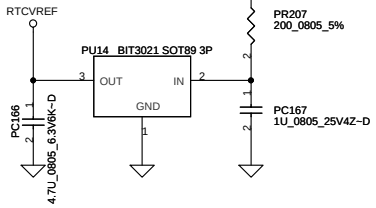
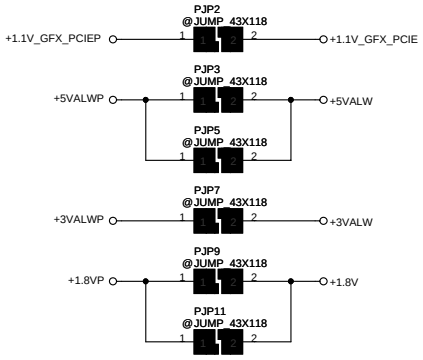
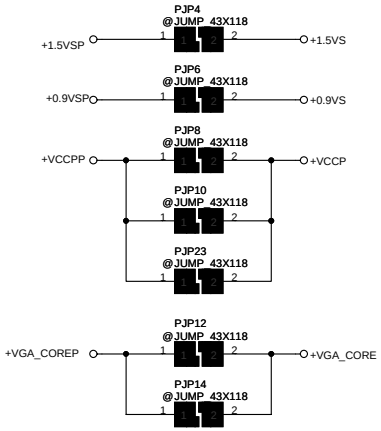
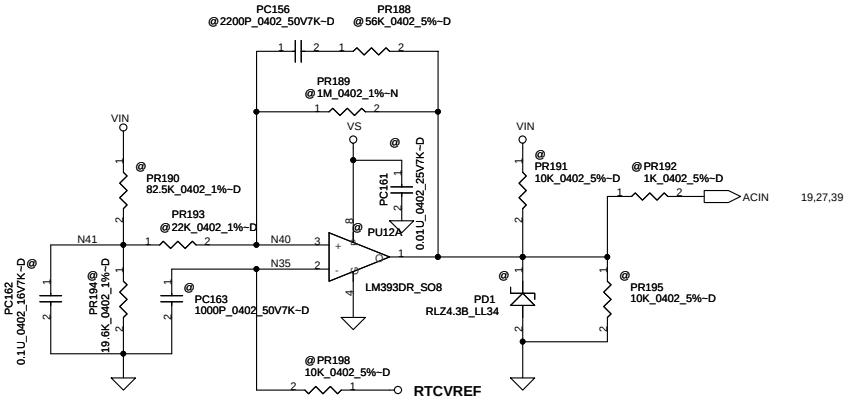






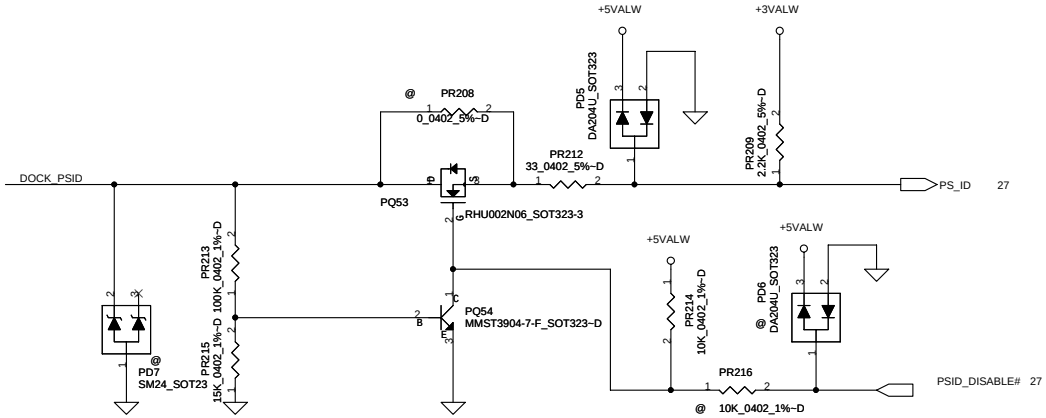






Vin Detector

	Max.	typ.	Min.
L-->H	18.234	17.841	17.449
H-->L	17.597	17.210	16.813



Security Classification	Compal Secret Data		
Issued Date	2006/10/1	Deciphered Date	2007/5/01

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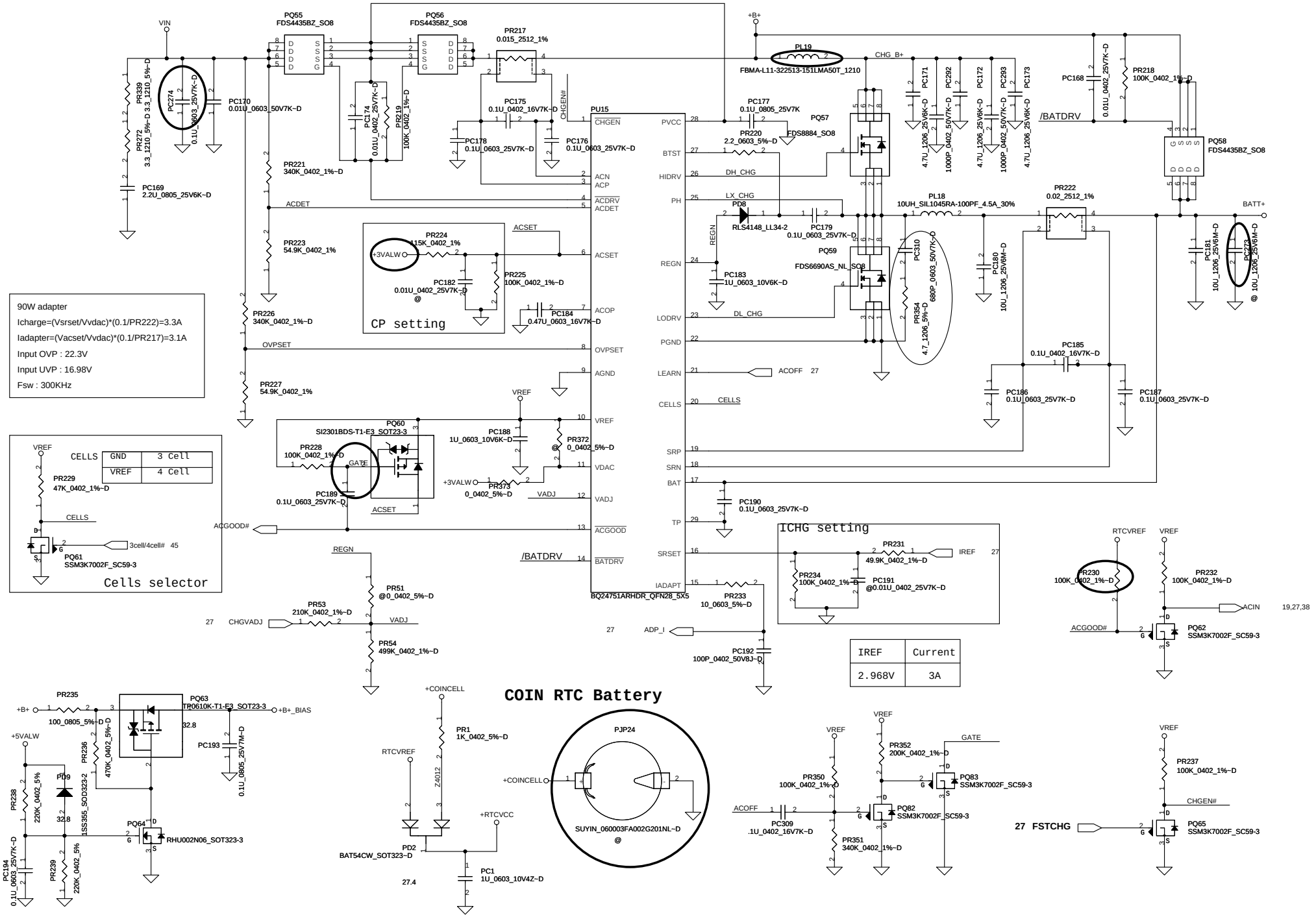

Security Classification	Compal Secret Data		
Issued Date	2006/10/1	Deciphered Date	2007/5/01

Compal Electronics, Inc.	
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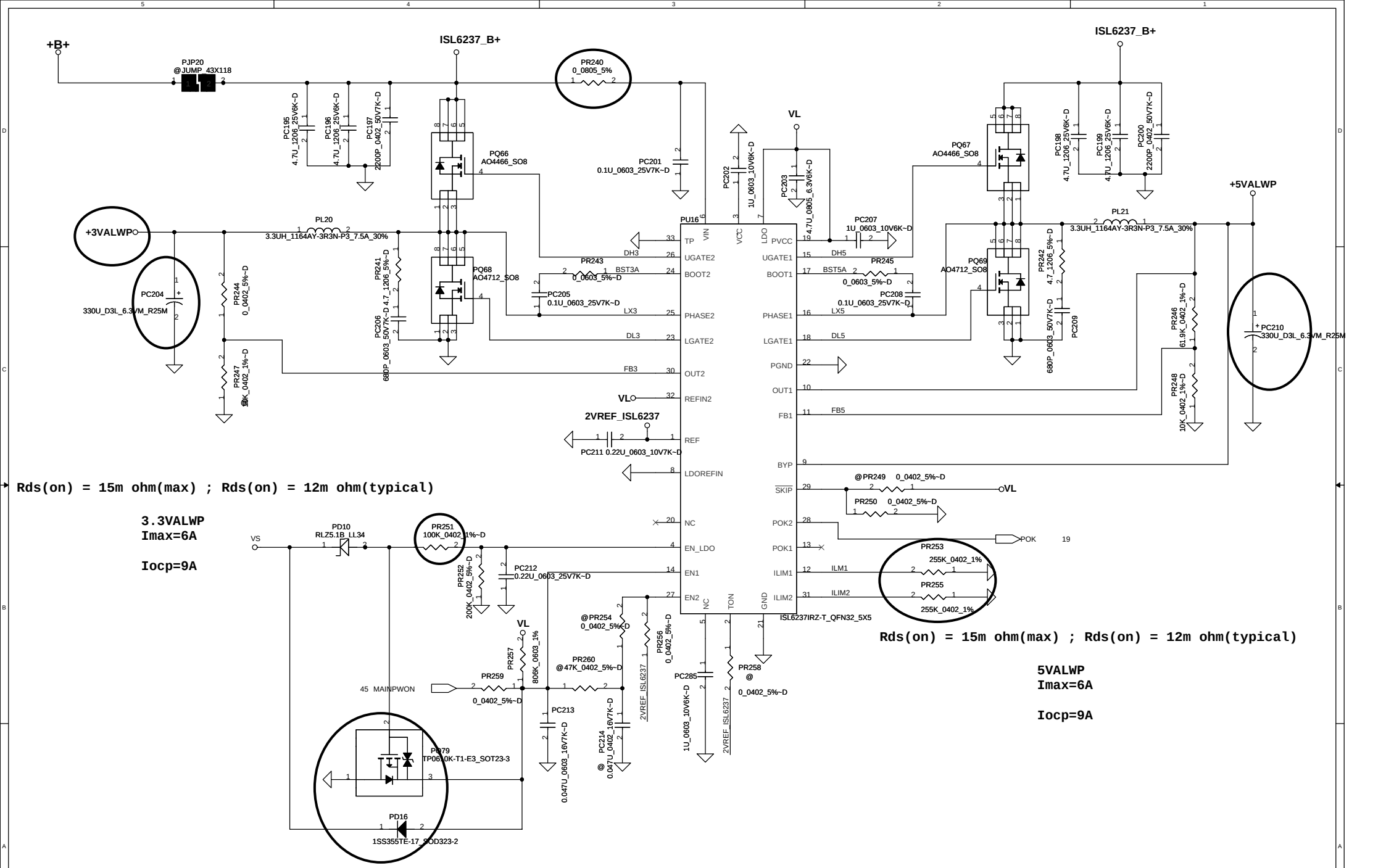

Security Classification	Compal Secret Data		
Issued Date	2006/10/1	Deciphered Date	2007/05/30

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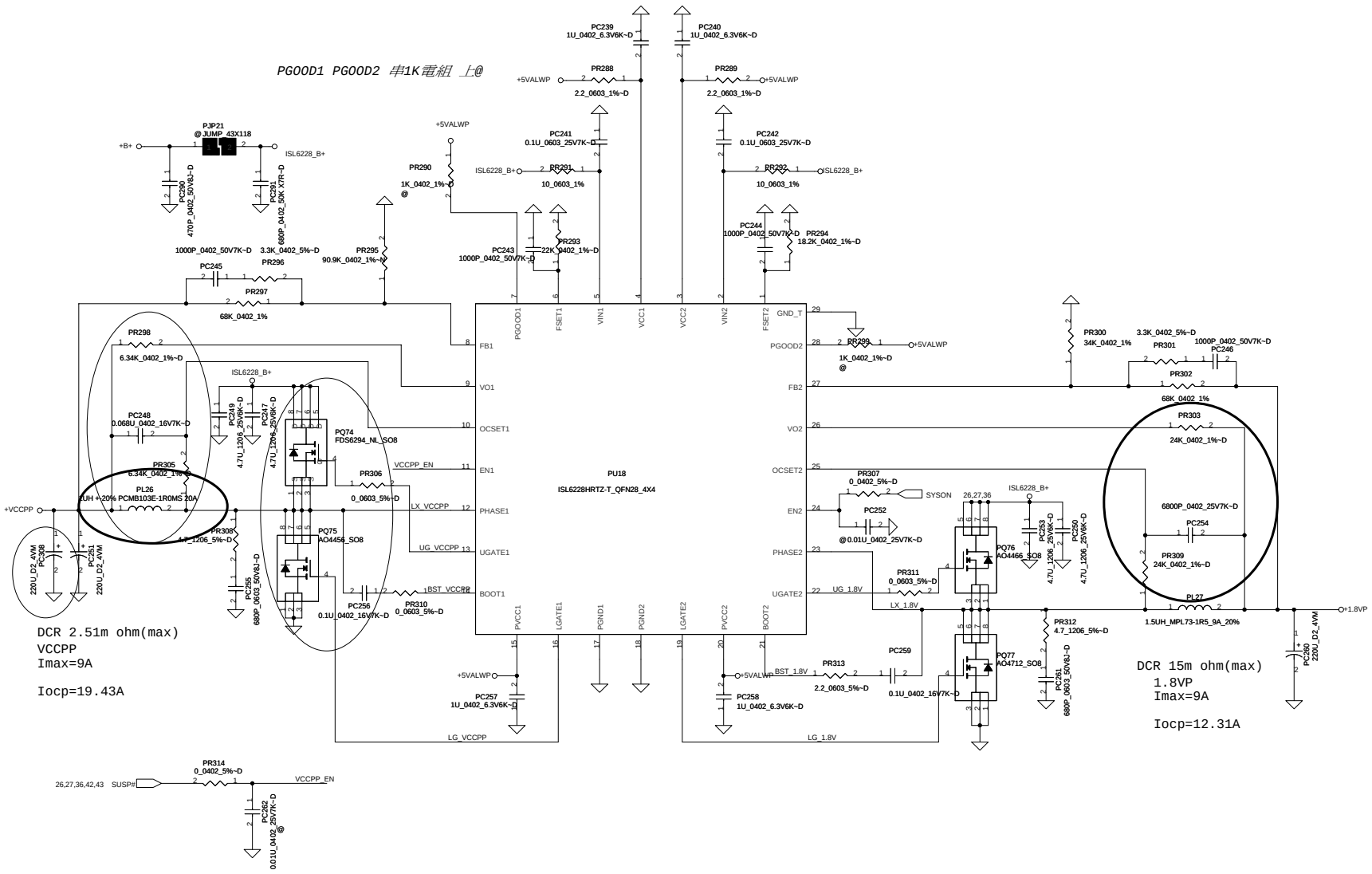

Security Classification	Compal Secret Data		Compal Electronics, Inc.
Issued Date	2006/10/1	Deciphered Date	2007/5/01

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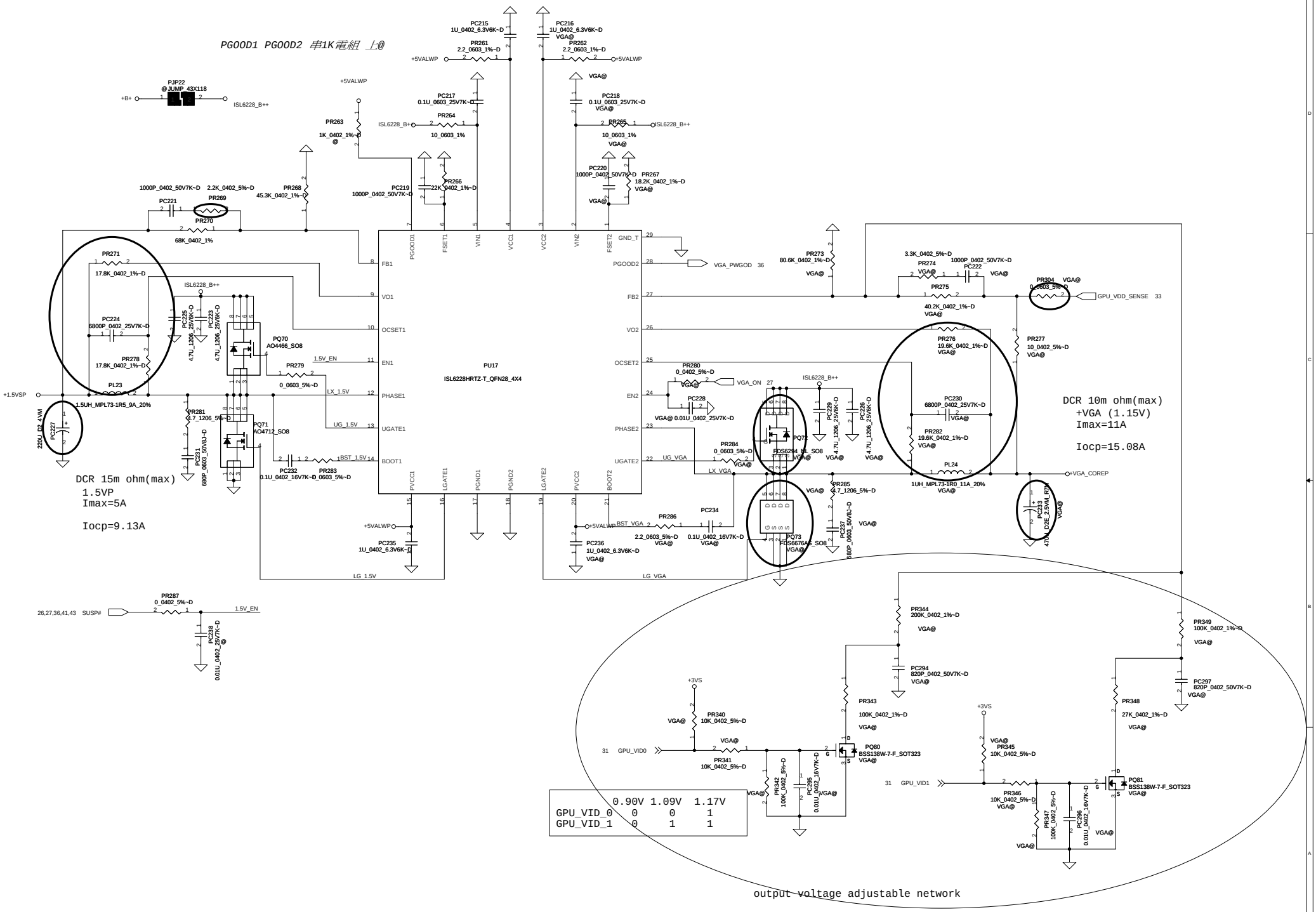

Security Classification	Compal Secret Data		
Issued Date	2006/10/1	Deciphered Date	2007/5/1

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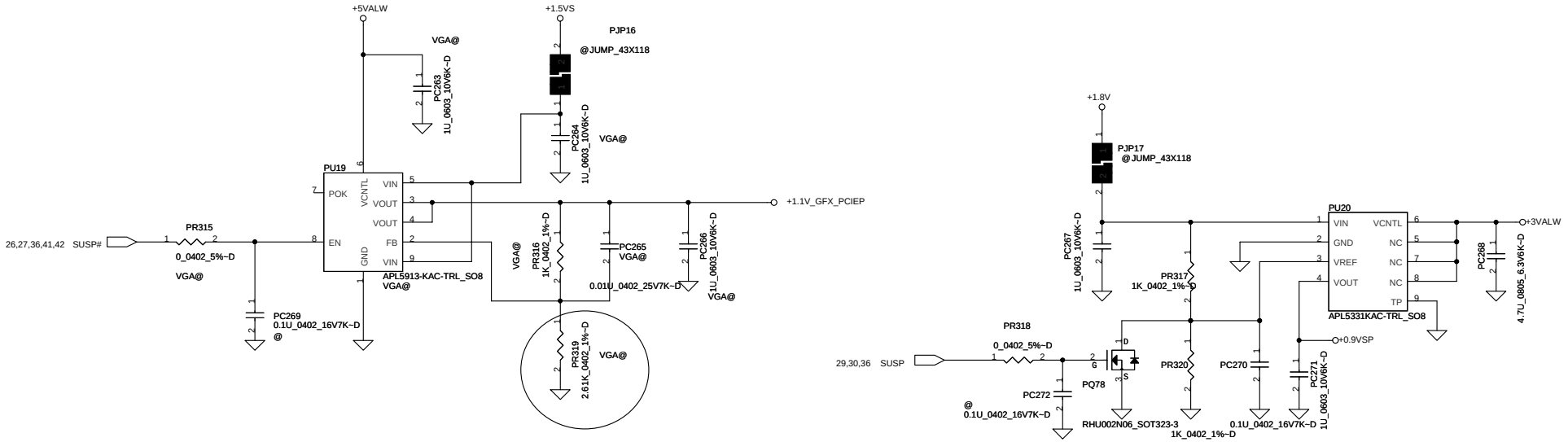

Security Classification	Compal Secret Data		
Issued Date	2005/10/1	Deciphered Date	2007/05/30

Compal Electronics, Inc.

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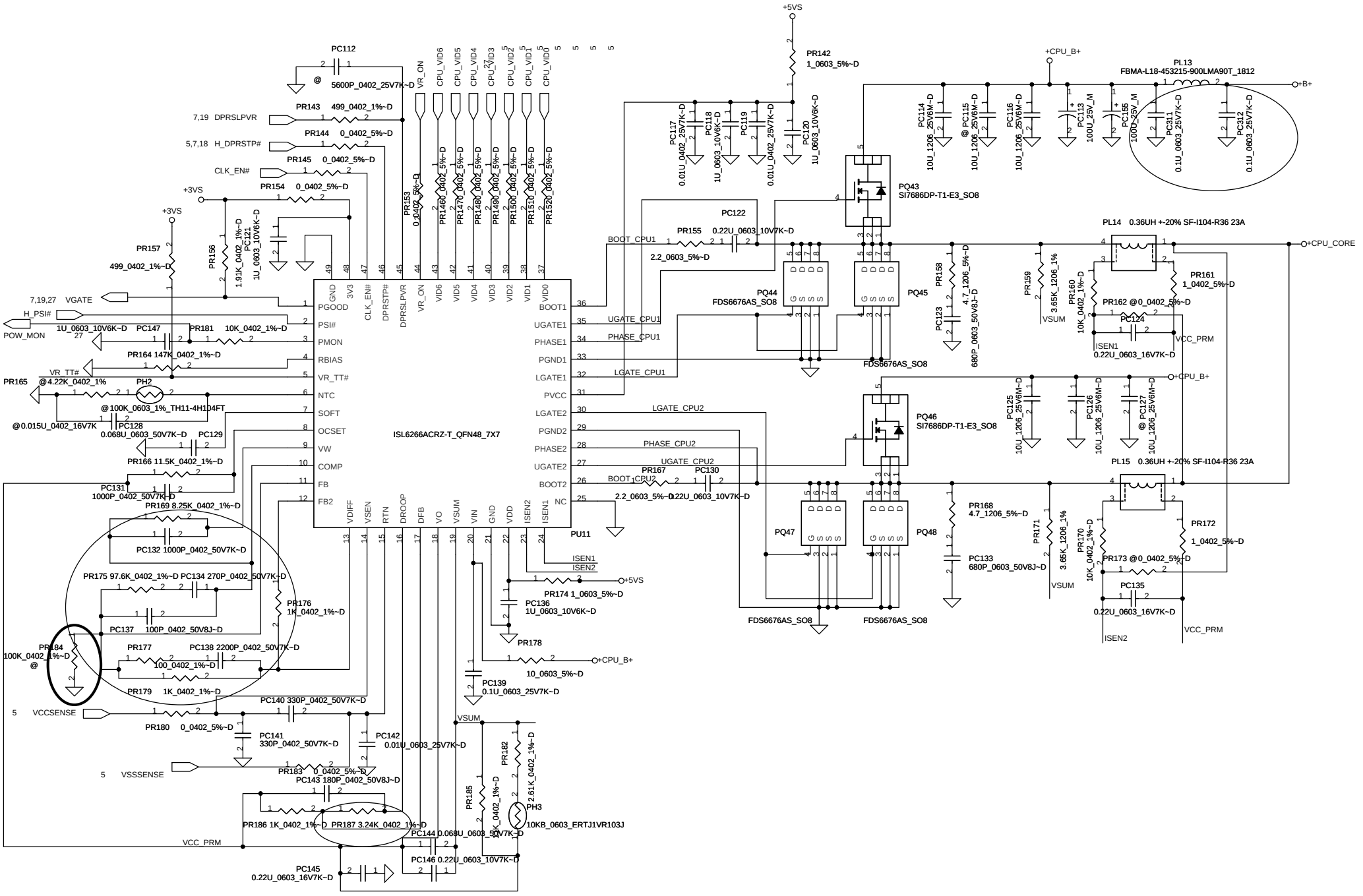

Security Classification	Compal Secret Data		
Issued Date	2007/1/15	Deciphered Date	2008/1/15

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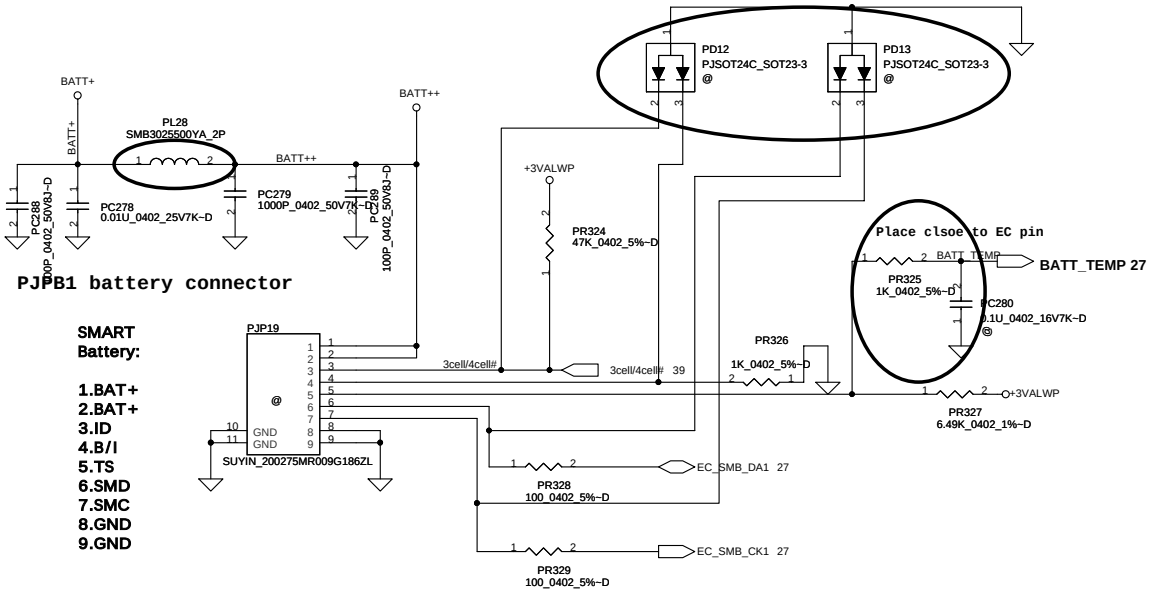
Battery Connect/OTP



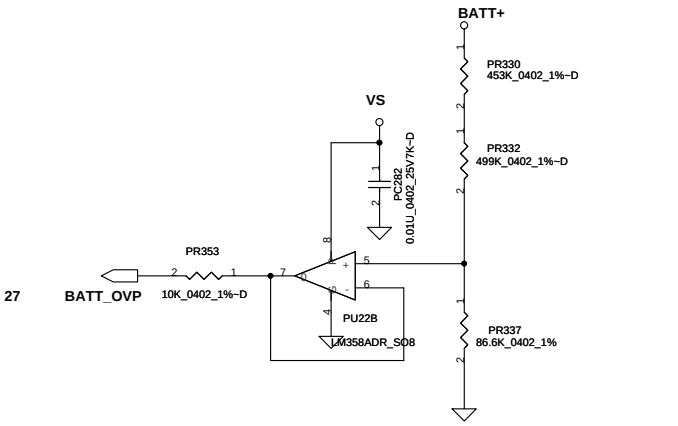
PJPB1 battery connector

SMART Battery:

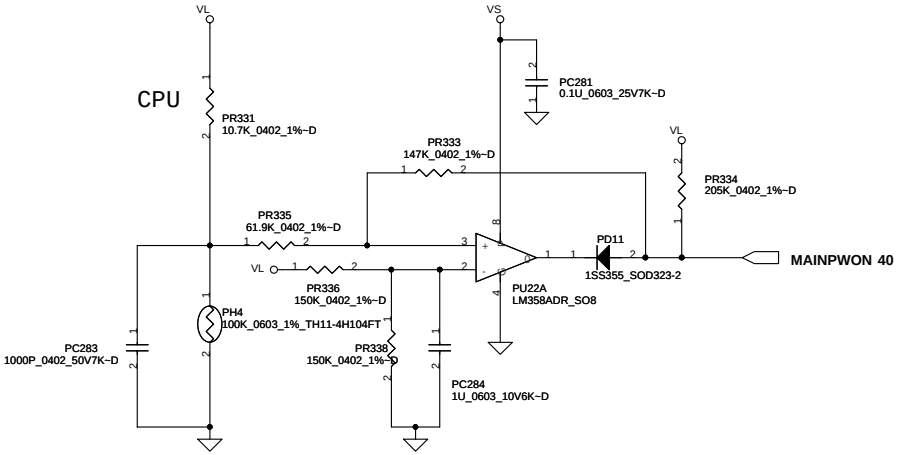
1. BAT+
2. BAT+
3. ID
4. B/I
5. TS
6. SMD
7. SMC
8. GND
9. GND

CPU

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



LI-3S :13.5V----BATT-OVP=1.5V
BATT-OVP=0.111*BATT+



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

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	29	P29-EC KB926/REED SW/TPM1.2	07/10/30	compal	board rev update to 0.2	R231 change to 15K & R232 pop	0.2
2	40	P40-OZ129_Card Reader/1394	07/10/30	compal	CardBus vendor change	CardBus R5C833 change to OZ129	0.2
3	29	P29-EC KB926/REED SW/TPM1.2	07/10/30	compal	Change pull up resistance	Change EC pin17,18 pull up to 4.7Kohm	0.2
4	29	P29-EC KB926/REED SW/TPM1.2	07/10/30	compal	Need pull up	NET MIC_DIAG pull up R to 10Kohm 3VS	0.2
5	13,14	DDR2 SODIMM-I,II Socket	07/10/30	compal	Change Capacitance	Change C84,C189 to SGA00002680 330U	0.2
6	29	P29-EC KB926/REED SW/TPM1.2	07/10/30	compal	EC update rev	EC change to 926C	0.2
7	28	P28-Express card	07/10/30	compal	Express card can't detect	POWER IC(U11) ADD PIN10 CPUSB# PIN9 EXPR_CPUSB#S	0.2
8	32	P32-USB/ BlueTooth/ FP/ Felica	07/10/30	compal	Bluetooth can't detect	BLUETOOTH CONN USB+- change	0.2
9	42	P42-Screws	07/10/30	compal	FIDUCAL no enough	ADD FIDUCAL*4	0.2
10	41	P41-DC/DC Interface	07/10/30	compal	Need pull down	SYSON pull down 10K ohm	0.2
11	41	P41-DC/DC Interface	07/11/12	compal	USB can't detect	SUSP change to 5VALW(Q32)	0.2
12	06	P06-Merom(3/3)-GND/Bypass	07/11/12	compal	Change CPU High Frequence Decoupling Capacitance	C195 change to C1150~C1181	0.2
13	41	P41-DC/DC Interface	07/11/13	compal	+1.8VS Discharge error	+1.8VS Discharge circuit Q65 net change to VGA_PWGOD#	0.2
14	41	P41-DC/DC Interface	07/11/16	compal	Delete	Remove SIM card connector	0.2
15	42	P42-Screws	07/11/16	compal	Change Holea size	Change Holea size 2.5 to 2.8, change 3.5 to 3.8	0.2
16	31	P31-PWR_OK/ BTN/ KB / TouchPad	07/11/21	compal	Change Touch PAD/B connector	Touch PAD/B connector change net	0.2
17	15	P15-CRT Conn.& LCD Conn.	07/11/21	compal	Add LCD control pin	Add LCD control pin LCD_CBL_DET# & LCD_TST & LCD_VCC_TEST_EN	0.2
18	20	P20-ICH9(4/4)_POWER&GND	08/04/22	compal	+5VS & +3VS have leakage	Change VCCCL3[1] [2] & VCCLAN3_3[1] [2] power source to +LAN_IO	
19	20	P09-Cantiga(3/6)-VGA/LVDS/TV	08/04/22	compal	Can't boot to OS	Add BOM Structure @	
20							
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Version Change List (P. I. R. List)

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	41	1.8VP/+VCCPP	08/10/22	COMPAL	adjust +VCCP OCP set	Change PC248 from 0.033u to 0.068u	0.2
2	42	1.5VSP/+VGA_CORE	08/10/22	COMPAL	ripple voltage fail	Change PC227 from SF22001M300 to SGA20221150	0.2
3	42	1.5VSP/+VGA_CORE	08/10/22	COMPAL	convenient test	Add PR304	0.2
4	44	CPU_CORE	08/10/22	COMPAL	load line fail	Change PR187 from 2.21K to 3.24K	0.2
5	38	DCIN / Precharge	08/10/22	COMPAL	modify MLCC part number	change part number N0 to 8L	0.2
6	39	Charger	08/10/22	COMPAL	modify MLCC part number	change part number N0 to 8L	0.2
7	40	+3VALWP/+5VALWP	08/10/22	COMPAL	modify MLCC part number	change part number N0 to 8L	0.2
8	41	1.8VP/+VCCPP	08/10/22	COMPAL	modify MLCC part number	change part number N0 to 8L	0.2
9	42	1.5VSP/+VGA_CORE	08/10/22	COMPAL	modify MLCC part number	change part number N0 to 8L	0.2
10	43	+0.9VSP/+1.1V_GFX_PCIEP	08/10/22	COMPAL	modify MLCC part number	change part number N0 to 8L	0.2
11	44	CPU_CORE	08/10/22	COMPAL	modify MLCC part number	change part number N0 to 8L	0.2
12	45	BATTERY CONN	08/10/22	COMPAL	modify MLCC part number	change part number N0 to 8L	0.2
13	40	+3VALWP/+5VALWP	08/10/24	COMPAL	boost choke current rating	change PL20 PL21 from SH000006380 to SH00000AY00	0.2
14	45	BATTERY CONN	08/10/30	COMPAL	delete diode for EMD request	del PD14 PD15	0.2
15	45	BATTERY CONN	08/10/30	COMPAL	change diode for EMD request	change PD12 PD13 from SC1A204U00L to SCA00000E00	0.2
16	39	Charger	08/10/31	COMPAL	design modify	add PR372 PR373	0.2
17	41	1.8VP/+VCCPP	08/11/03	COMPAL	dynamic fail	change PC233 from SGA20221150 to SGA00001U80	0.2
18	44	CPU_CORE	08/12/08	COMPAL	cost down	change PU11 from SA00001HU80 to SA000031W00 and interrelated components	0.3
19	38	DCIN / Precharge	08/12/08	COMPAL	common circuit design modify	change PR203 from 33 to 68 and add PR204 to 68	0.3
20	39	Charger	08/12/08	COMPAL	vendor FAE suggest	change PR272 PR339 from 1 to 3.3	0.3
21	38	DCIN / Precharge	08/12/08	COMPAL	design modify	change PL17 from SM010018880 to SM010008E10	0.3
22	45	BATTERY CONN	08/12/08	COMPAL	design modify	change PL28 from SM010018210 to SM010008E10	0.3
23	39	Charger	08/12/15	COMPAL	change component for EMD request	change PJP15 to PL19 SM010016410	0.3
24	39	Charger	08/12/15	COMPAL	add capacitor for EMD request	add PC274 0.1u	0.3
25	42	1.5VSP/+VGA_CORE	09/01/19	COMPAL	adjust VGA_CORE OCP set	change PQ72 from SB00000CG00 to SB562940080	0.4
26						change PQ73 from SB00000AJ00 to SB000003W00	0.4
27						change PL24 from SH000008700 to SH000005400	0.4
28						change PR276 PR282 from 24K to 19.6K	0.4
29						change PC230 from 0.022u to 6800p	0.4
30					consumption adjust	change PR269 from 3.3K to 2.2K	0.4
31	44	CPU_CORE	09/01/19	COMPAL	vendor FAE suggest	add PC141 330p	0.4
32	45	BATTERY CONN	09/02/18	COMPAL	delete diode for ESD request	del PD12 PD13	0.4

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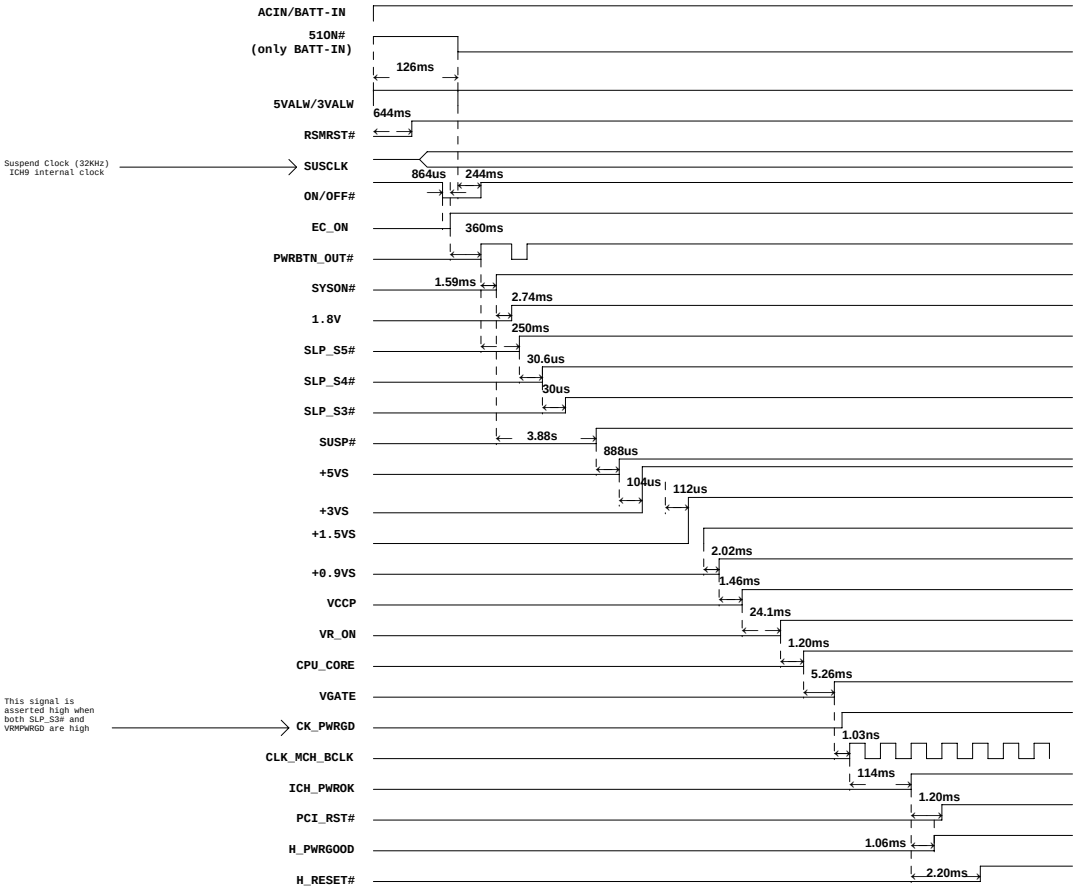
KAL80 POWER UP SEQUENCE



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