



LA-7491P
DA60000N810

Compal Confidential

Brazos PCW20 LA7491 Schematics Document

AMD APU Ontario-FT1+ FCH Hudson-M1

2011-03-29

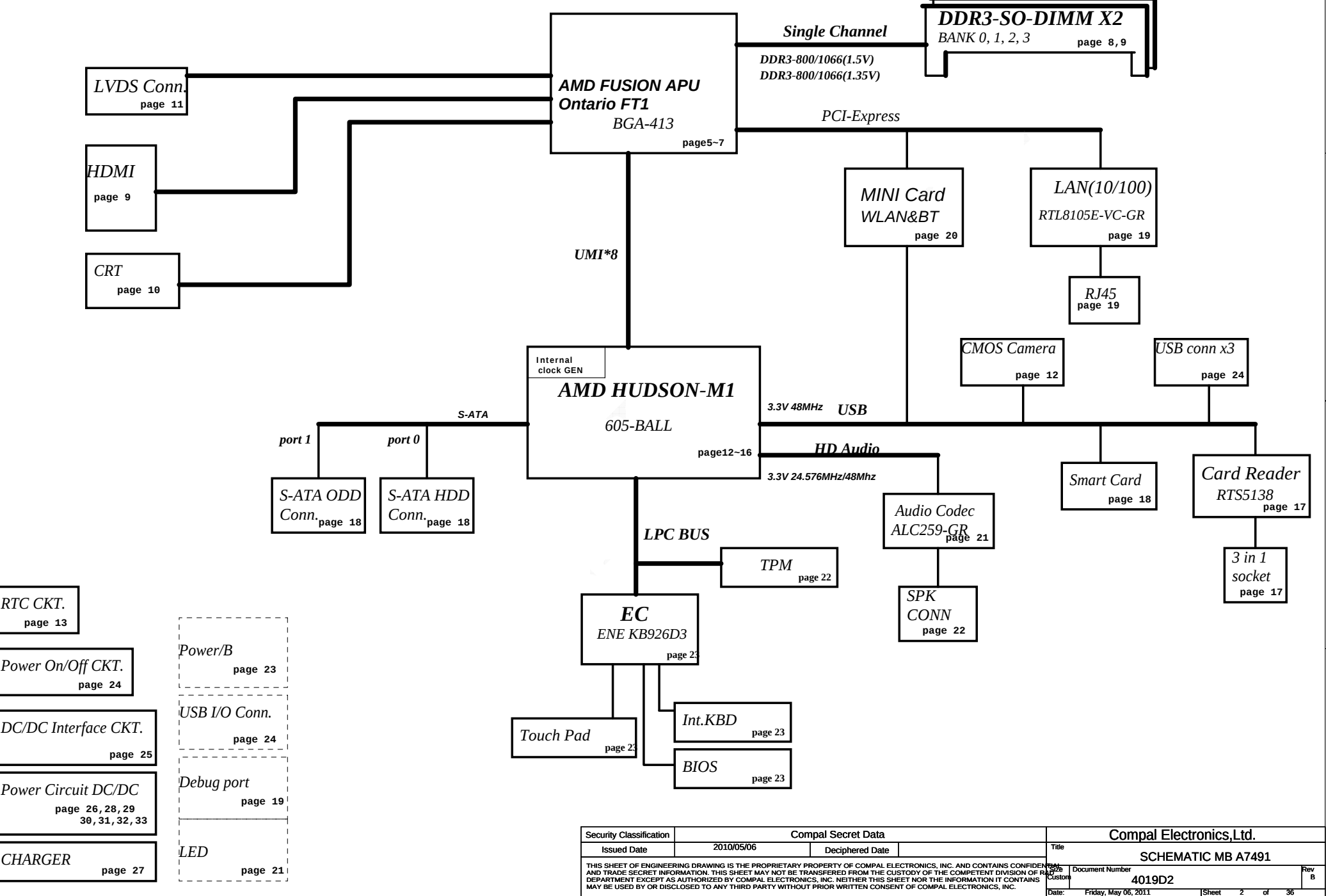
REV:1.0

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Model Name : Brazos

File Name : LA7491



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DDR3 Voltage Rails

power plane State				
	+B +3VL +5VL +RTCVCC	+5VALW +3VALW +1.1VALW	+1.5V	+5VS +3VS +1.5VS +CPU_CORE +NB_CORE +1.8VS +0.75VS +1.1VS +1.0VS
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

@	Reserve
CONN@	ME CONNECTOR
8105E@	100M LAN function
8111E@	GLAN function
REAL@	ALC259-GR
VIA@	V1802T
ROM@	not support flash ROM
FROM@	Support flash ROM

FCH SM Bus0 address

Device	HEX	Address
SDDIM I	A0	1010 0000
SDDIM II	A2	1010 0010

FCH SM Bus1 address

Device	HEX	Address
WLAN		

EC SM Bus1 address

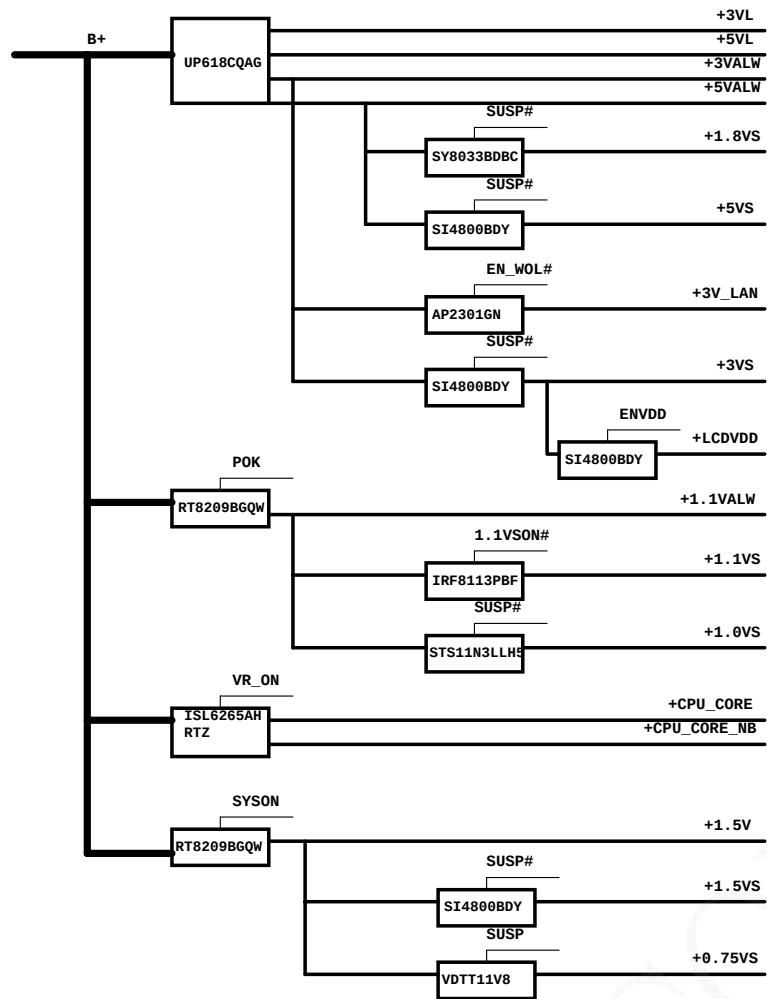
Device	HEX	Address
Smart Battery	16H	0001 011X b

EC SM Bus2 address

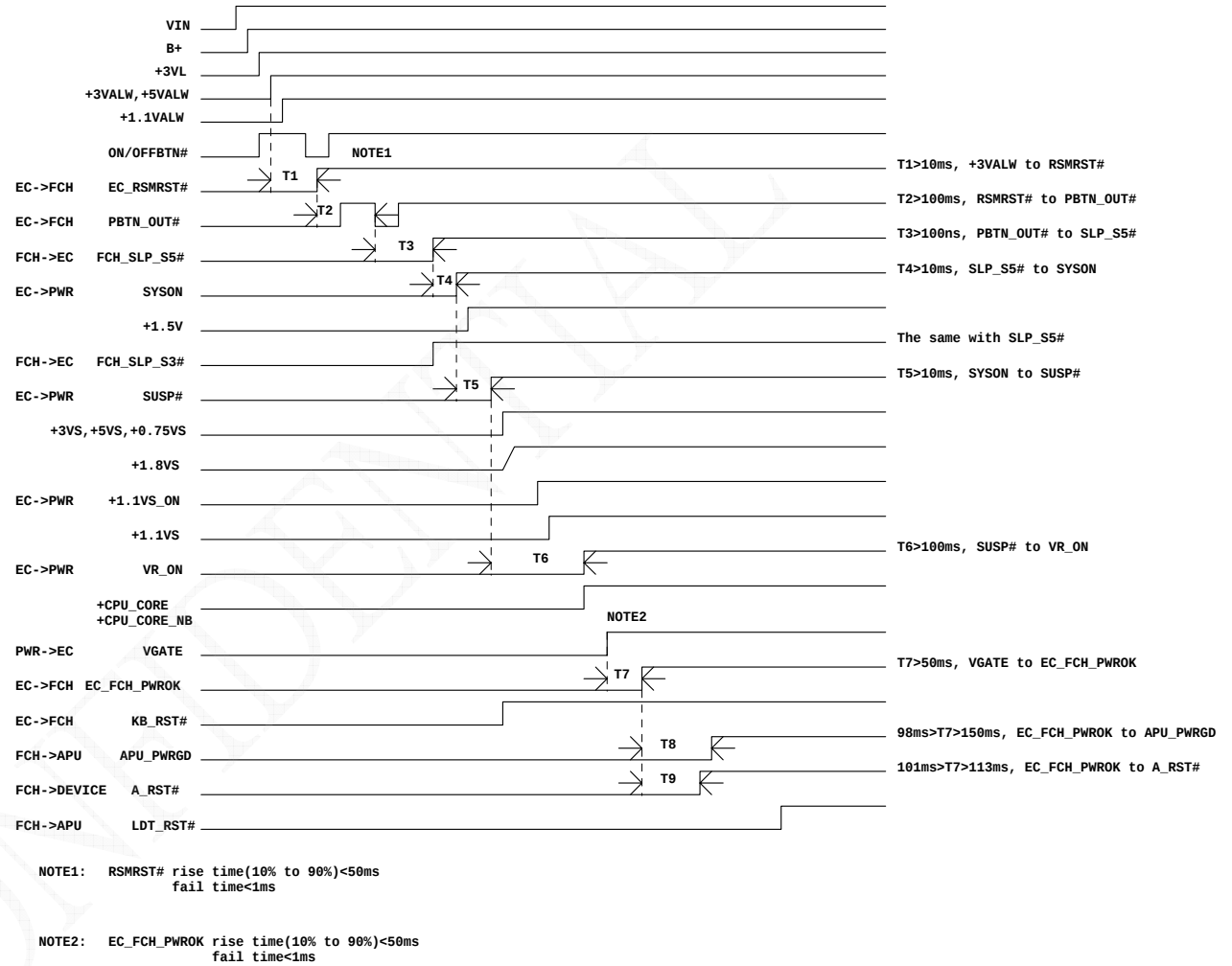
Device	HEX	Address
APU internal thermal sensor		1001 100X b

	SOURCE	POWER PLAN	HDMI	LVDS	CRT	FCH	CPU CORE	SDDIM I / II	WLAN	BATT	APU
TDP1_AUXP TDP1_AUXN	APU	+3VS	V								
LTDP0_AUXP LTDP1_AUXN	APU	+3VS		V +5VS							
DAC_SCL DAC_SDA	APU	+3VS			V +5VS						
SIC SID	APU	+3VS				V +3VALW					
SVC SVD	APU	+1.8VS					V				
SMB_FCH_CK0 SMB_FCH_DA0	FCH	+3VS						V			
SMB_FCH_CK1 SMB_FCH_DA1	FCH	+3VALW							V		
SMB_EC_CK1 SMB_EC_DA1	EC	+5VALW								V	
SMB_EC_CK2 SMB_EC_DA2	EC	+3VS									V

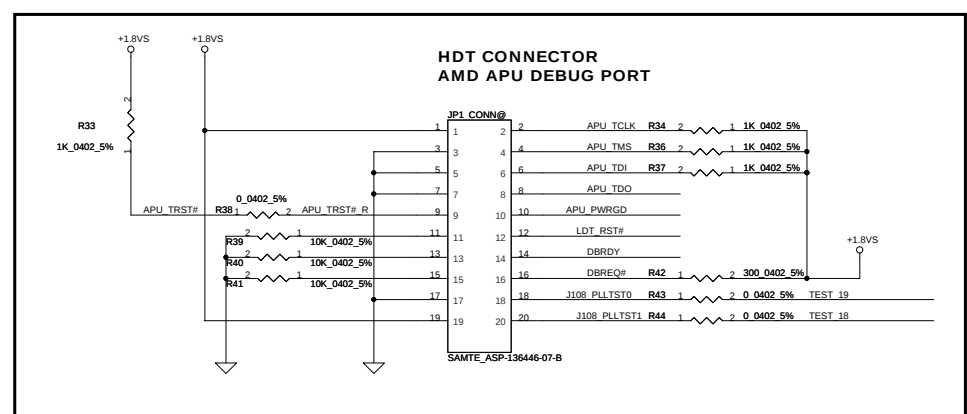
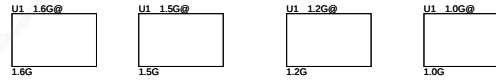
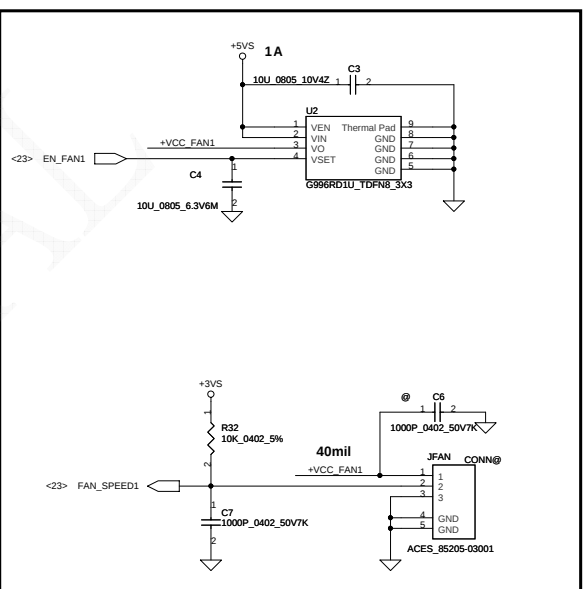
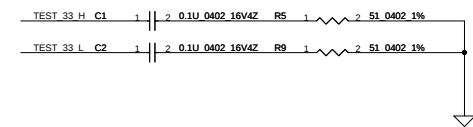
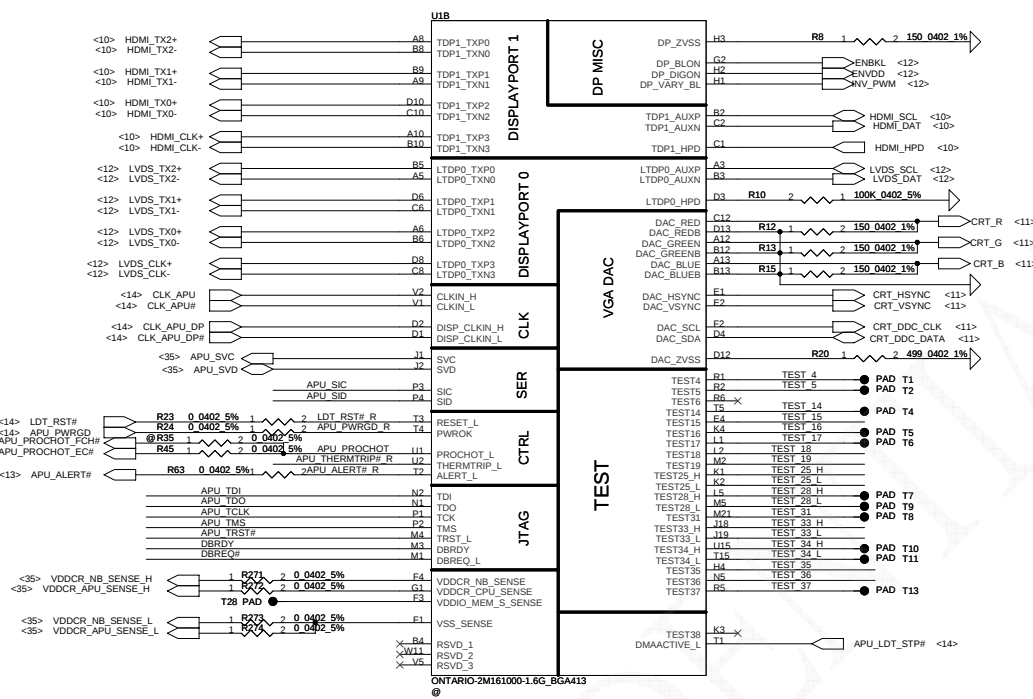
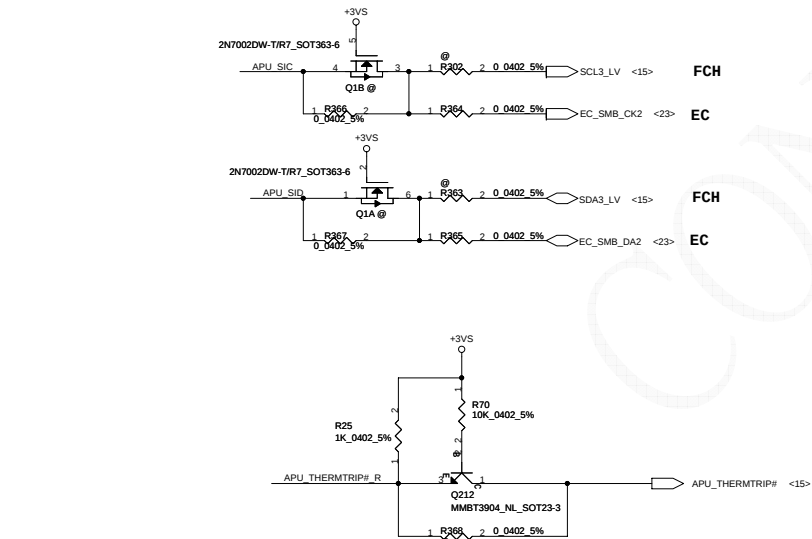
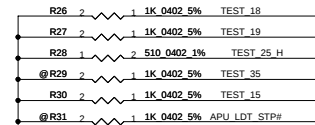
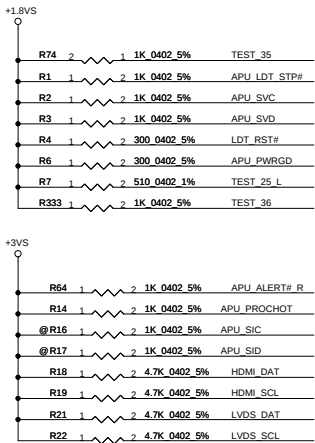
POWER MAP

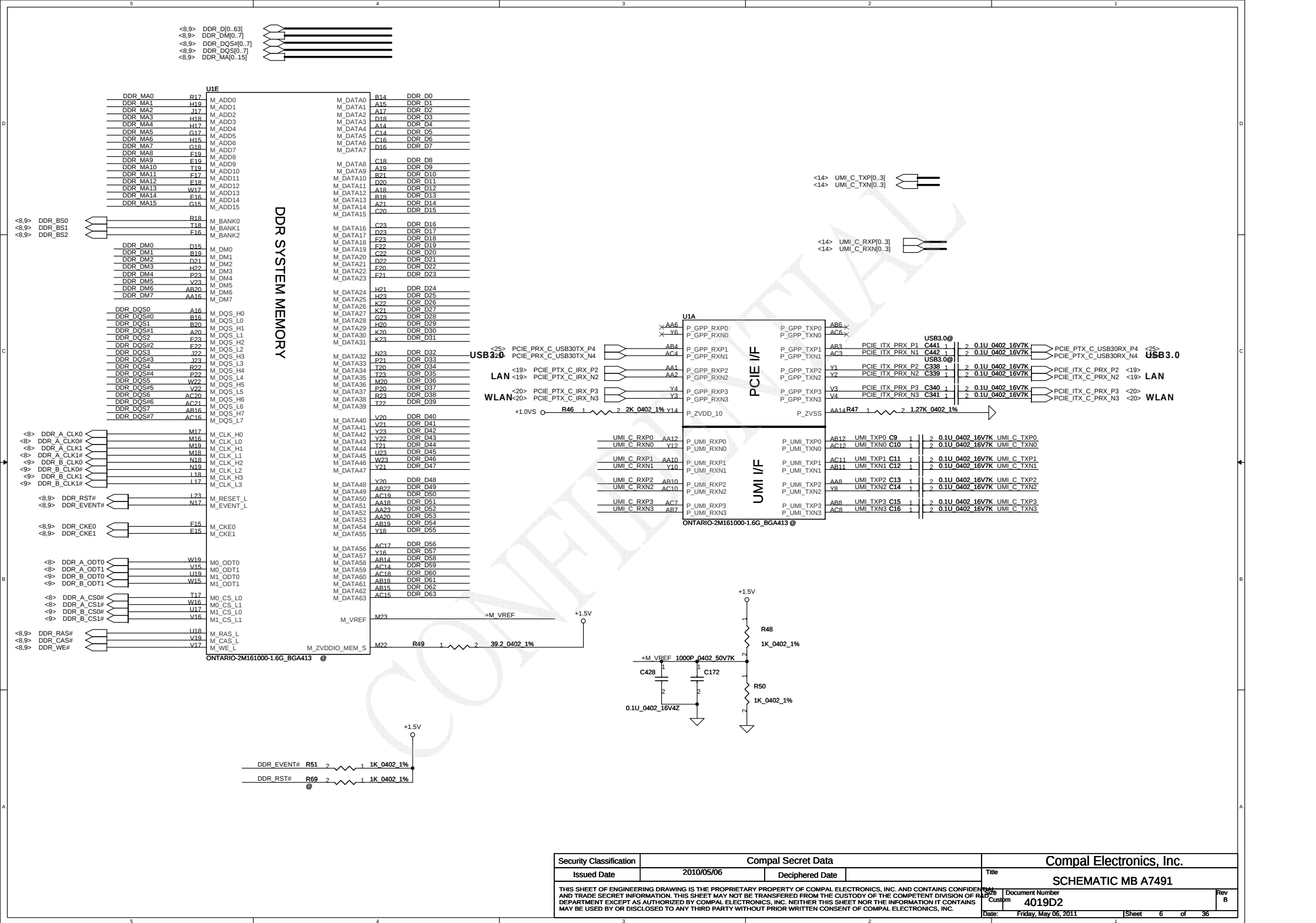


POWER SEQUENCE

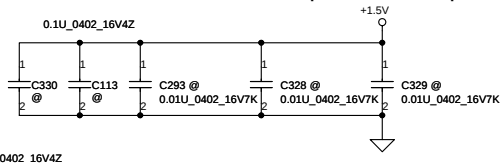
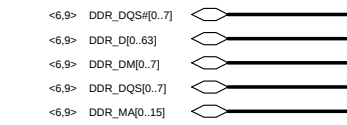


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DDR3 SO-DIMM A Standard Type

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<6,8> DDR_DQS#[0..7]

<6,8> DDR_D[0..63]

<6,8> DDR_DM[0..7]

<6,8> DDR_DQS[0..7]

<6,8> DDR_MA[0..15]

Layout Note:
Place near JP3

Layout Note: Place these 4 Caps near Command
and Control signals of DIMMA

change two 100U to one 220U
06 / 21

Layout Note:
Place near JP3.203 & JP3.204

	SA0	SA1
Compal common design	0	1
ADM CRB	1	0

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Issued Date

2010/05/06

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Title

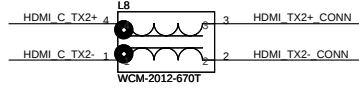
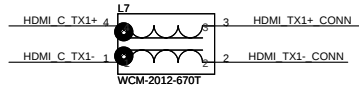
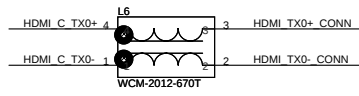
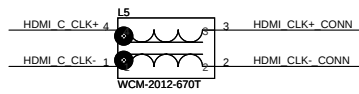
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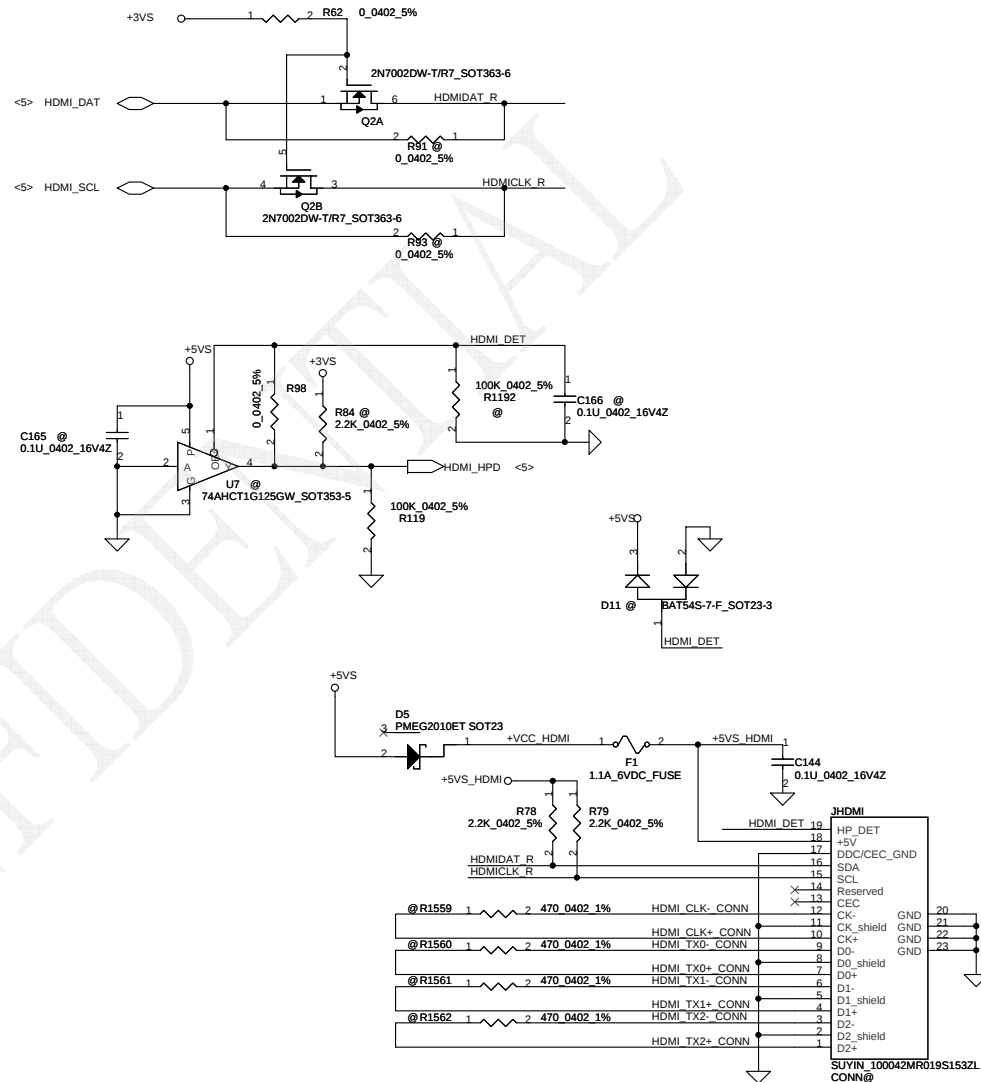
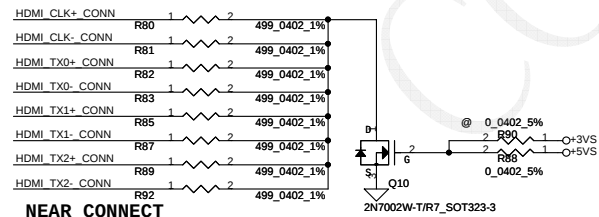
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<5> HDMI_CLK-	HDMI_CLK-	C136	1	2	0.1U 0402 16V7K	HDMI C_CLK-
<5> HDMI_CLK+	HDMI_CLK+	C137	1	2	0.1U 0402 16V7K	HDMI C_CLK+
<5> HDMI_TX2+	HDMI_TX2+	C138	1	2	0.1U 0402 16V7K	HDMI C_TX2+
<5> HDMI_TX2-	HDMI_TX2-	C139	1	2	0.1U 0402 16V7K	HDMI C_TX2-
<5> HDMI_TX1+	HDMI_TX1+	C140	1	2	0.1U 0402 16V7K	HDMI C_TX1+
<5> HDMI_TX1-	HDMI_TX1-	C141	1	2	0.1U 0402 16V7K	HDMI C_TX1-
<5> HDMI_TX0+	HDMI_TX0+	C142	1	2	0.1U 0402 16V7K	HDMI C_TX0+
<5> HDMI_TX0-	HDMI_TX0-	C143	1	2	0.1U 0402 16V7K	HDMI C_TX0-

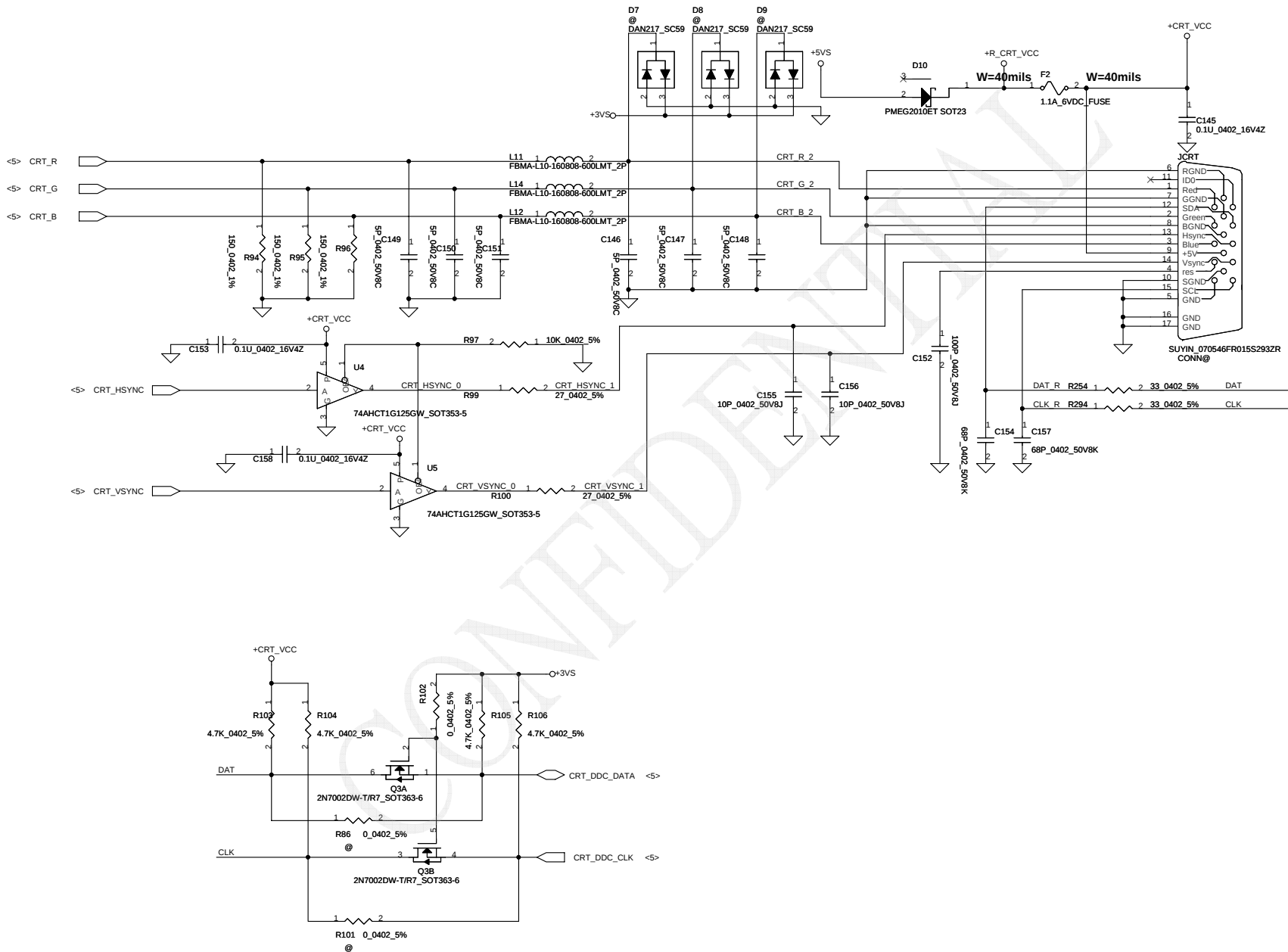


HDMI C_CLK+	@	R65	1	2	0.0402 5%	HDMI_CLK+ CONN
HDMI C_CLK-	@	R66	1	2	0.0402 5%	HDMI_CLK- CONN
HDMI C_TX0+	@	R67	1	2	0.0402 5%	HDMI_TX0+ CONN
HDMI C_TX0-	@	R68	1	2	0.0402 5%	HDMI_TX0- CONN
HDMI C_TX1+	@	R71	1	2	0.0402 5%	HDMI_TX1+ CONN
HDMI C_TX1-	@	R72	1	2	0.0402 5%	HDMI_TX1- CONN
HDMI C_TX2+	@	R73	1	2	0.0402 5%	HDMI_TX2+ CONN
HDMI C_TX2-	@	R75	1	2	0.0402 5%	HDMI_TX2- CONN



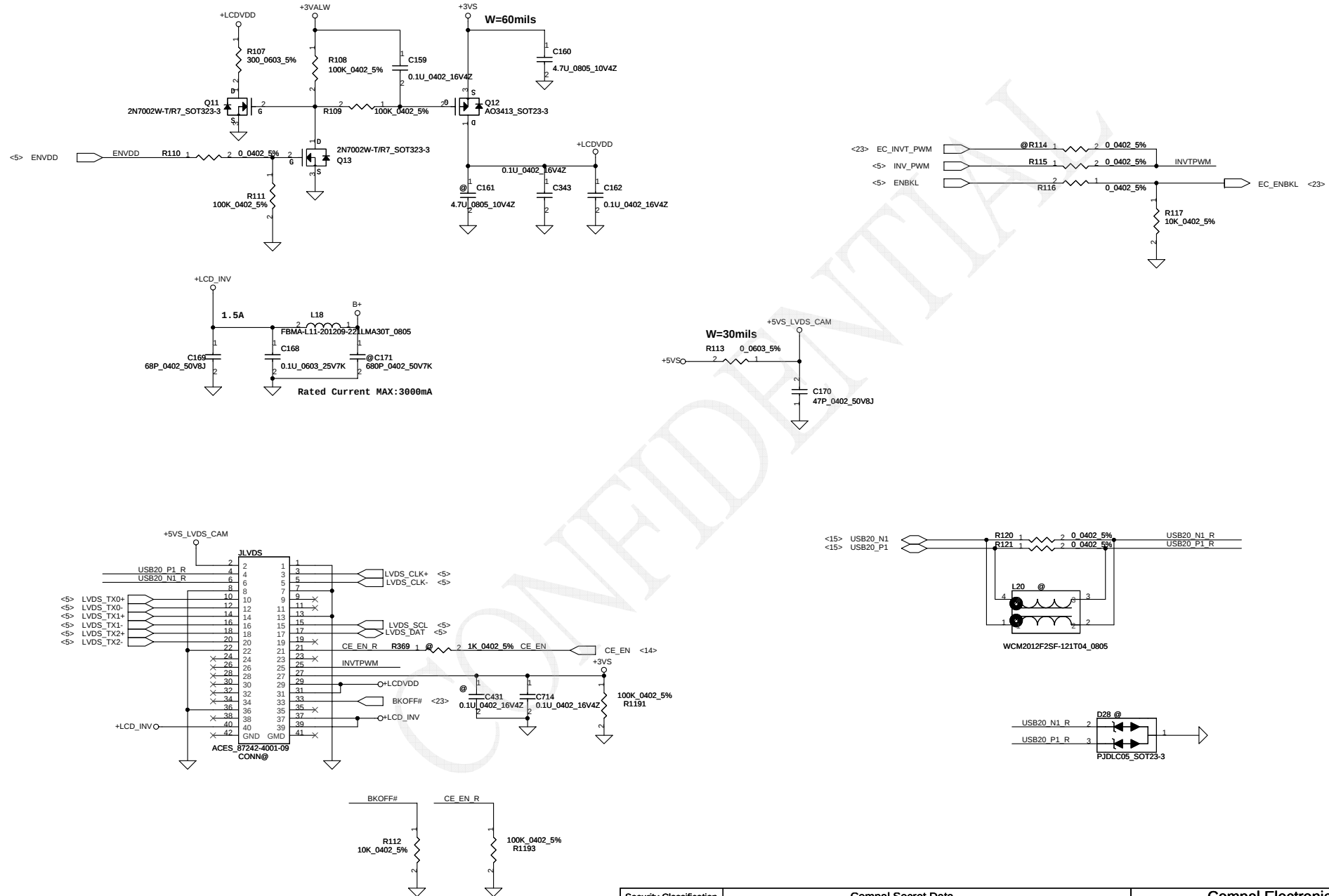
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CRT Connector

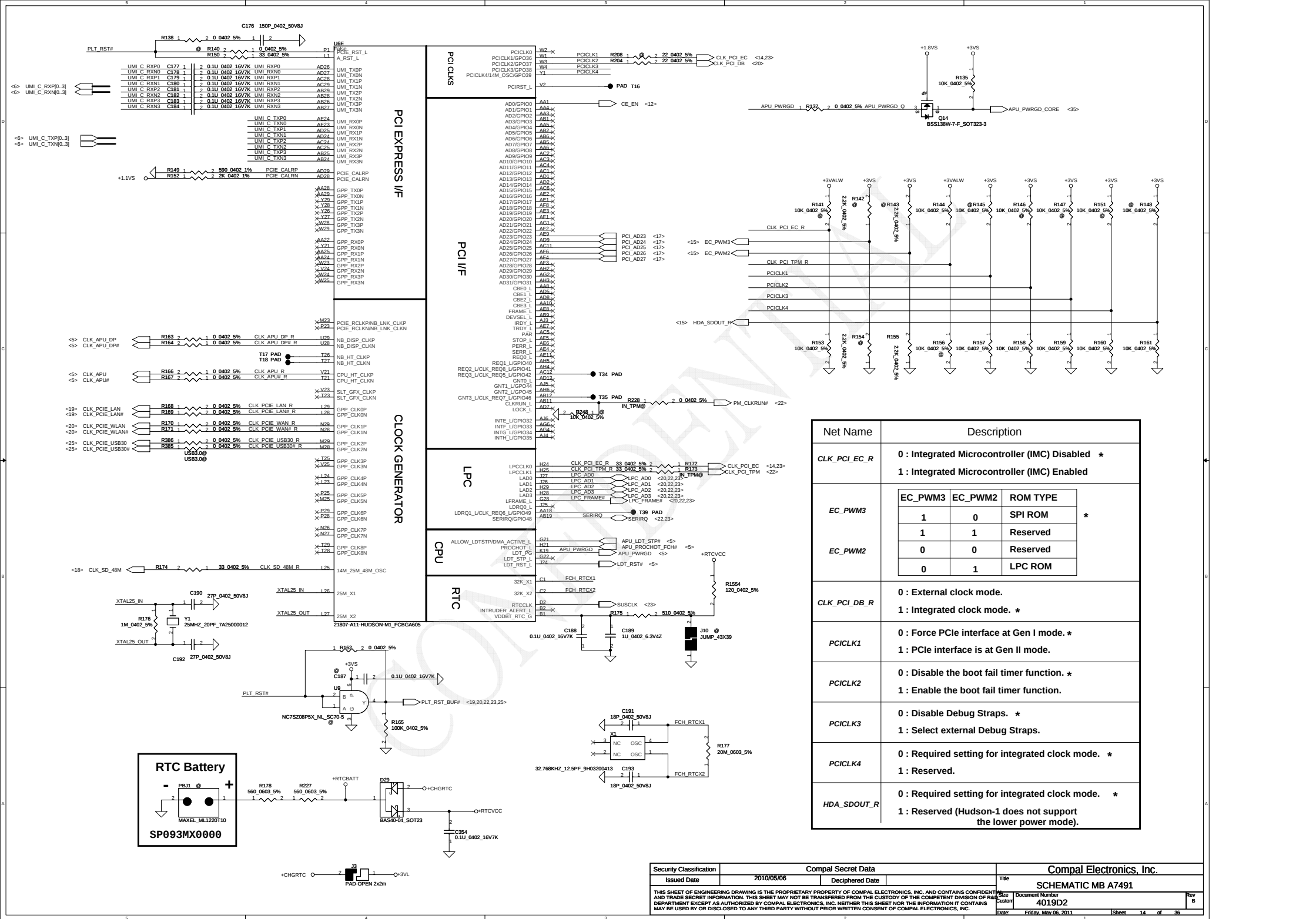


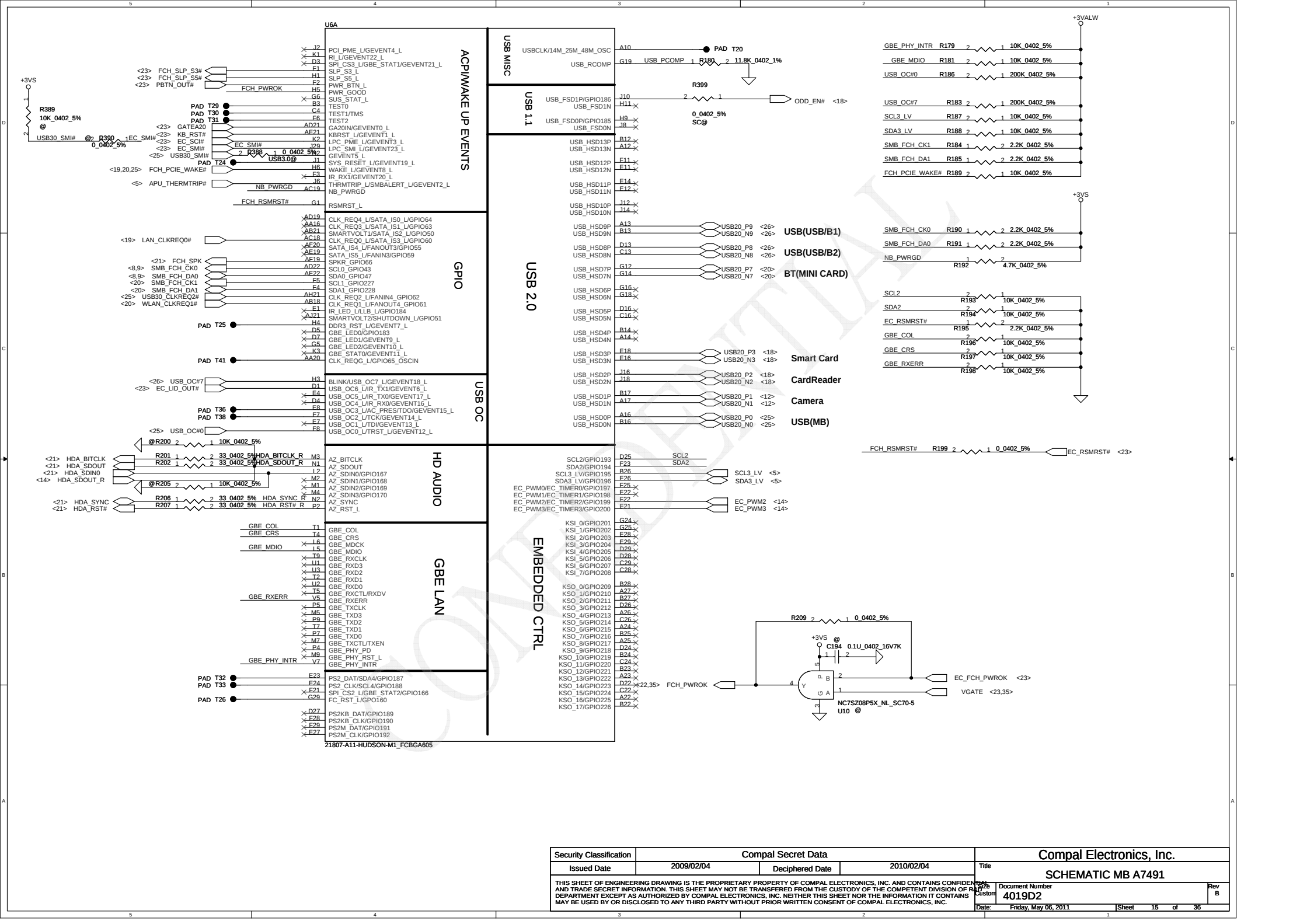
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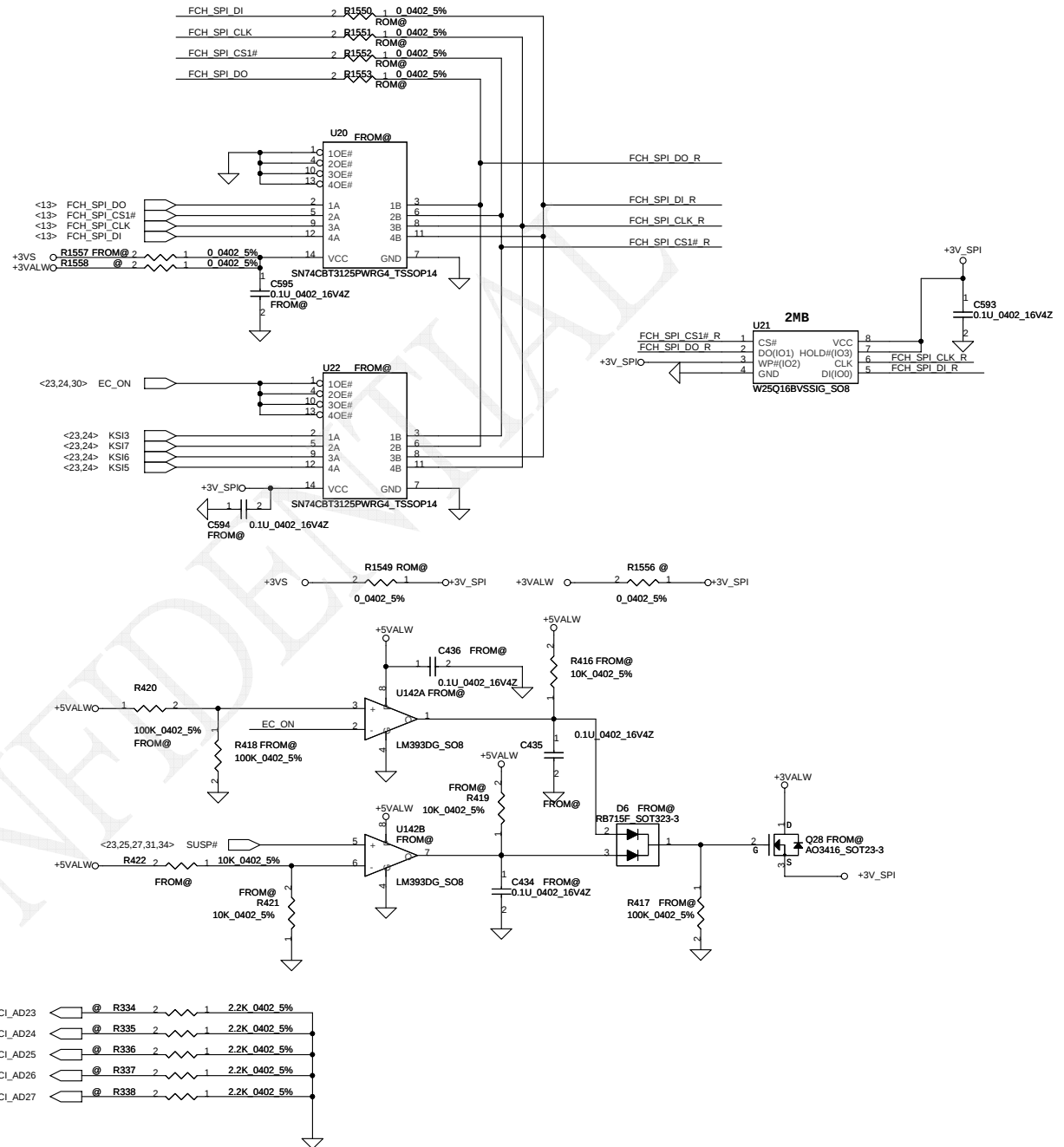
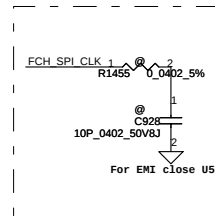
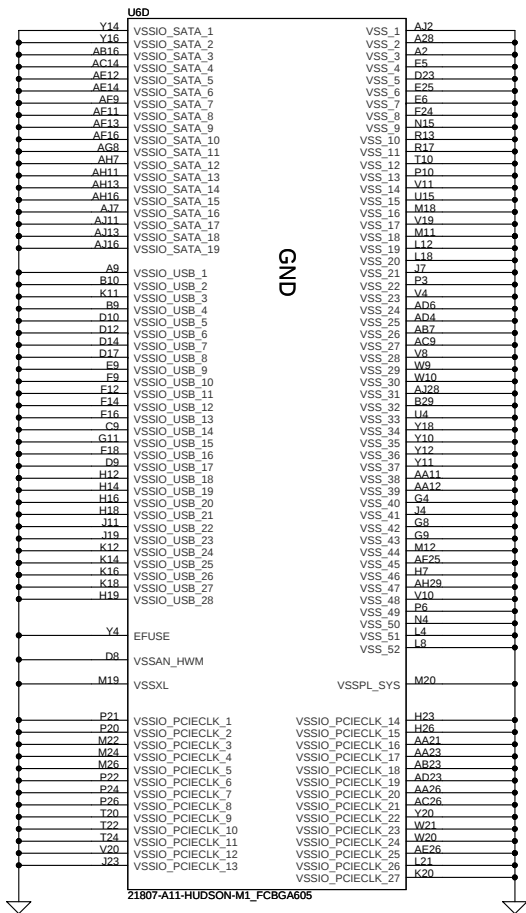
LCD POWER CIRCUIT



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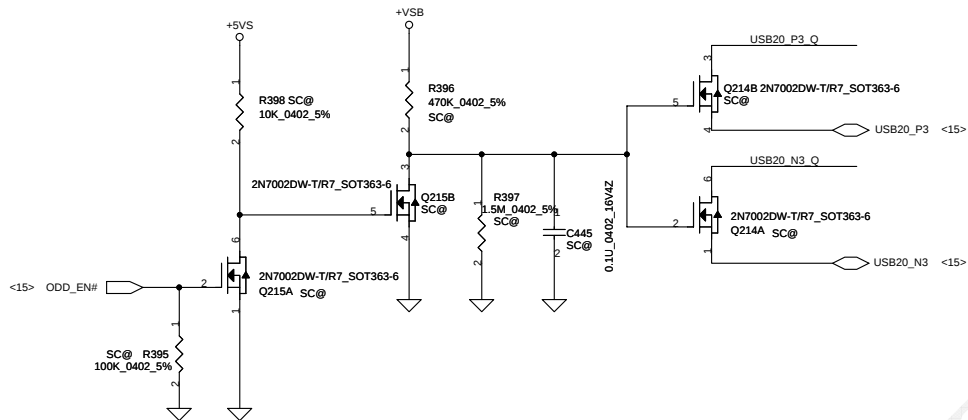
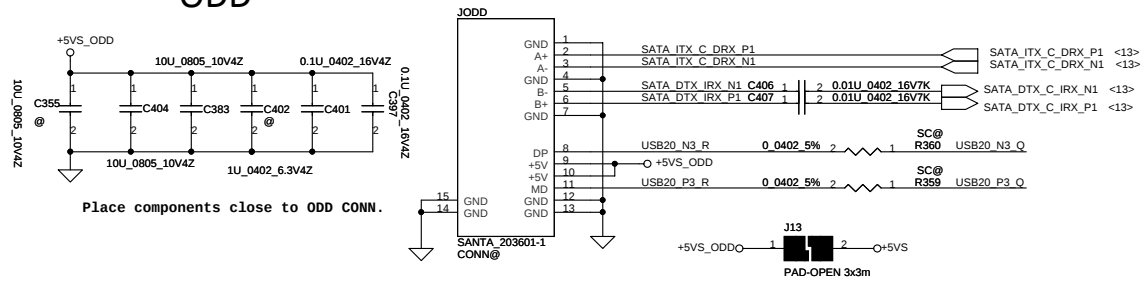




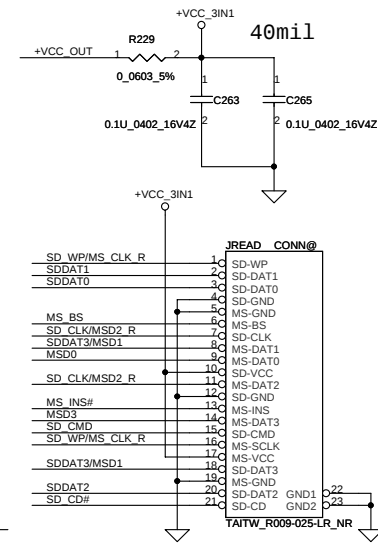
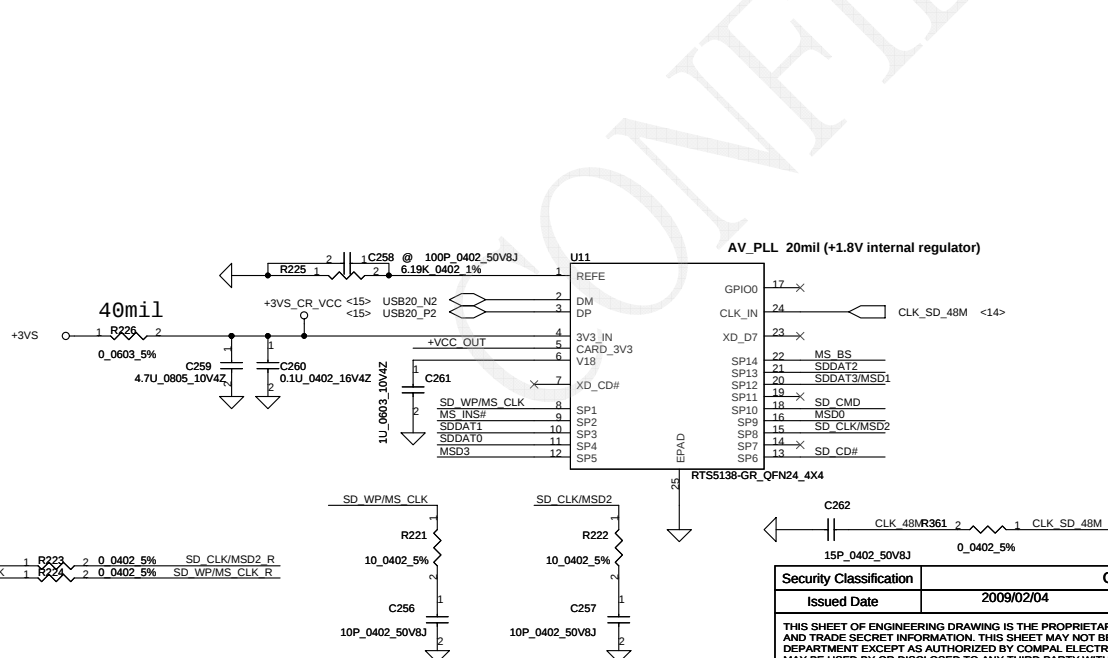
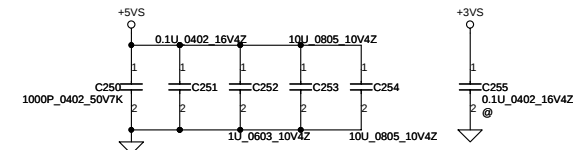
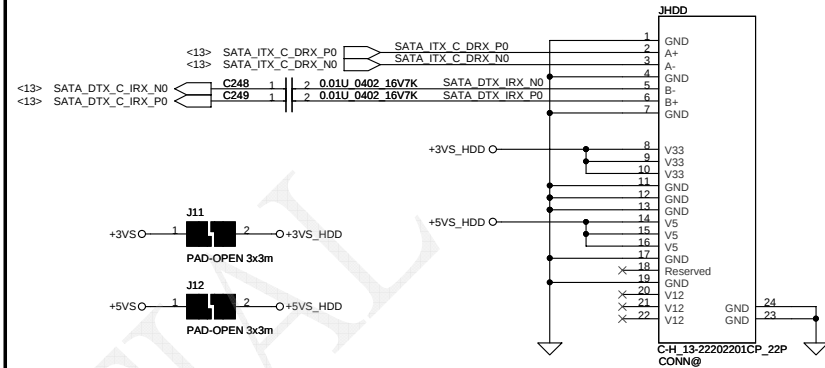
Net Name	Description
PCI_AD27	0 : Bypass internal PLL clock 1 : Use internal PLL-generated PLL CLK *
PCI_AD26	0 : ILA auto run enable 1 : ILA auto run disable *
PCI_AD25	0 : Bypass internal FC Clk 1 : Use internal PLL FC Clk * NEED CHECK
PCI_AD24	0 : Getting the value from I2C EPROM 1 : Disable I2C ROM * NEED CHECK
PCI_AD23	0 : Reserved 1 : Required setting (use ROMTYPE straps to determine the ROM type) *

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ODD



HDD



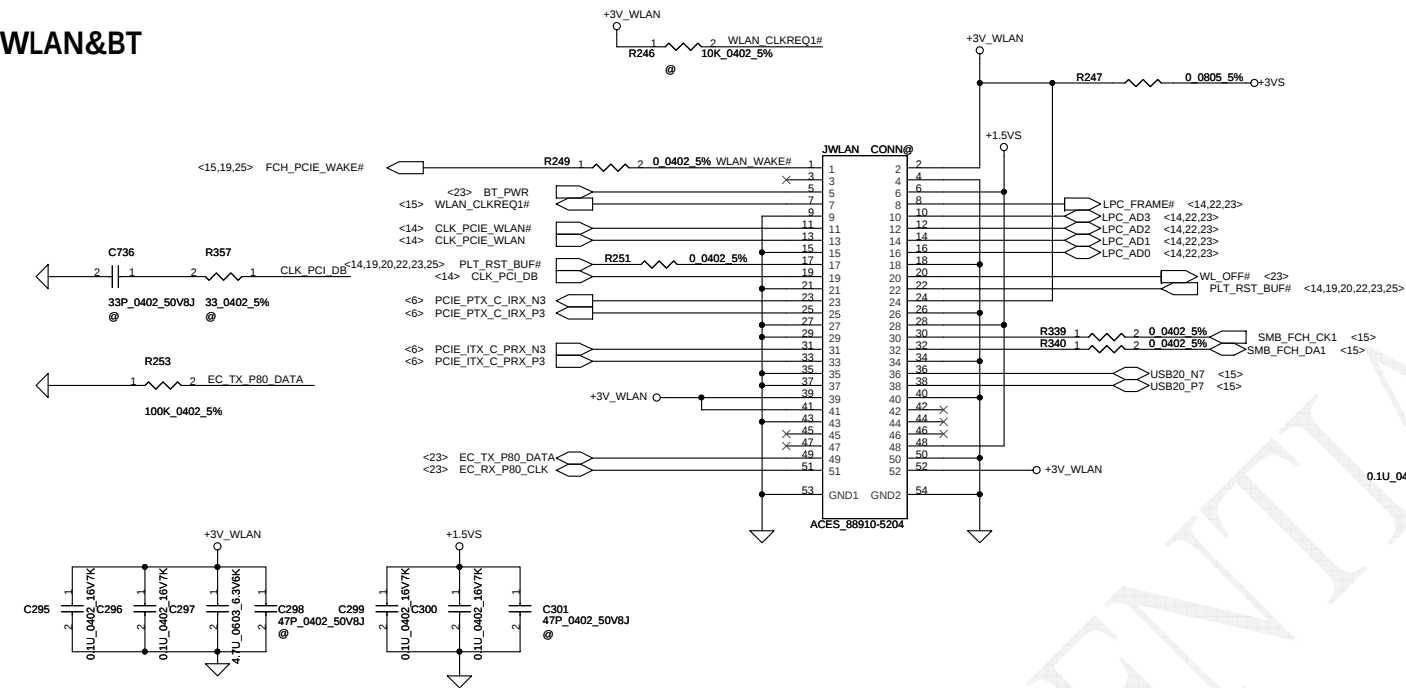
SD,MMC,MS muti-function pin define

MD10	SD Card	MMC Card	MS Card
PIN Name	PIN Name	PIN Name	PIN Name
SP1	SP1		SP1
SP2			
SP3			
SP4			
SP5			
SP6			
SP7			
SP8			
SP9			
SP10			
SP11			
SP12			
SP13			
SP14			
SP15			
SP16			
SP17			
SP18			
SP19			

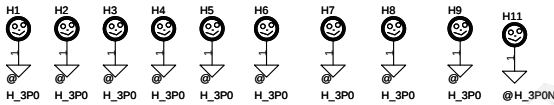
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WLAN&BT



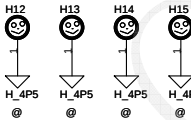
Screw Hole



NPTH



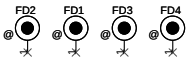
CPU



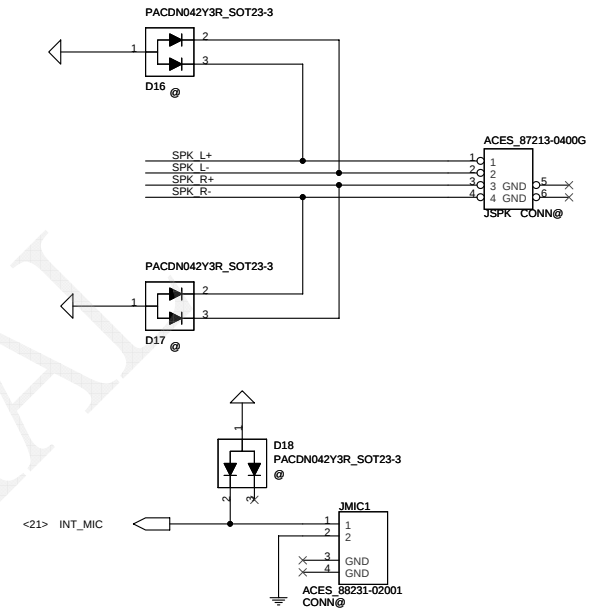
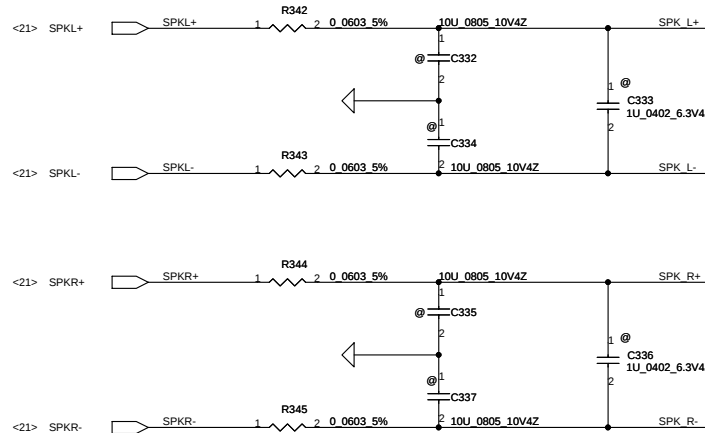
JWLAN



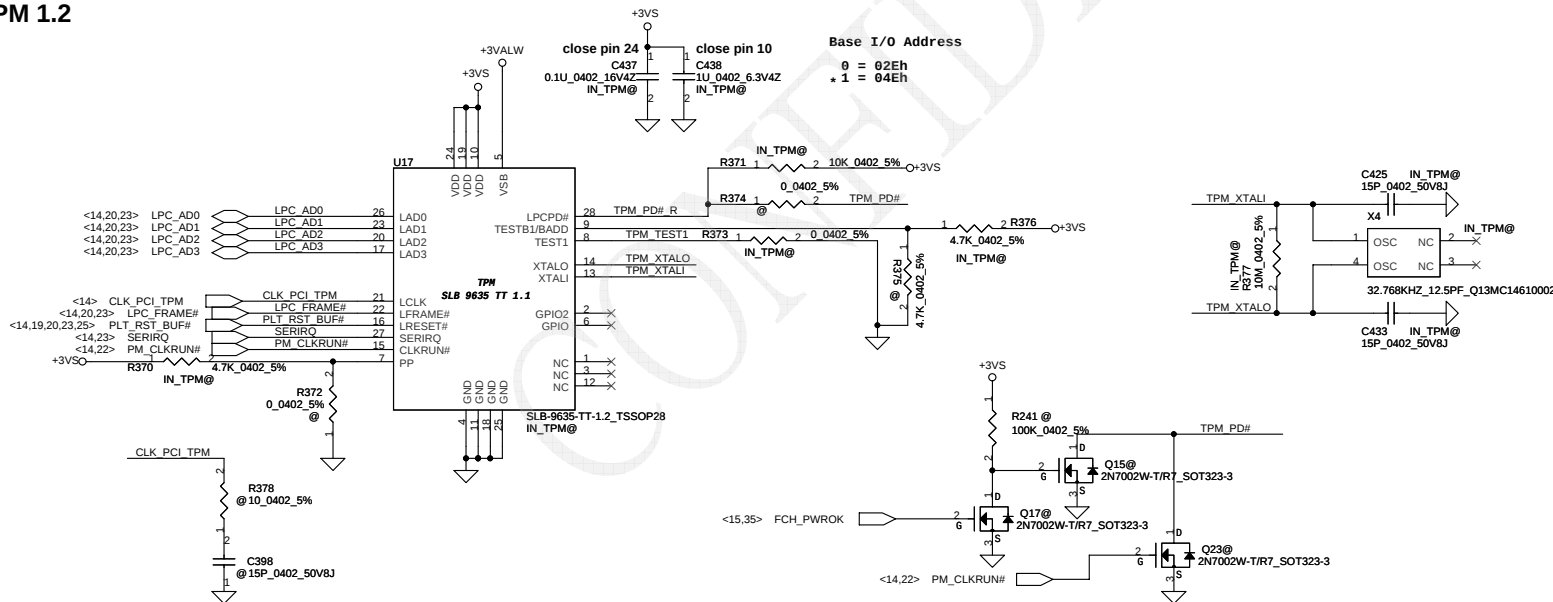
PCB Fedical Mark PAD



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TPM 1.2



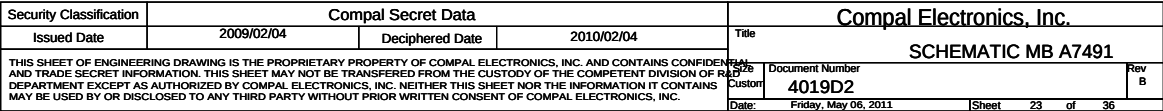
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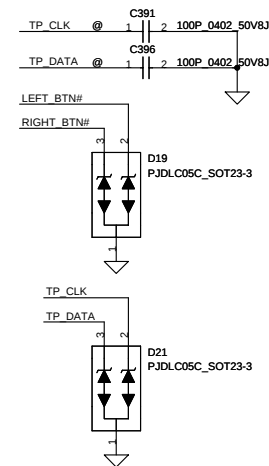
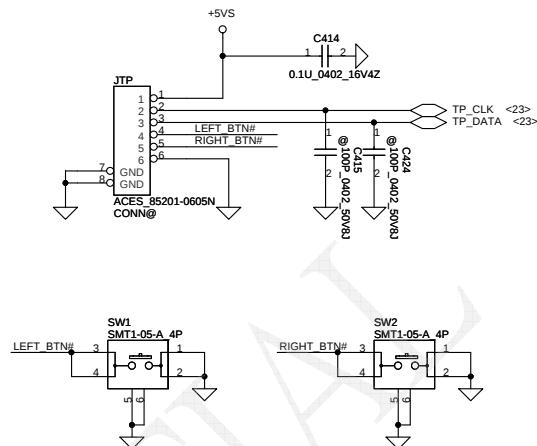
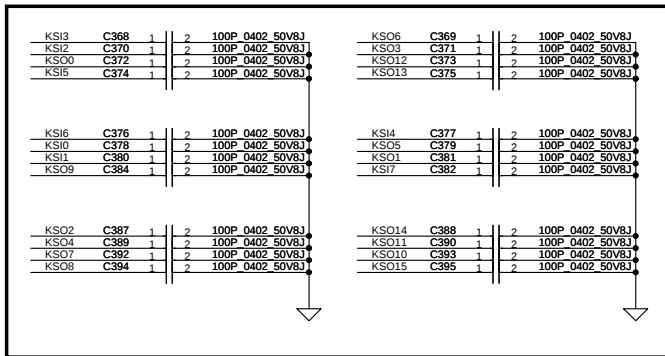
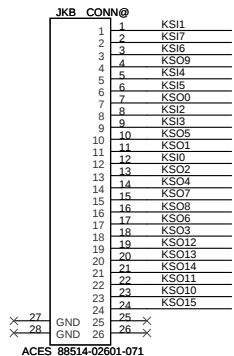
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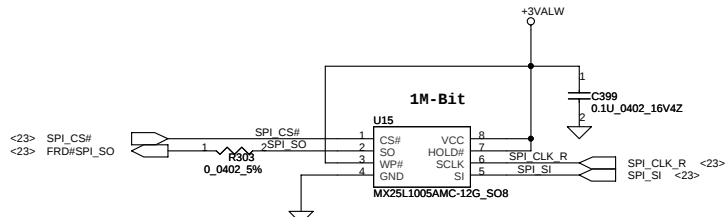
INT_KBD Conn.

KS[0..7] KS[0..7] <17,23>
KSO[0..15] KSO[0..15] <23>

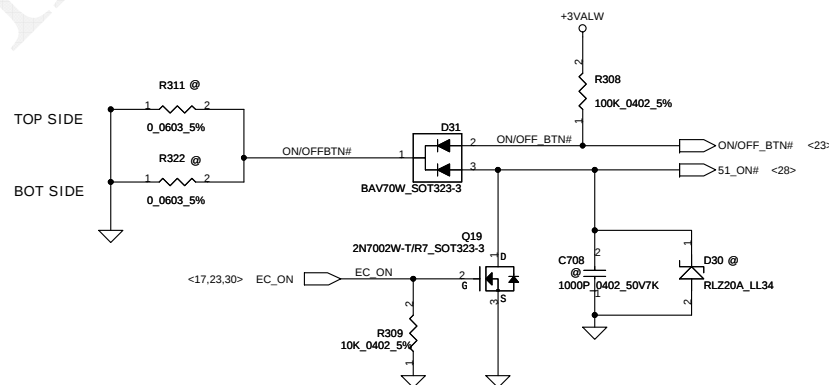
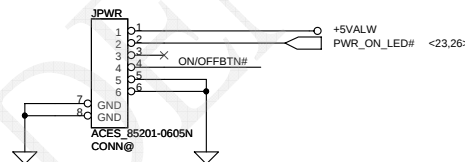


EC ROM

SPI_CLK_R 1 2 0.0402_5% R304 22P_0402_50V8J

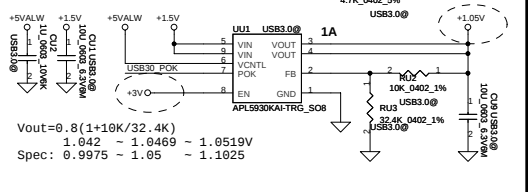


Power BTN Board Conn

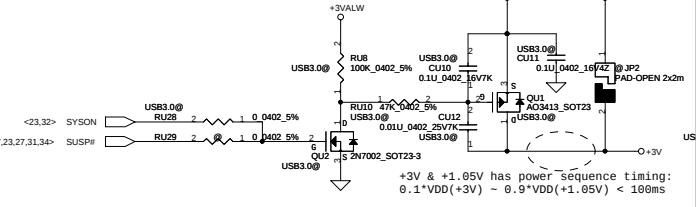


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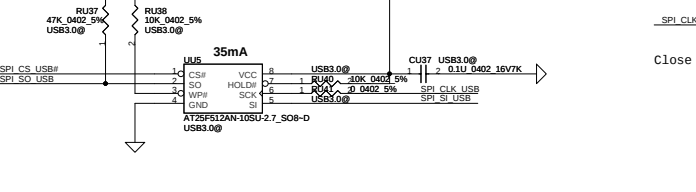
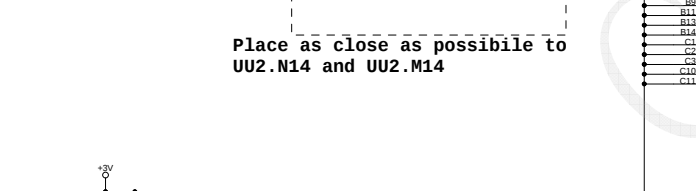
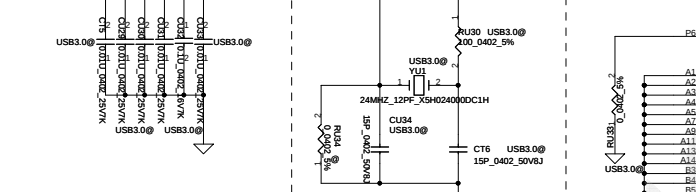
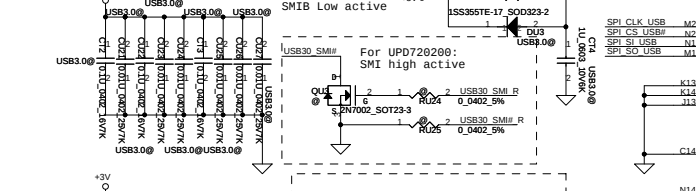
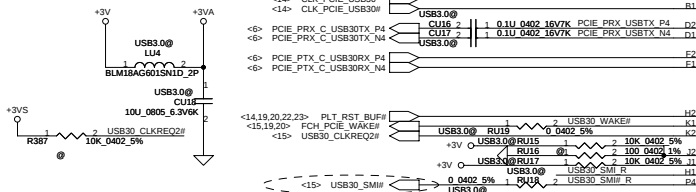
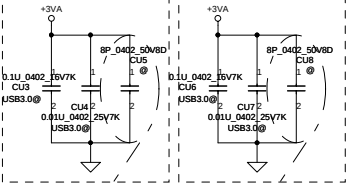
+1.5V to +1.05V Transfer



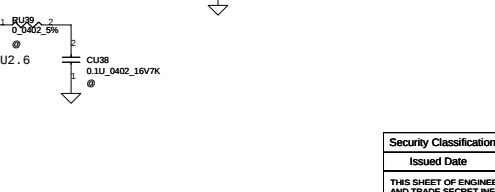
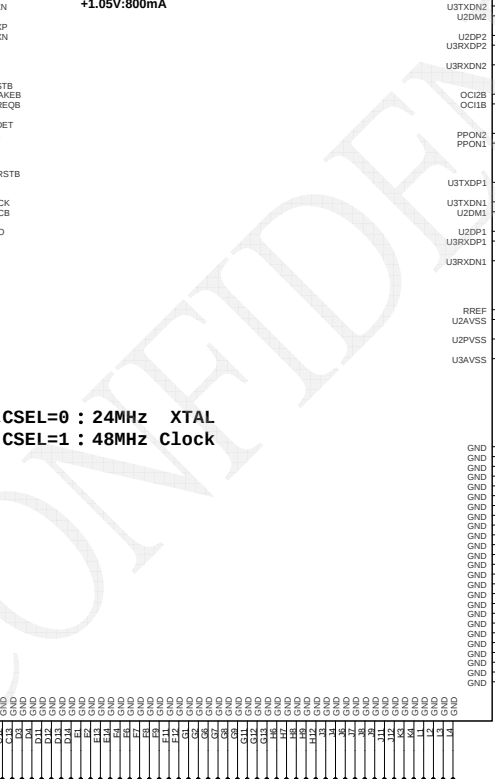
+3VALW to +3V Transfer



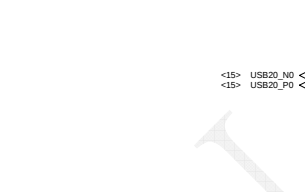
Close to U102.D7 Close to U102.P13



+3V:200mA +1.05V:800mA



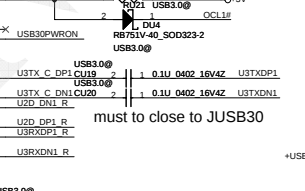
2.5A



W=60mils



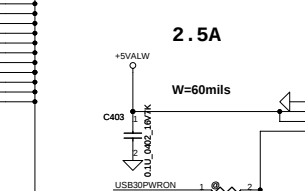
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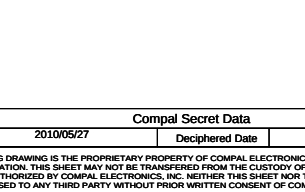
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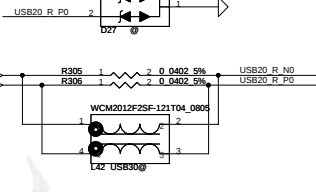
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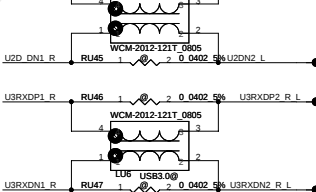
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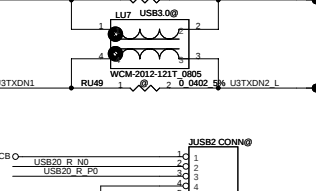
2.5A



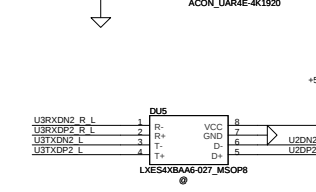
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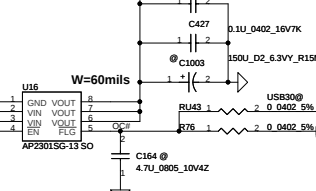
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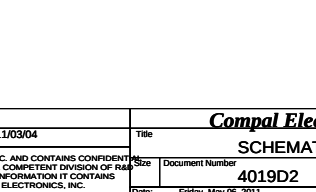
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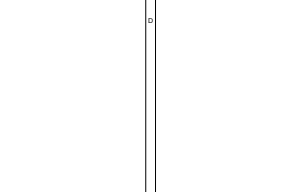
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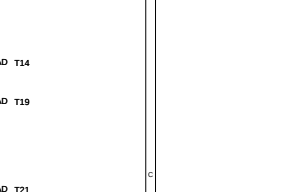
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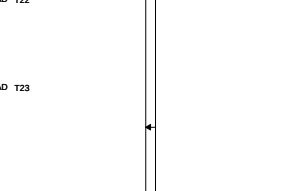
2.5A



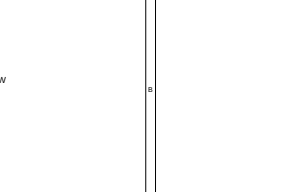
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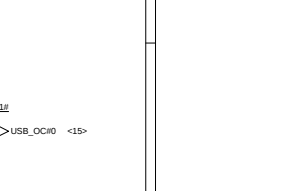
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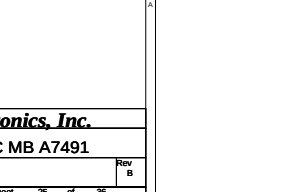
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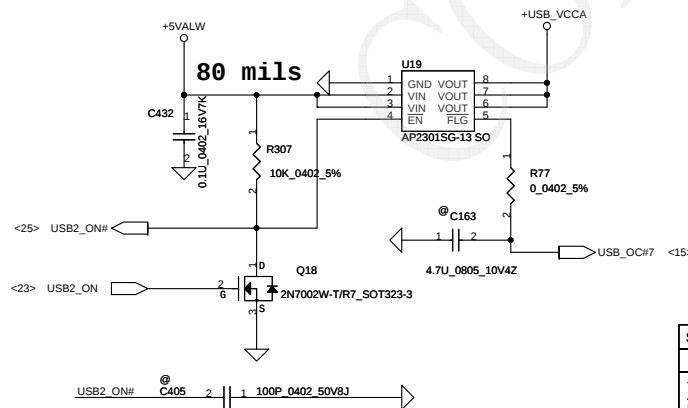
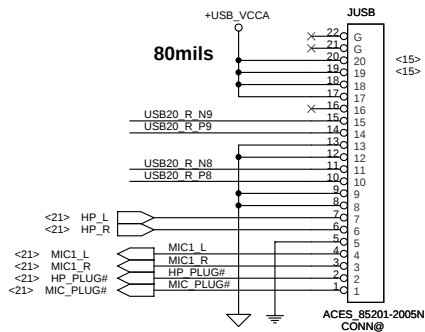
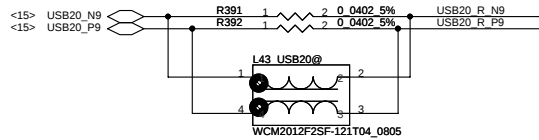
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W=60mils

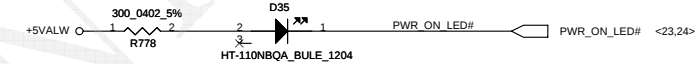


USB/B Conn



LEDs

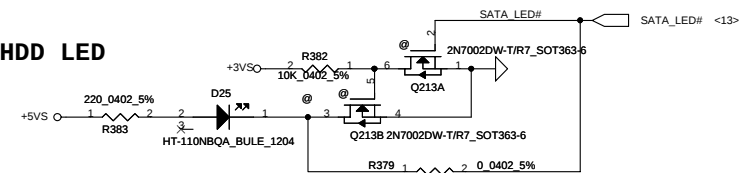
Power on LED



WL&BT LED



HDD LED



BATT LED

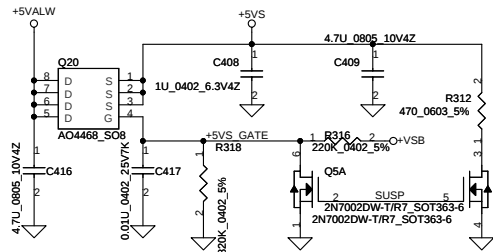


CAP LOCK LED

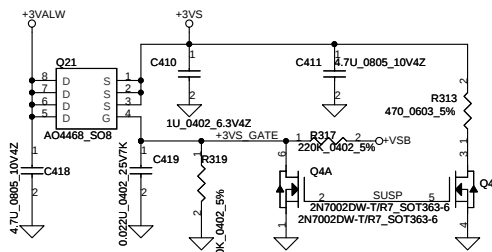


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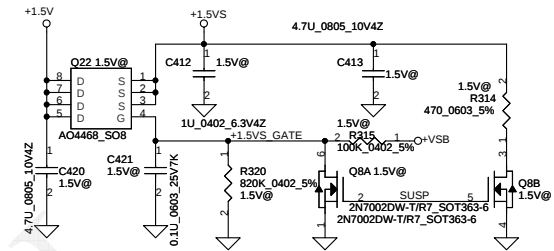
+5VALW TO +5VS



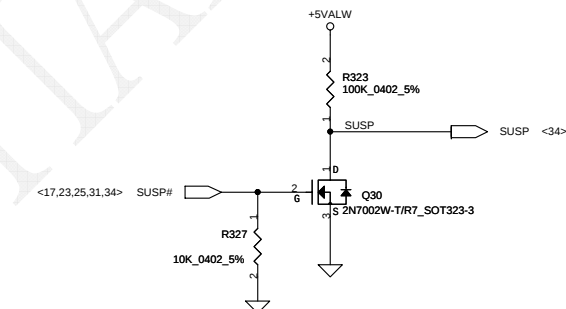
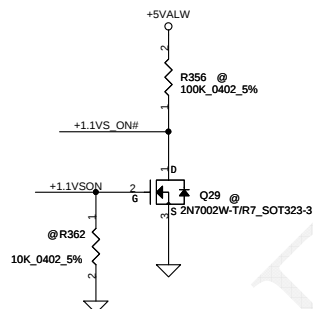
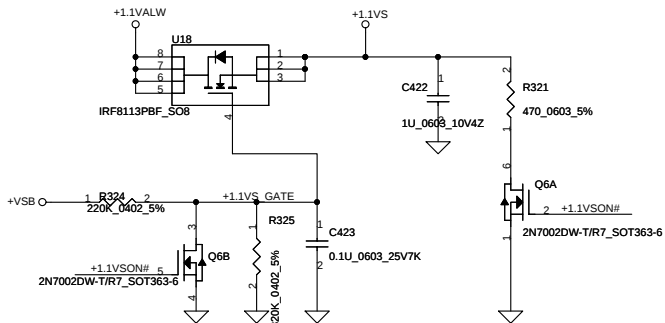
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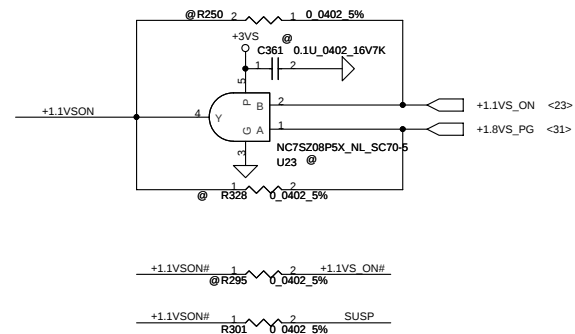
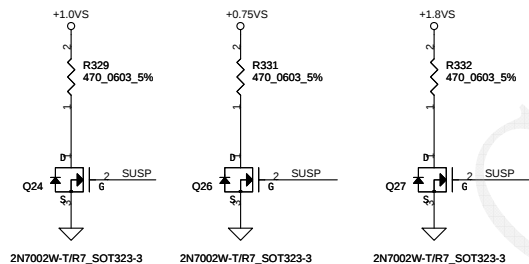
+1.5V TO +1.5VS



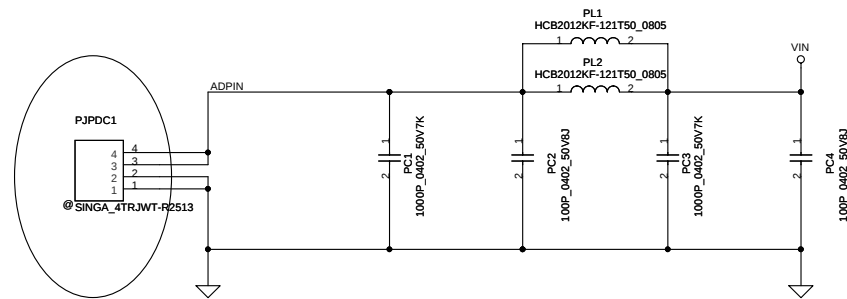
+1.1VALW TO +1.1VS



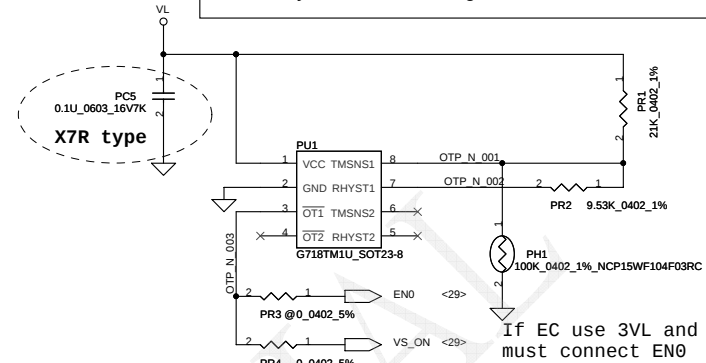
DISCHARGE



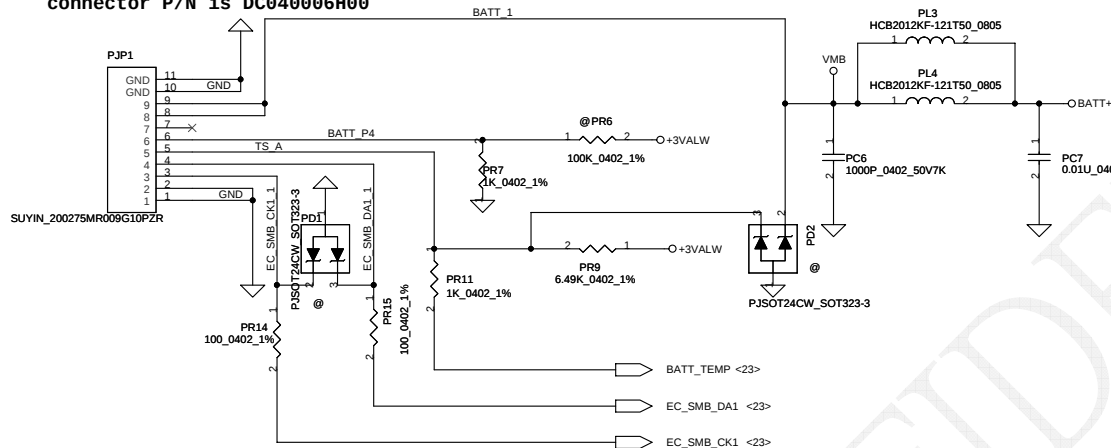
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PH1 under CPU bottom side :
CPU thermal protection at 93 +-3 degree C
Recovery at 56 +-3 degree C

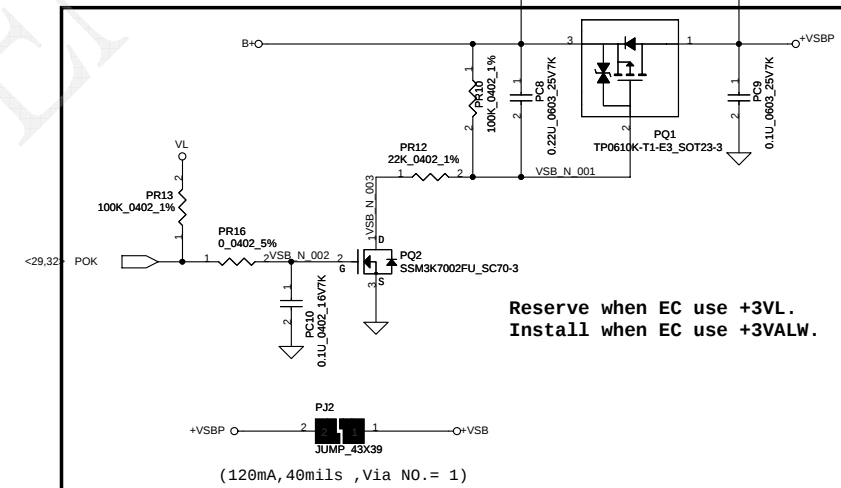


need confirm: ME give us battery
connector P/N is DC040006H00

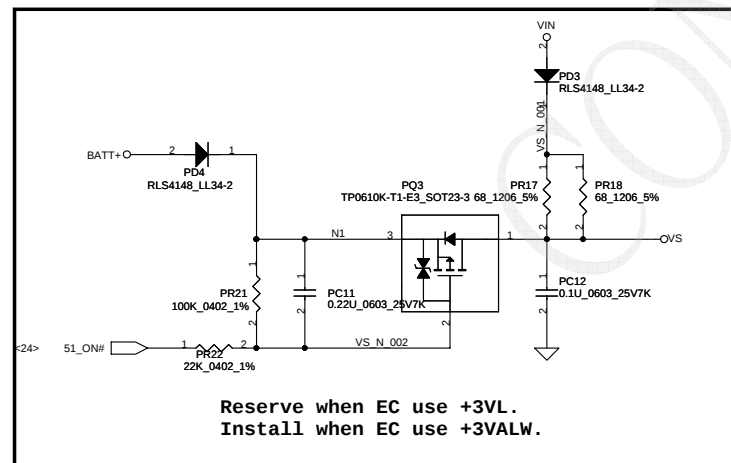


Install when EC use +3VL
and SUSP was Pull high to +3VL.

Reserve when EC use +3VALW.

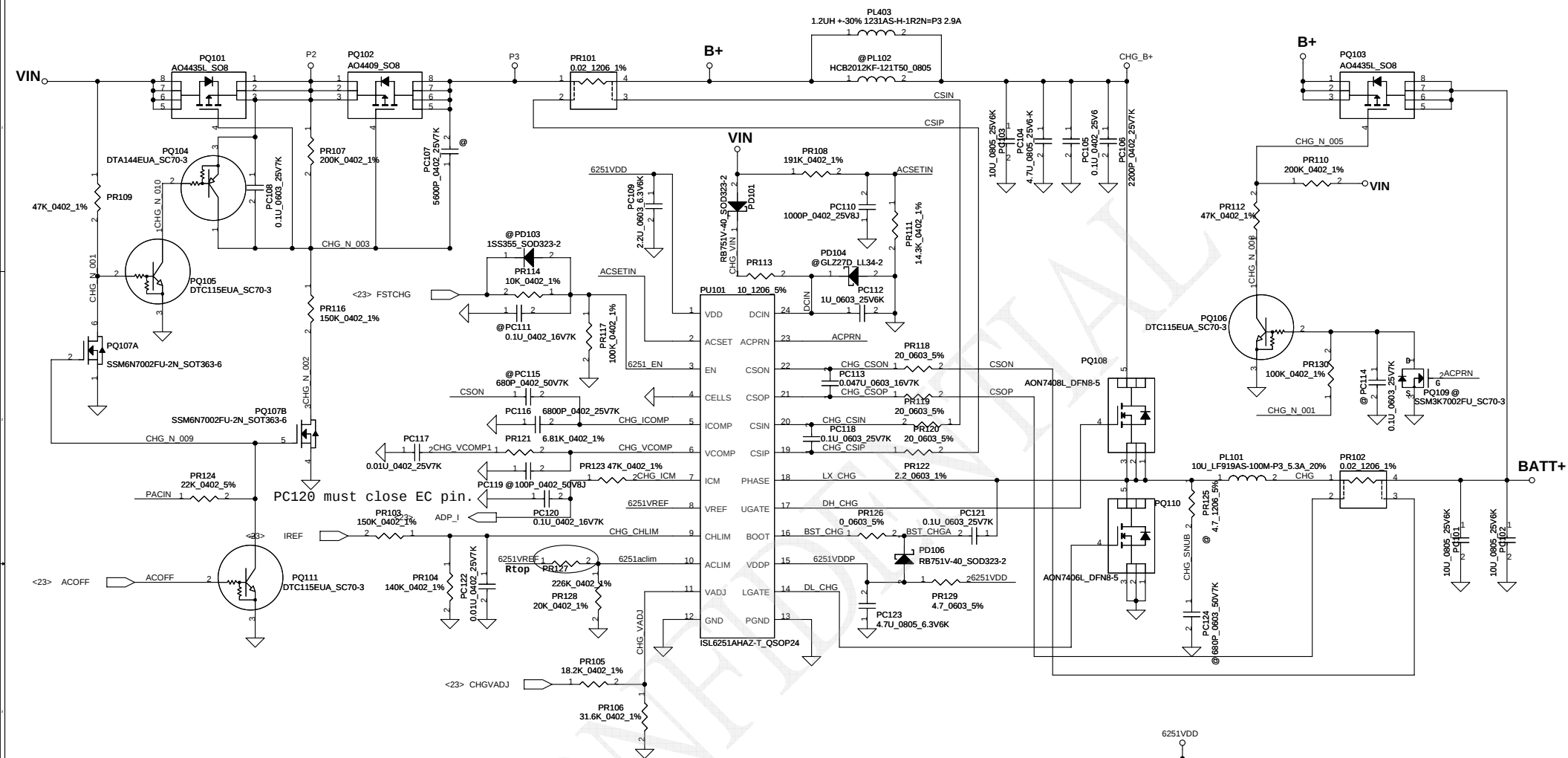


Reserve when EC use +3VL.
Install when EC use +3VALW.



Reserve when EC use +3VL.
Install when EC use +3VALW.

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$$CP = 85\% \cdot I_{ada};$$

$$I_{ada} = 0.3 \cdot 4.21A (65W); CP = 2.91A;$$

$$CP \text{ mode}$$

$$V_{acim} = V_{REF} \cdot (R_{bot} / R_{internal} / (R_{top} / R_{internal} + R_{bot} / R_{internal}))$$

$$65W \text{ } V_{acim} = 2.39 \cdot (20K / 152K / (20K / 152K + 226K / 152K)) = 0.38914V$$

$$I_{input} = (1 / R_{adct}) \cdot ((0.05 \cdot V_{acim} / V_{REF} + 0.05))$$

$$65W, I_{input} = (1 / 0.02) \cdot (0.05 \cdot 0.38914 / 2.39 + 0.05) = 2.92A$$

$$CC = 0.25A \sim 3A$$

$$I_{REF} = 1.016 \cdot I_{charge}$$

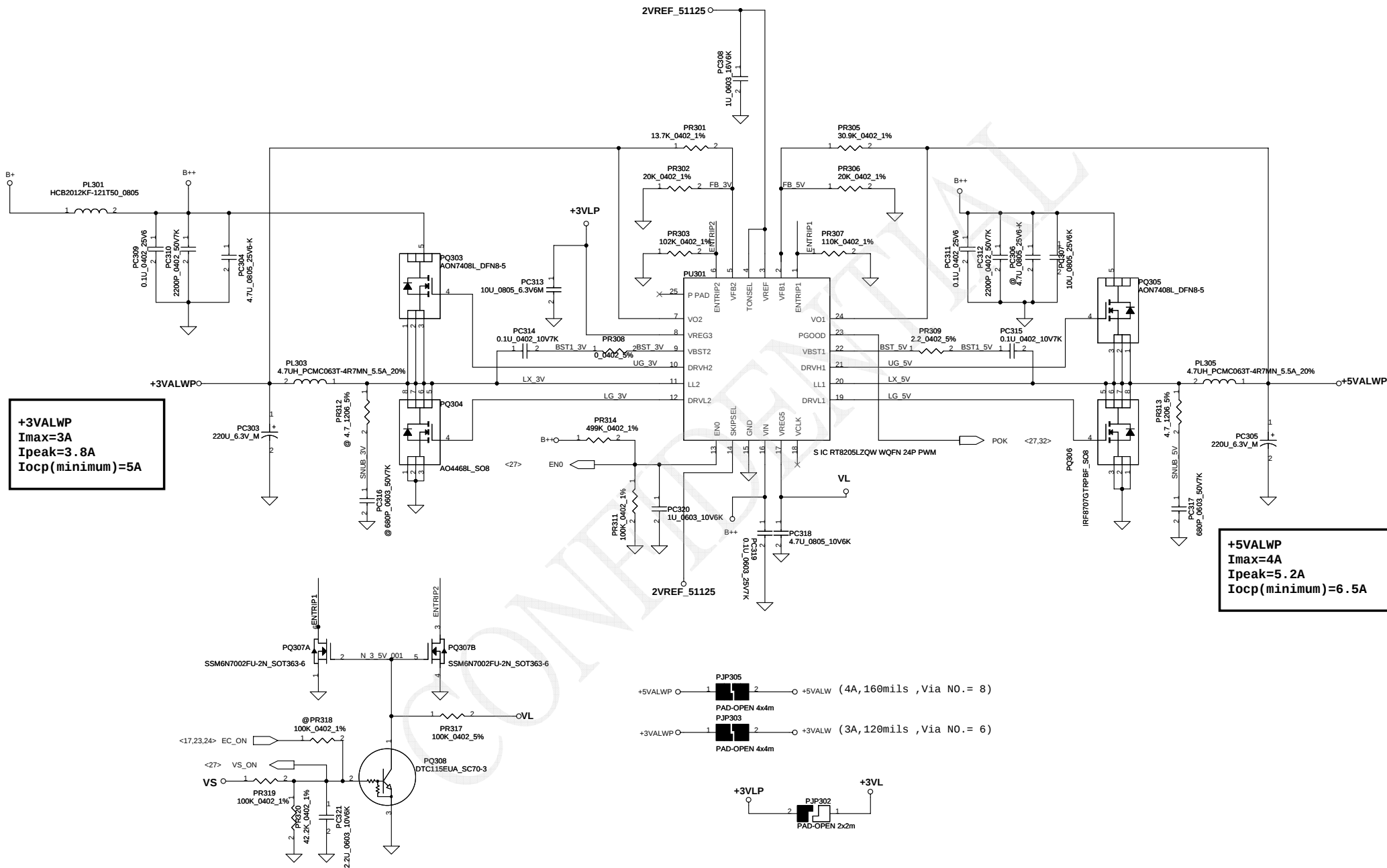
$$I_{REF} = 0.254V \sim 3.048V$$

$$V_{CHLIM} \text{ need over } 95mV$$

$$CHGVADJ = (V_{cell} - 4) / 0.10627$$

V _{cell}	CHGVADJ
4V	0V
4.2V	1.882V

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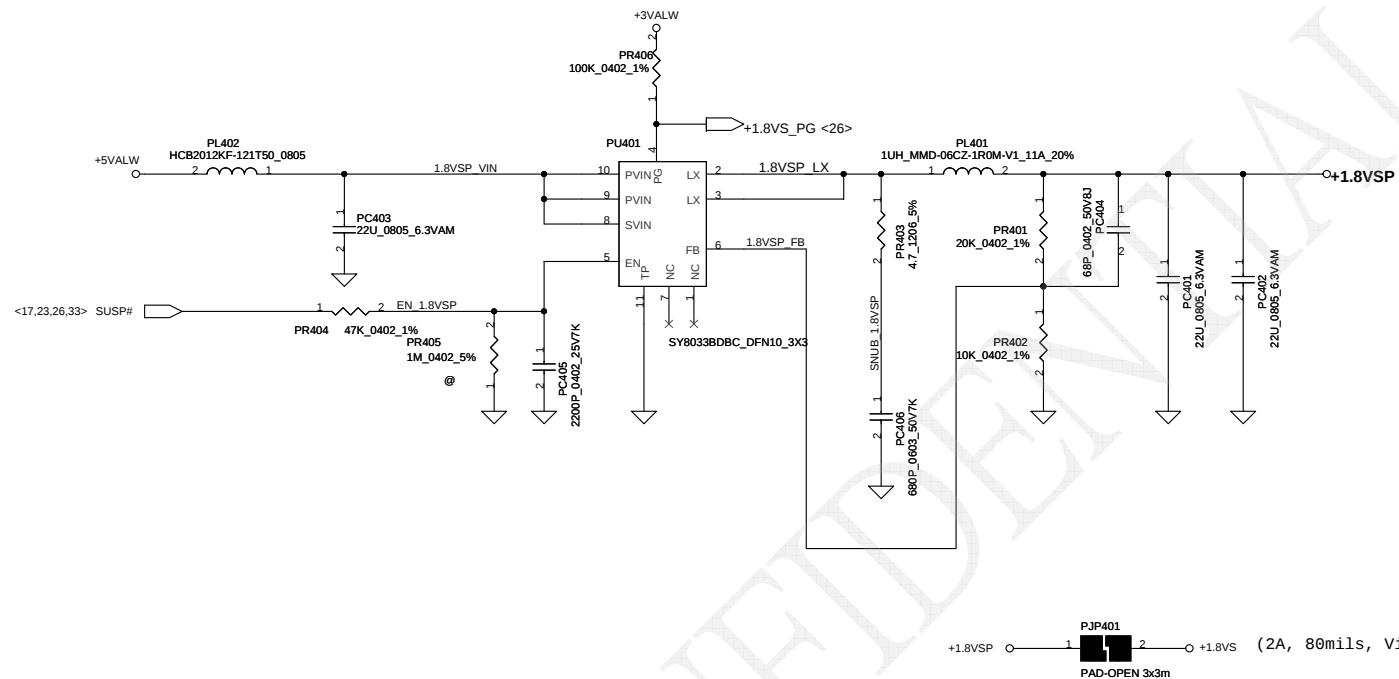


+3VALWP
 $I_{max}=3A$
 $I_{peak}=3.8A$
 $I_{ocp(minimum)}=5A$

+5VALWP
 $I_{max}=4A$
 $I_{peak}=5.2A$
 $I_{ocp(minimum)}=6.5A$

EC:+3VL, reserve PR319, install PR318, PR320 100K
 EC:+3VALW, reserve PR318, install PR319, PR320 40.2K

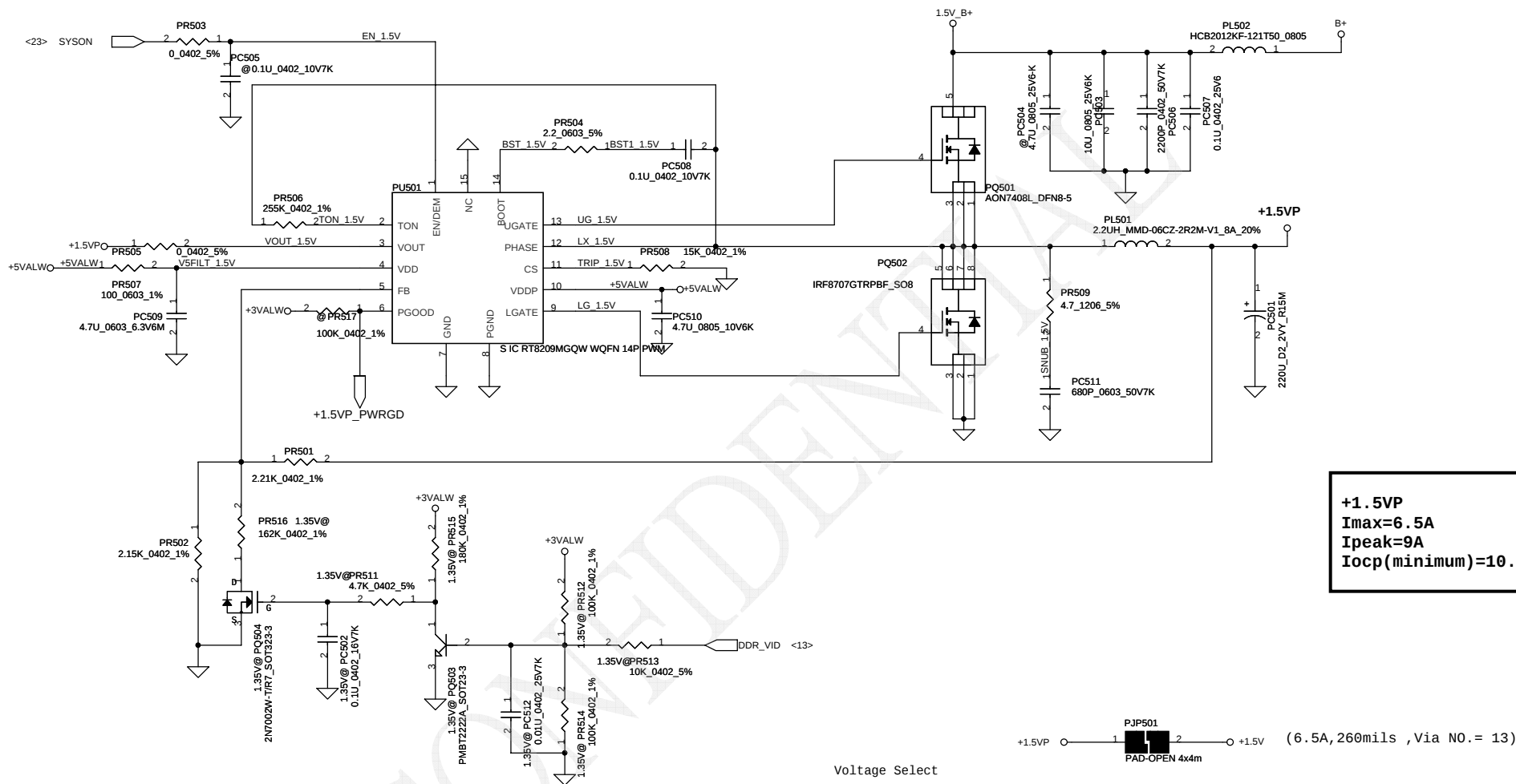
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$$V_0 = 1.8V \quad V_{FB} = 0.6V$$

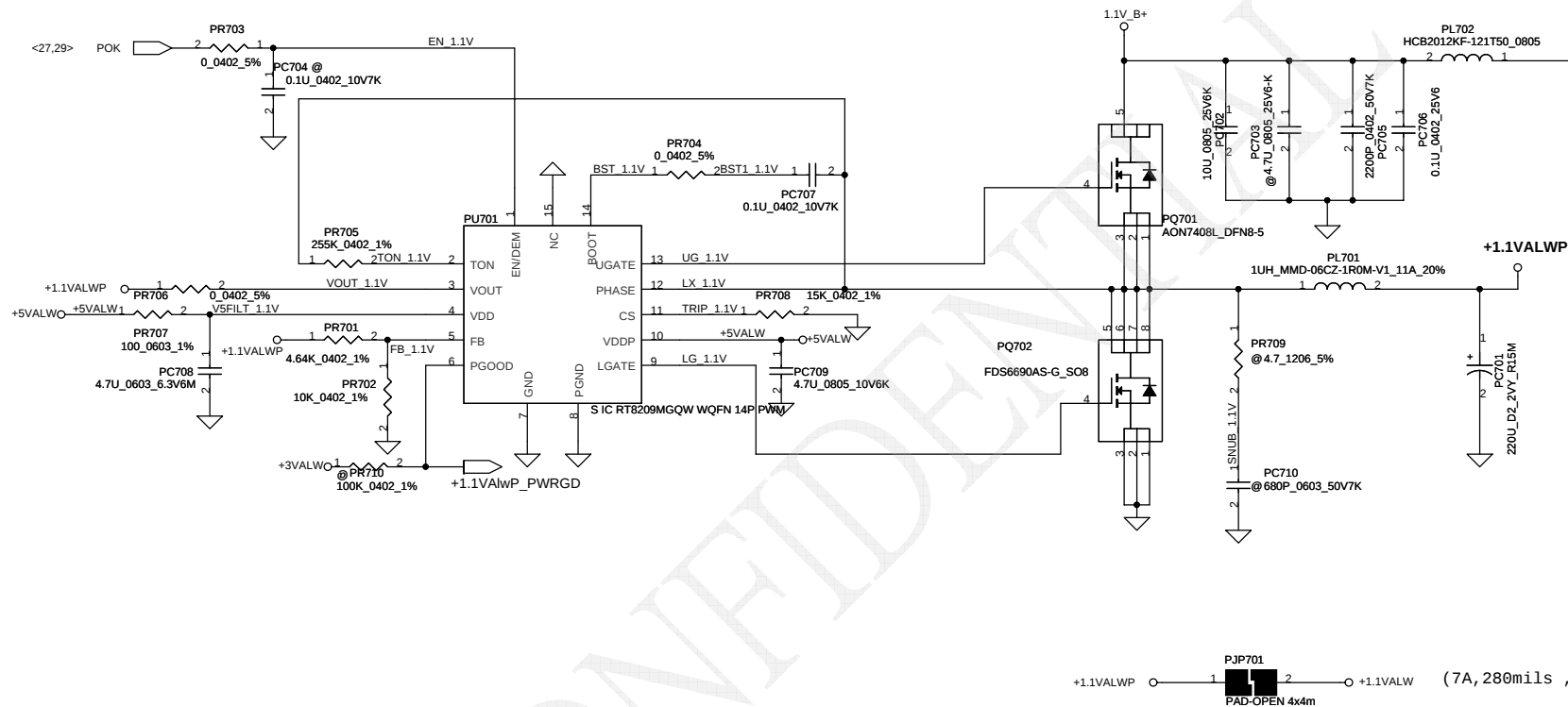
$$V_0 = V_{FB} * (1 + PR401 / PR402) = 0.6 * (1 + 20K / 10K) = 1.8V$$

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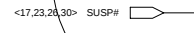
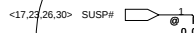
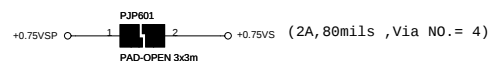


Voltage Select

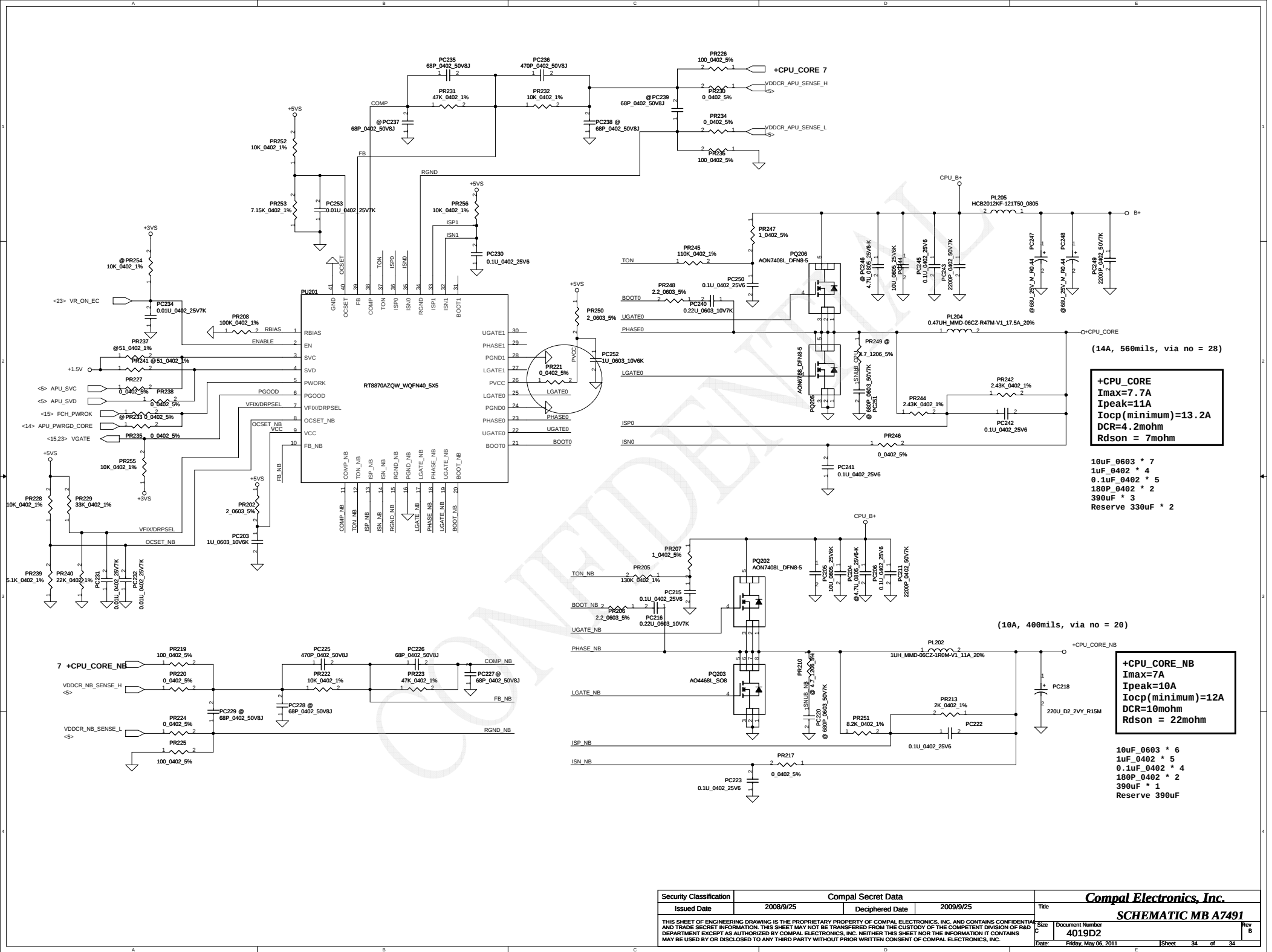
DDR_VID	DDR voltage
0	+1.5V
1	+1.35V



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

Item	Page#	Reason for change	Description	phase	modify	Rev.
1	31	Follow EMI request to add PR54, PR59, PC511 for EMI issue.	add PR54, PR59, PC511	PVT	add PR54, PR59, PC511	
2	34	Follow ME request change PQ205 for height issue	Change PQ205 from AO4726L AON6788	PVT	Change PQ205 from AO4726L AON6788	
3	28	For common desgin	Delete PC107	Pre-MP	Remove PC107	
4	28	For common desgin	PR110 from 47K change to 200K	Pre-MP	PR110 from 47K change to 200K	
5	28	For common desgin	PR112 from 10K change to 47K	Pre-MP	PR110 from 10K change to 47K	
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