

888Z3 LA-1044 REV2.0 SCHEMATIC DOCUMENT

Intel (Tualatin) with VIA(VT8606-TwisterT + VT8231)

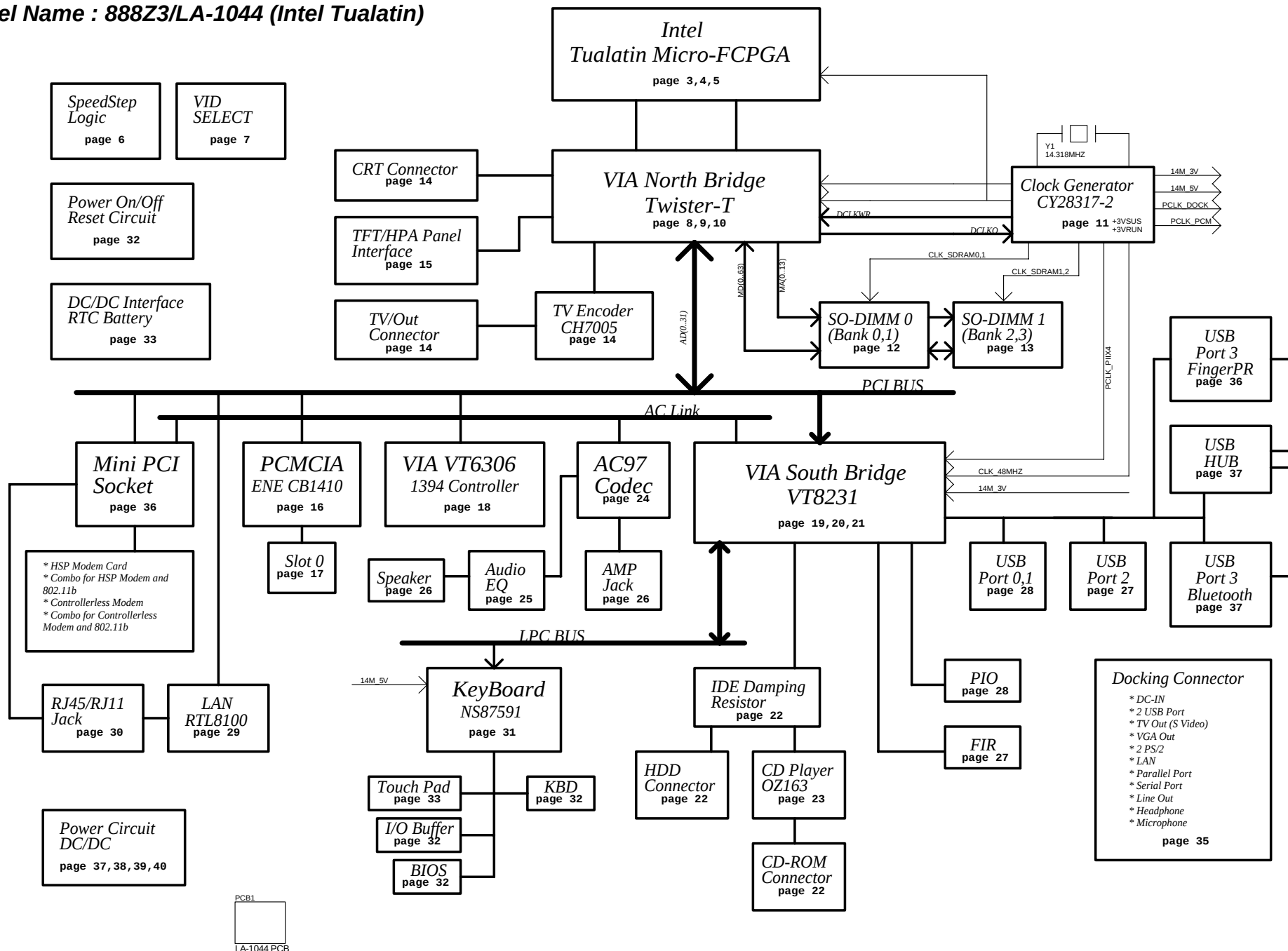
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LN_ SKU W/SS 要打
L@_ SKU WO/SS 要打
1394@ SKU W/1394 要打
TV@ SKU W/TVOUT 要打
DJ@ SKU W/AUDIO DJ 要打
DJN_ SKU WO/AUDIO DJ 要打
EQ@ SKU W/EQ 要打
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FN_ SKU WO/FPR 要打
SPR@ SKU W/DOCKING CONN. 要打

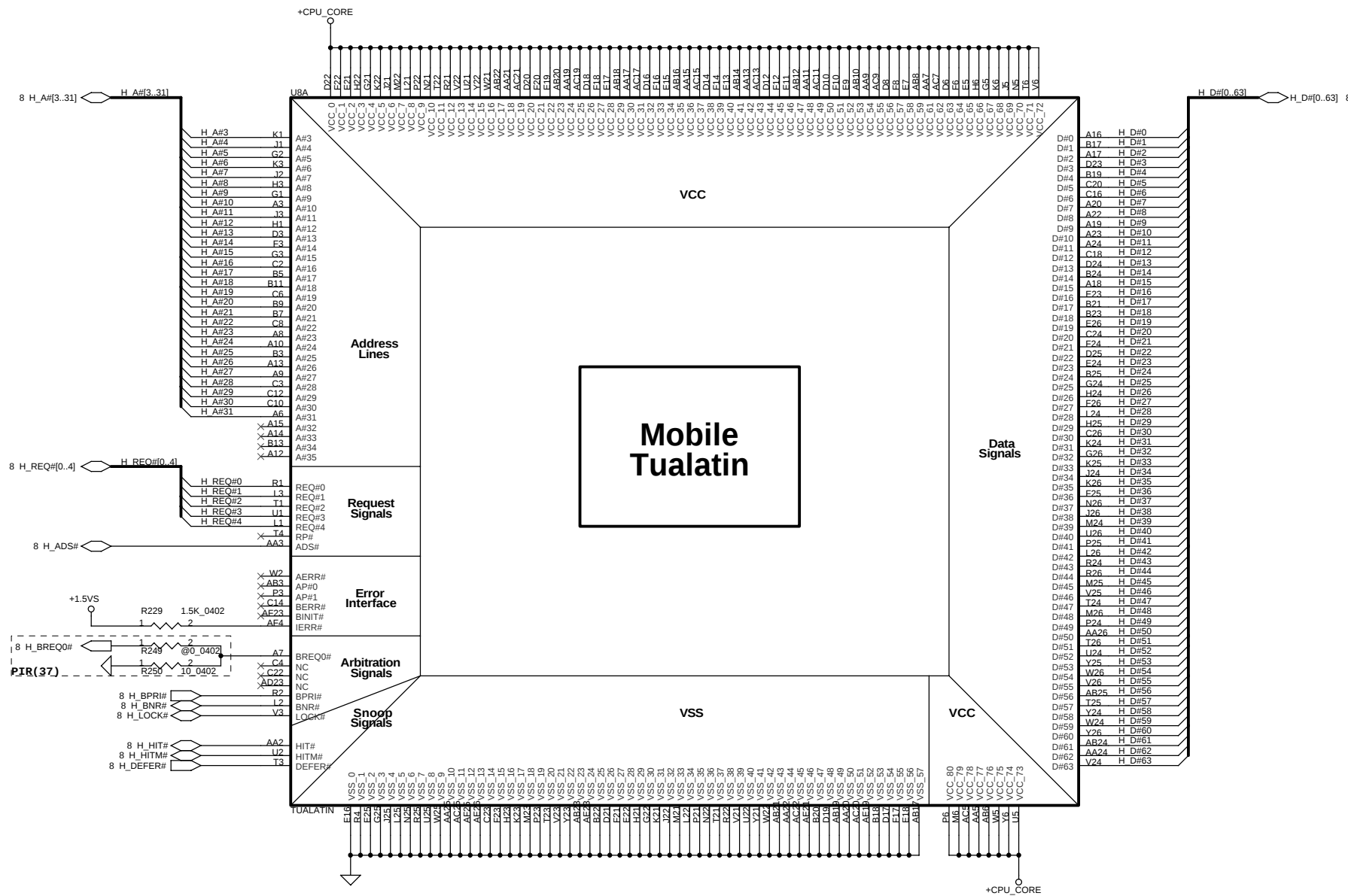
鋼版不開:
JOPEN1
JOPEN8
JOPEN9
JOPEN10

PCB Layer
Structure:
TOP
GND1
IN1
GND2
VCC
IN2
GND3
BOT

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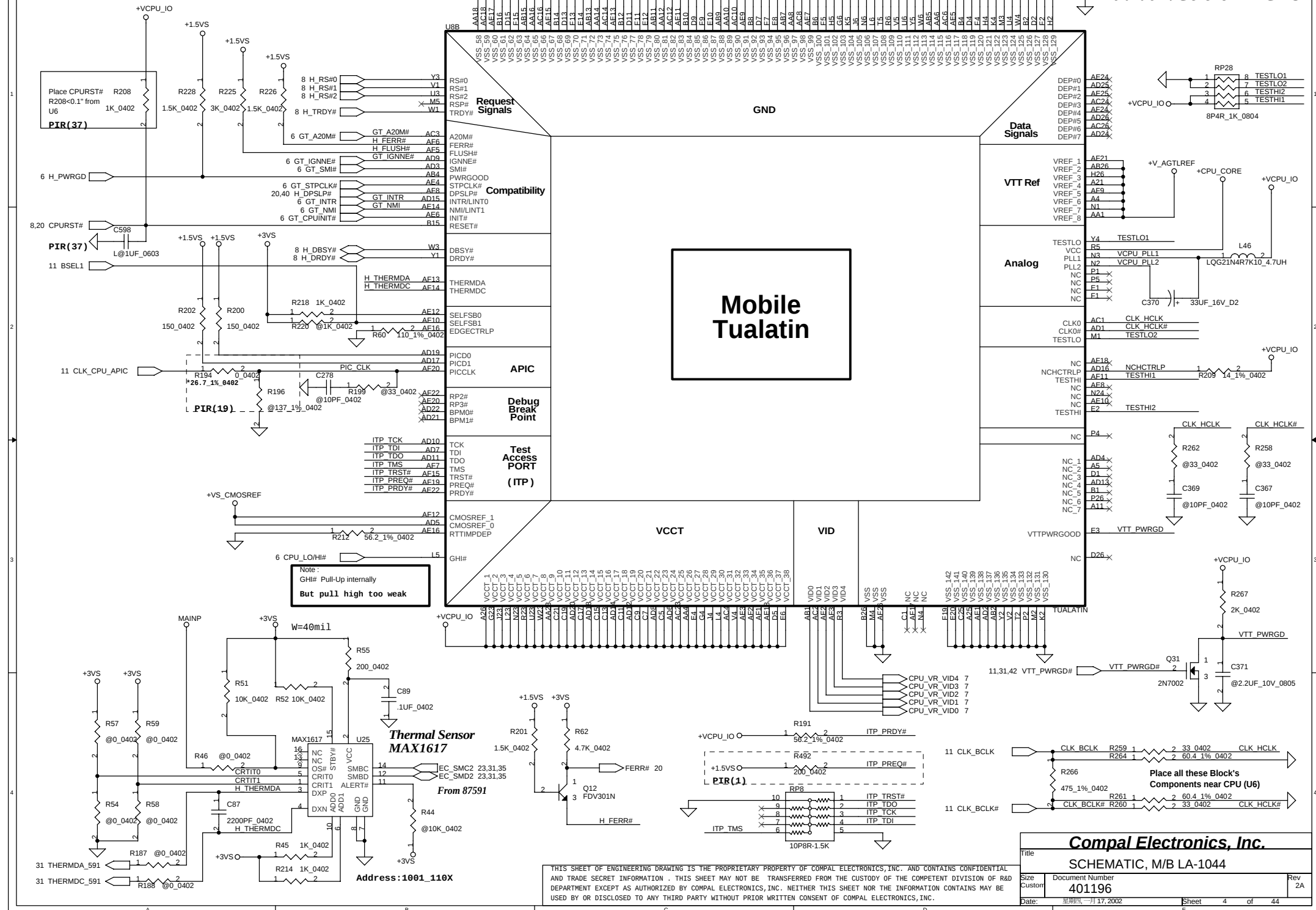
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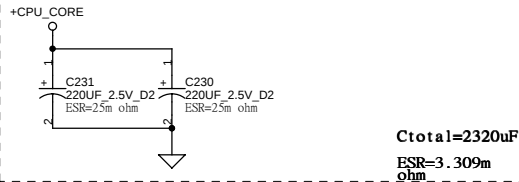
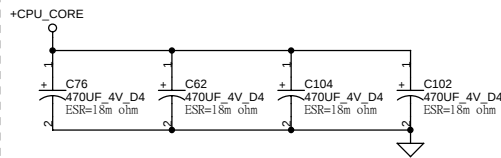
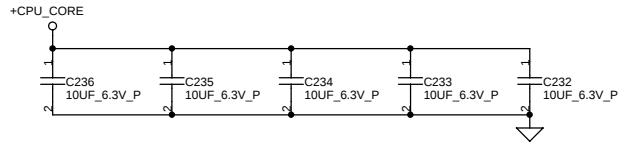
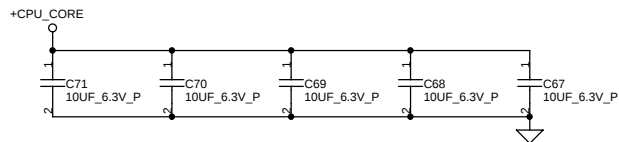
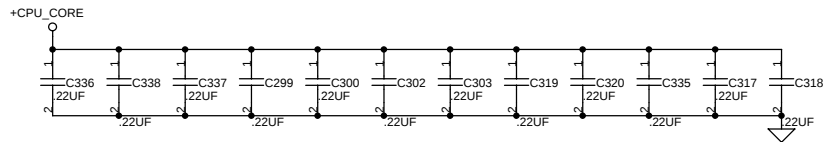
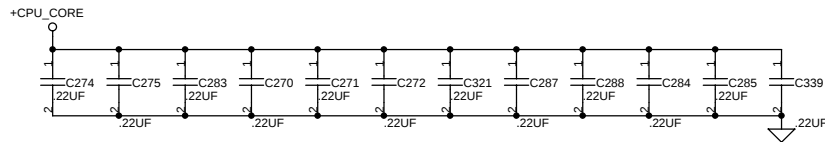
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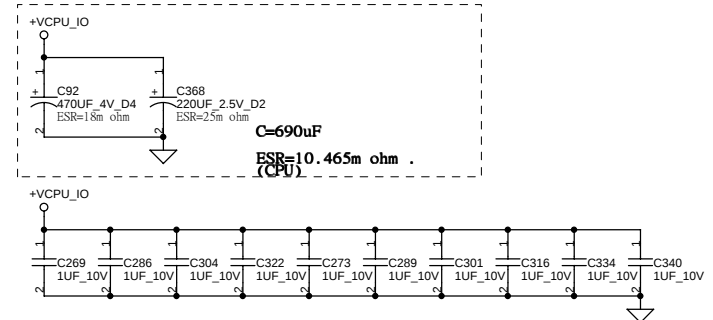
Tualatin/Celeron-T CPU

Layout note :

Place close to CPU, Use 2~3 vias per PAD.
Place 0.22uF caps underneath balls on solder side.
Place 10uF caps on the peripheral near balls.
Use 2~3 vias per PAD.

**Layout note :**

Place close to CPU,
Use 2 vias per PAD.



Tualatin							
D4	D3	D2	D1	D0	CPU_Core(V)	QS(MP)	
0	0	1	1	1	1.40V		300 MHz & 0.95V : 4.11A
0	1	1	0	0	1.15V		500 MHz & 1.05V : 6.38A
							533 MHz & 1.05V : 6.61A
							700 MHz & 1.10V : 8.40A
							733 MHz & 1.15V : 9.39A
							800 MHz & 1.15V : 9.84A
							1000 MHz & 1.40V : 16.83A
							1066 MHz & 1.40V : 17.46A
							1133 MHz & 1.40V : 18.11A

EMTS updated by the note released on April 27 , 2001.

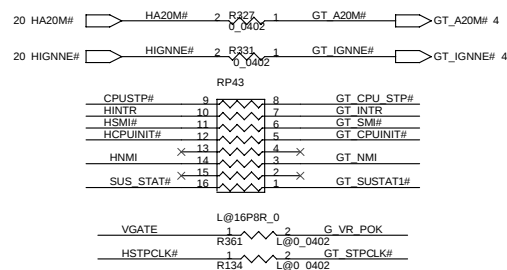
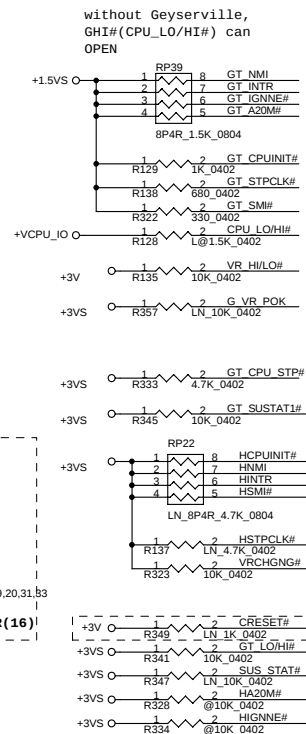
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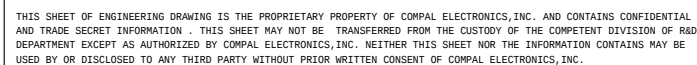
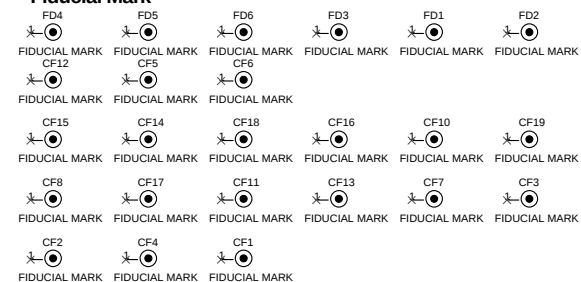
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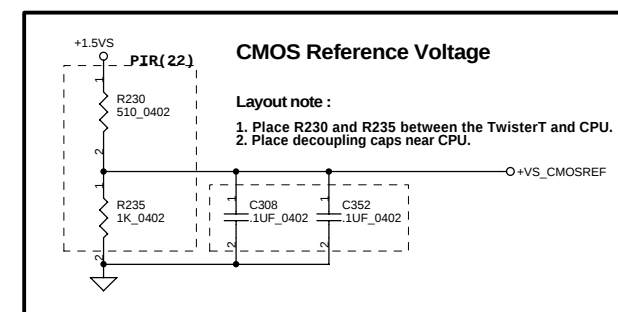
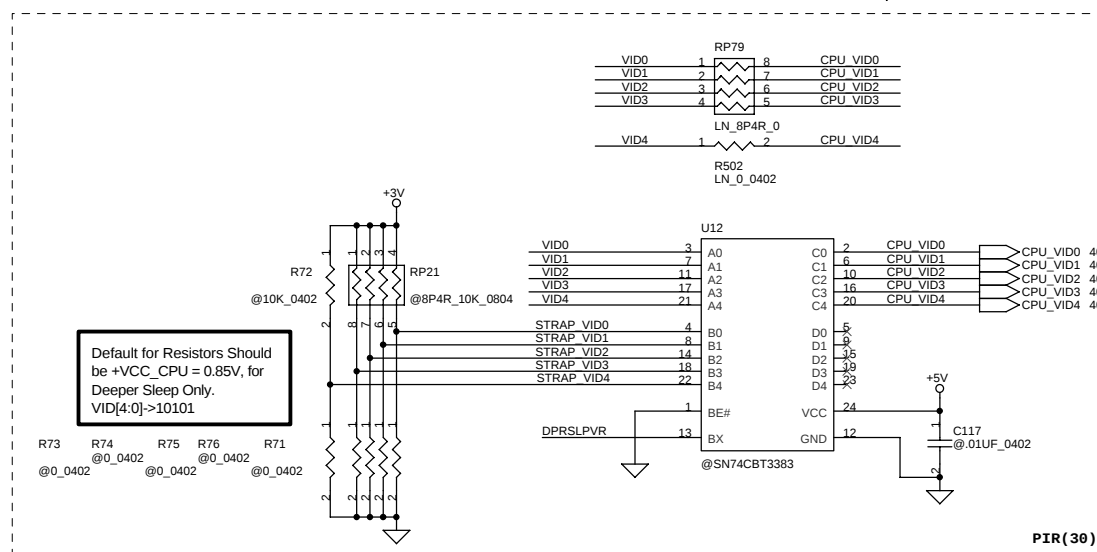
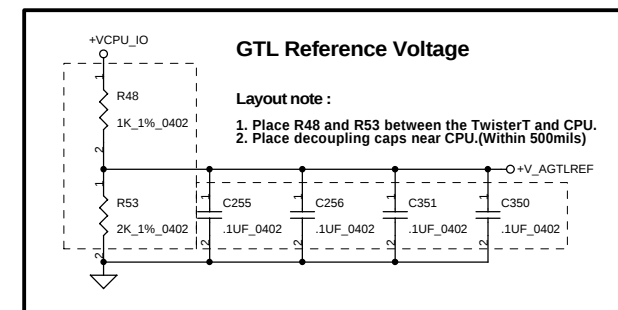
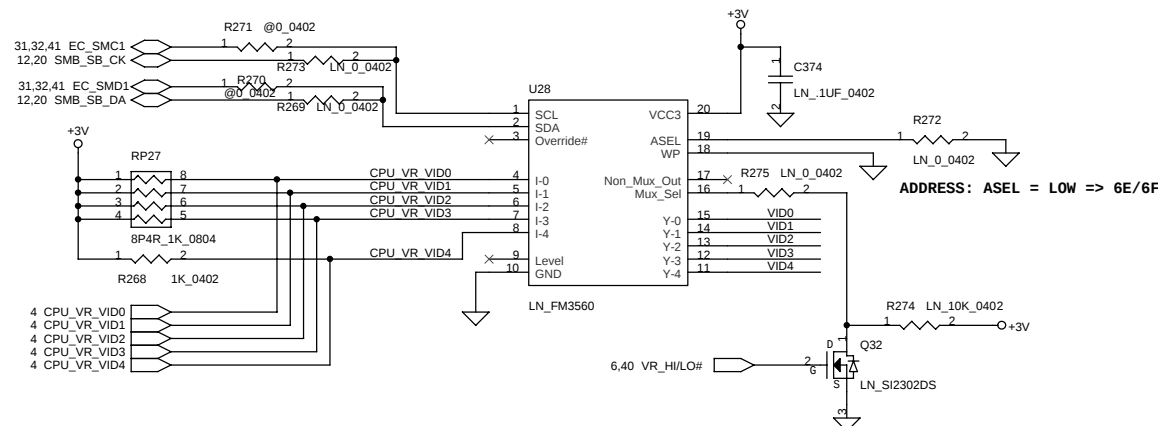
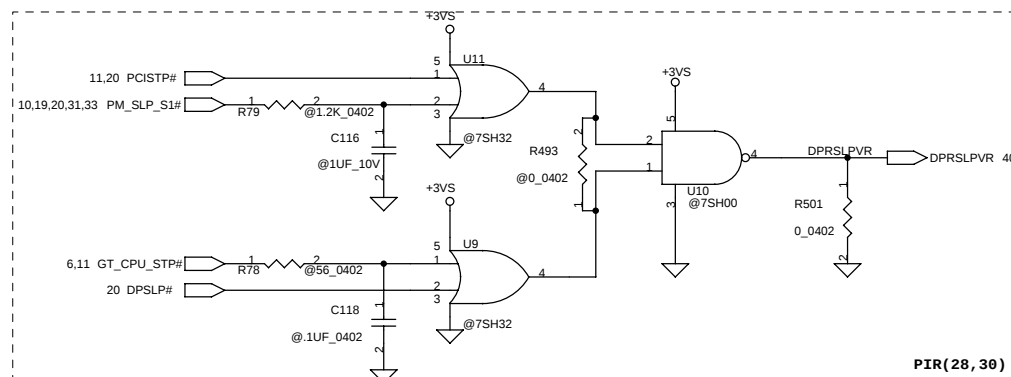
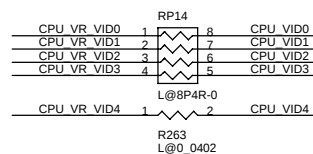
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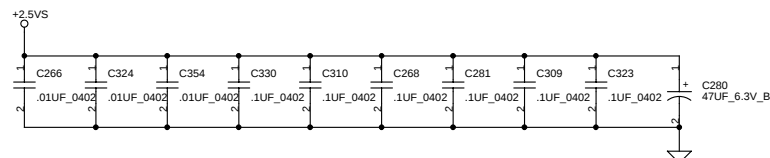
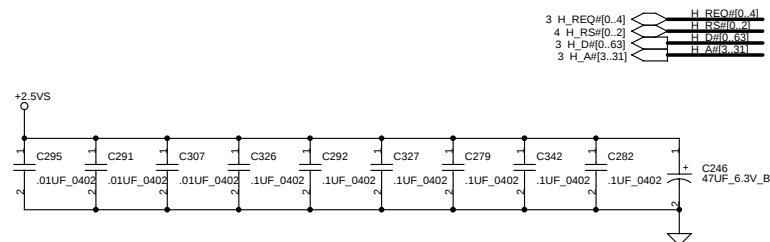
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4 H_RS#[0..2] H_RS#0_42
3 H_D#[0..63] H_D#0_43
3 H_A#[3..31] H_A#3_44

2.5V +- 5%

+2.5VS

U7A

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H_A#4	D24	HA4#	HD1#	B18	H_D#1
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H_A#12	D22	HA12#	HD9#	C16	H_D#9
H_A#13	B24	HA13#	HD10#	B17	H_D#10
H_A#14	D25	HA14#	HD11#	D16	H_D#11
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			HD39#	E10	H_D#39
			HD40#	E8	H_D#40
			HD41#	C9	H_D#41
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VT8606
TwisterT

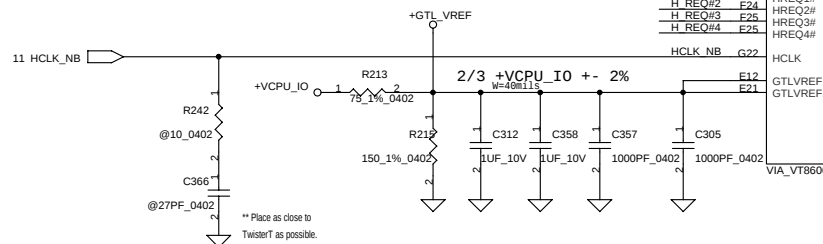
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3 H_BPR# E26 BPR#

4 H_DBSY# H26 DBSY#
3 H_DEFER# E26 DEFER#
4 H_DRDY# J23 DRDY#
3 H_HIT# G24 HIT#
3 H_HITM# G23 HITM#
3 H_LOCK# G25 LOCK#
4 H_TRDY# J25 HTRDY#
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H_RS#2 H25 RS2#

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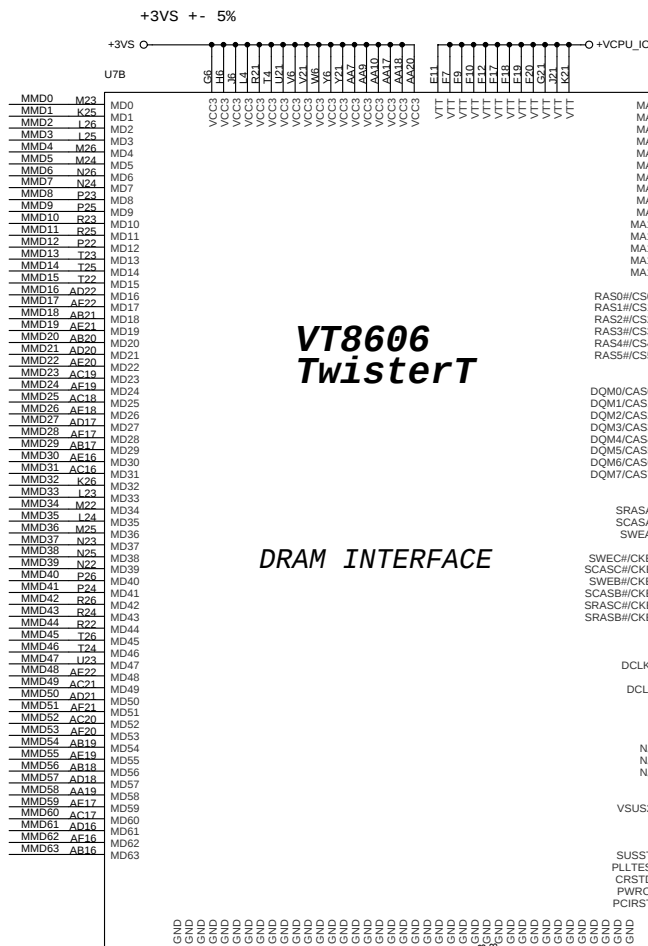
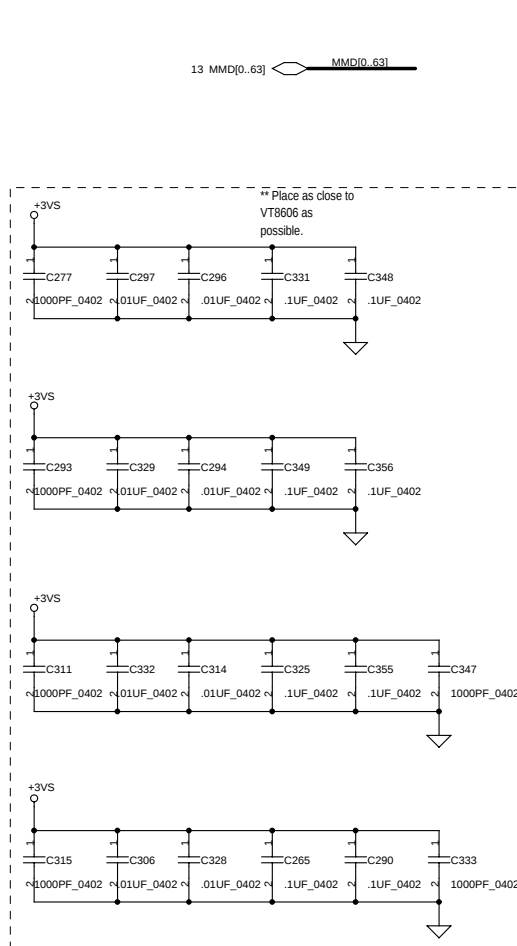


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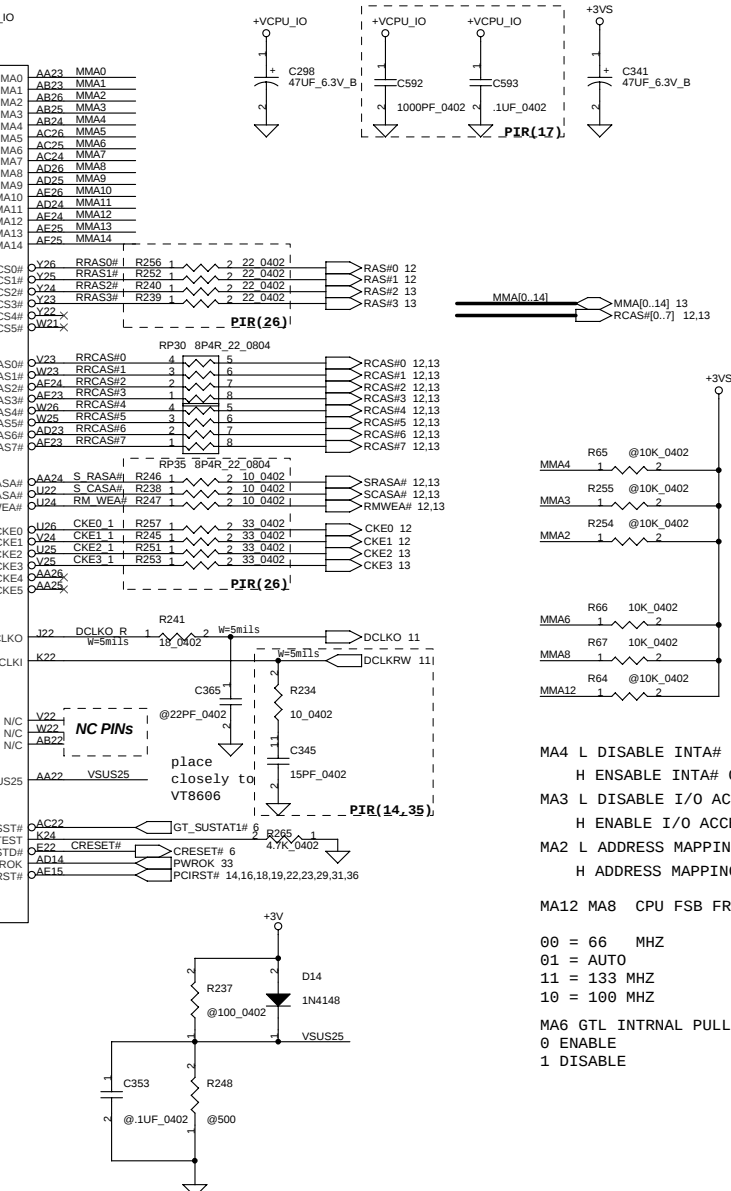
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VT8606 TwisterT

DRAM INTERFACE



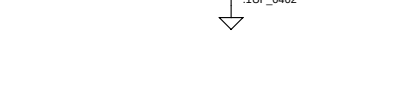
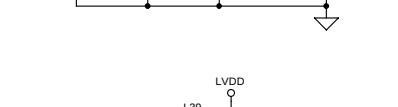
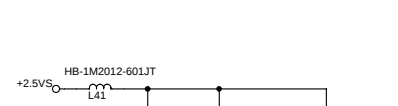
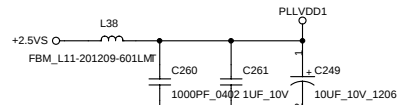
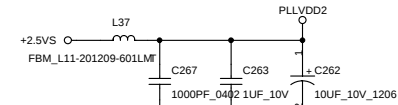
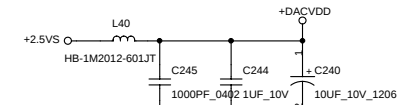
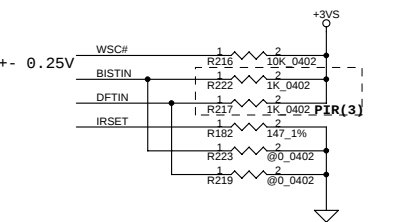
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- H ENSABLE INTA# CLAIM
- MA3 L DISABLE I/O ACCESS
- H ENABLE I/O ACCESS
- MA2 L ADDRESS MAPPING 1
- H ADDRESS MAPPING 0
- MA12 MA8 CPU FSB FREQ.
- 00 = 66 MHZ
- 01 = AUTO
- 11 = 133 MHZ
- 10 = 100 MHZ
- MA6 GTL INTRNAL PULLUPS
- 0 ENABLE
- 1 DISABLE

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TwisterT(VIA_VT8606)-C

VCCRGB 2.5V +- 0.25V
VCCA 2.5V +- 0.25V
VCCDAC 2.5V +- 0.25V
VCCPLL1 2.5V +- 0.25V
VCCPLL2 2.5V +- 0.25V
VCCLPLL 3.3V +- 0.3V -> 2.5V +- 0.25V
VCCLVDS 3.3V +- 0.3V
VDDD 2.5V +- 0.25V



VT8606 TwisterT

PCI INTERFACE

DISPLAY INTERFACE

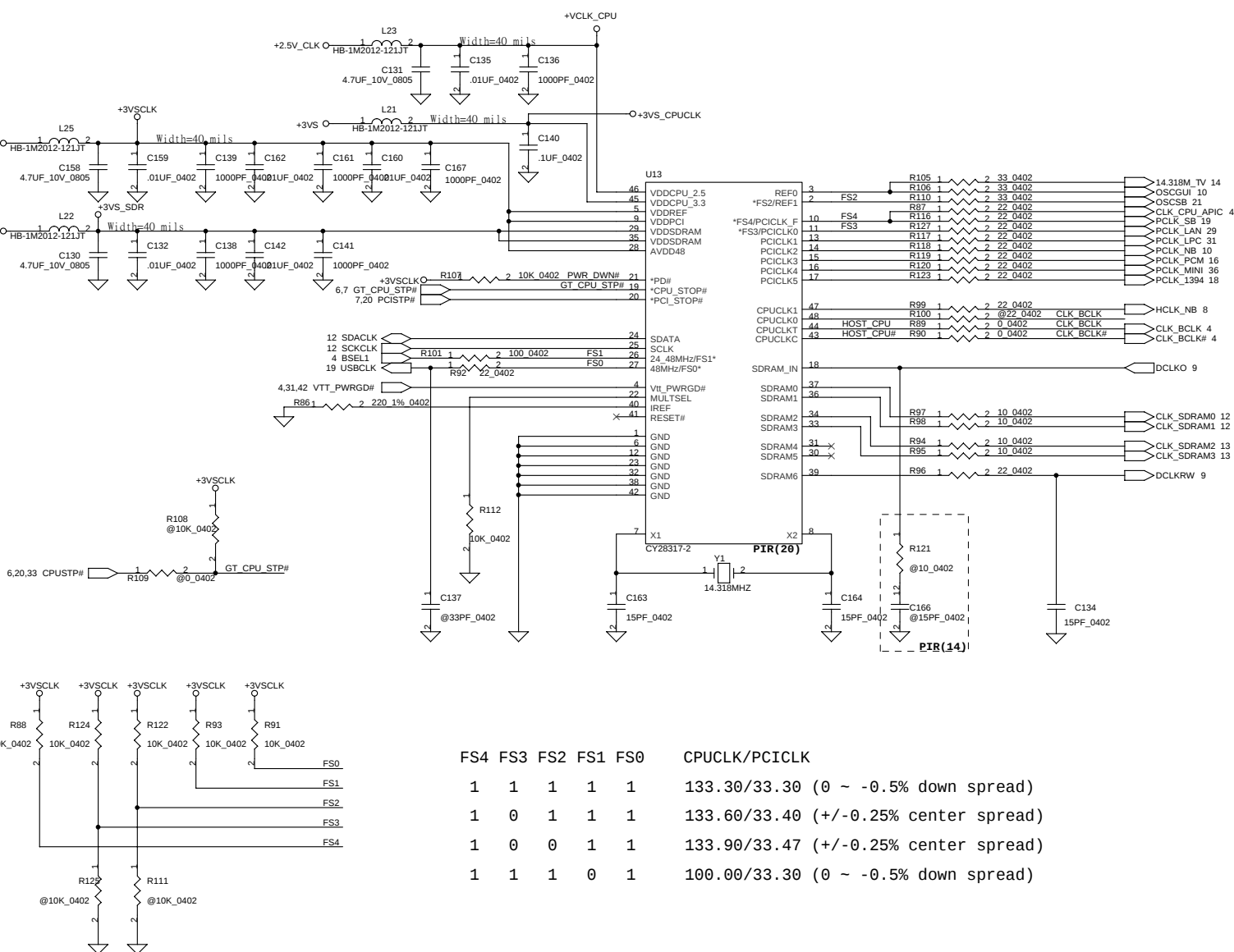
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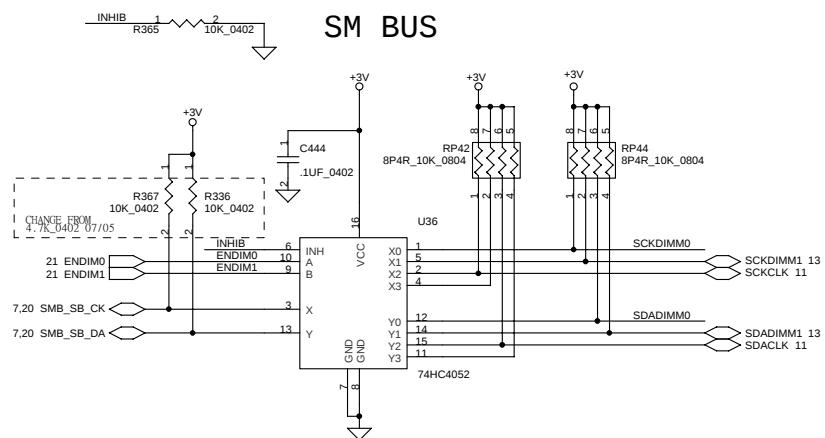
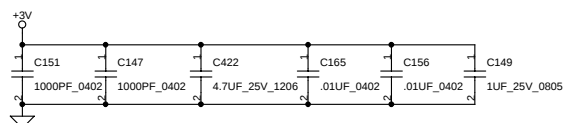
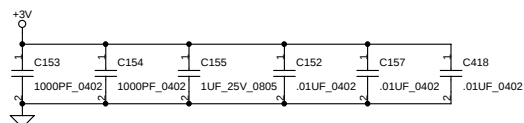
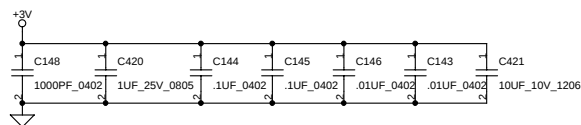
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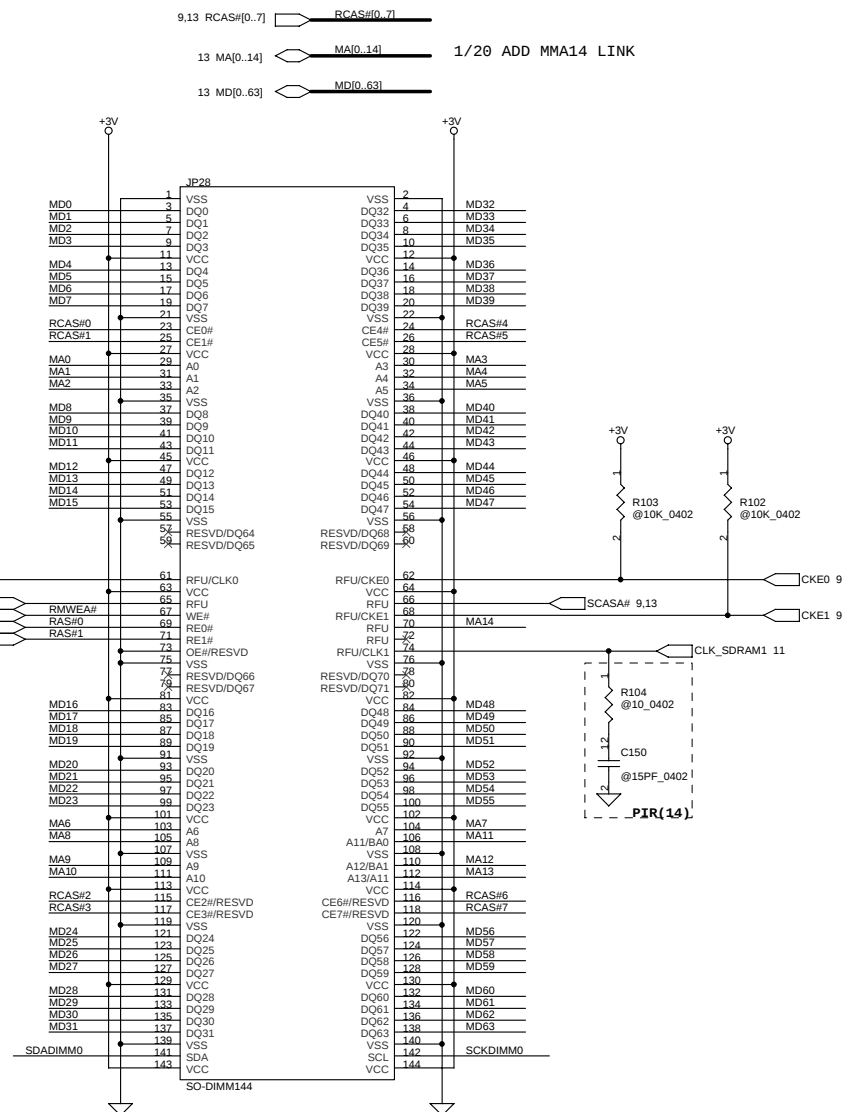
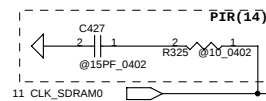
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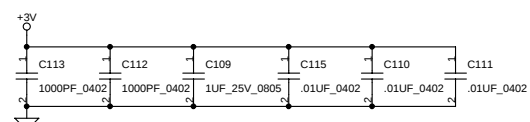
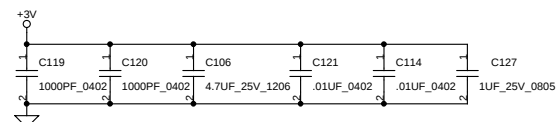
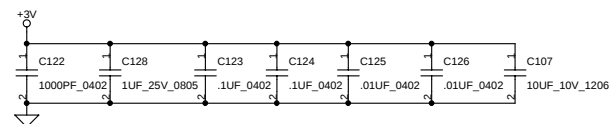


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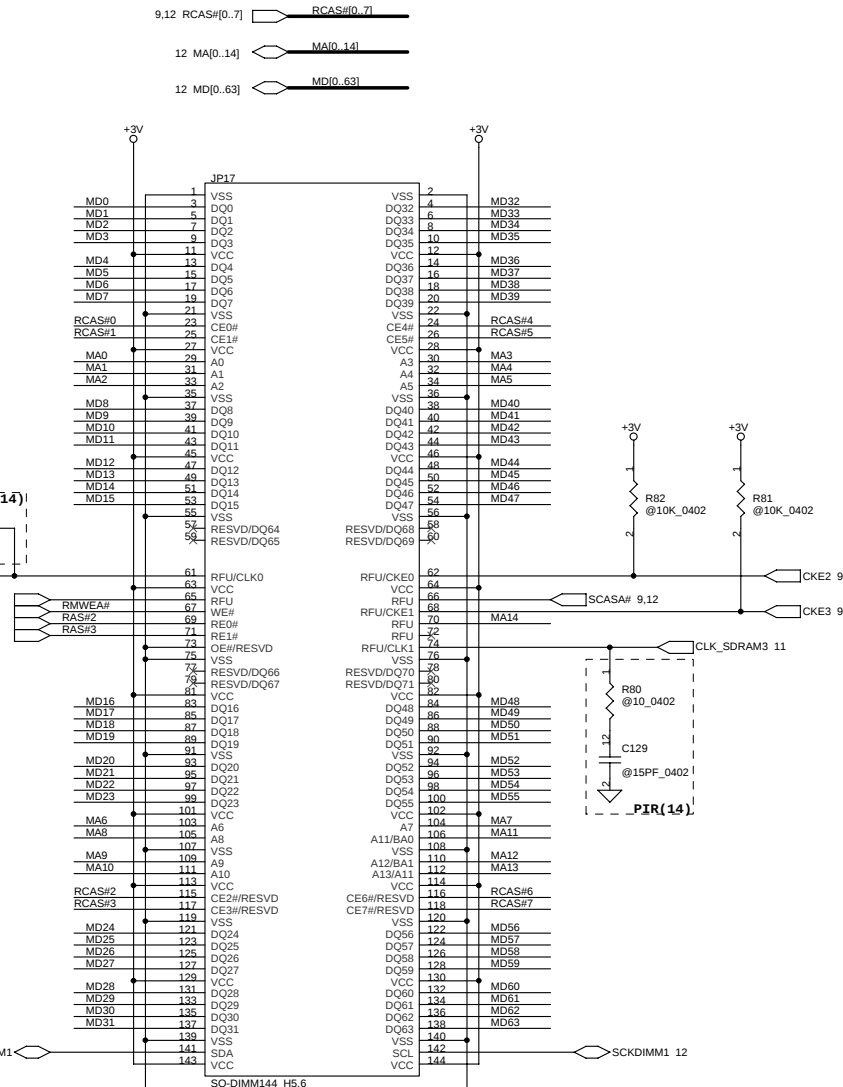
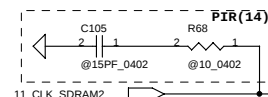
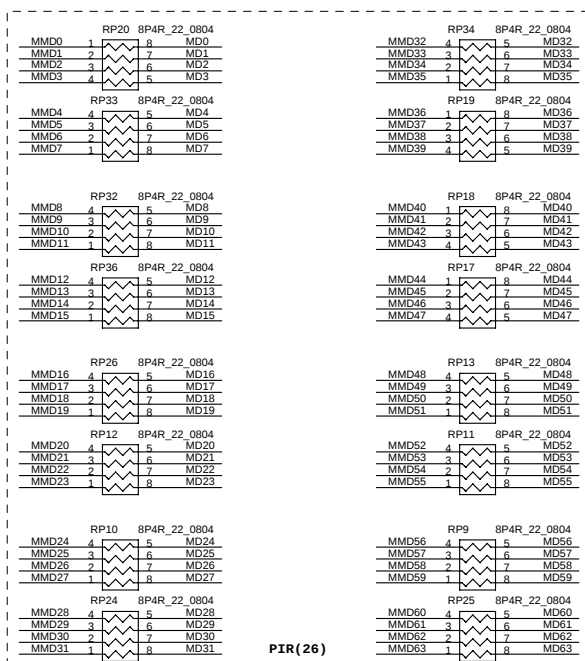


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<i>0</i>	<i>0</i>	<i>1</i>	<i>SO-DIMM1</i>
<i>0</i>	<i>1</i>	<i>0</i>	<i>Clock Generator</i>
<i>1</i>	<i>X</i>	<i>X</i>	<i>NONE</i>





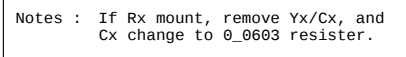
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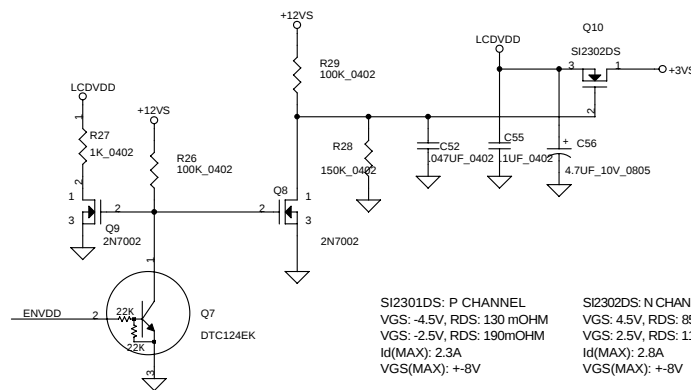
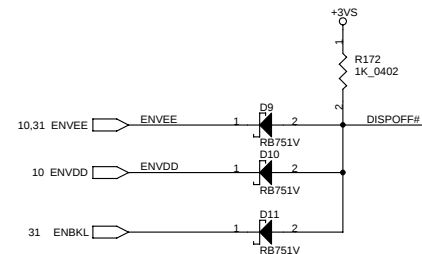
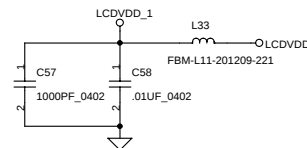
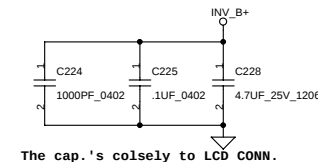
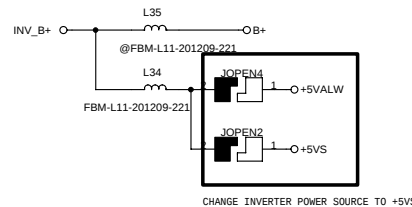
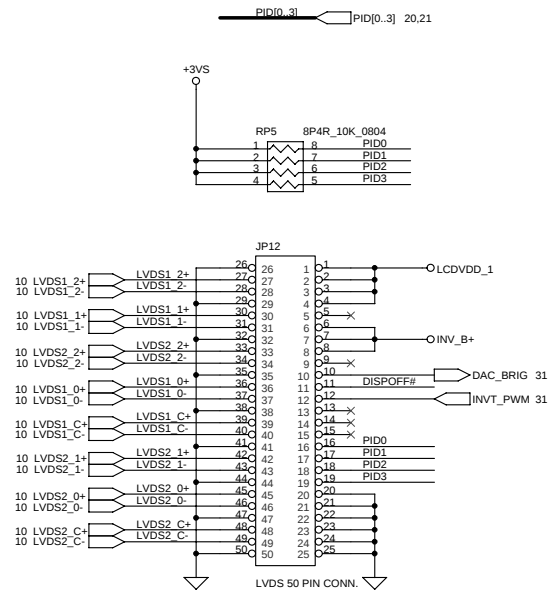
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TV-Out Connector

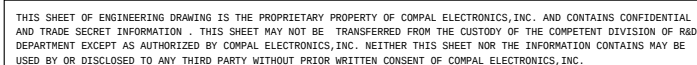


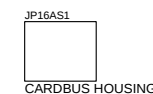
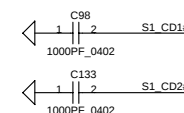
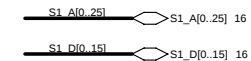
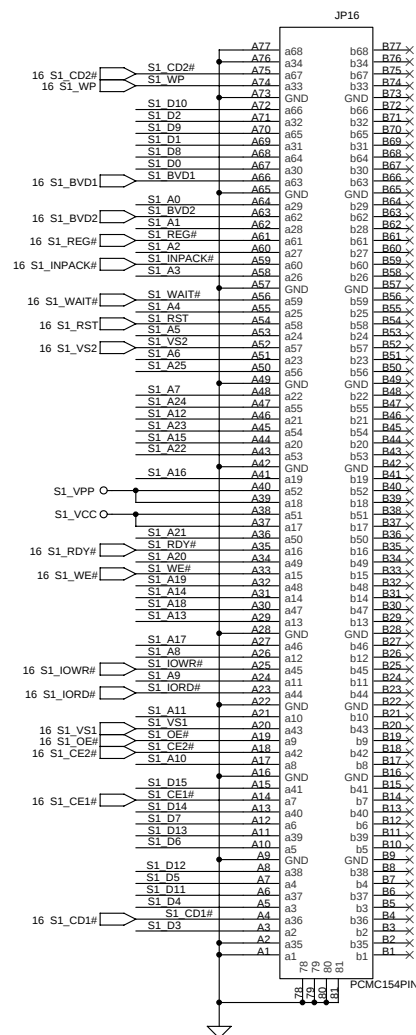
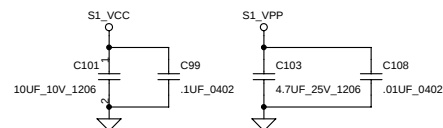
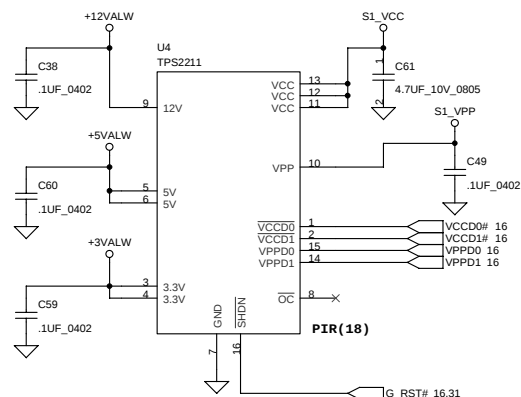
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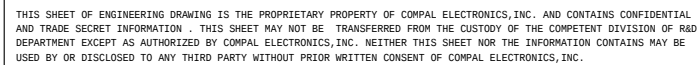
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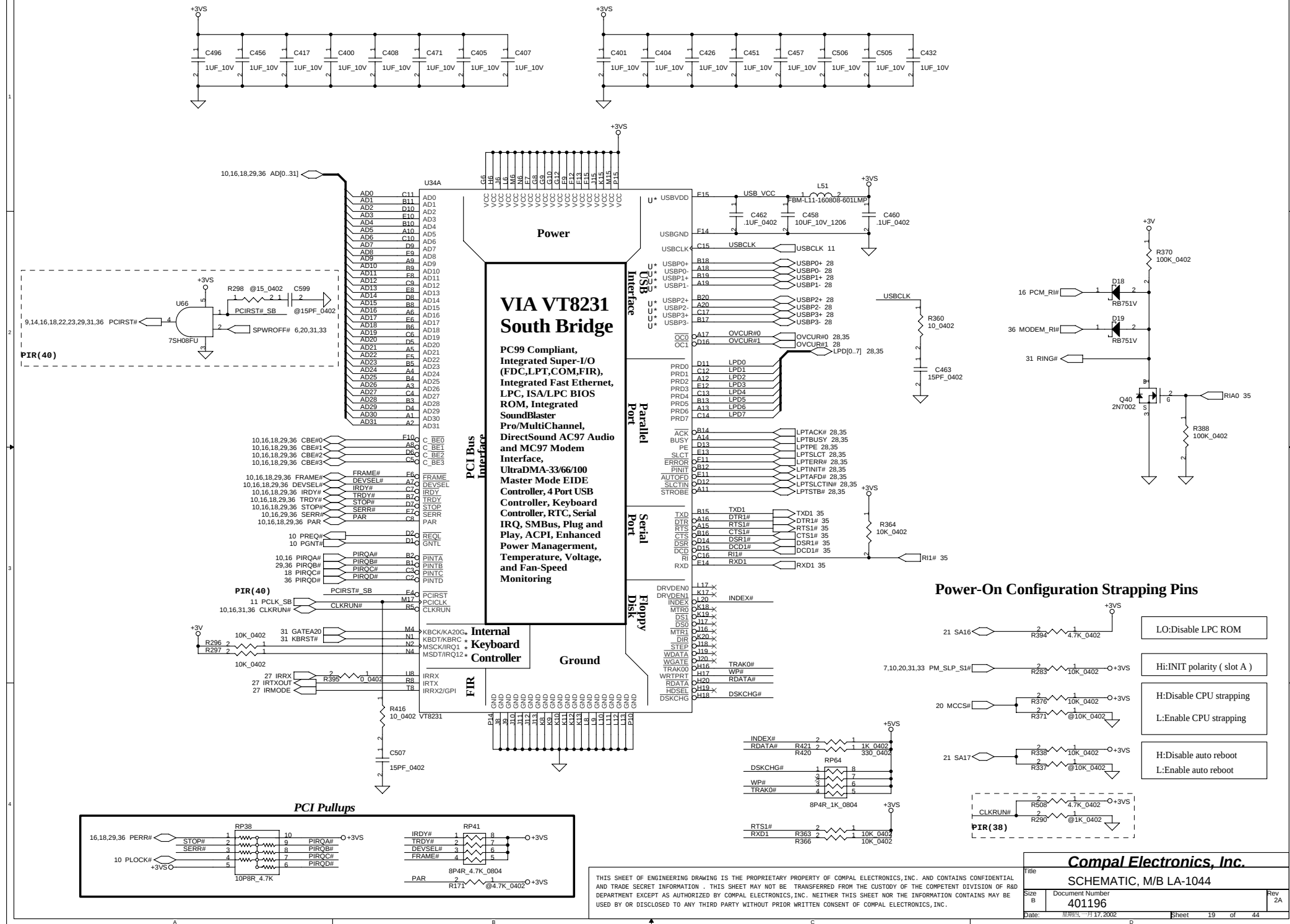
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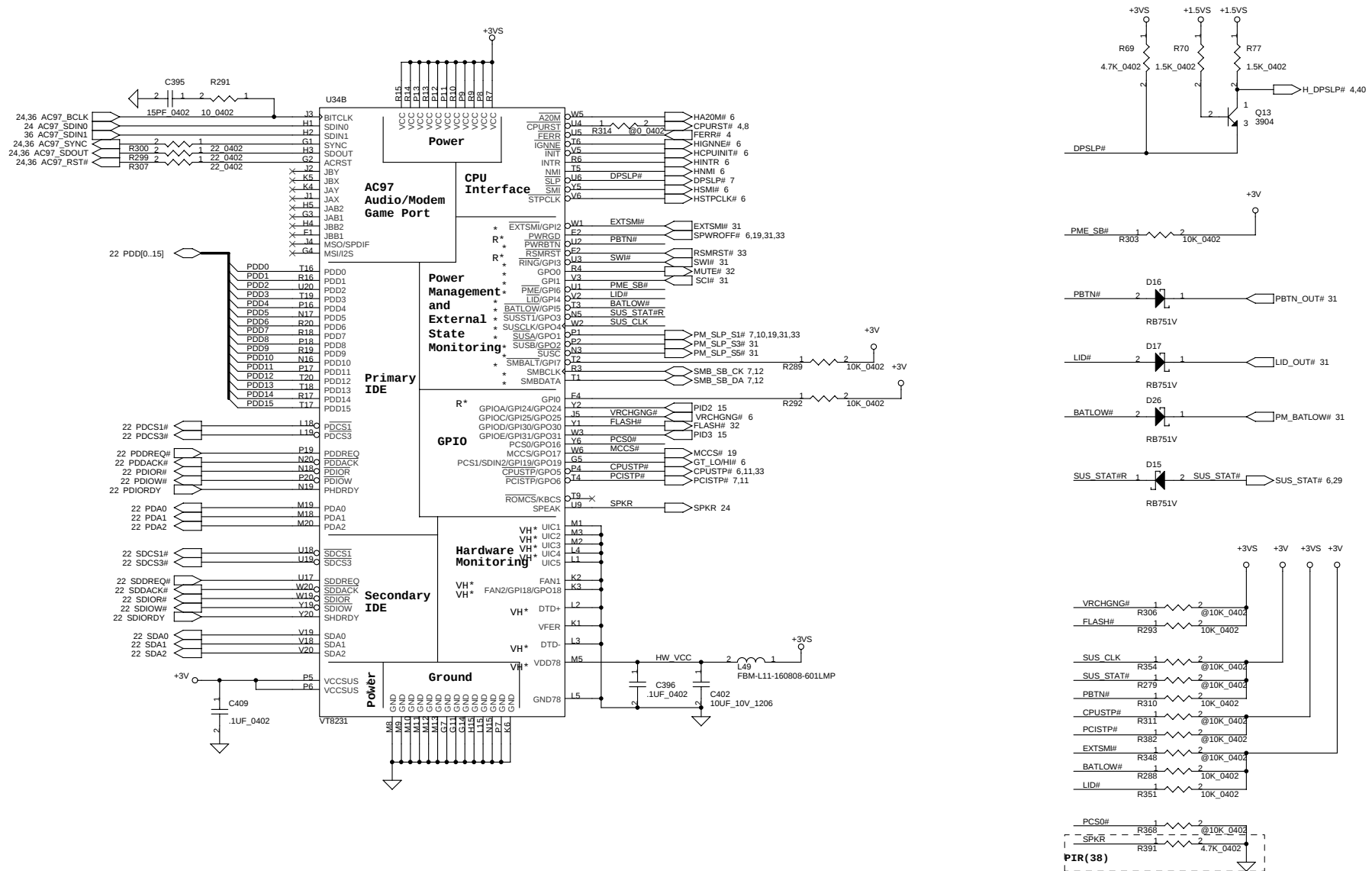


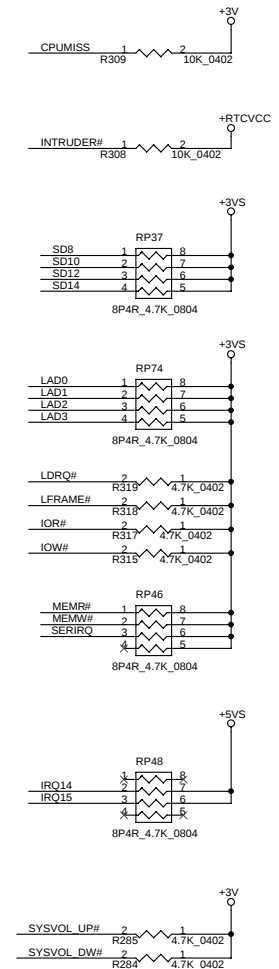
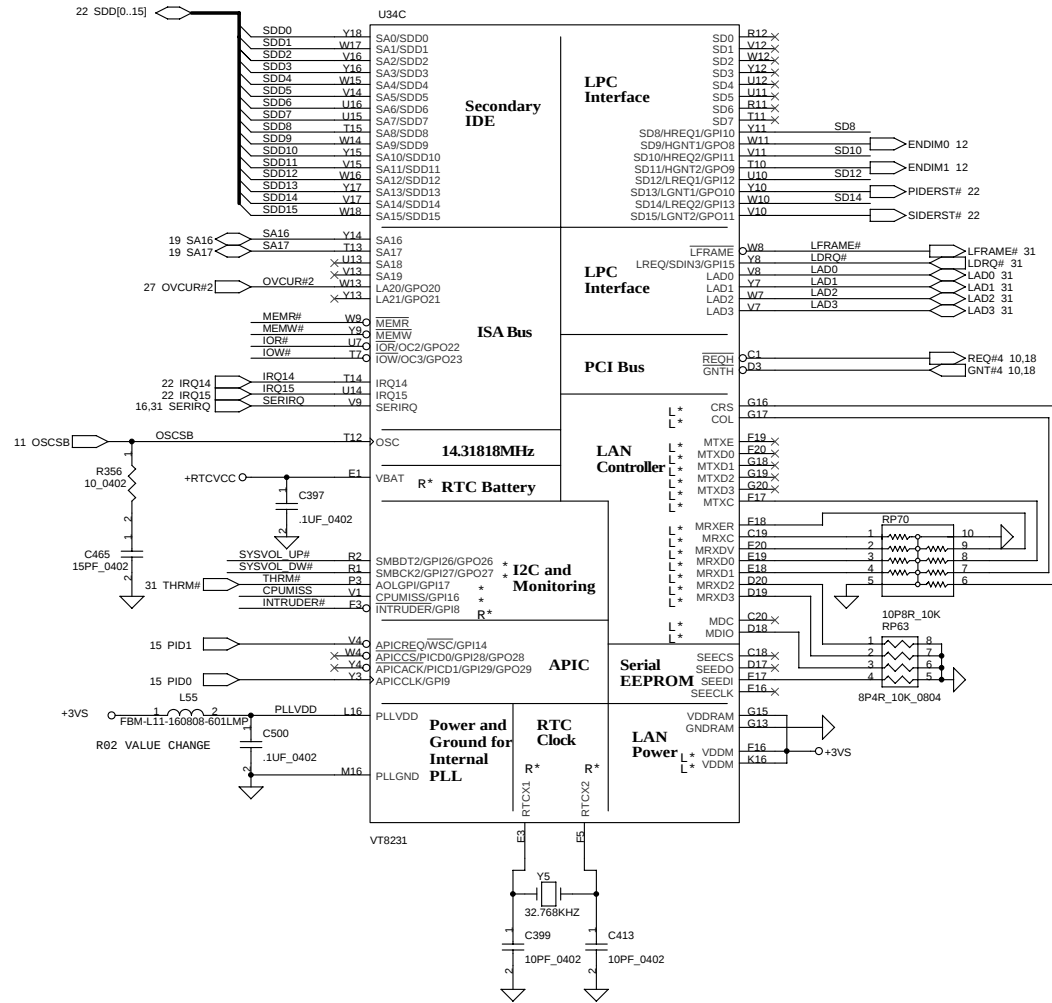


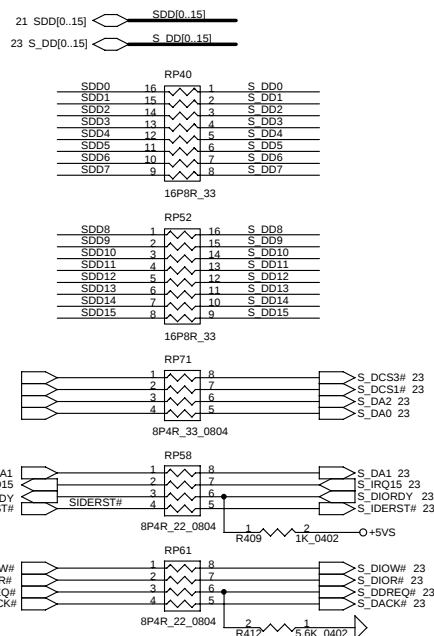
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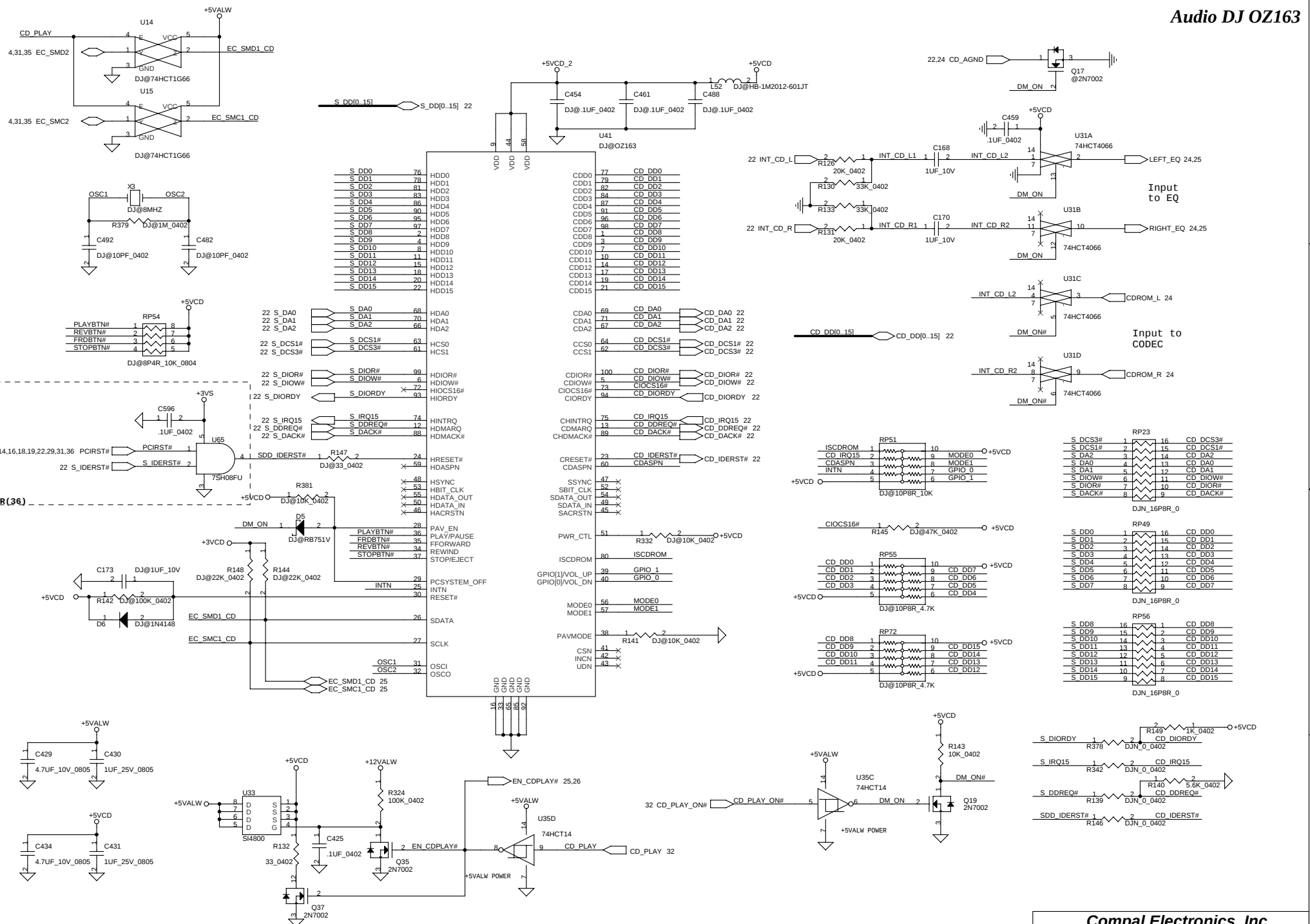




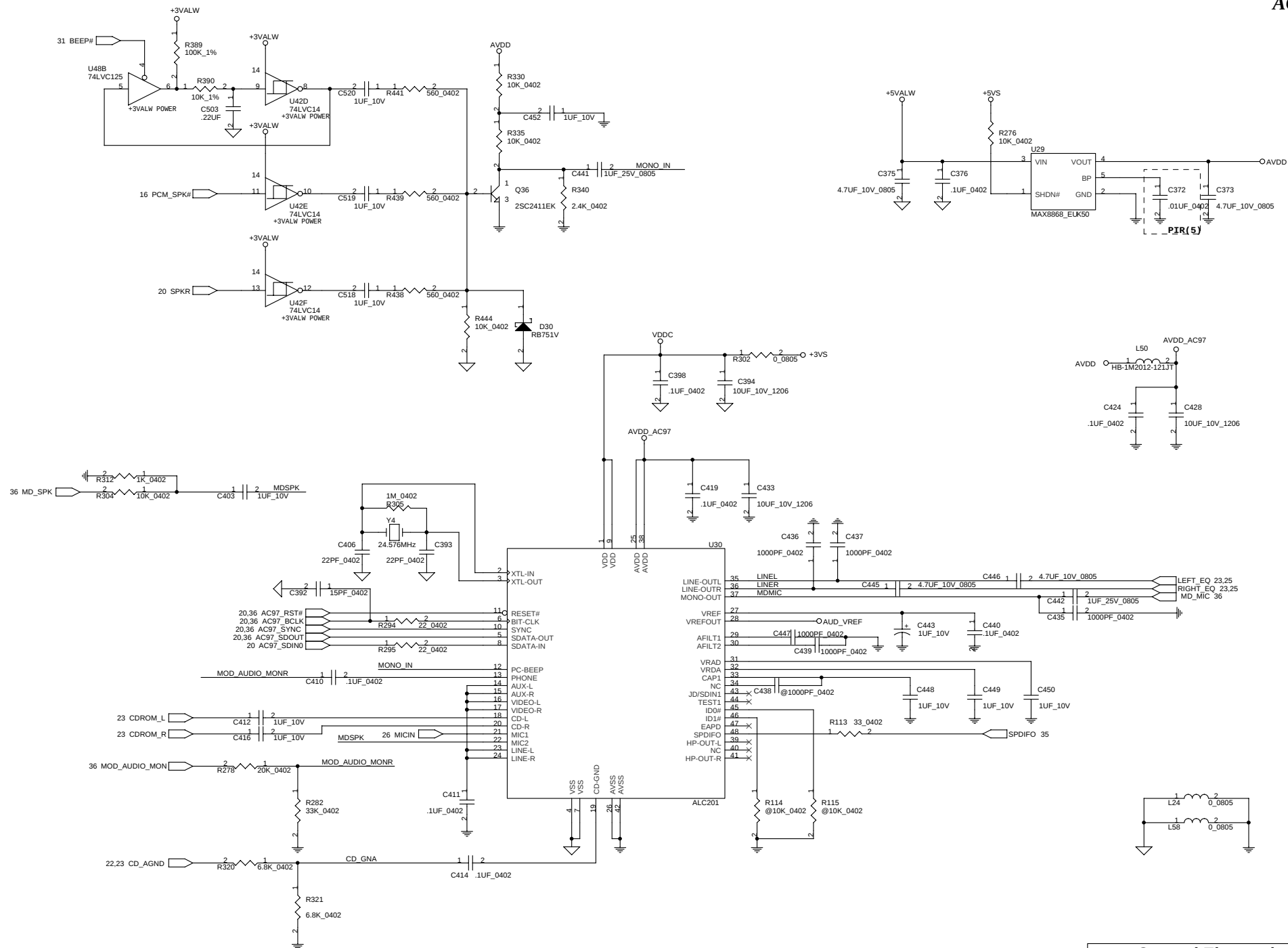




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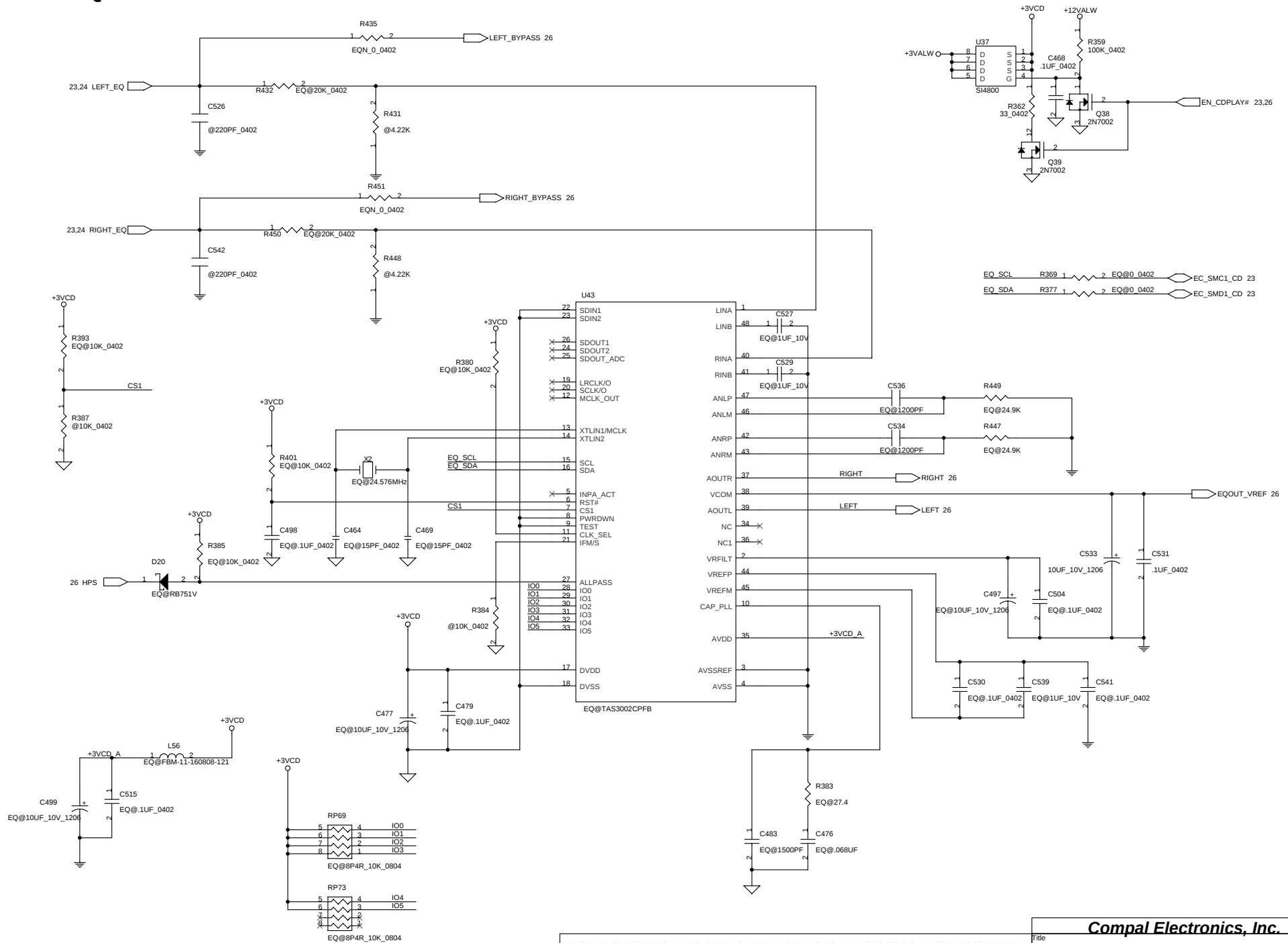
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UPDATED EQ SCHEMATICS

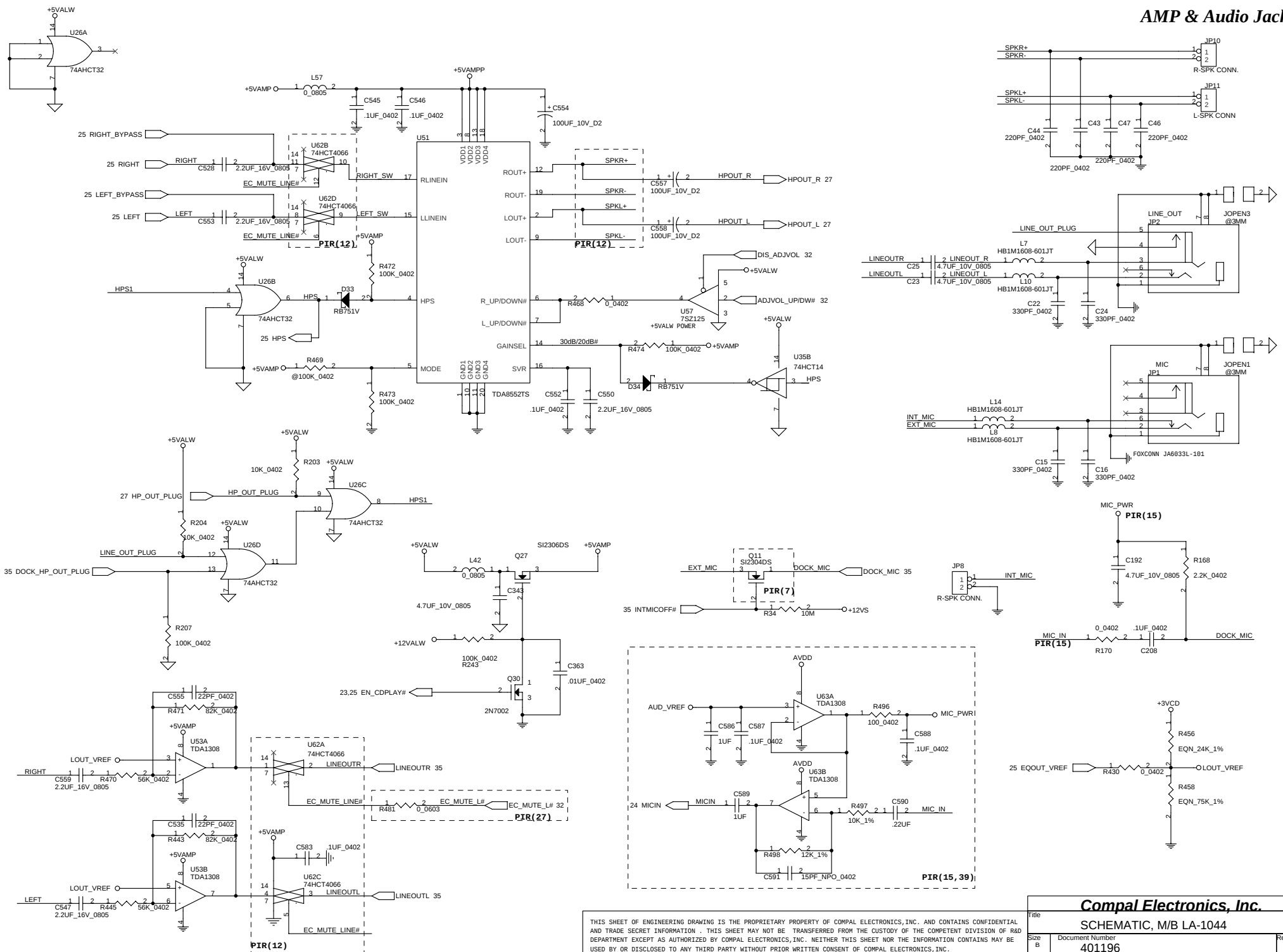
DIGITAL EQ



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AMP & Audio Jack



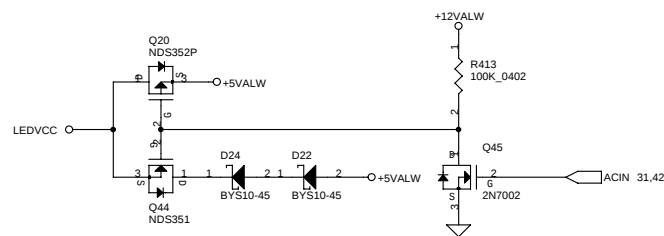
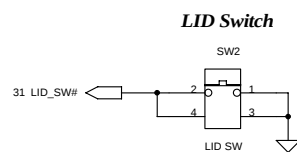
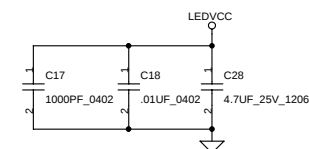
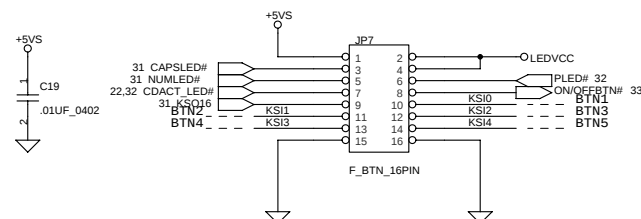
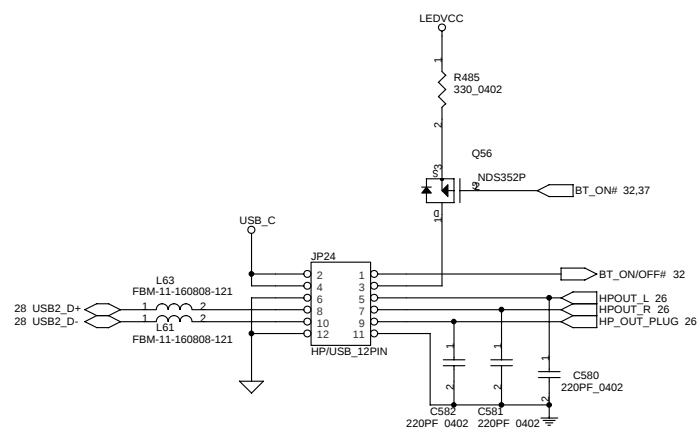
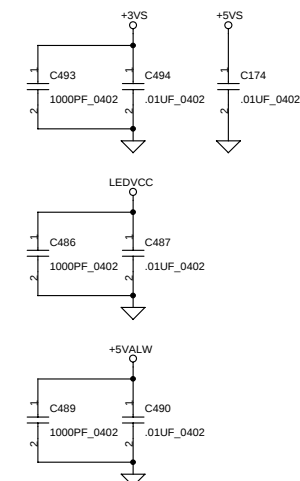
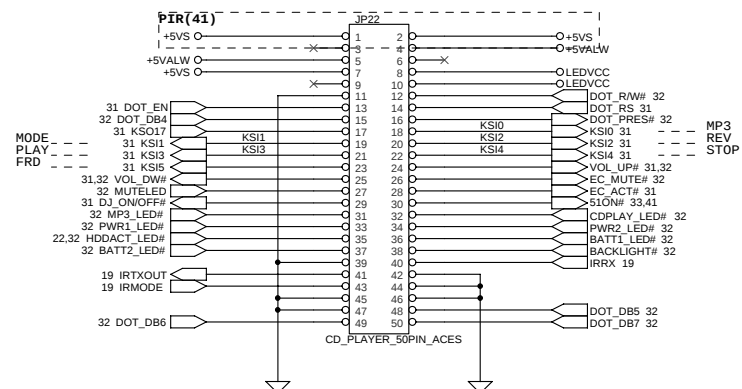
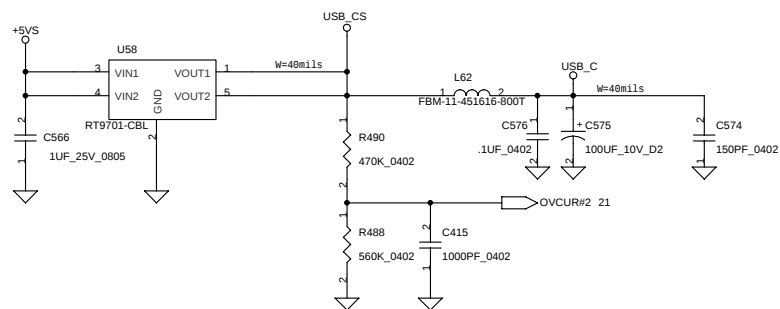
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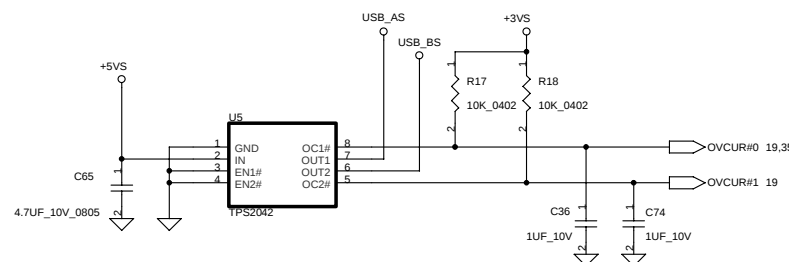
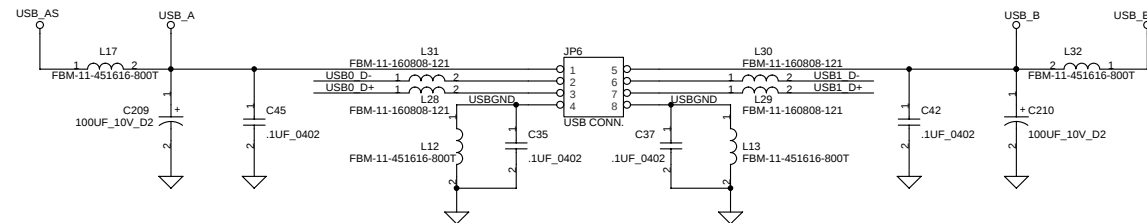
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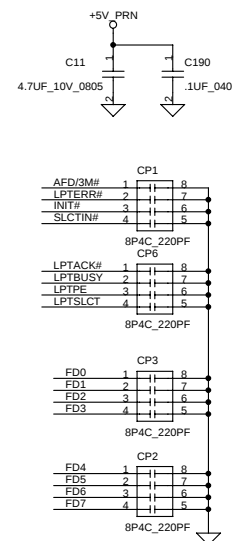
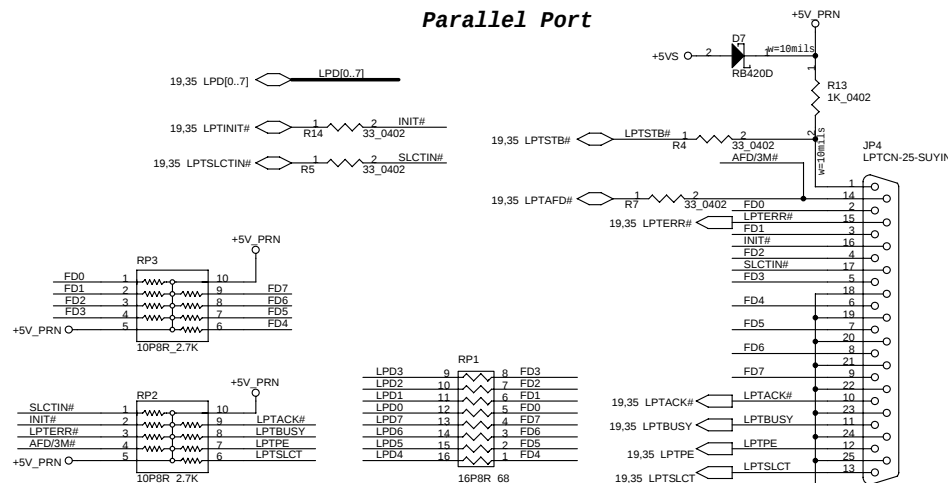
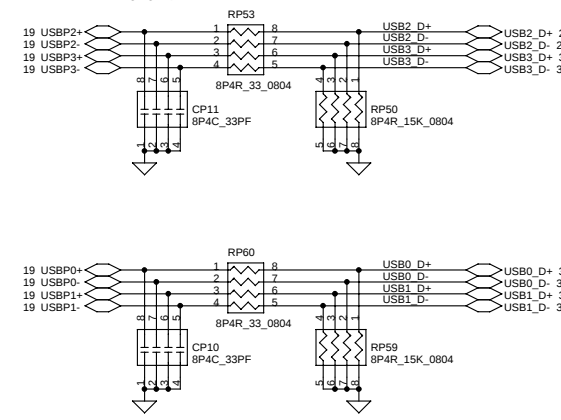
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USB Port

USB B



Parallel Port

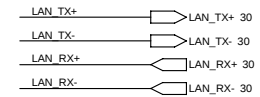
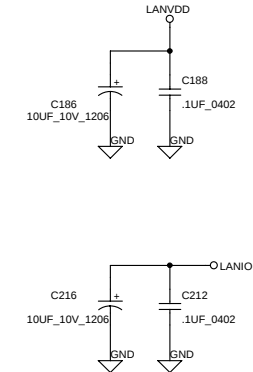
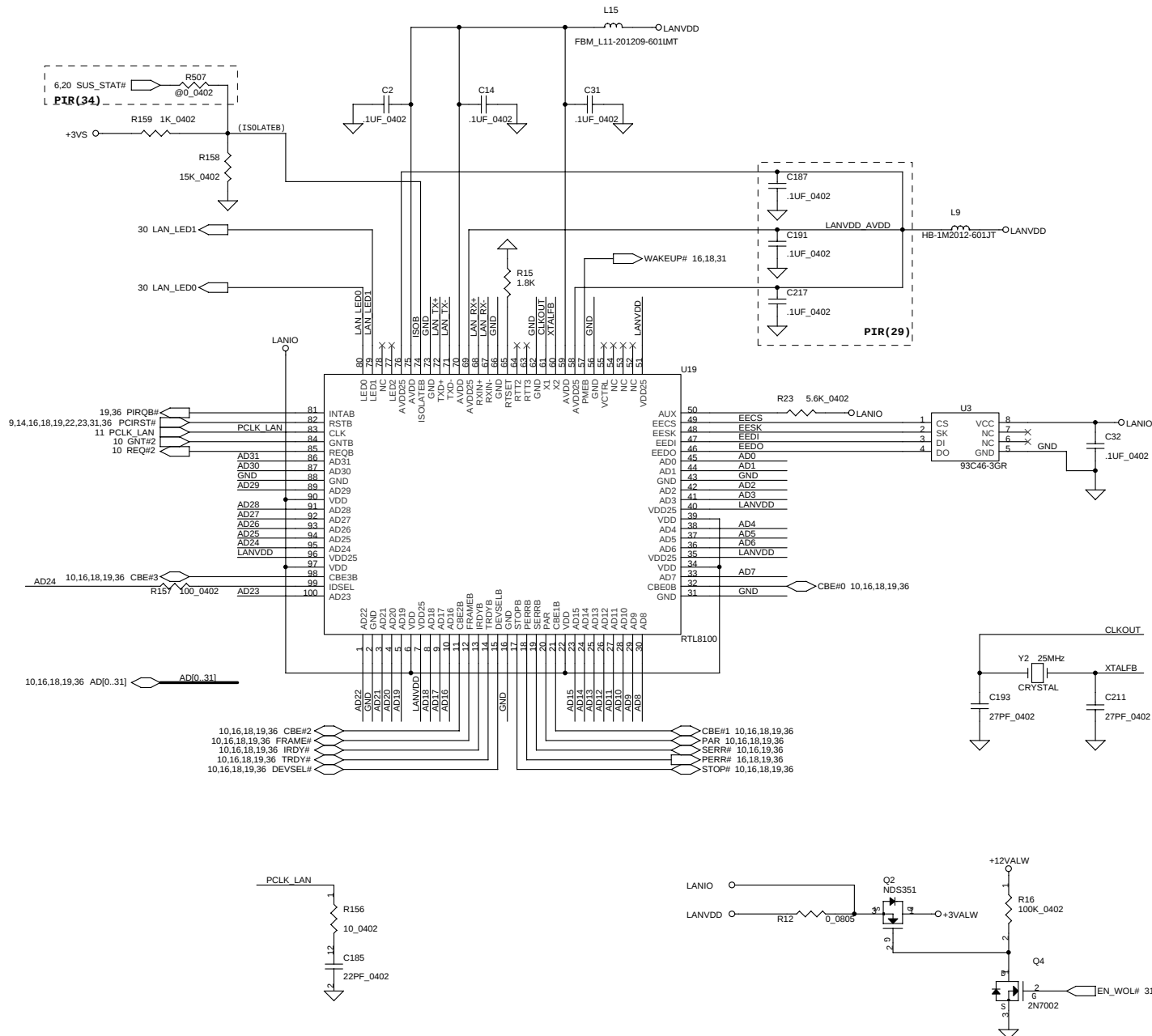
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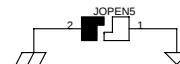
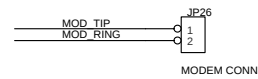
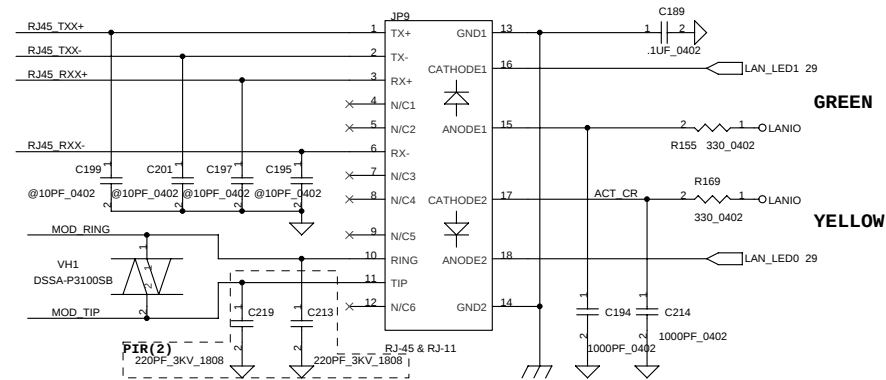
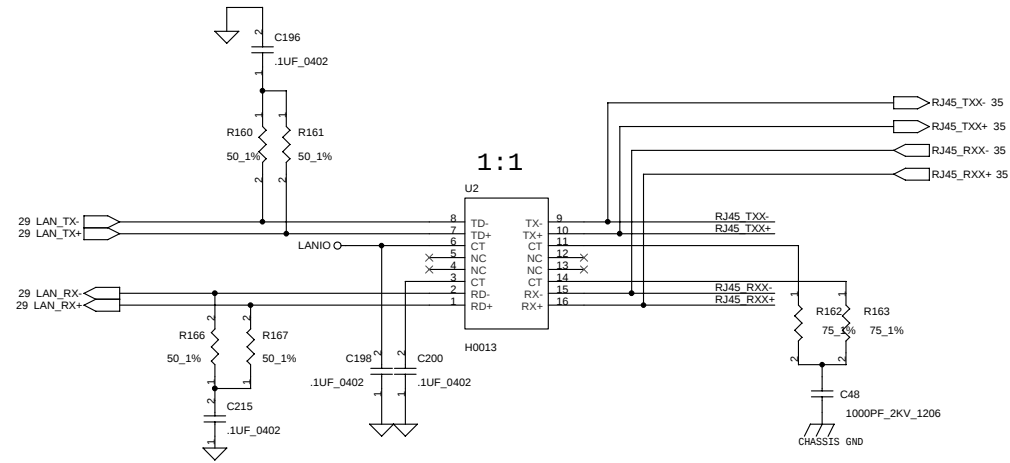
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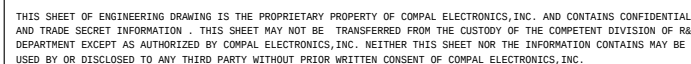
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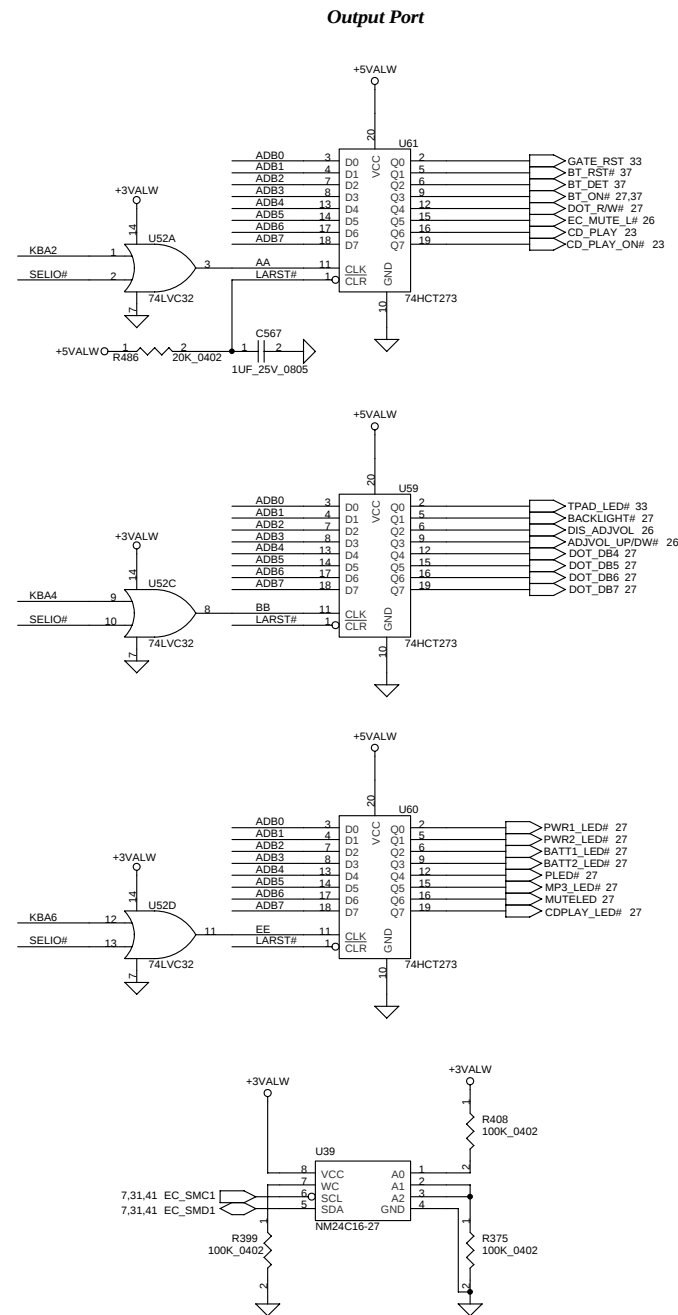
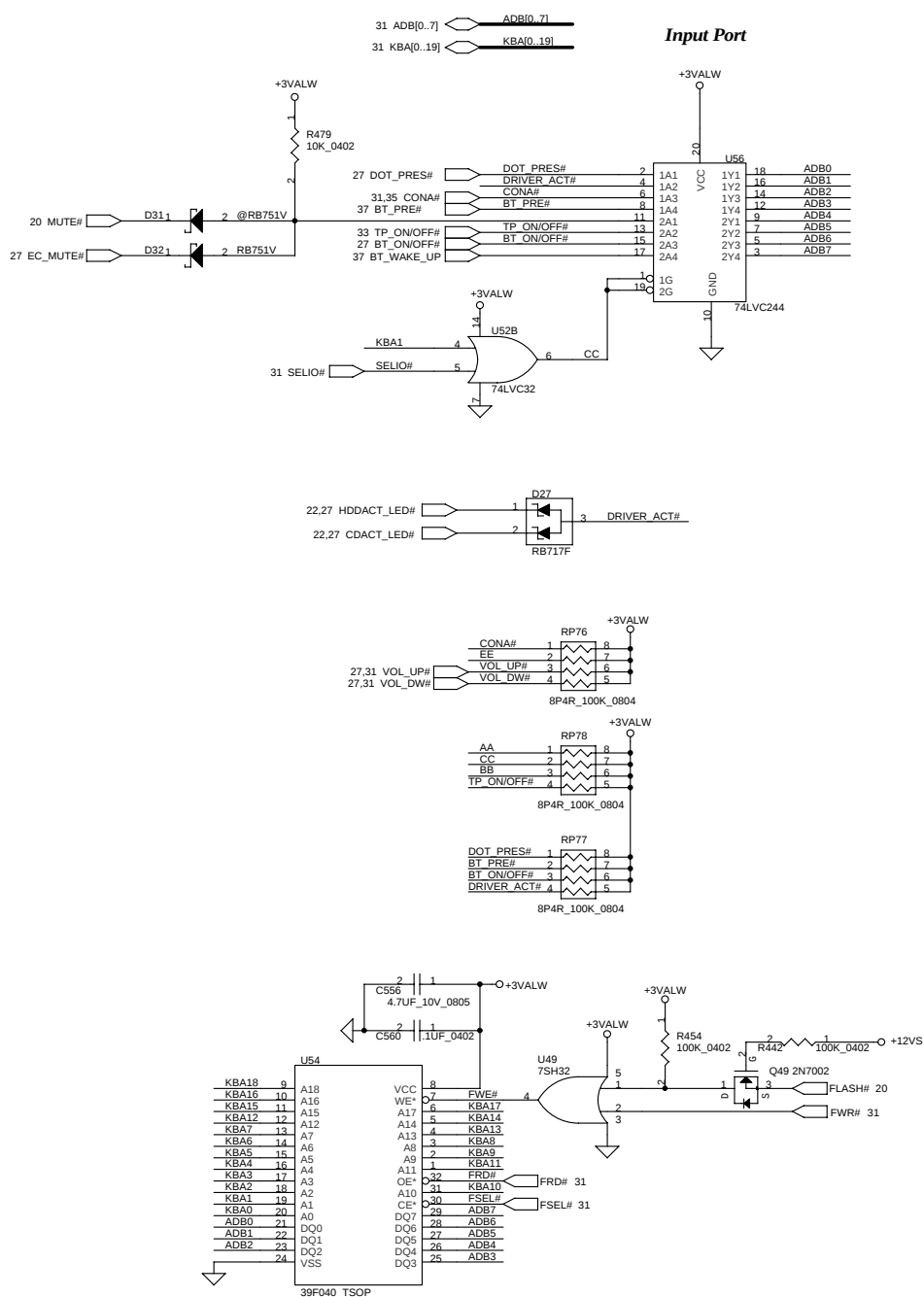
LAN Realtek RTL8100



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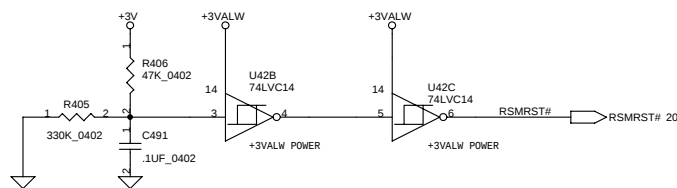


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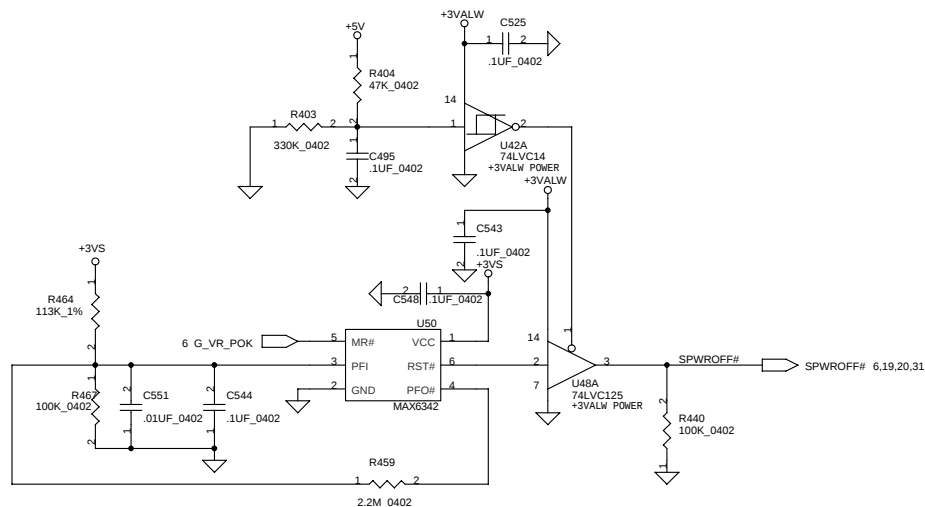
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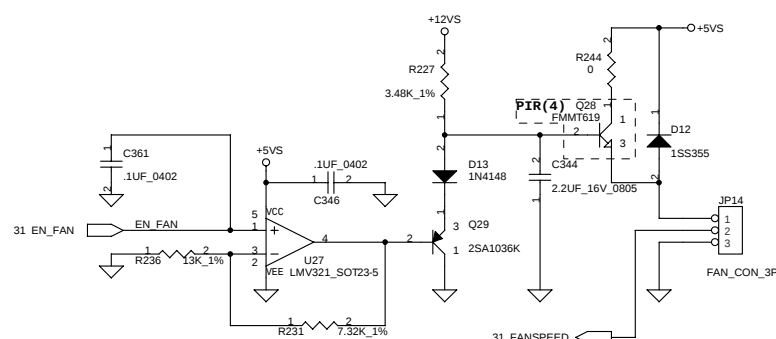
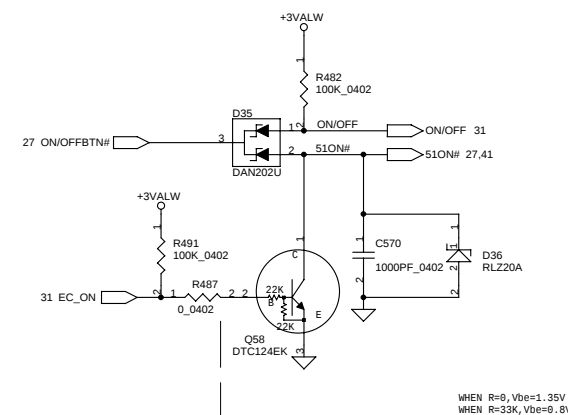
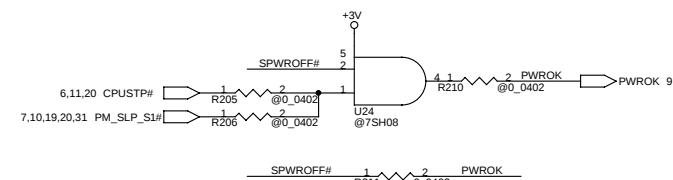
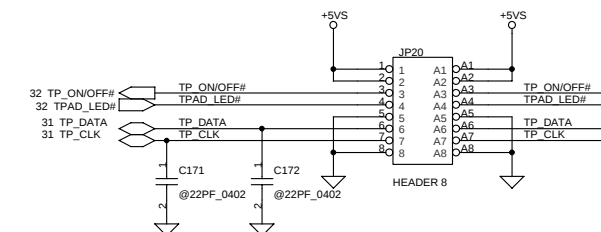
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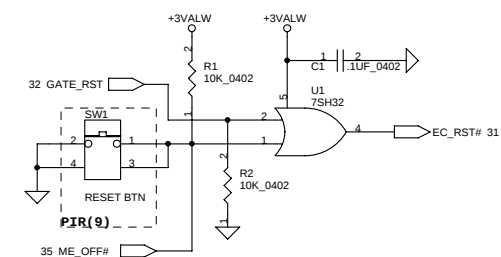
PWR ON CKT



FAN Connector

Second FAN connector
PIR(13,32)

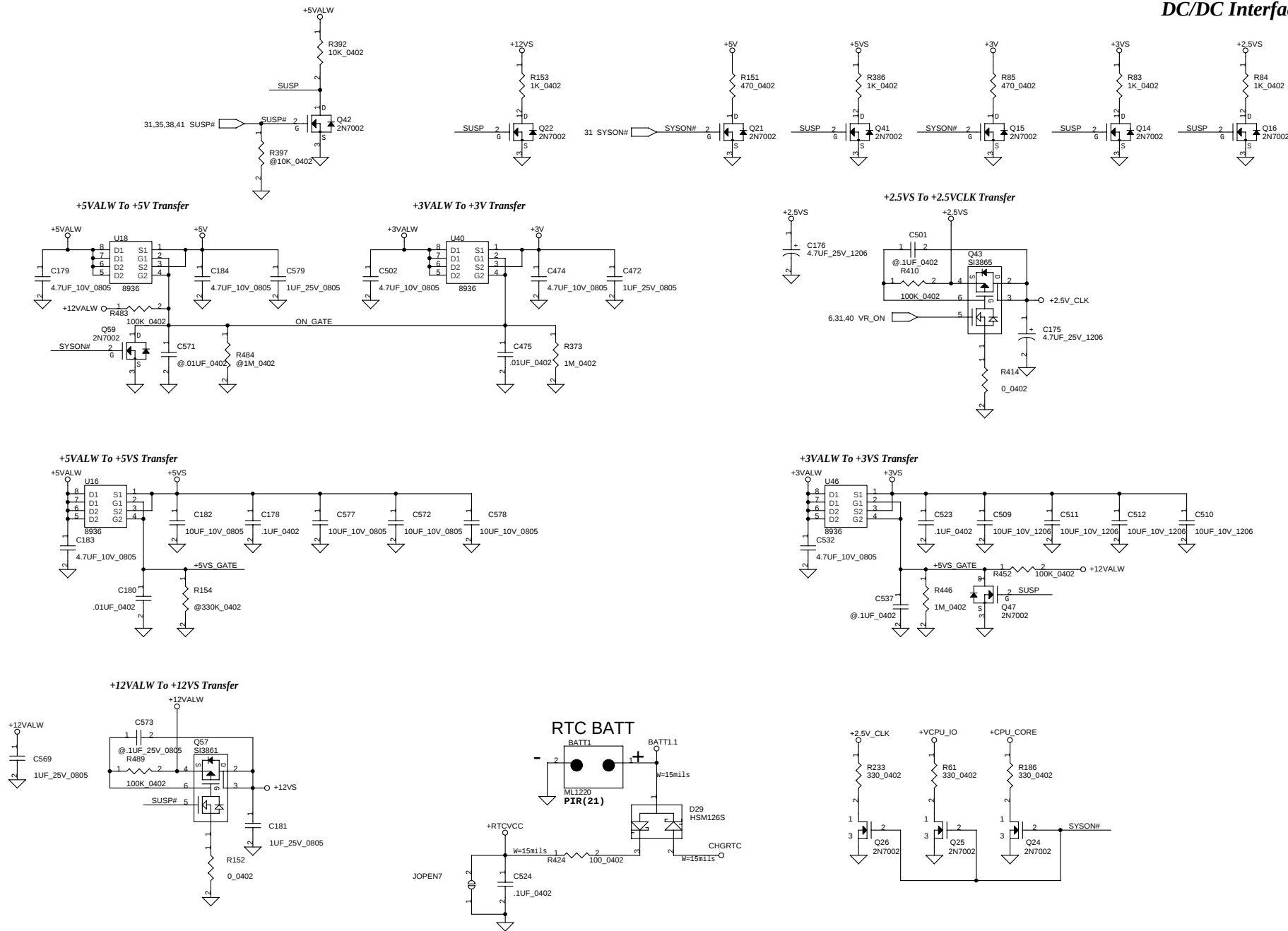
M/E OFF Button



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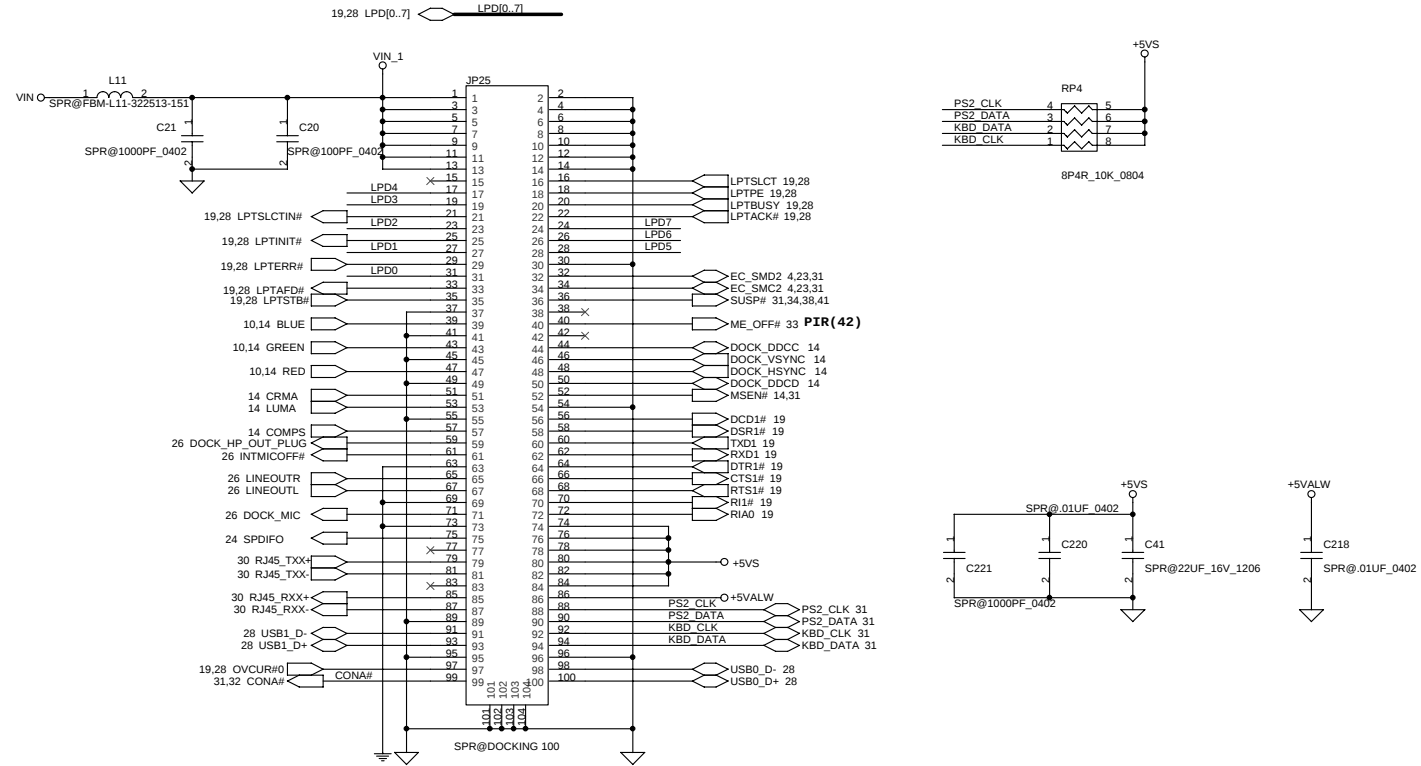
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DC/DC Interface & RTC



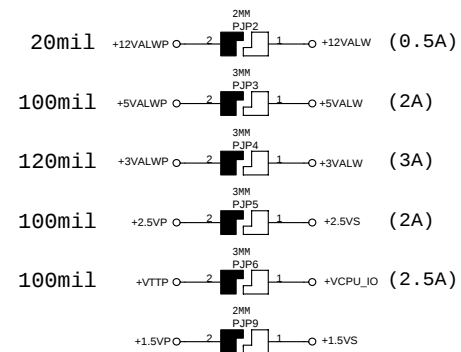
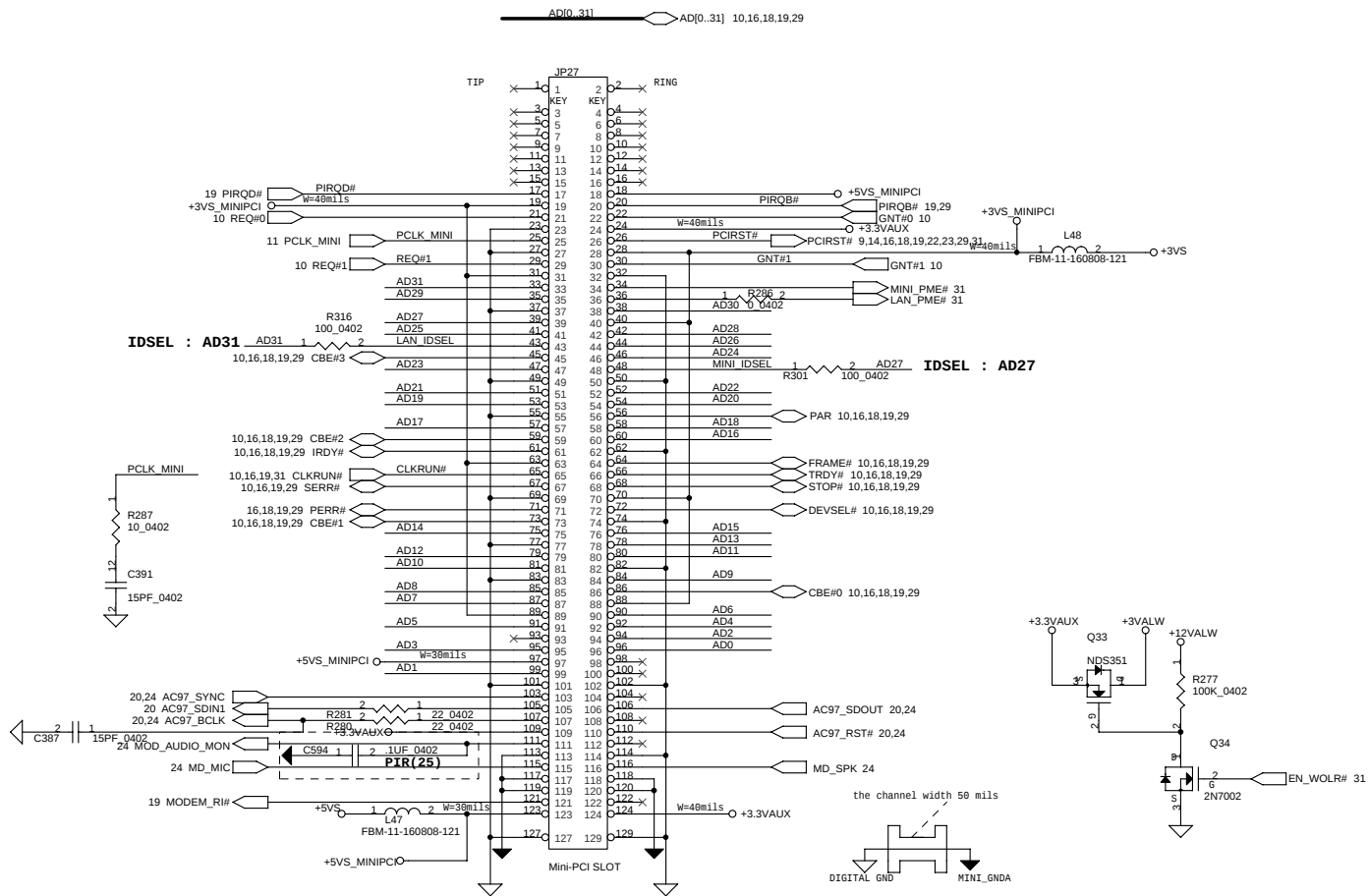
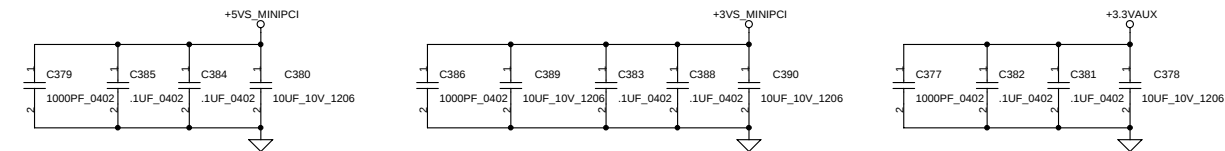
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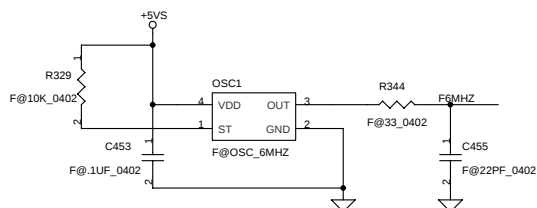
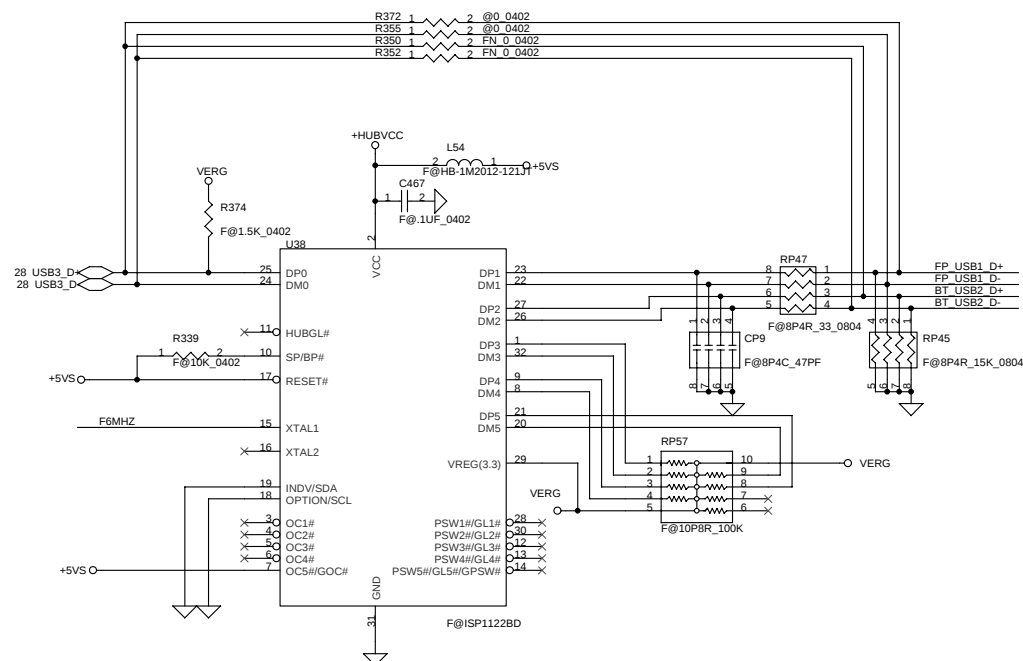


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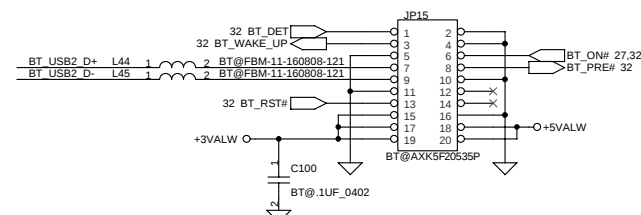
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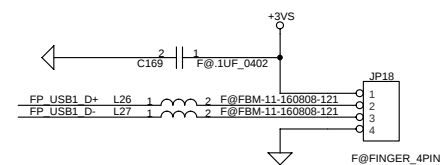
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Bluetooth Connector



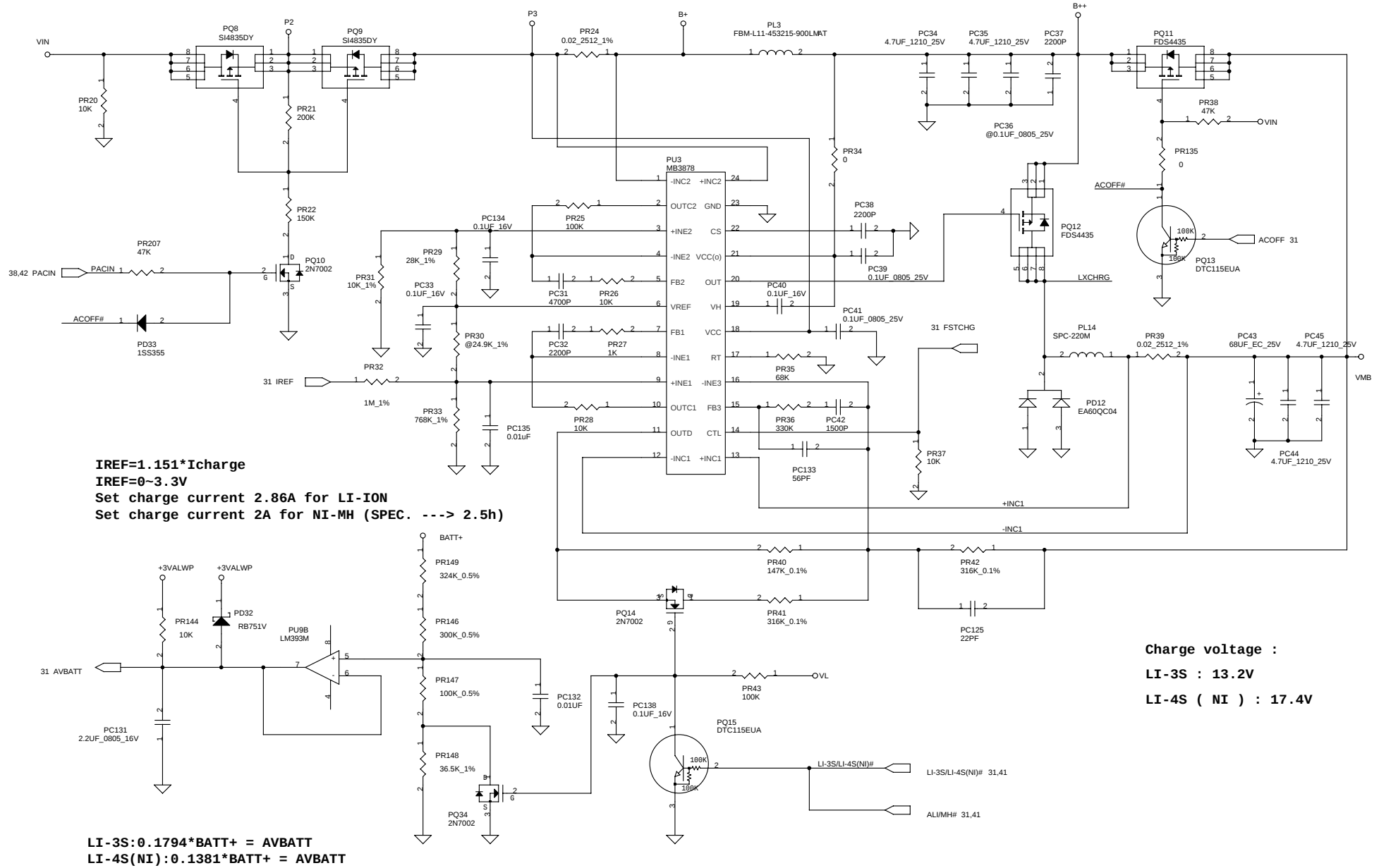
Finger Printer Connector



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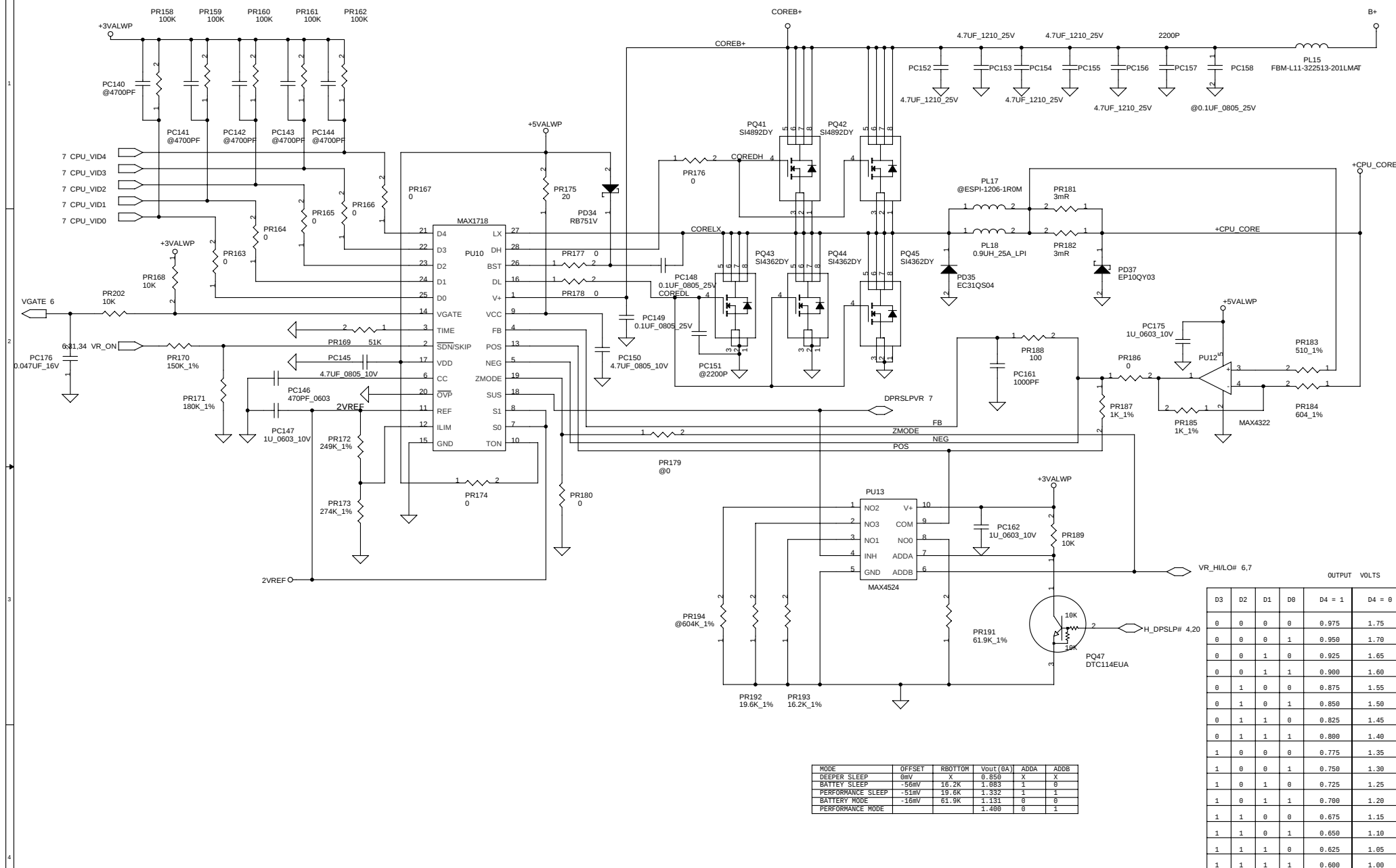
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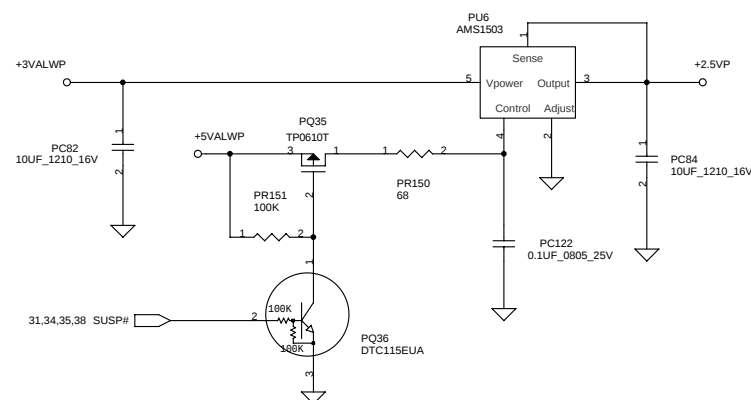
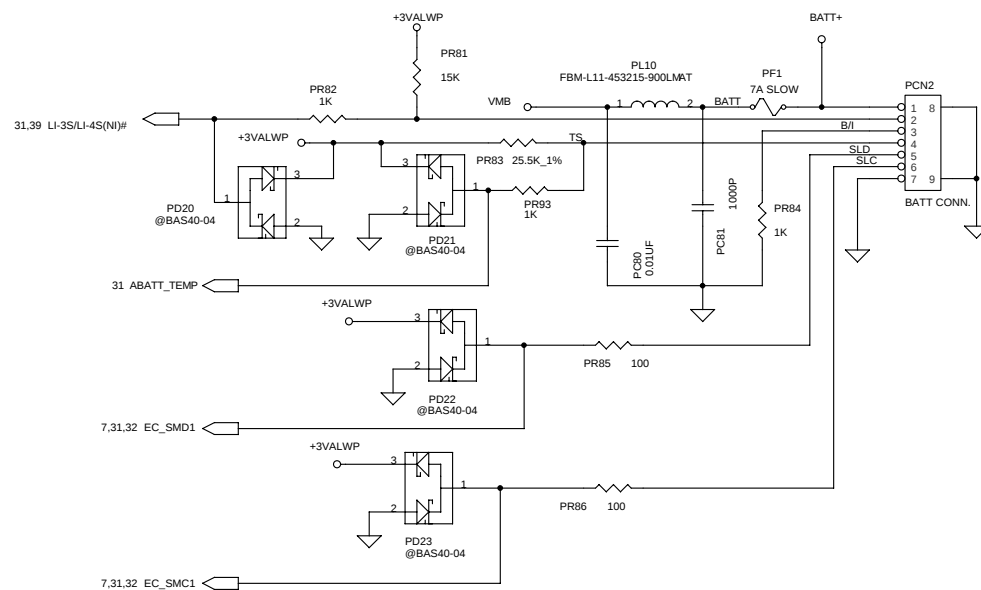
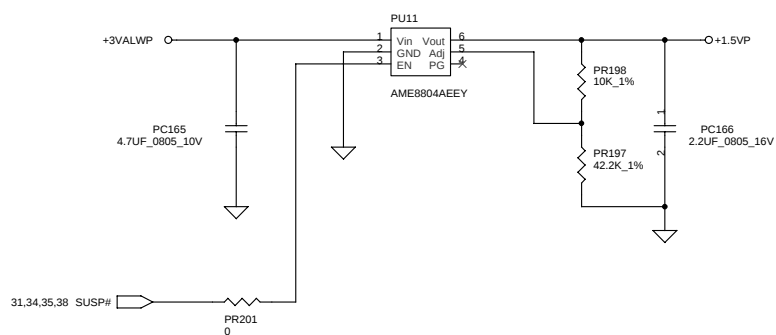
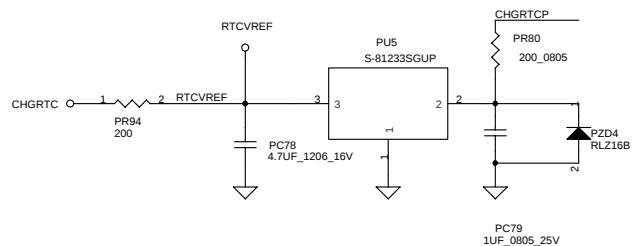
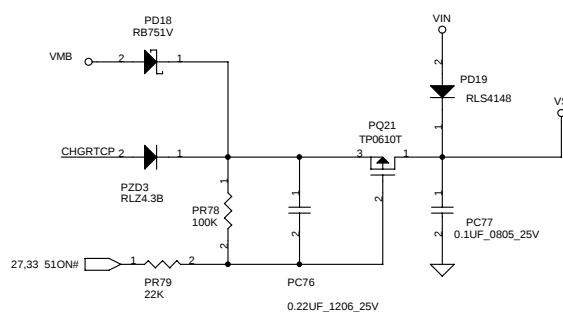
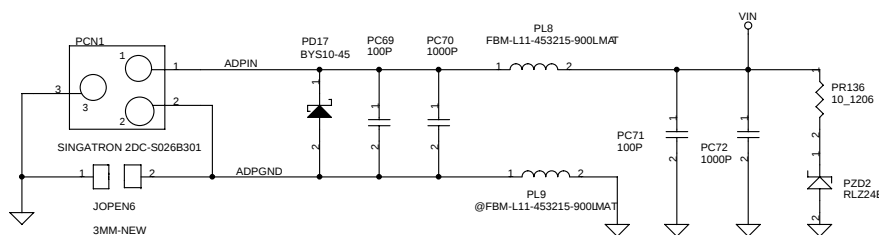
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CPU_CORE



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Voltage Rails

Power Plane	Description	S1	S3	S5
VIN	Adapter power supply (19V)	N/A	N/A	N/A
B+	AC or battery power rail for power circuit	N/A	N/A	N/A
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+CPU_IO	1.25V switched power rail for CPU AGTL Bus	ON	OFF	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+2.5VS	2.5V switched power rail for TwisterT(VT8606) core power.	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3V	3.3V power rail	ON	ON	OFF
+3VS	3.3V switched power rail	ON	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON*
+5V	5V power rail	ON	ON	OFF
+5VS	5V switched power rail	ON	OFF	OFF
+12VALW	12V always on power rail	ON	ON	ON*
+12VS	12V switched power rail	ON	OFF	OFF
RTCVCC	RTC power	ON	ON	ON

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

External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts
Mini-PCI	AD27	0	PIRQB#
Mini-PCI(LAN)	AD31	1	PIRQD#
LAN(RTL8100)	AD24	2	PIRQB#
CardBus(CB1410)	AD15	3	PIRQA#
IEEE-1394 Controller	AD25	4	PIRQC#

EC SM Bus1 address

Device	
CPU voltage Mux	0110 1110 b
Smart Battery	0001 011X b
EEPROM	1010 000X b

EC SM Bus2 address

Device	
MAX1617MEE	1001 110X b
OZ163	0011 0100 b
Docking	0011 011X b

P.S:Default Resistor & Capacitor's package are 0603.
Default 8P4R package is 0402.

For C1- test

1.Solving can't boot-up issue.

Pull-high(R492;200 ohm) ITP_PREQ# to +VCPU_IO.

2.For solving high voltage test fail issue.

Change C219,C213 from 1000P_2KV_1206 to 220P_3KV_1808.

3.To avoid the chipset enter an unpredictable state.(VIA's recommend by AN198)

Add two 1K ohm pull-high resistor at R217,R222.

4.Change Q28 from 2SC2411EK(P=0.2W) to FMMT619(P=0.625W) for increasing system reliability.

5.For solving Microphone noise issue.

Change C372 from 0.1uF to 0.01uF.

6.For solving 1.06GHz QS CPU speed detect incorrect issue.

Add Q60 2N7002

Add Q61 DTC124EK

Add R494 100K_0402

7.Exchange Q11.1 and Q11.3 for solving external MIC. can't be disable on docking side.

8.Cahnge R35,R37 from TV@4.7K_0402 to 4.7K_0402 for solving B3C082.

9.For solving ESD fail issue.

Exchange SW1.1,SW1.3 with SW1.2,SW1.4

10.For solving EC can't resume from idle mode issue.

Add D37 and D38.(RB751V)

11.For EMI requirement.

Add CP4,CP5 8P4C_100PF.

12.For solving audio sound can't be muted issue.

Del Q48,Q50,Q51,Q52,Q53,Q54,Q55,R455.

Add U62(74HCT4066),C583(0.1UF).

13.Reserve for second FAN.

Add JP29,C584(0.1UF),D39(1N4148),Q62(NDS351),R495(0_0402).

14.For solving SDRAM clock timing can't meet PC133 specification issue.

Del R234,R121,R325,R104,R68,R80

Del C345,C166,C427,C150,C105,C129

15.For solving the record sound is much weaker issue.

Add U63(TDA1308)

Add R496(100_0402)

Add R497(10K_0603_1%)

Add R498(22K_0603_1%)

Add C588(0.1UF_0402)

Add C590(0.22UF_0603)

Add C591(15PF_NPO_0603)

Add C586(1UF_0603)

Add C587(0.1UF_0402)

Add C589(1UF_0603)

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16.For solving Celeron-T CPU can't power on issue.(Celeron-T SKU only)

Add Q63(FDV301N)
Add R499(1.5K_0402)

17.VIA recommend.It can increasing +VCPU_IO power plan noise immunity.

Add C592(1000PF_0402)
Add C593(1UF_0402)

18.To change CardBus power switcher from CP2211(ENE) to TPS2211(TI).

19.To change 133MHz from +-0.25% center spread to -0.5% down spread.

Del R196(137_1%_0402)
Change R194 from 26.7_1%_0402 to 0_0402.

20.To change clock generator from ICS950602 to CY28317 for solving system up issue.

21.Change RTC battery from VL1220(Panasonic) to ML1220(Maxell) for purchase policy.

22.Intel recommend that change +VS_CMOSREF voltage divider from 1K/2K to 510/1K.

Change R230 from 1K ohm to 510 ohm.
Change R235 from 2K ohm to 1K ohm.

23.EC team change their SPEC. for support dock-on to wake up EC(591).

Add D40.

24.Add a pull high resistor(R500,47K ohm) for solving cardbus card can't be detected.

25.For solving audio noise from PHONE channel.

Add C594,0.1UF_0402.

26.For EMI team requirement.

1.Change R256,R252,R240,R239 from 0_0402 to 22_0402.
2.Change R246,R238,R247 from 0_0402 to 10_0402.
3.Change R257,R245,R251,R253 from 0_0402 to 33_0402.
4.Change RP9~RP13,RP17~RP20,RP24~RP26,RP32~RP34,RP36.

27.For solving c-test unit can't power-on issue.(2001/9/20)

Change net "EC_MUTE#" to "EC_MUTE_L".
Change R481 from 10M ohm to 0_0603.

28.For Intel PMU SPEC. and SKU change.(2001/9/25)

1.)For all SKU.
Del R79(1.2K_0402)
Del C116(1UF_10V)
Del U11(7SH32)
2.)For Tualatin SKU only.
Stuff R78,C118,U9,R493,U10,R349
3.)For Celeron-T SKU only.
Stuff R501

29.Increasing LANVDD power plan noise immunity.(2001/9/25)

Add C187,C191,C217(1UF_0402)

For C2-test

30.BIOS can't support C4 and deepper sleep mode,so delete unnecessary components for all of the Tualatin CPU SKU.(2001/10/11)

Del U9,U10,R493,U12,C117,R74,R76,R72,RP21,R78,C118.
Add R501(0_0402),R502(0_0402),RP79(8P4R_0).

31.Build two sets level shifter for solving CD-player board unstable issue.(2001/10/11)

Add Q64,Q65(FDV301N).
Add R503,R505(1.5K_0402).
Add R504(100K_0402).
Add R506(1K_0402).

32.Delete second FAN circuit unnecessarily in all of SKU.(2001/10/11)

Del JP29,C584,Q62,D39,R495.

33.For solving wake up from Ring failure issue.(To divide On-board LAN and MINI-PCI card's AUX. power plan for saving power consumption.(2001/10/11)

34.Reserve R507(@0_0402) for BIOS team request.(2001/10/17)

35.SDRAM skew didn't met specification.(2001/10/17)

Add R234(10_0402),C345(15PF_0402).

36.For solving IDE bus reset incorrect issue.(2001/10/18)

Add U64,U65(7SH08FU).
Add C595,C596(1UF_0402).

37.For solving Celeron-T 933MHz CPU reboot fail issue.(2001/10/24)

Add R250(10_0402),R232(0_0402)
Add C598(1UF_0603) for Celeron-T SKU only.
Del R249,R314
Change R208 from 56.2_1%_0402 to 1K_0402.

38.To correct pull-up resistor error.(2001/10/24)

Del R290(1K_0402)
Add R508(4.7K_0402),R391(4.7K_0402)

39.For solving internal microphone echo issue.(2001/10/24)

Change R498 from 22K_1% to 12K_1%.

40.For solving PCIRST# from VT8231 has glitch issue.It causes system cold boot from LAN failure.(2001/10/24)

Add U66(7SH08FU)
Del R298.

41.Change JP22.1 & JP22.2 's power plan from +3VS to +5VS for increasing IR transmission distance.

For MP(REV1.0)

42.For solving system auto re-start while system hot dock to SPR.

Disconnection JP25.38 and JP25.42

43.EC team request.

Delete D40.

For MP(REV2.0)

44.For solving CD-Play board abnormal issue.

Change R505 from 1.5K_0402 to 10K_0402.
Change R506 from 1K_0402 to 10K_0402.
Change Q65 from FDV301N to 2N7002.

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