

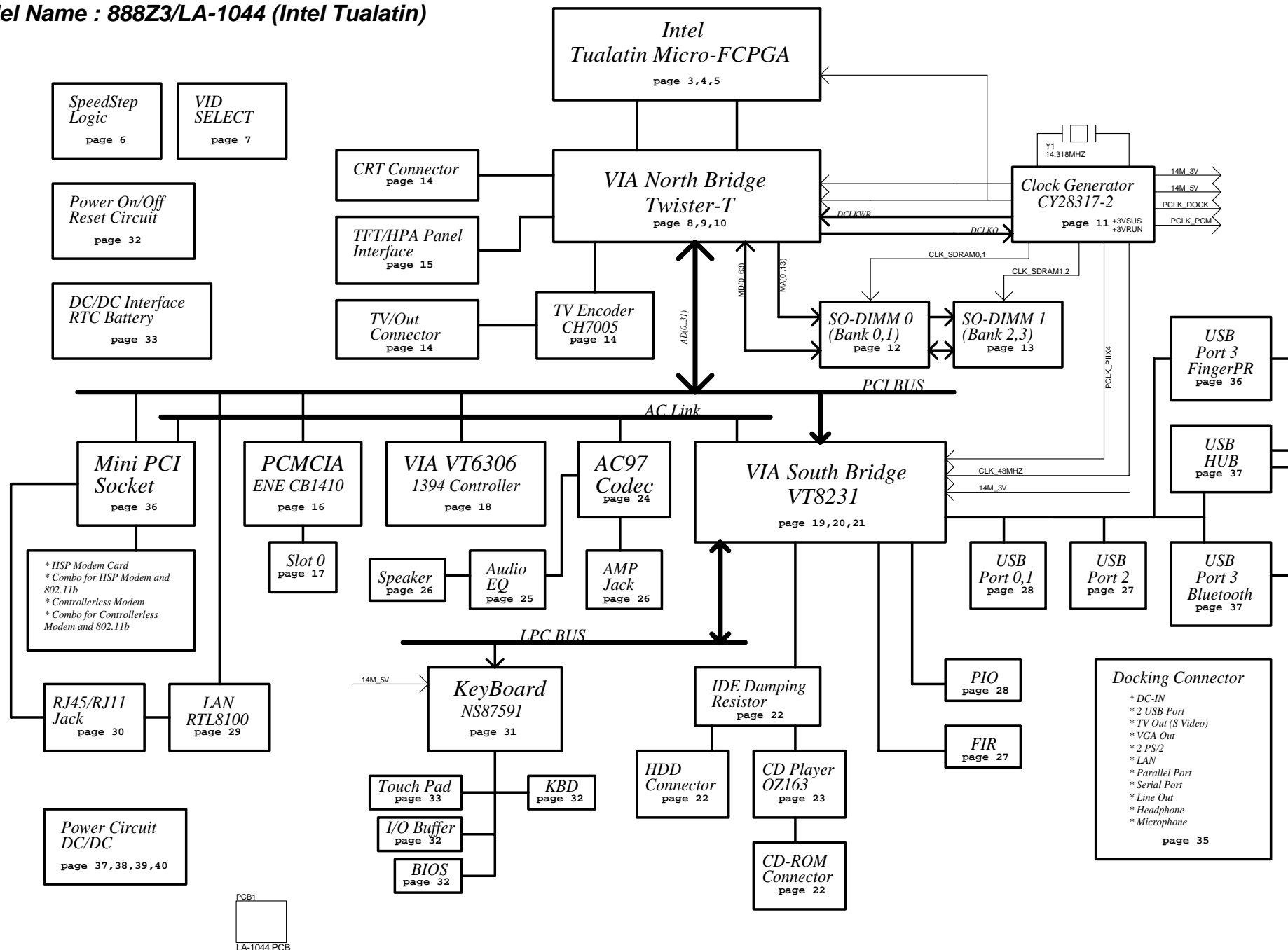
888Z3 LA-1044 REV2.0 SCHEMATIC DOCUMENT
Intel (Tualatin) with VIA (VT8606-TwisterT + VT8231)

BOM 記號
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
EQN_ SKU WO/EQ 要打
F@ SKU W/FPR 要打
FN_ SKU WO/FPR 要打
SPR@ SKU W/DOCKING CONN. 要打

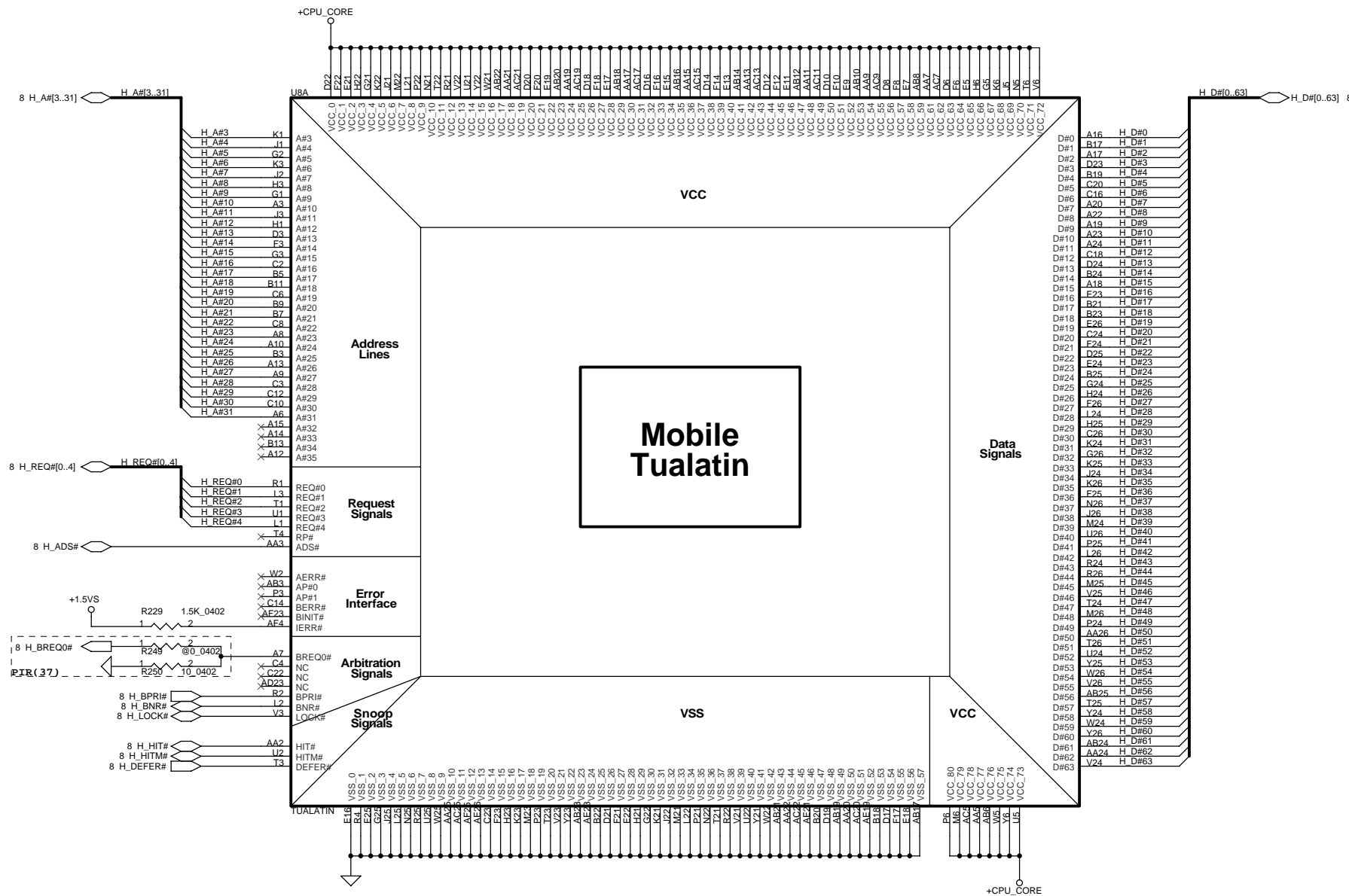
鋼版不開:
JOPEN1
JOPEN8
JOPEN9
JOPEN10
PCB Layer
Structure:
TOP
GND1
IN1
GND2
VCC
IN2
GND3
BOT

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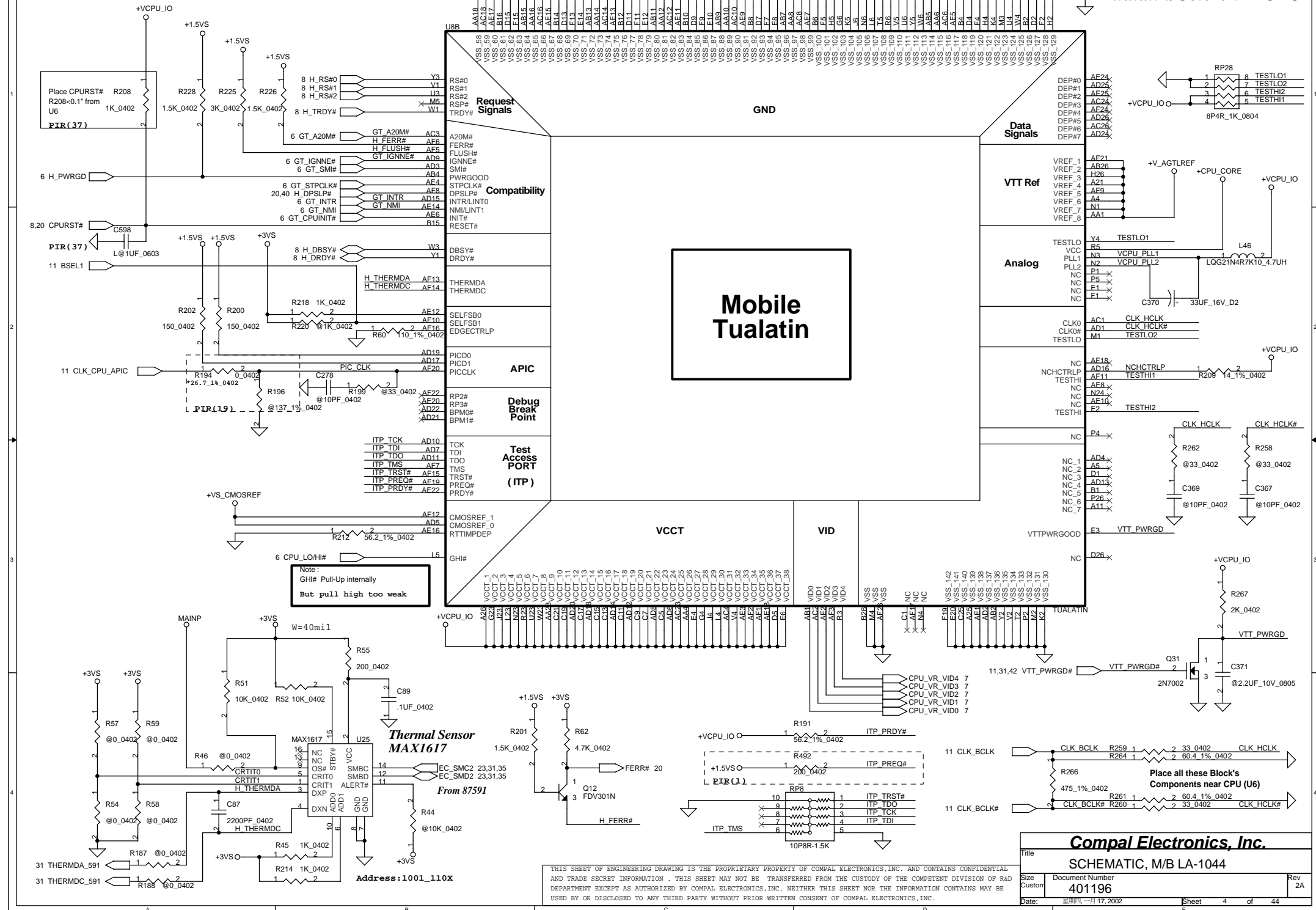
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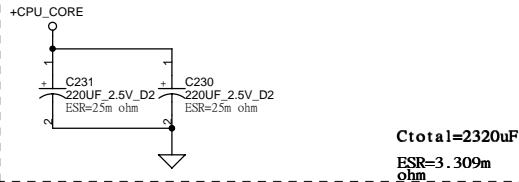
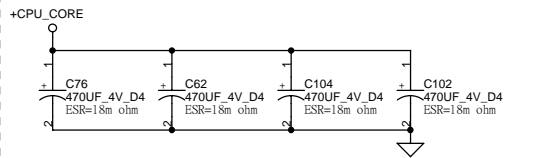
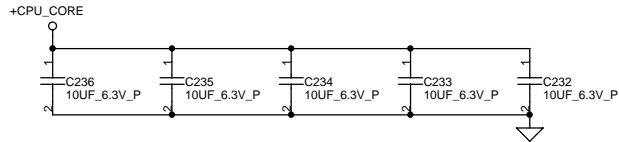
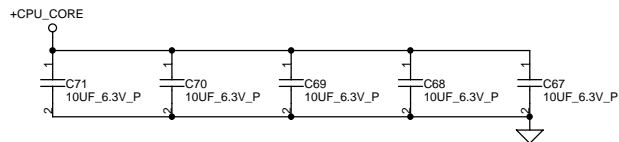
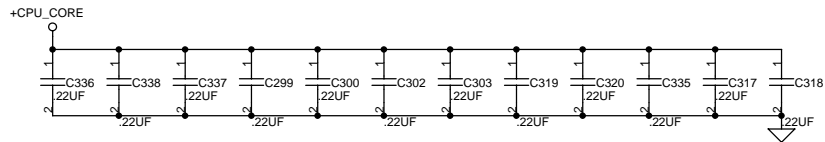
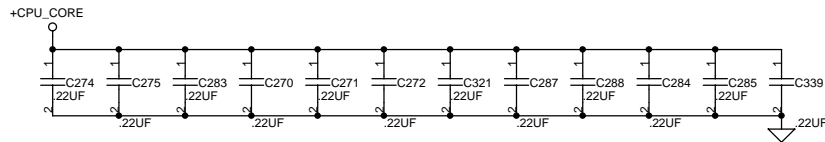
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Tualatin/Celeron-T CPU

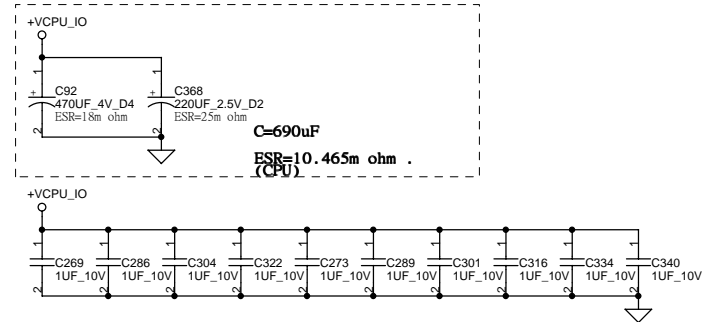


Layout note :

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.

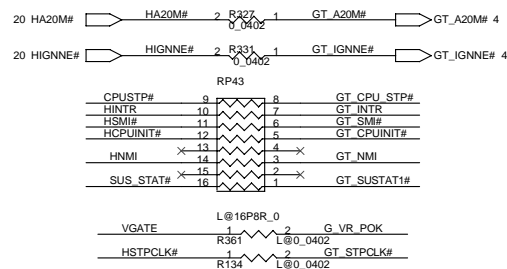
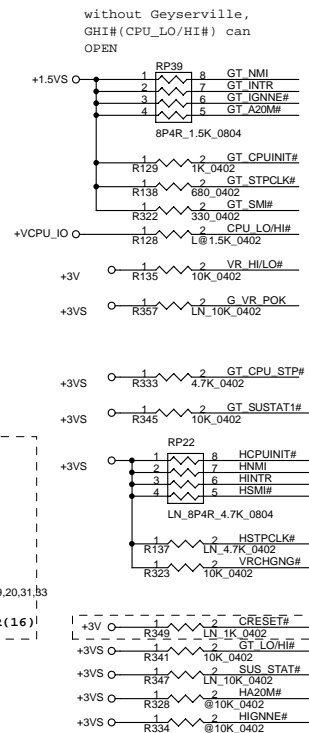
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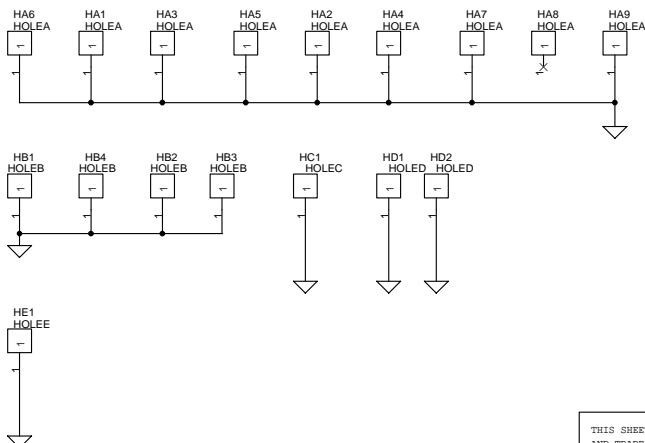
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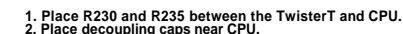
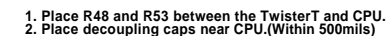
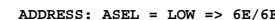
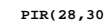
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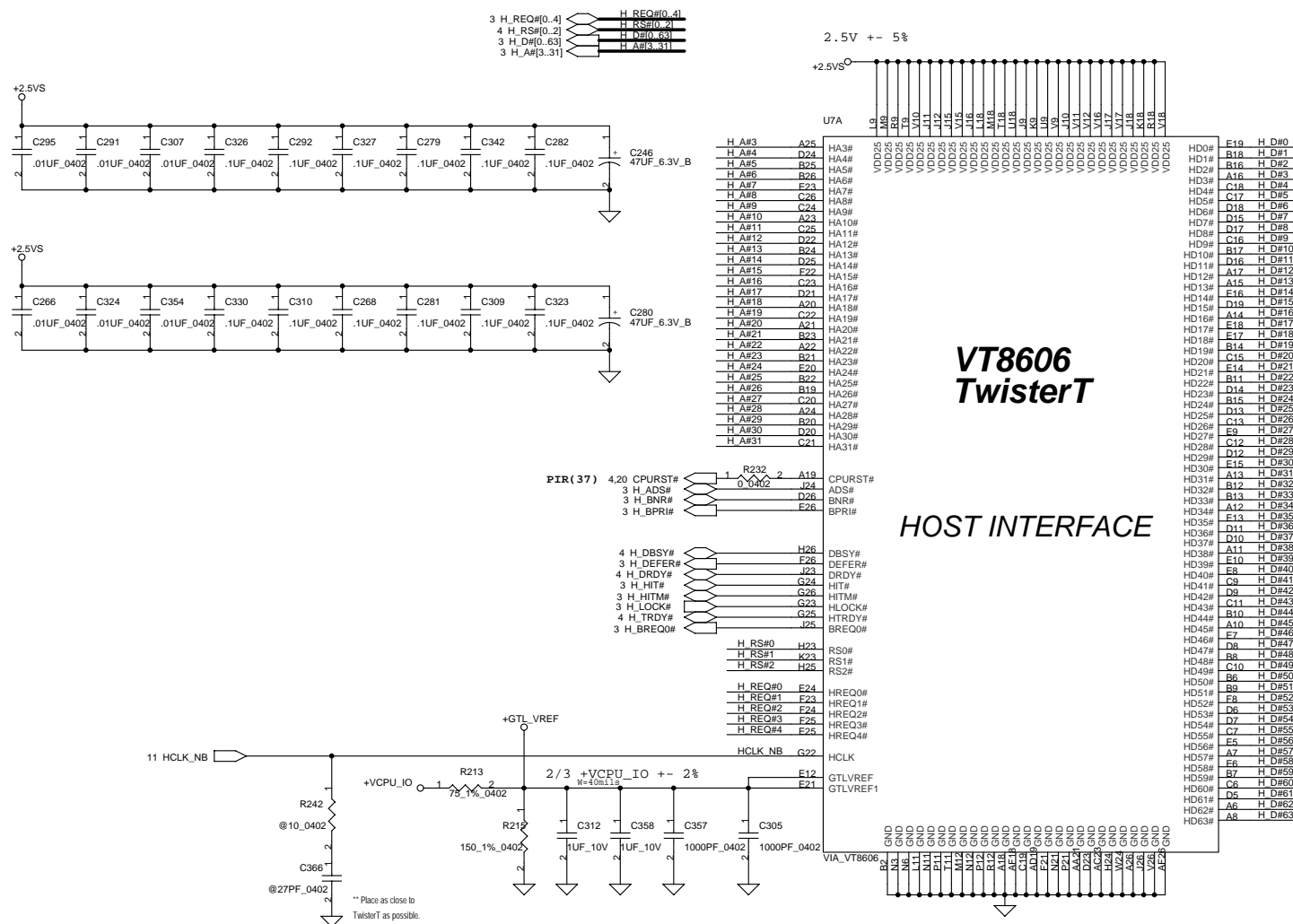
Fiducial Mark



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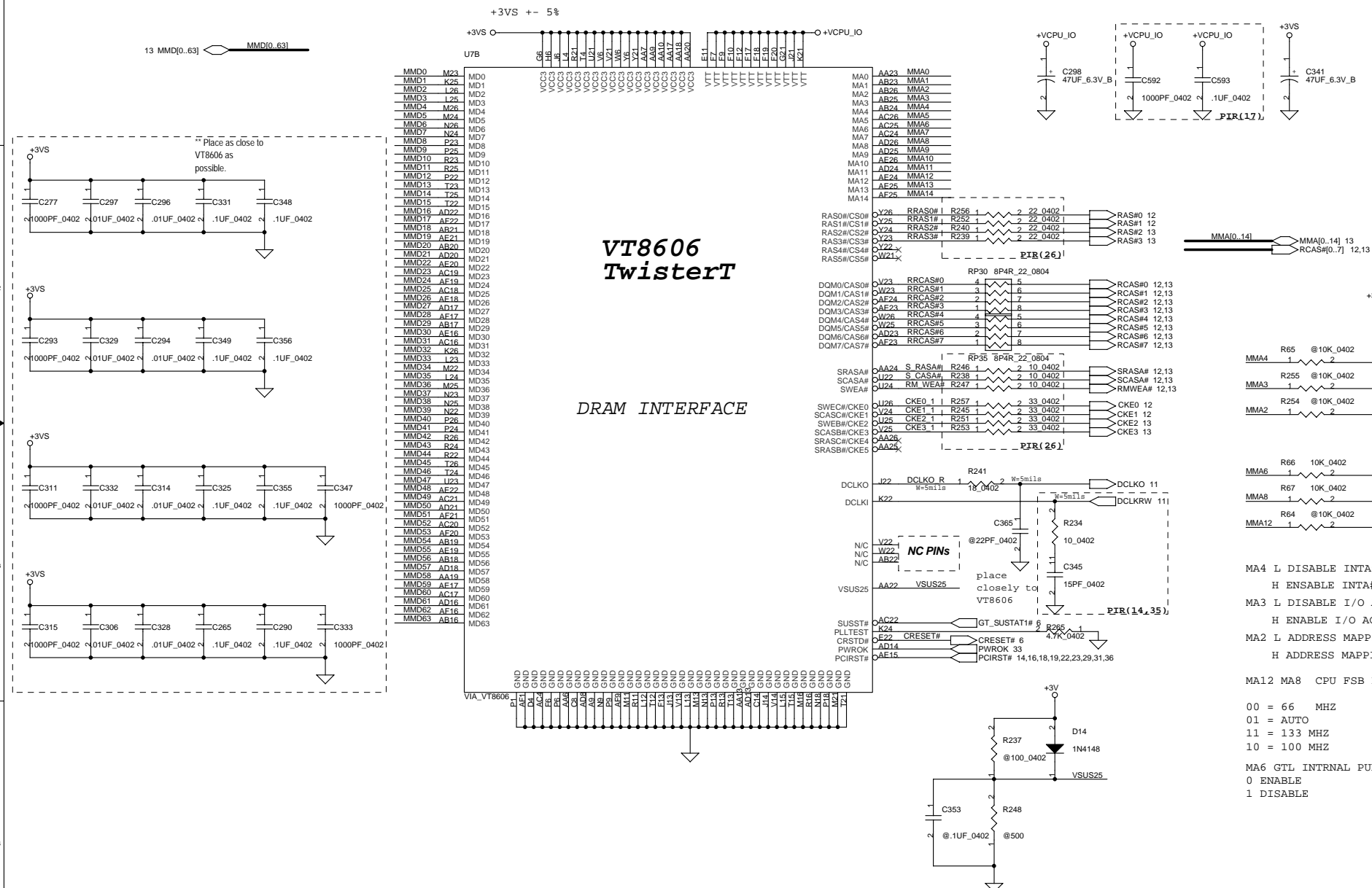


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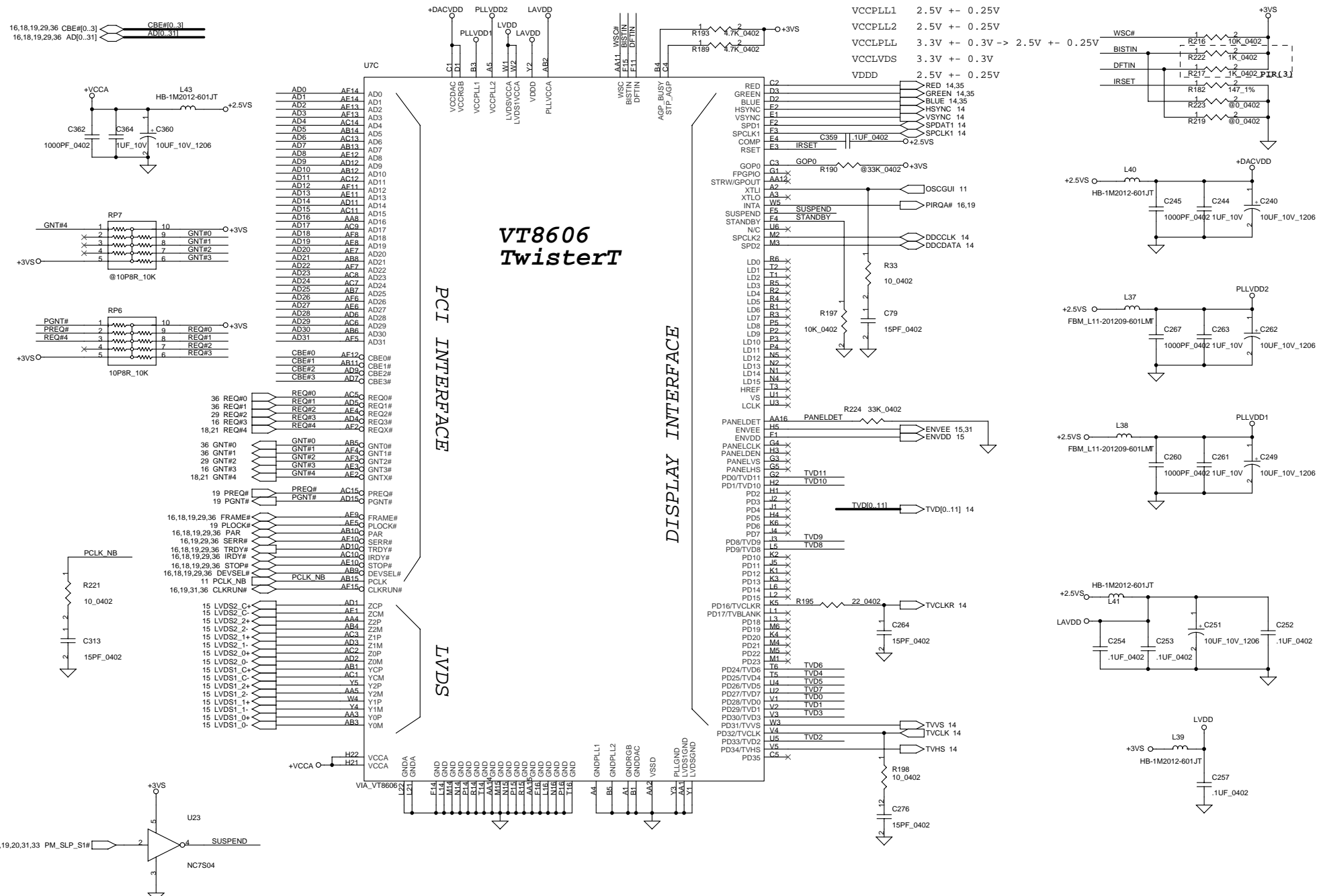


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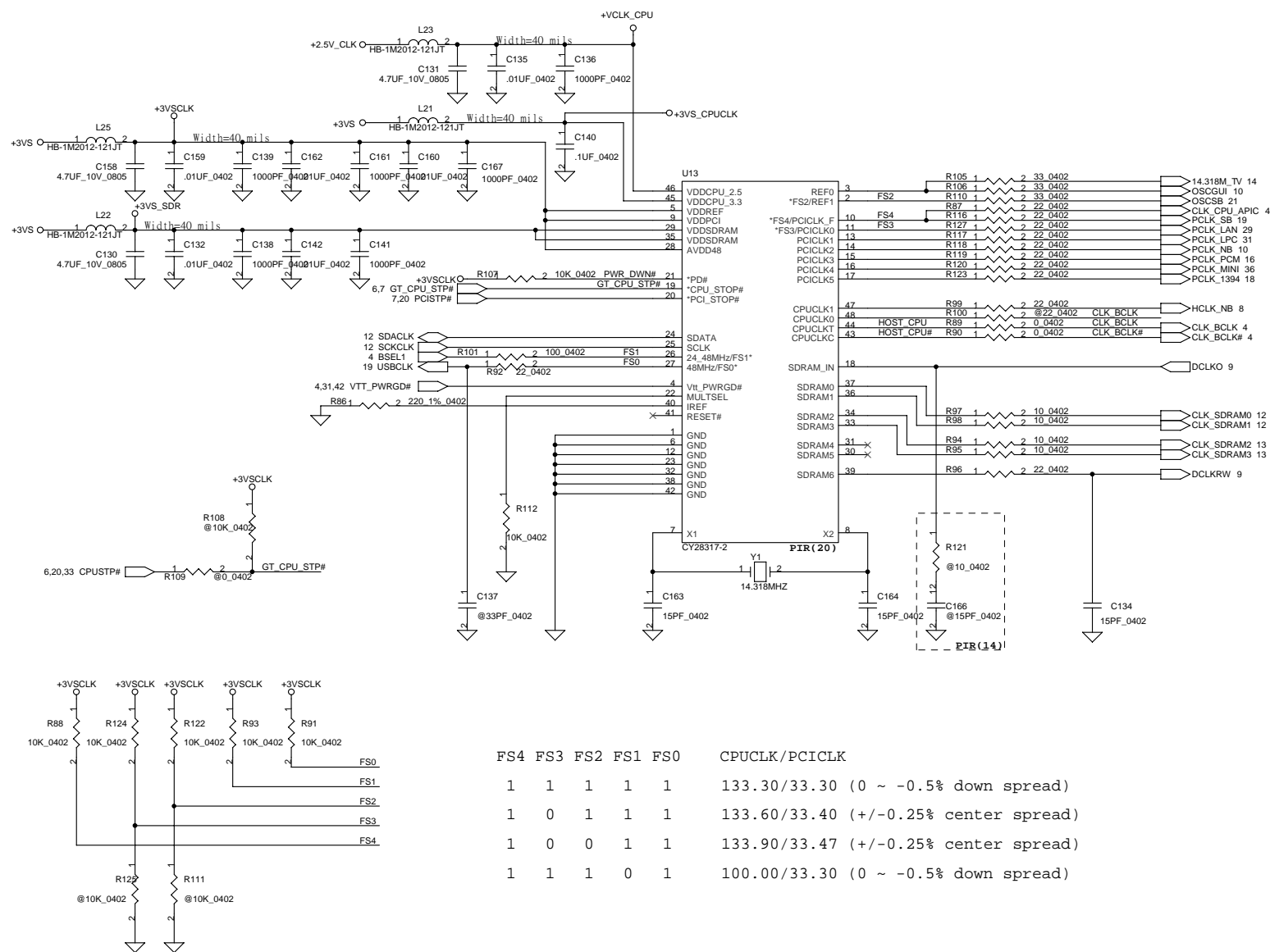
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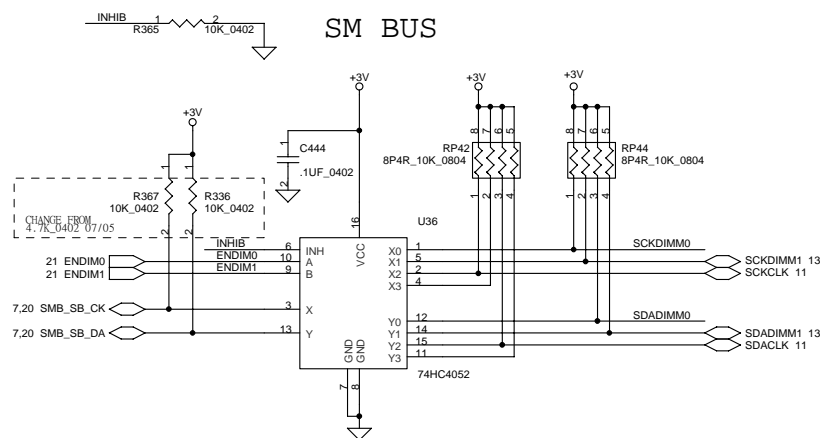
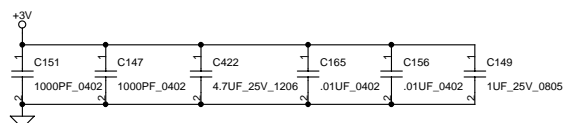
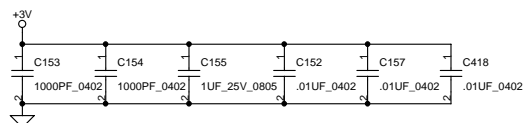
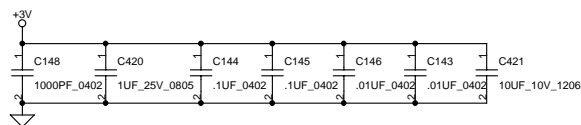
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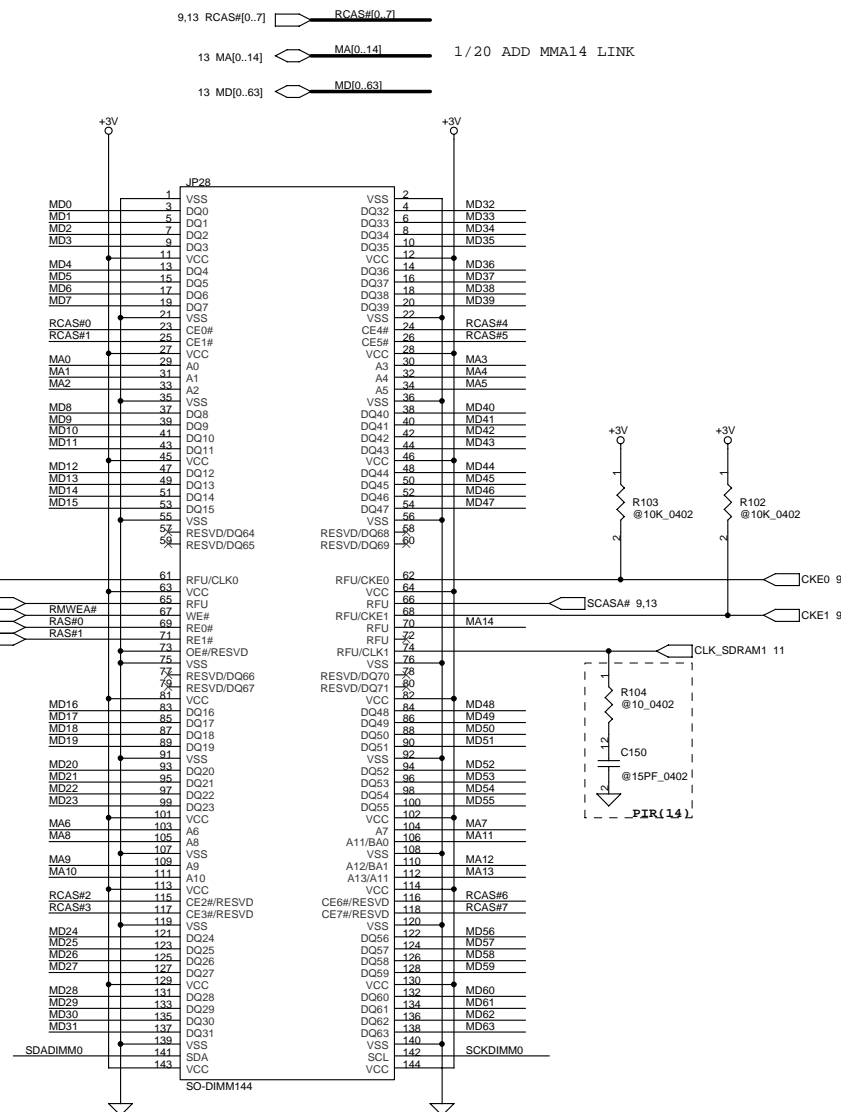
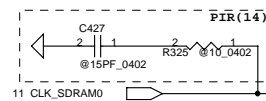
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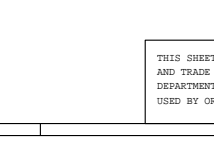
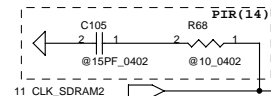
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<i>INHIB</i>	<i>ENDIM1</i>	<i>ENDIM0</i>	<i>Channel ON</i>
<i>0</i>	<i>0</i>	<i>0</i>	<i>SO-DIMM0</i>
<i>0</i>	<i>0</i>	<i>1</i>	<i>SO-DIMM1</i>
<i>0</i>	<i>1</i>	<i>0</i>	<i>Clock Generator</i>
<i>1</i>	<i>X</i>	<i>X</i>	<i>NONE</i>

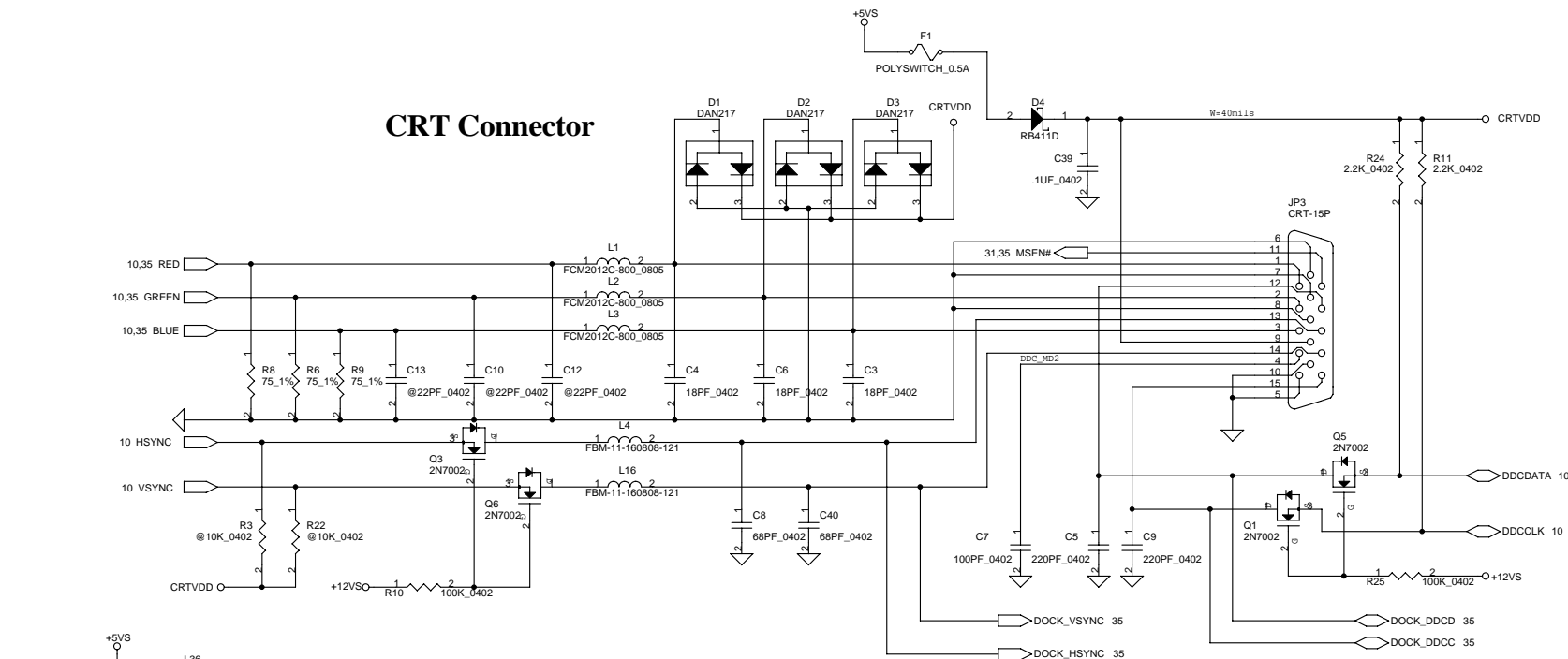


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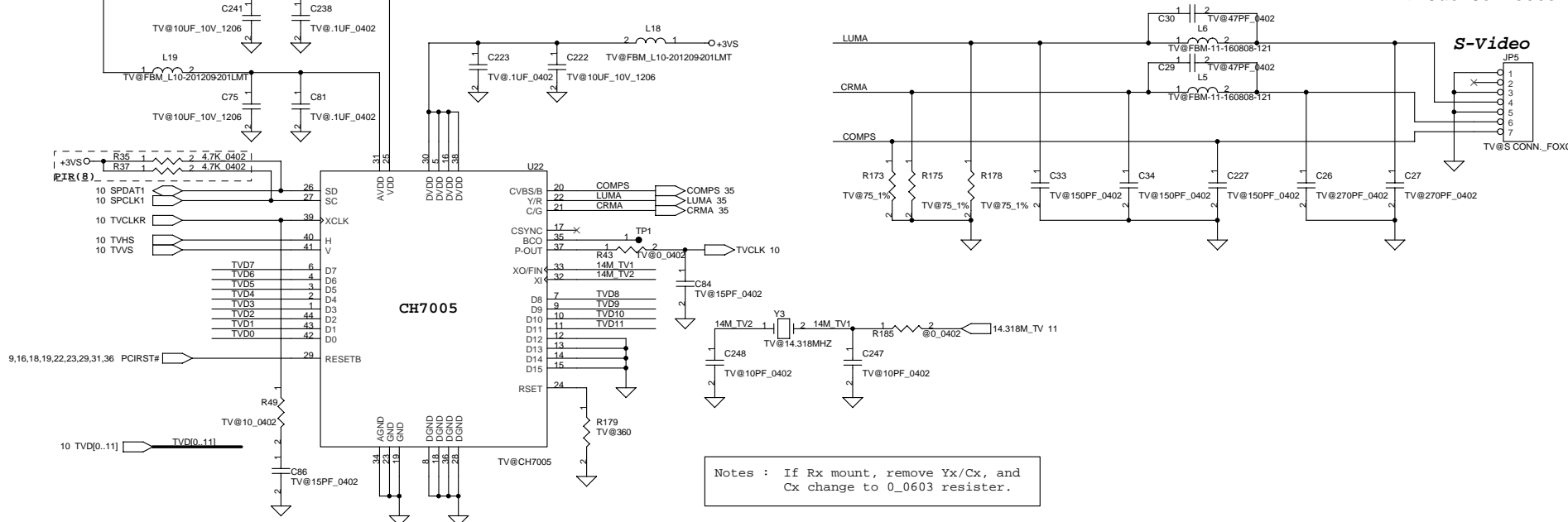


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CRT Connector



TV-Out Connector



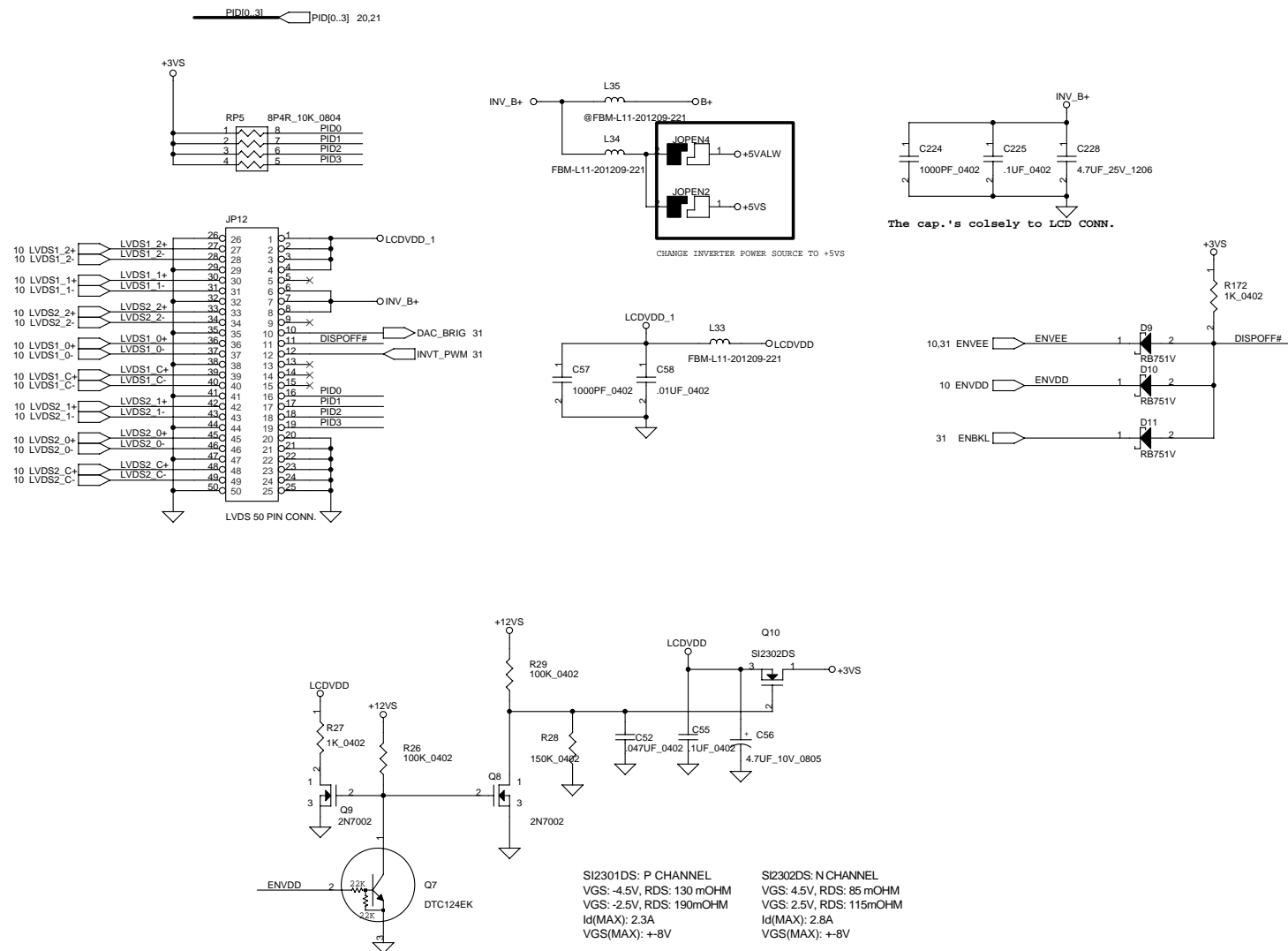
Notes : If Rx mount, remove Yx/Cx, and Cx change to 0_0603 resistor.

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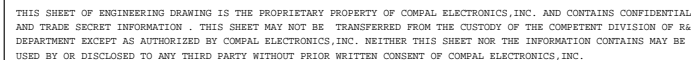
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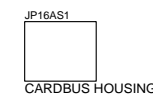
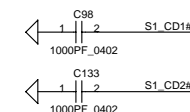
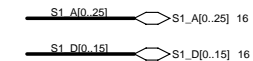
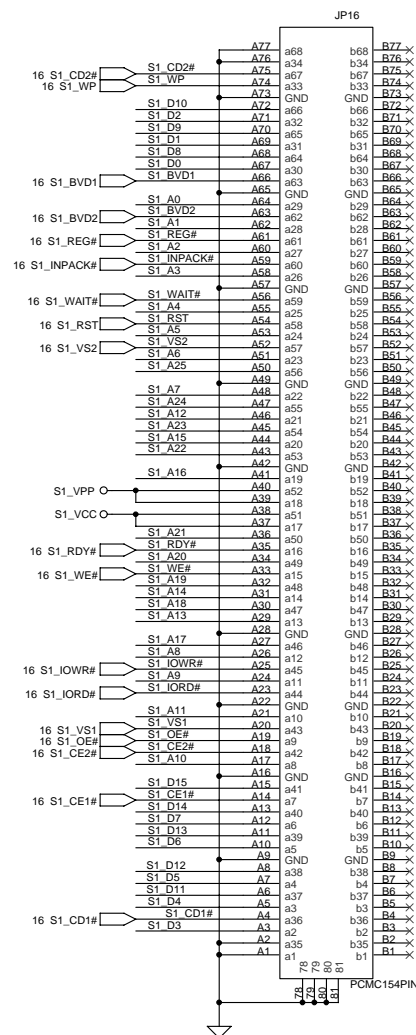
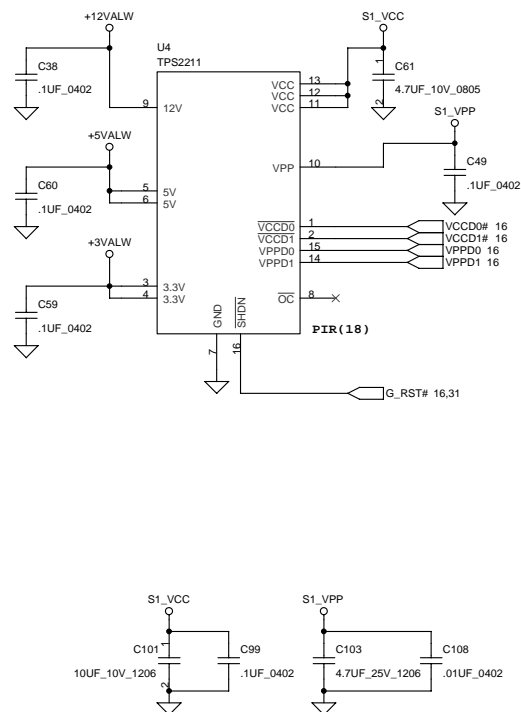
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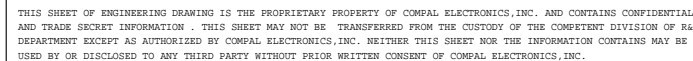


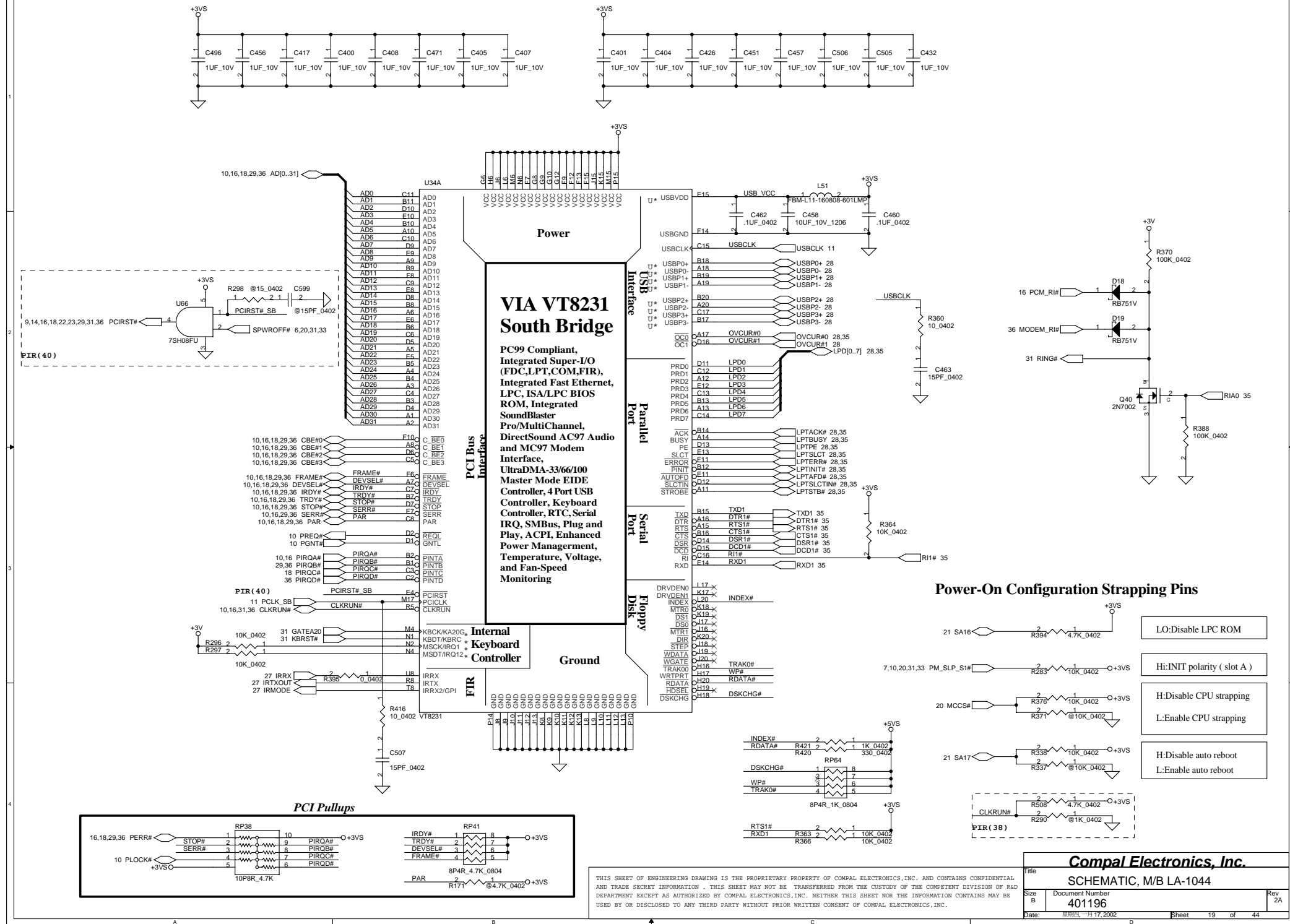
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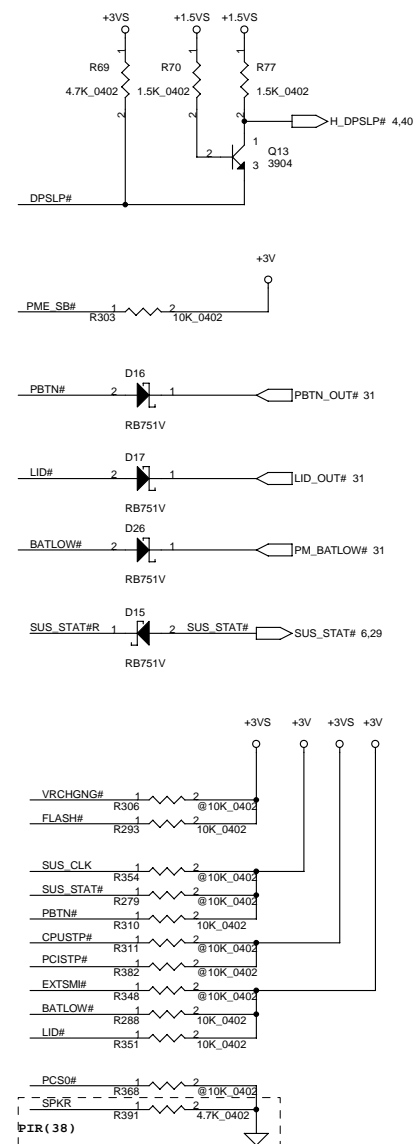
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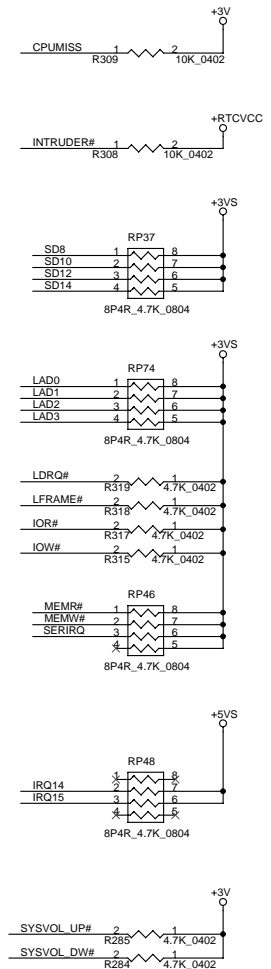
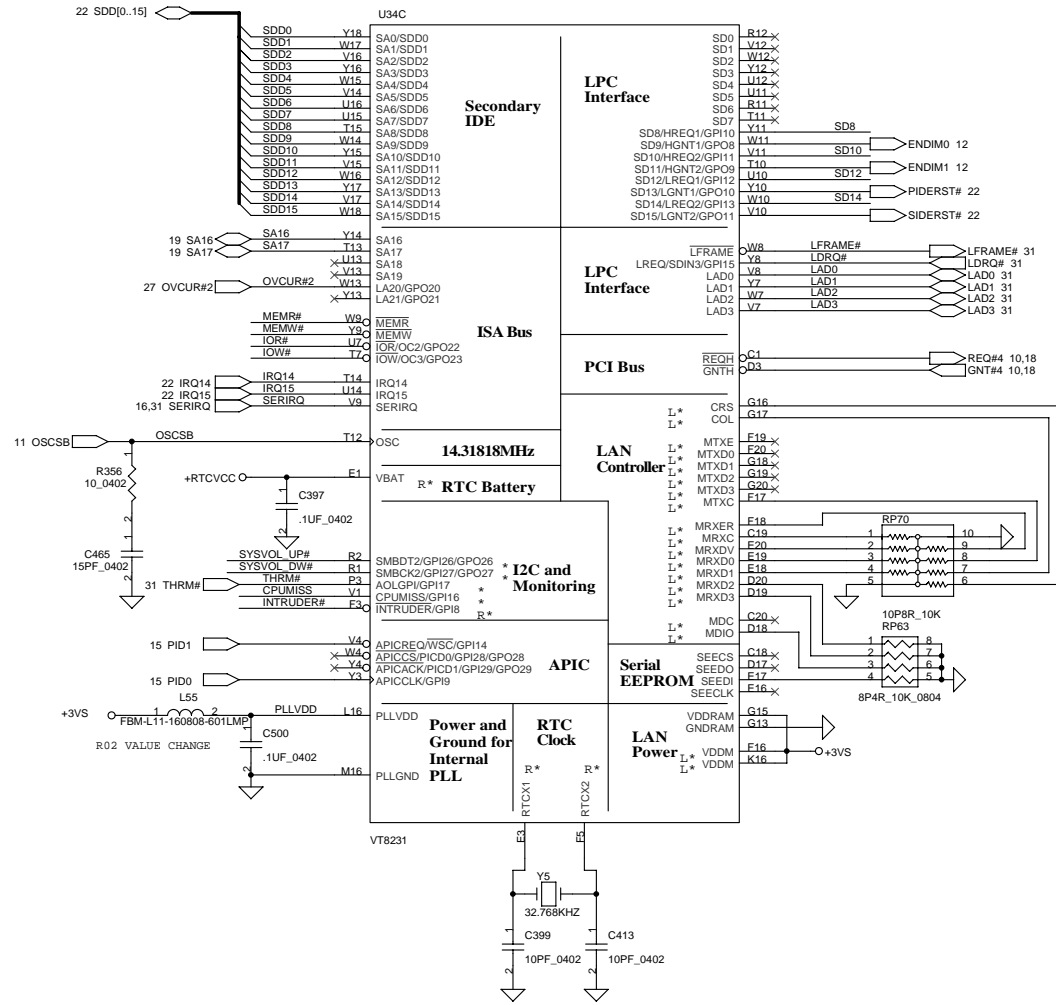






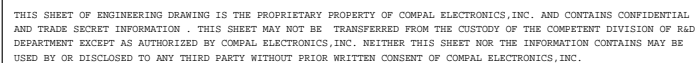
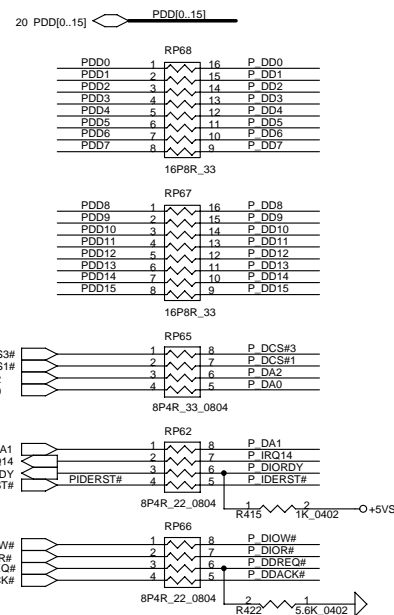
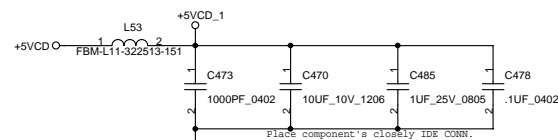


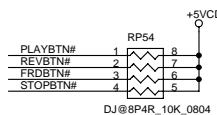
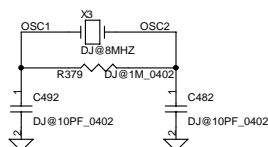
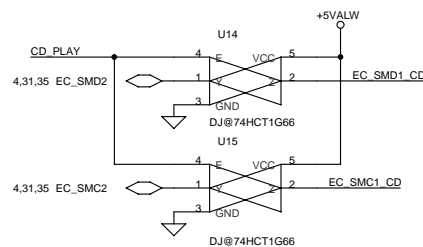




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S_DD[0..15] S_DD[0..15] 22

S_DD0	76	HDD0
S_DD1	78	HDD1
S_DD2	81	HDD2
S_DD3	83	HDD3
S_DD4	86	HDD4
S_DD5	90	HDD5
S_DD6	95	HDD6
S_DD7	97	HDD7
S_DD8	2	HDD8
S_DD9	4	HDD9
S_DD10	8	HDD10
S_DD11	11	HDD11
S_DD12	15	HDD12
S_DD13	18	HDD13
S_DD14	20	HDD14
S_DD15	22	HDD15

22 S_DA0	S_DA0	68	HDA0
22 S_DA1	S_DA1	70	HDA1
22 S_DA2	S_DA2	66	HDA2
22 S_DCS1#	S_DCS1#	63	HCS0
22 S_DCS3#	S_DCS3#	61	HCS1

22 S_DIOR#	S_DIOR#	99	HDIOR#
22 S_DIOR#	S_DIOR#	6	HDIOW#
22 S_DIOR#	S_DIOR#	72	HDIOW#
22 S_DIOR#	S_DIOR#	93	HDIOW#

22 S_IRQ15	S_IRQ15	74	HINTRO
22 S_DREQ#	S_DREQ#	12	HDMARQ
22 S_DACK#	S_DACK#	88	HDMACK#

22 S_IDERST#	S_IDERST#	24	HRESST#
22 S_IDERST#	S_IDERST#	59	HRESST#

22 S_IDERST#	S_IDERST#	24	HRESST#
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22 S_IDERST#	S_IDERST#	24	HRESST#
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CDD1	79	CD_DD1
CDD2	82	CD_DD2
CDD3	84	CD_DD3
CDD4	87	CD_DD4
CDD5	91	CD_DD5
CDD6	96	CD_DD6
CDD7	98	CD_DD7
CDD8	3	CD_DD8
CDD9	7	CD_DD9
CDD10	10	CD_DD10
CDD11	14	CD_DD11
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CDD13	19	CD_DD13
CDD14	21	CD_DD14
CDD15	22	CD_DD15

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CDA1	71	CD_DA1
CDA2	67	CD_DA2
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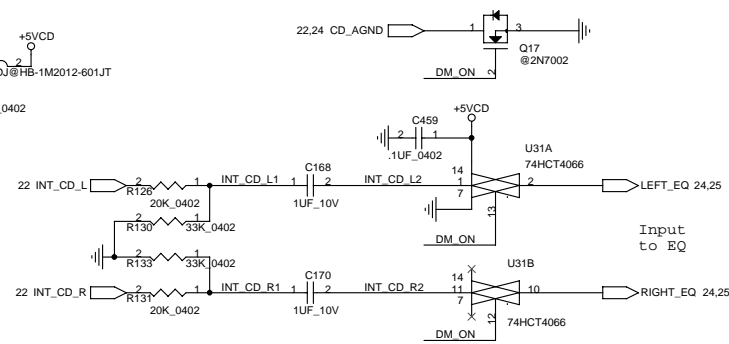
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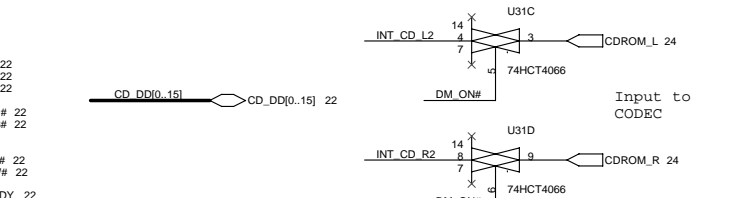
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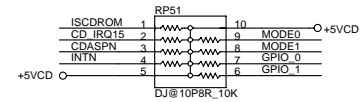
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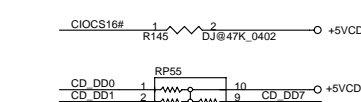
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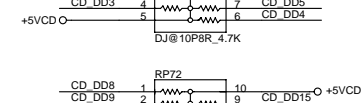
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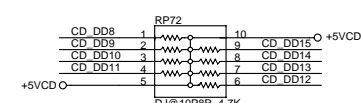
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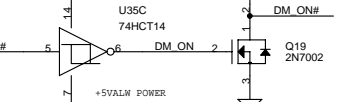
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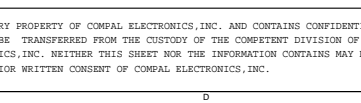
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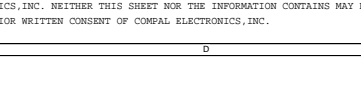
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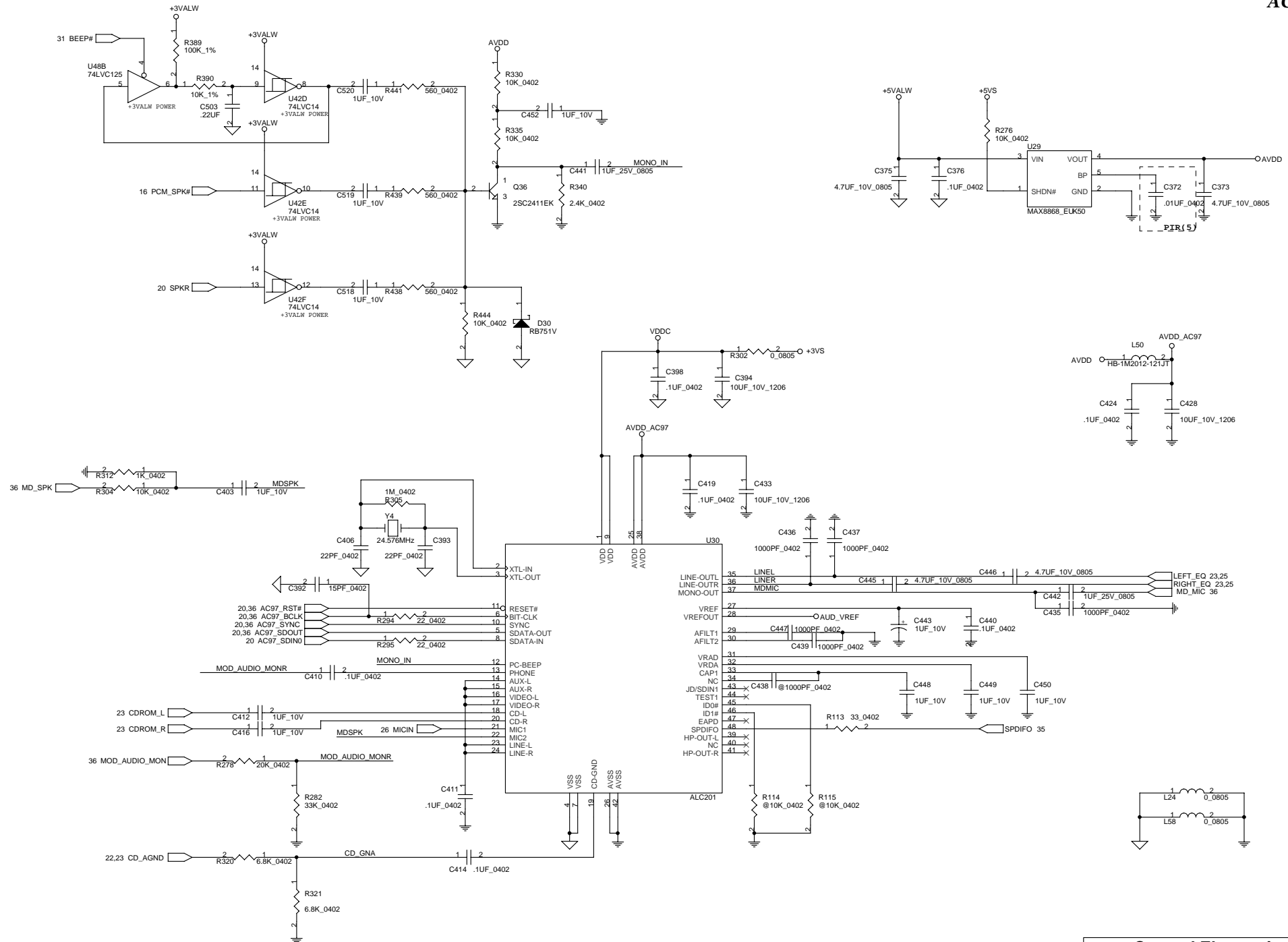
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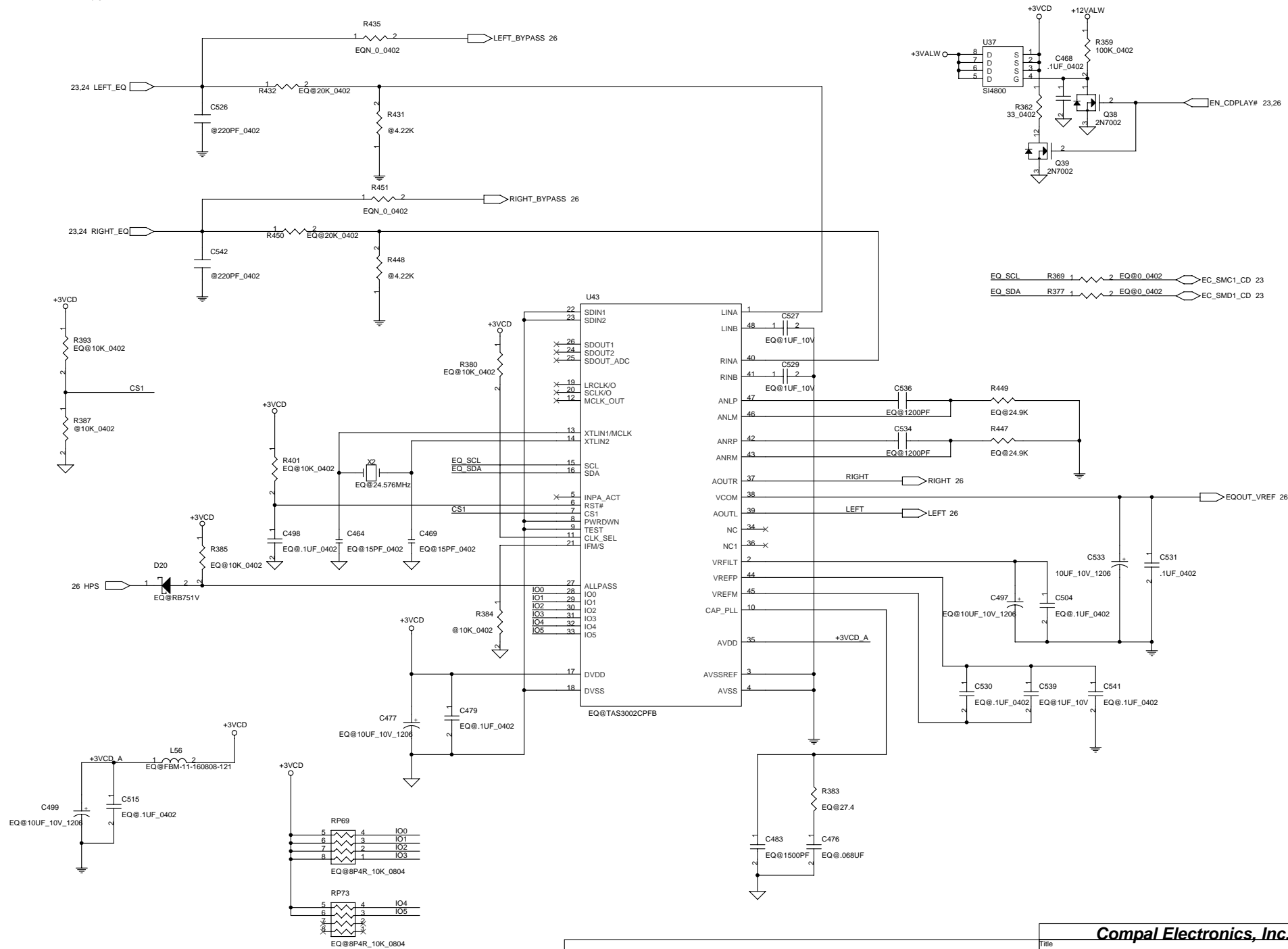
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UPDATED EQ SCHEMATICS

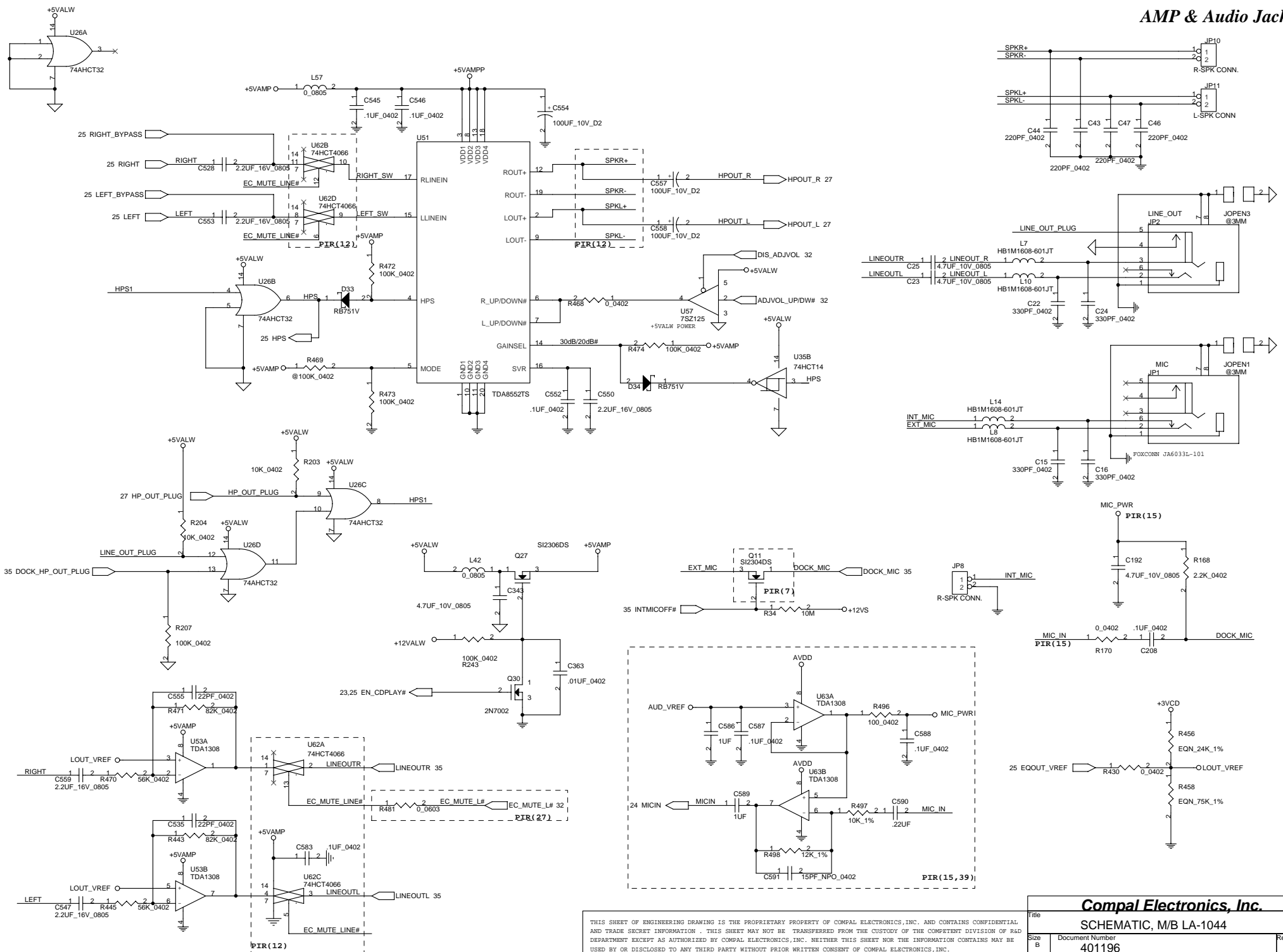
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AMP & Audio Jack



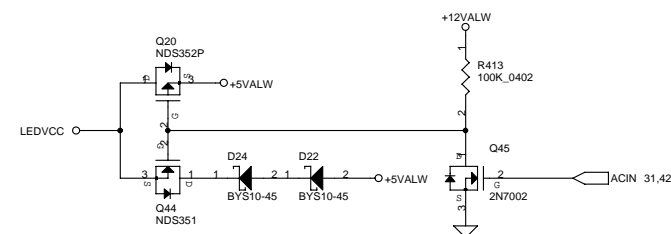
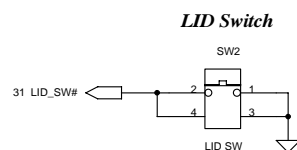
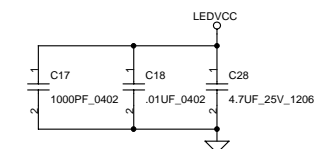
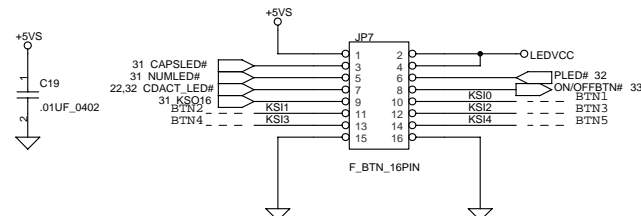
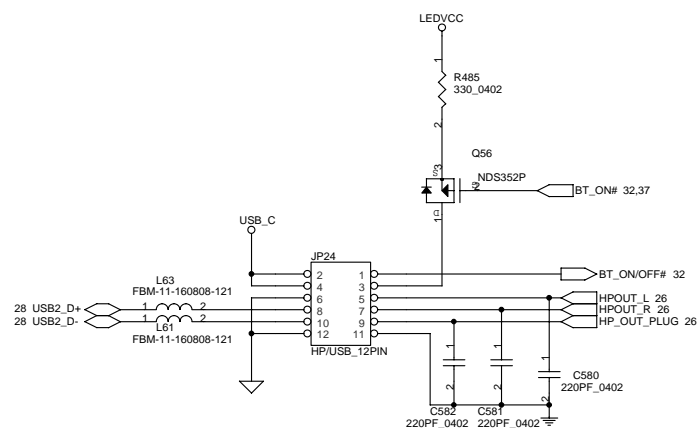
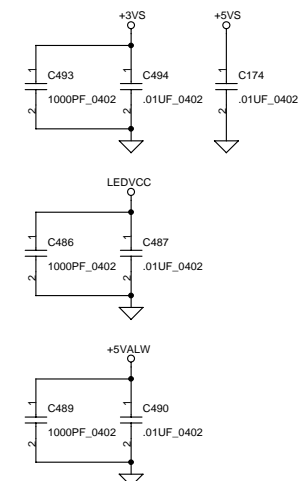
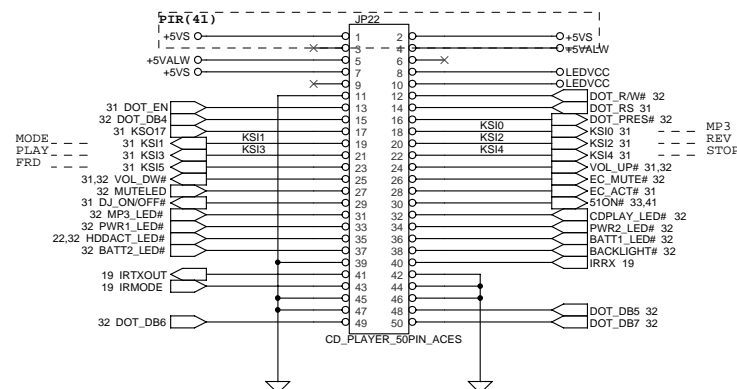
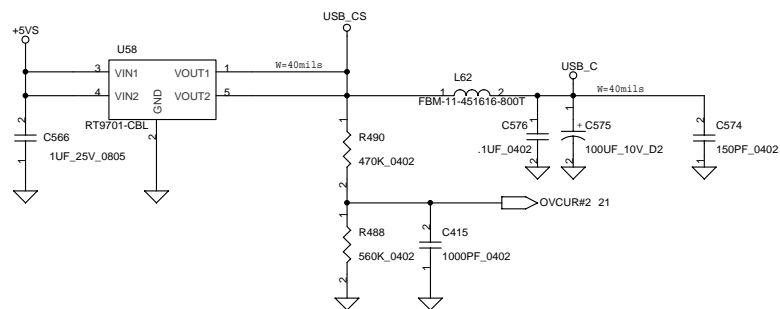
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Dot Matrix LCD/FIR



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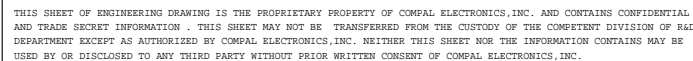
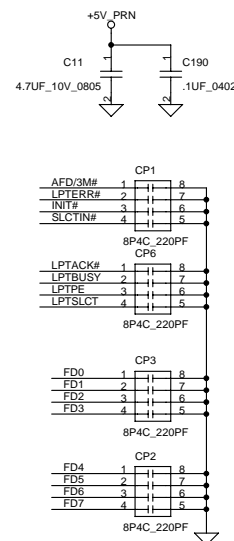
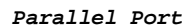
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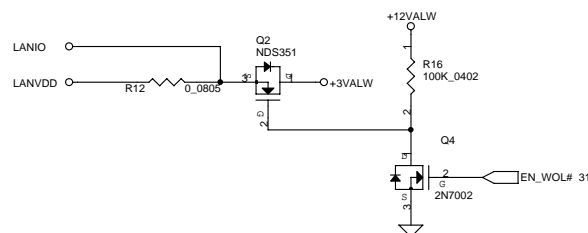
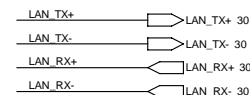
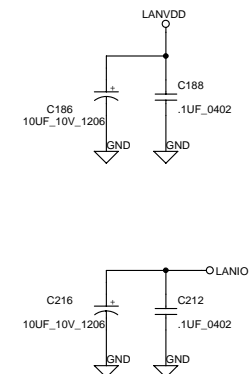
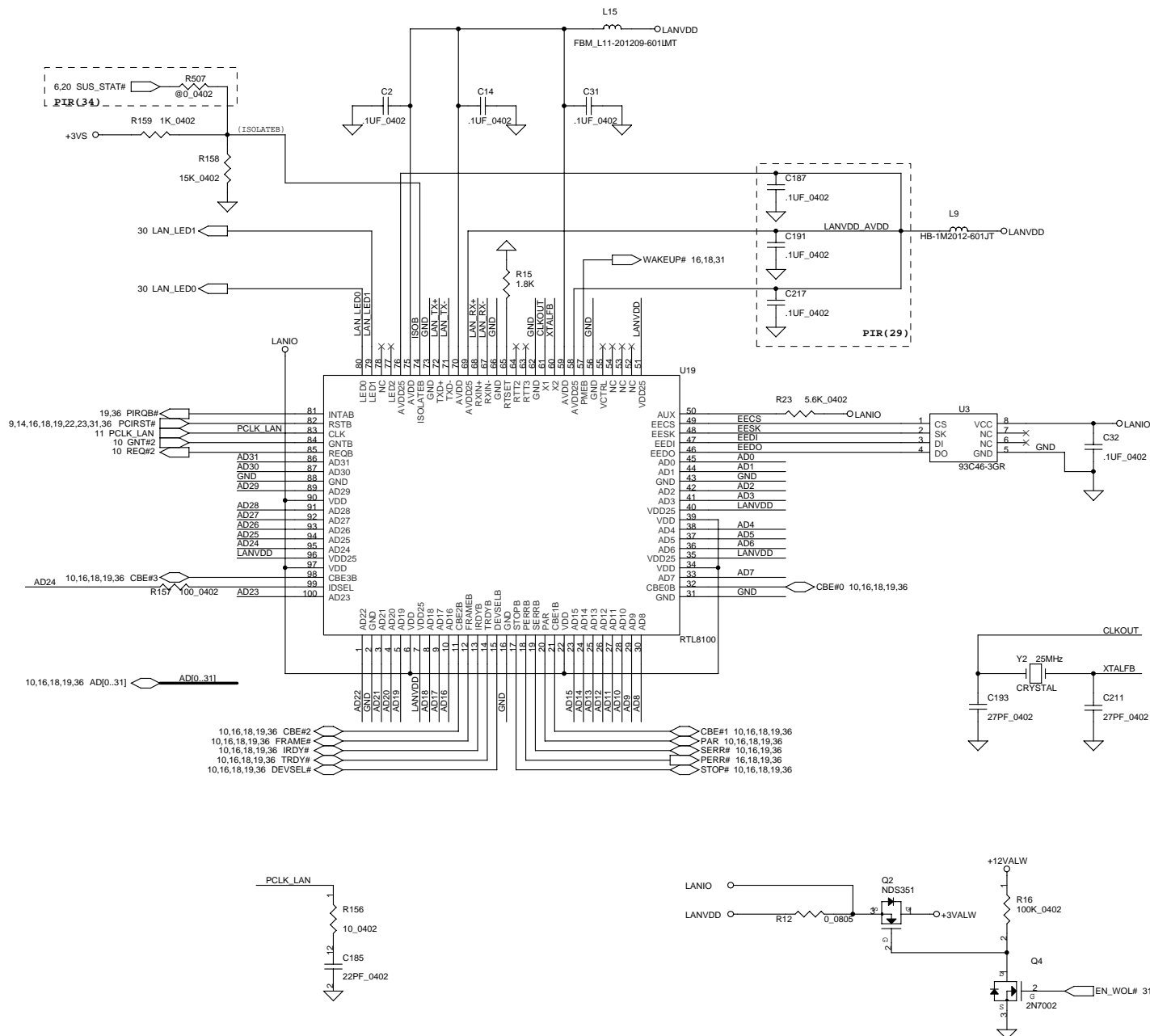
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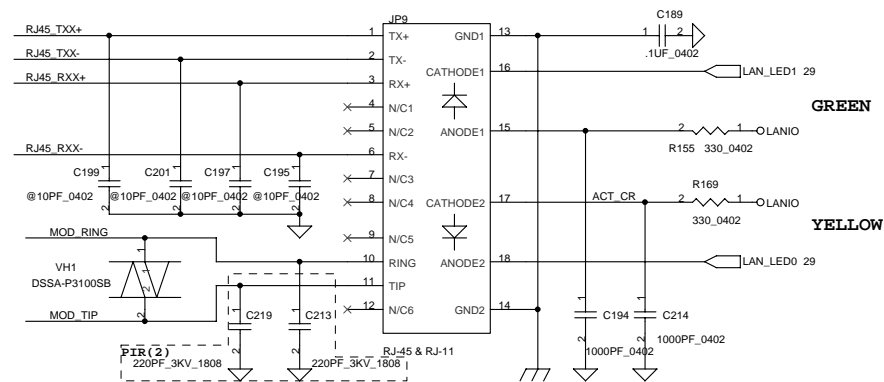
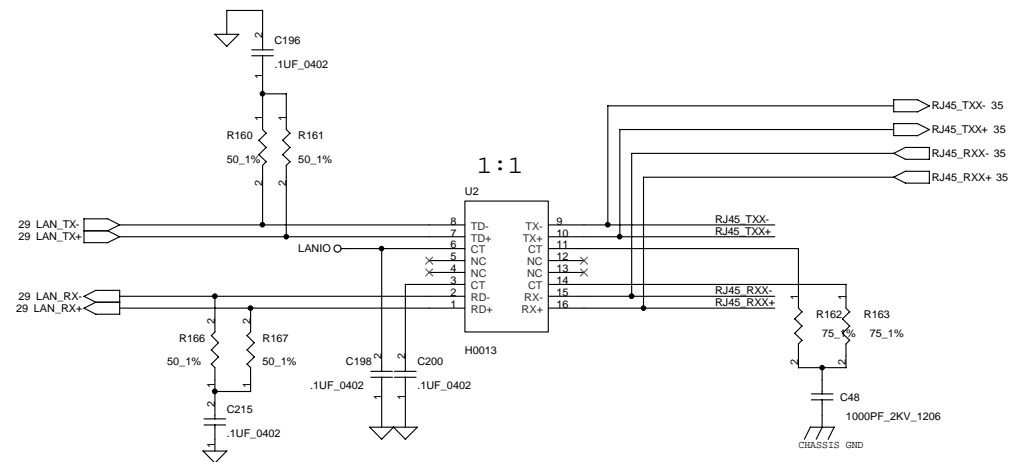
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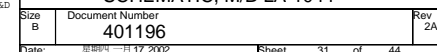


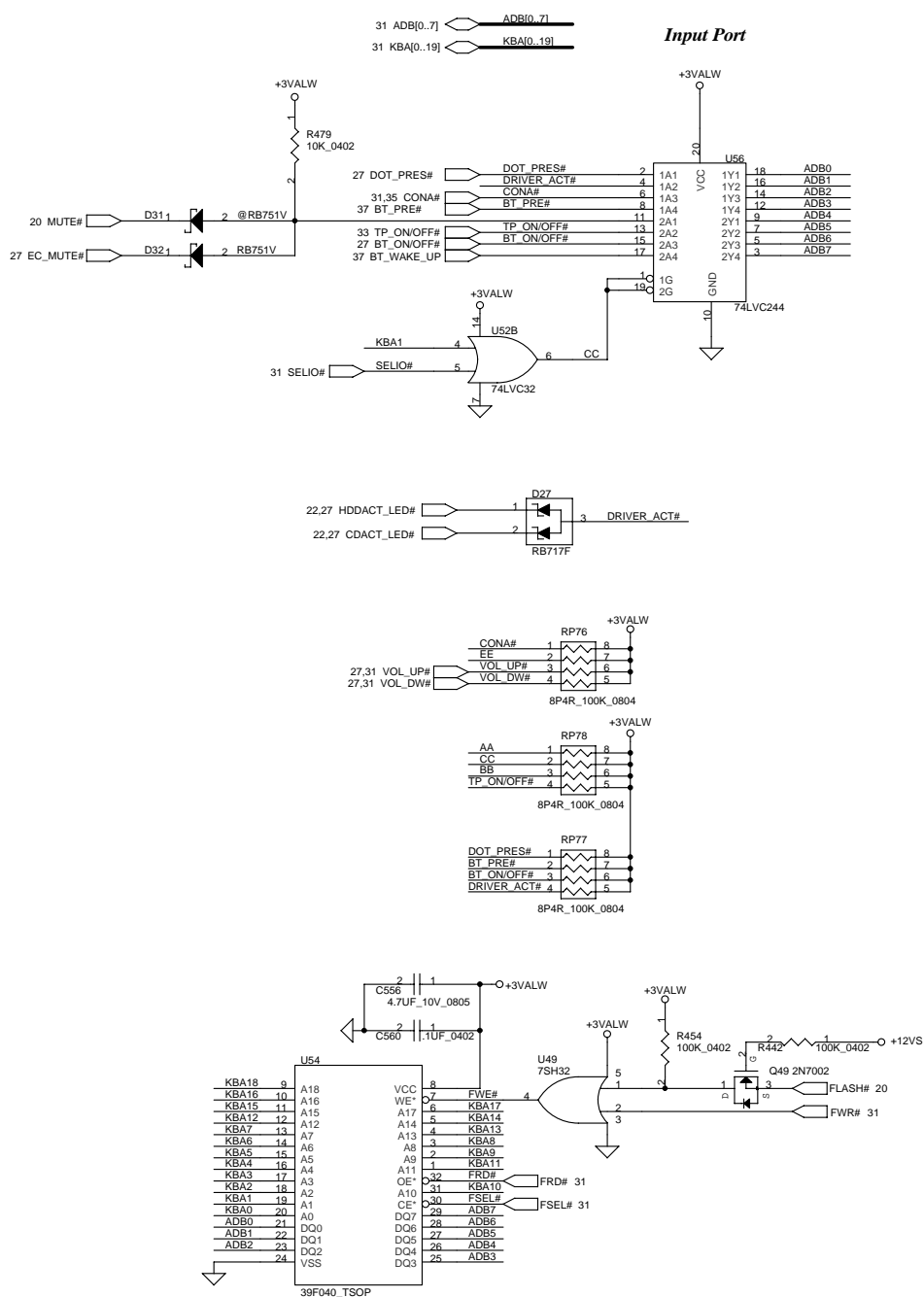


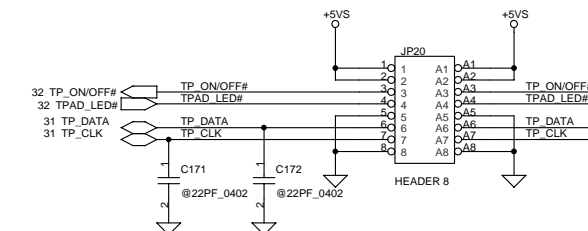
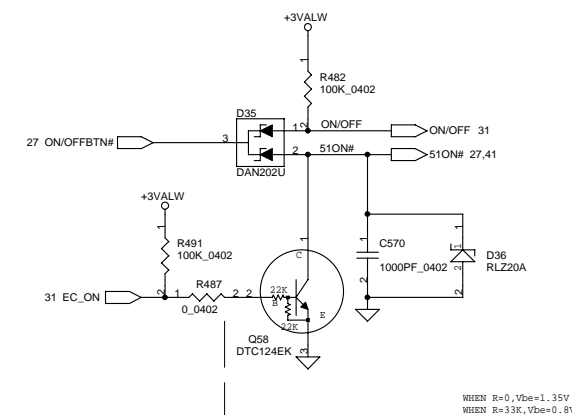


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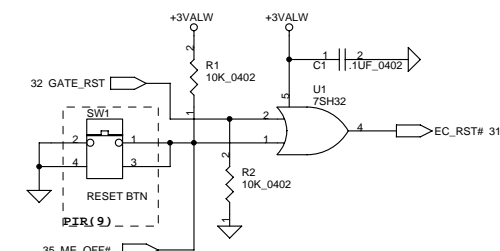
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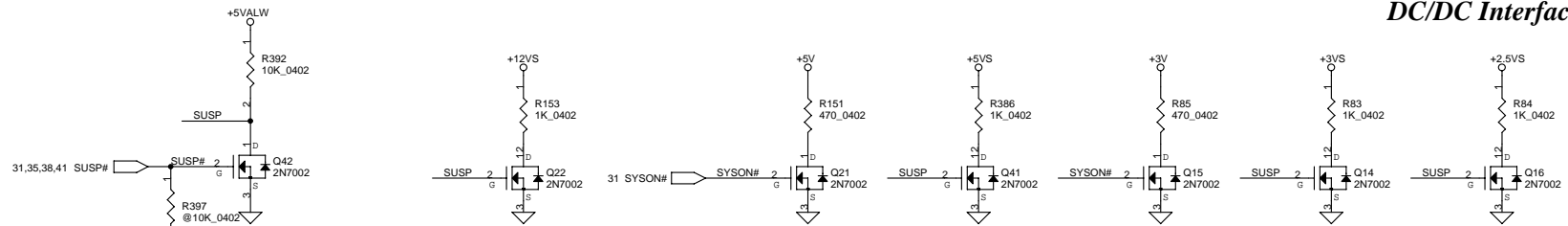
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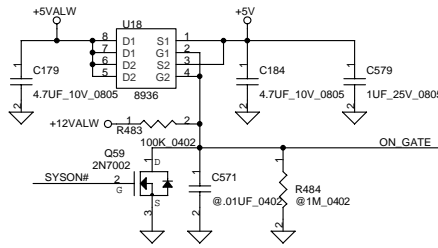
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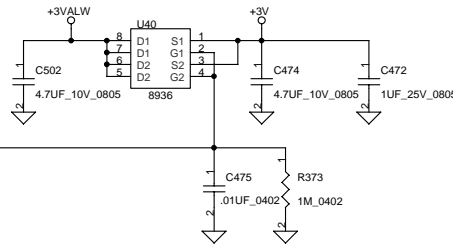
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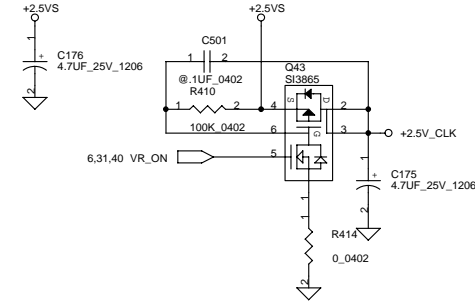
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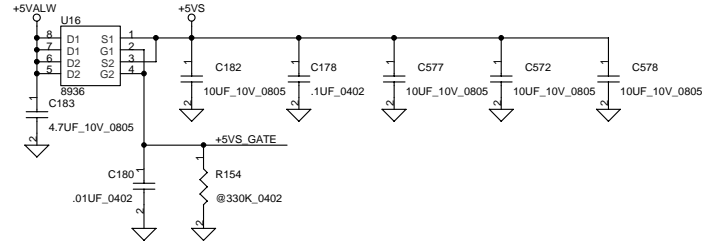
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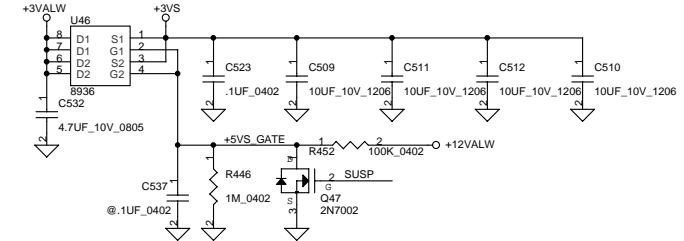
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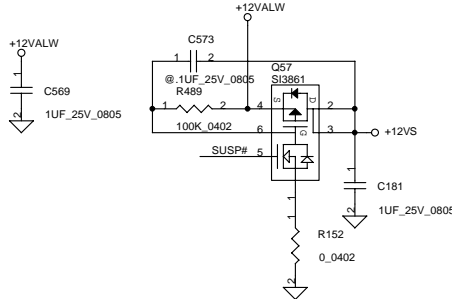
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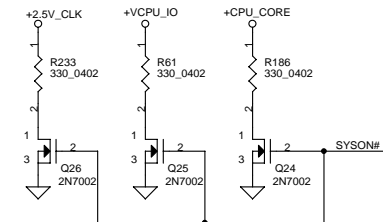
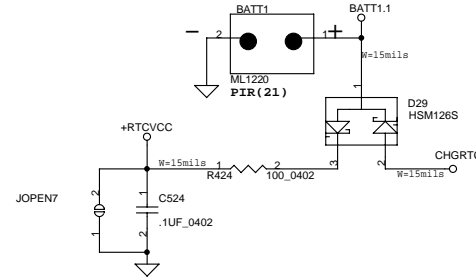
+3VALW To +3VS Transfer



+12VALW To +12VS Transfer



RTC BATT

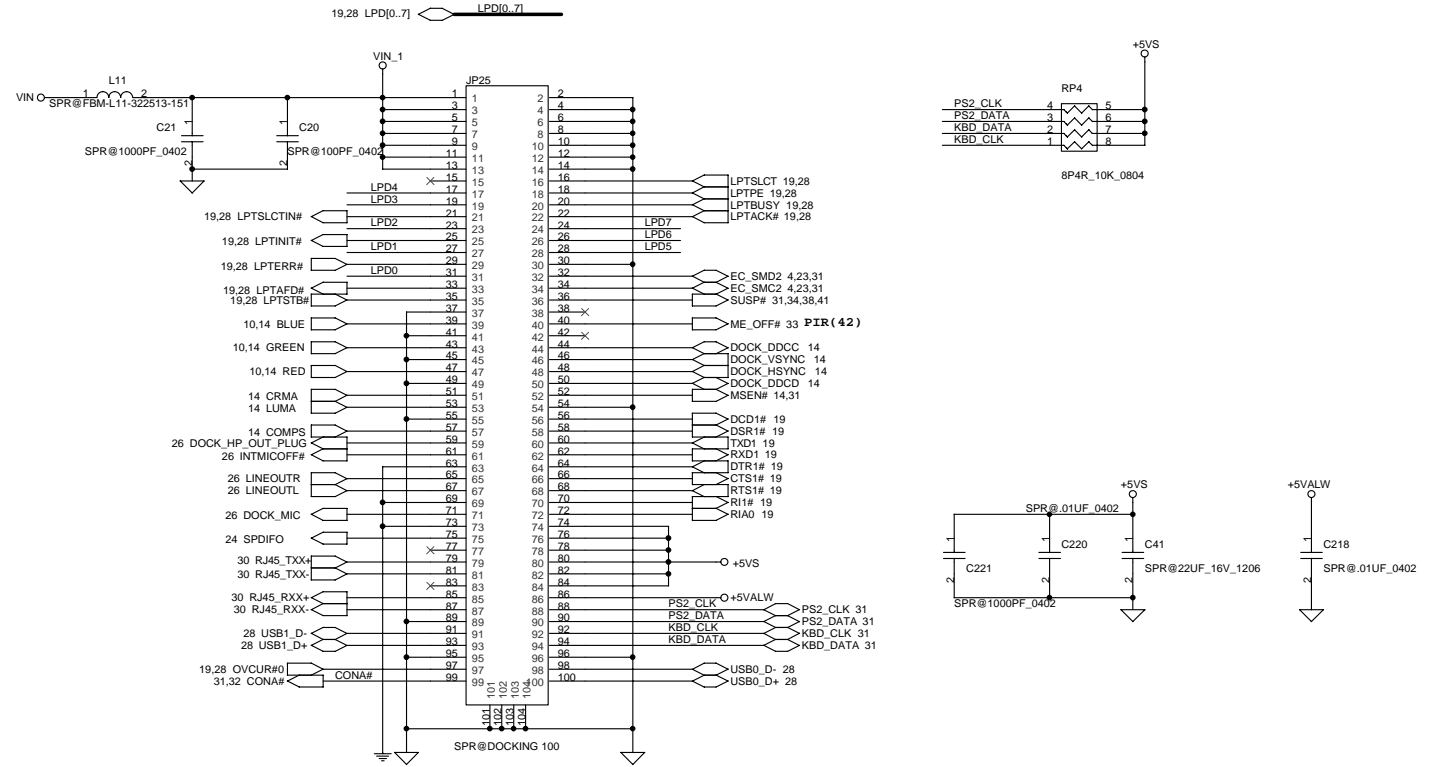


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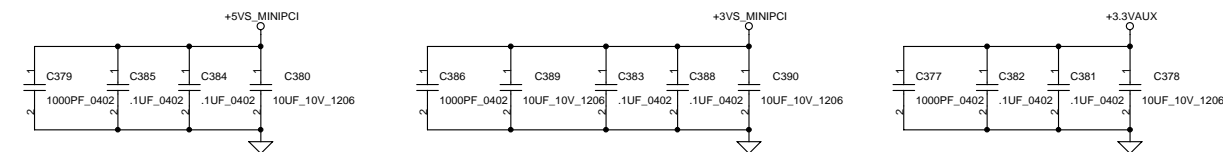
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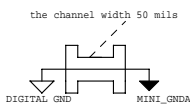
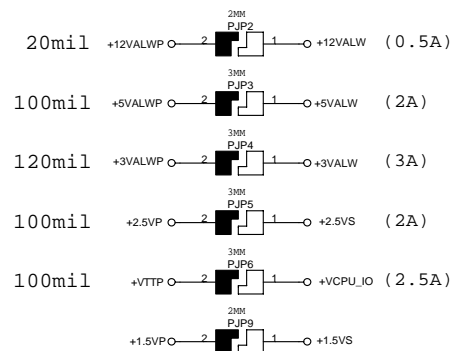
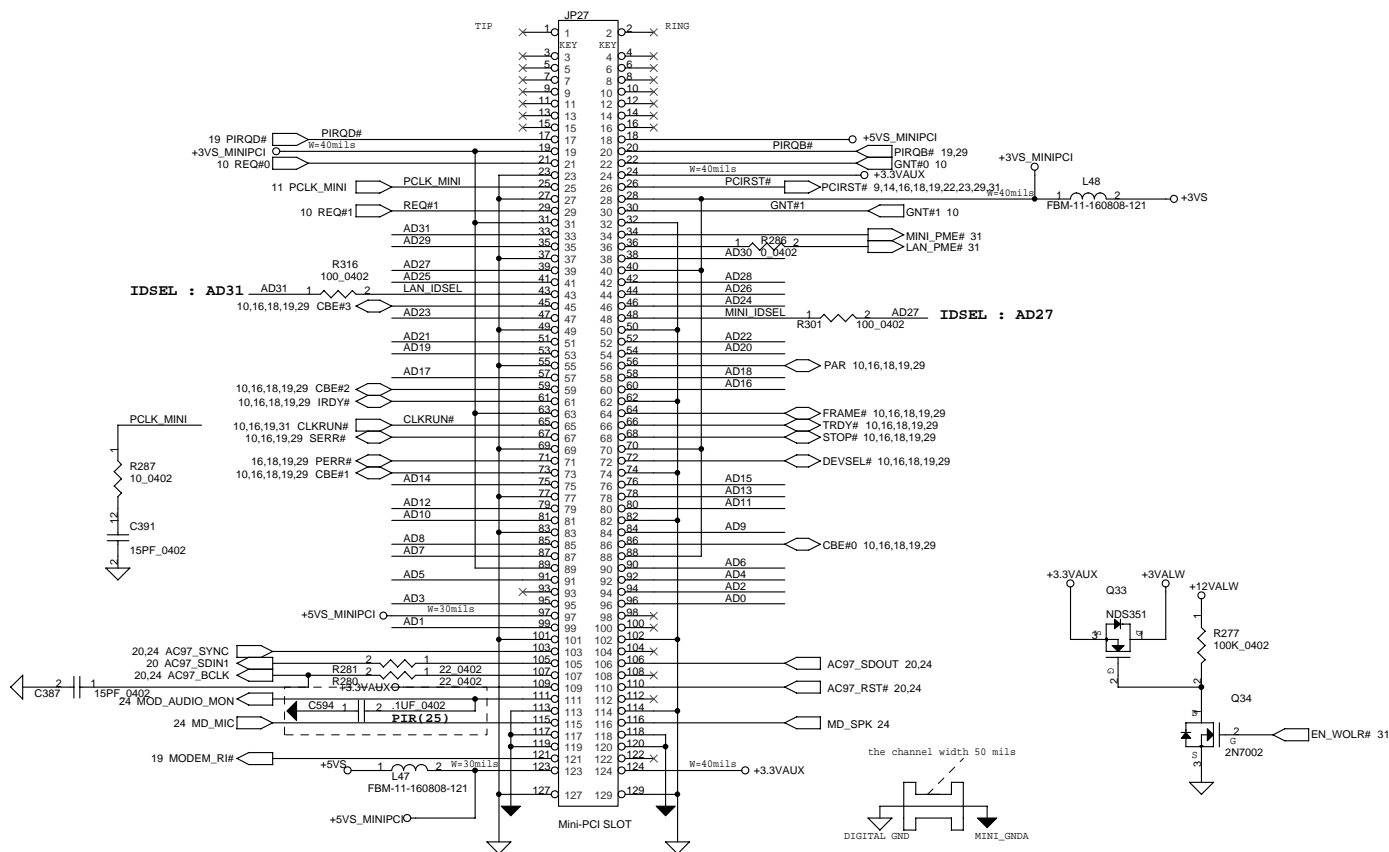


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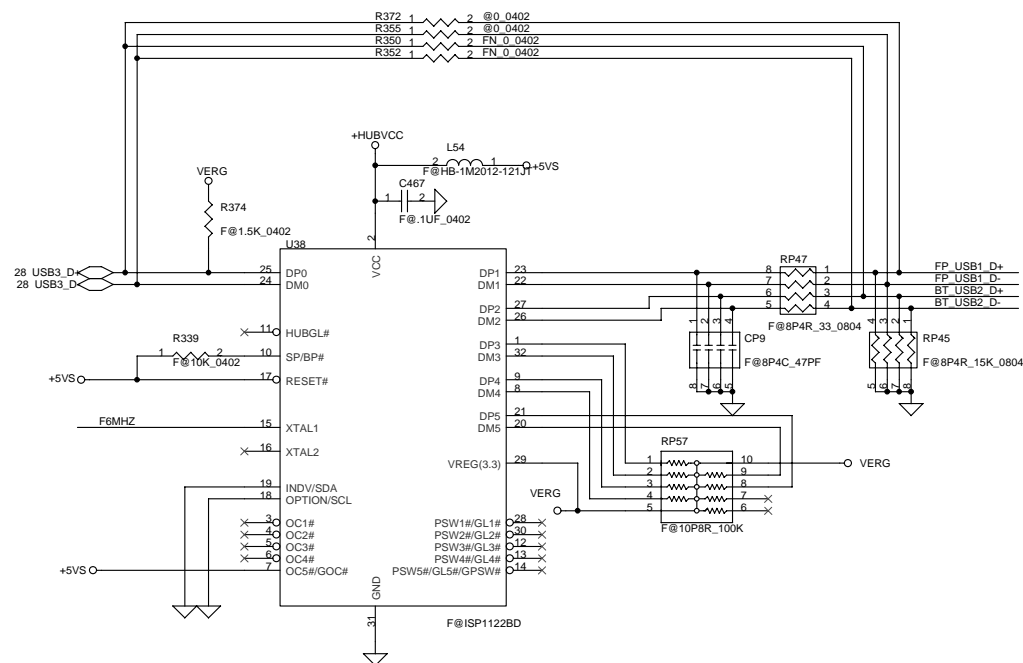


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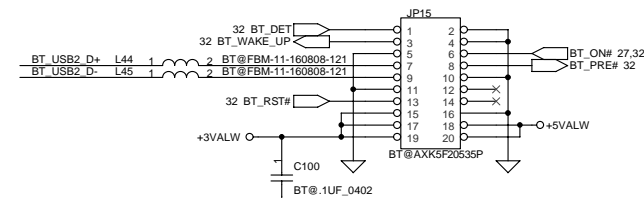


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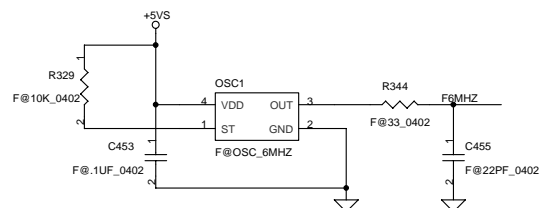
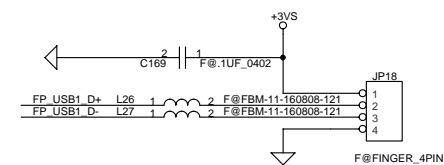
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Bluetooth Connector

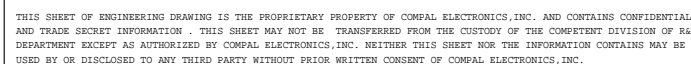


Finger Printer Connector

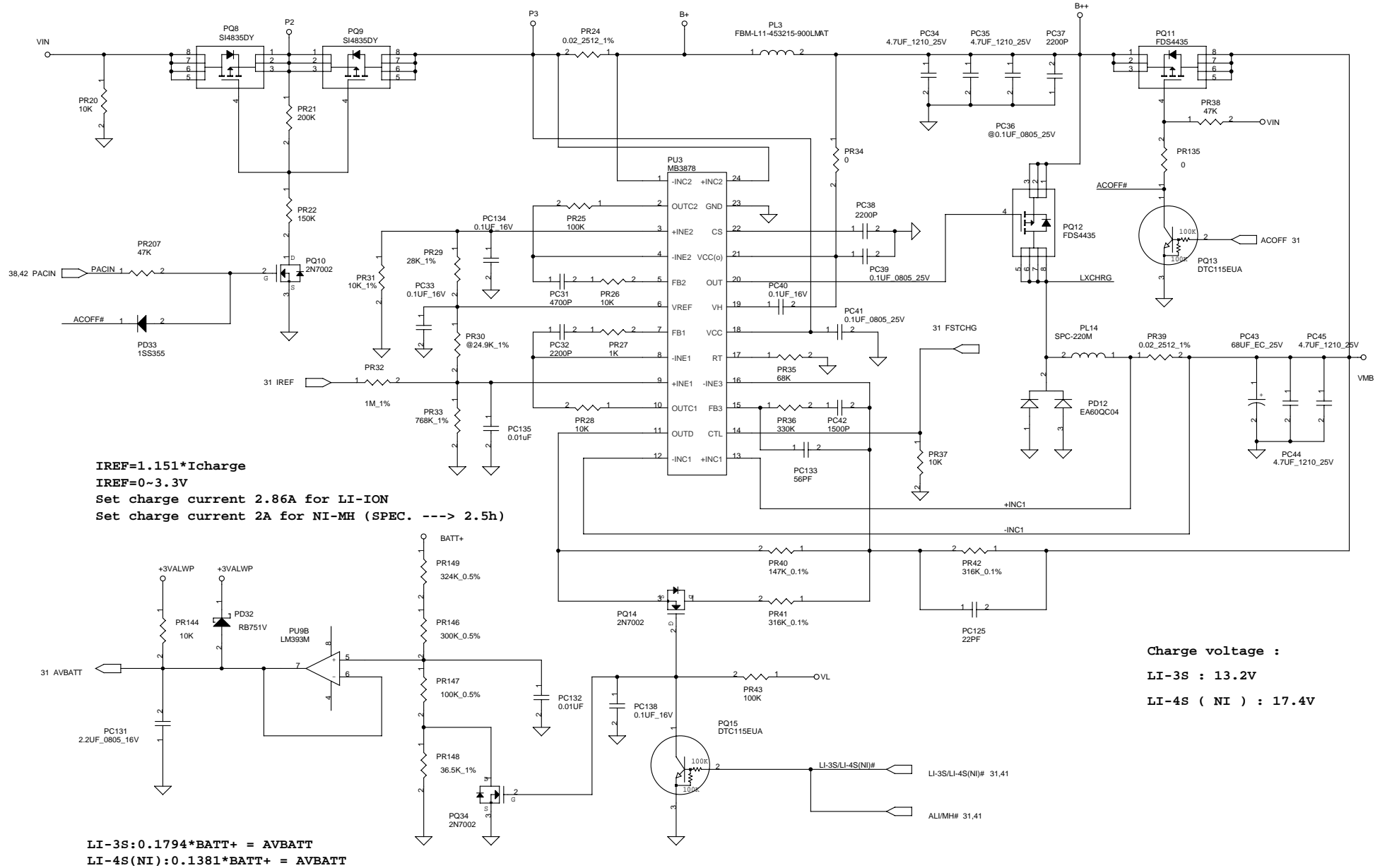


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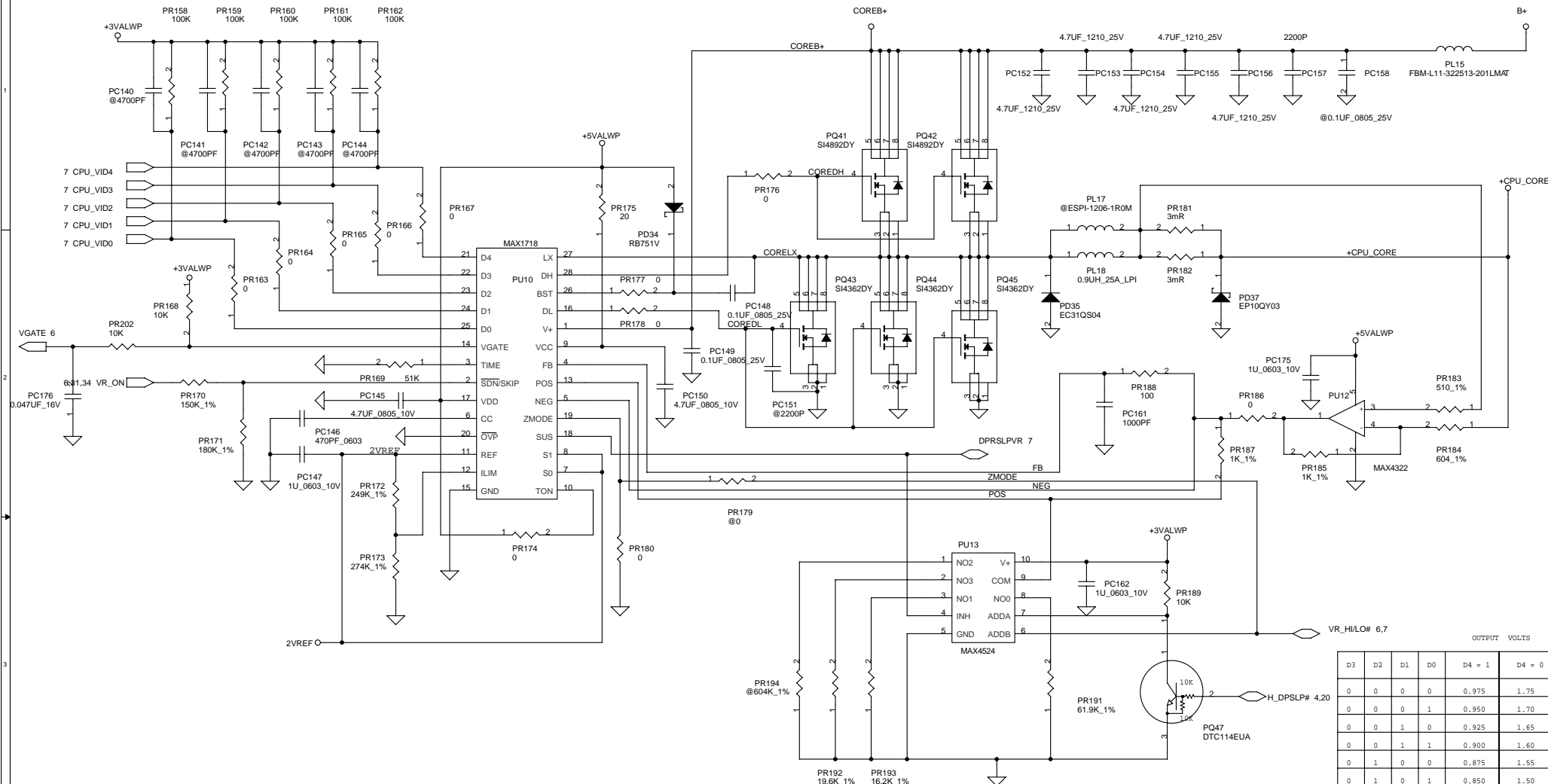


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Air-line:50W



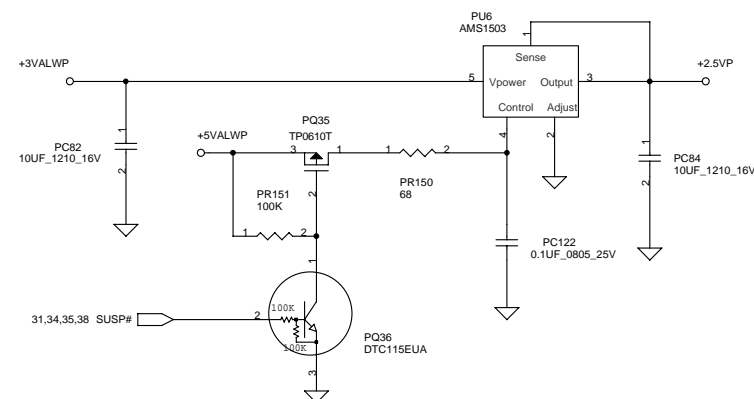
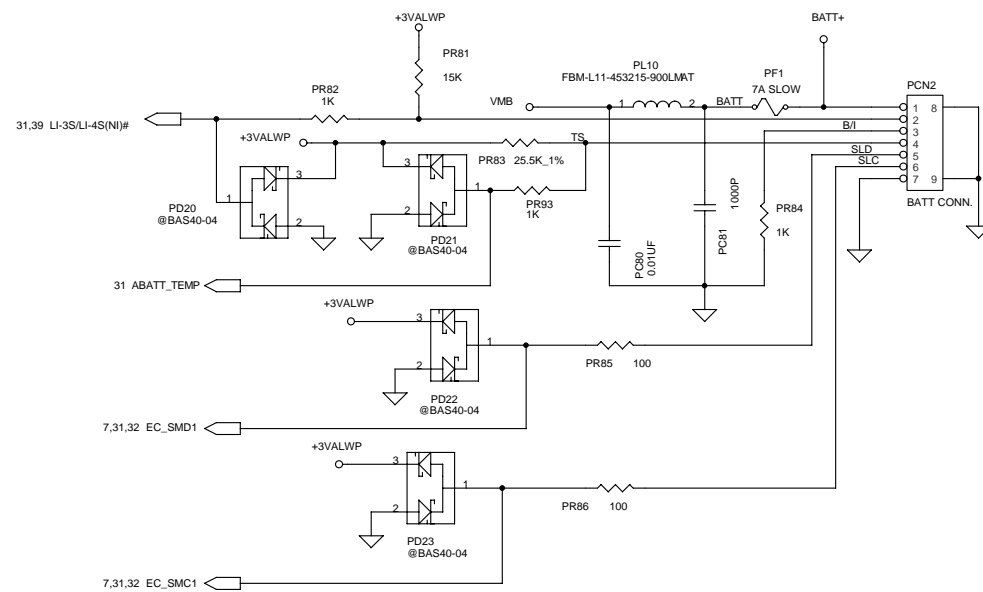
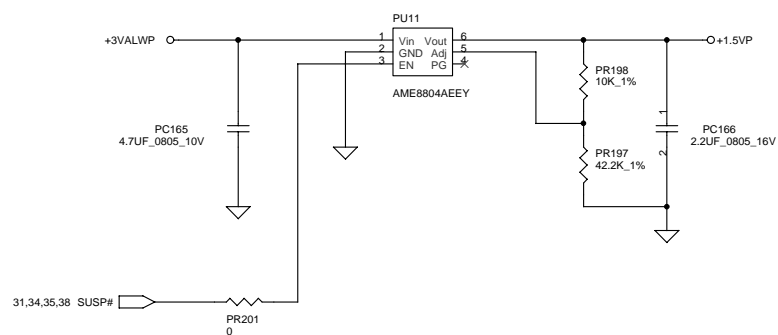
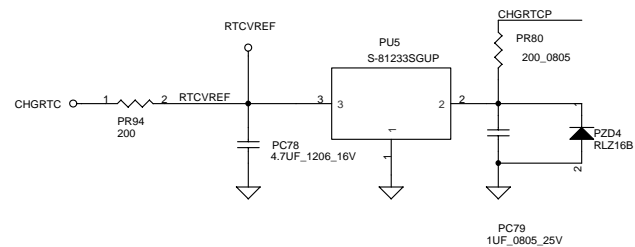
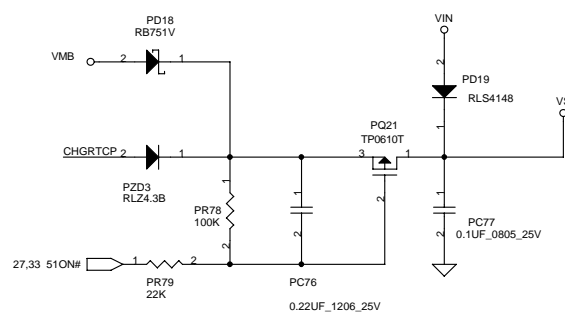
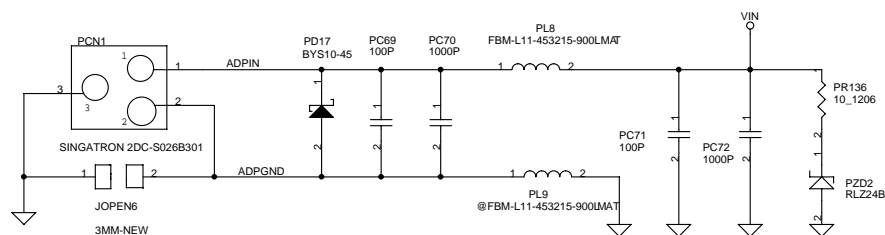
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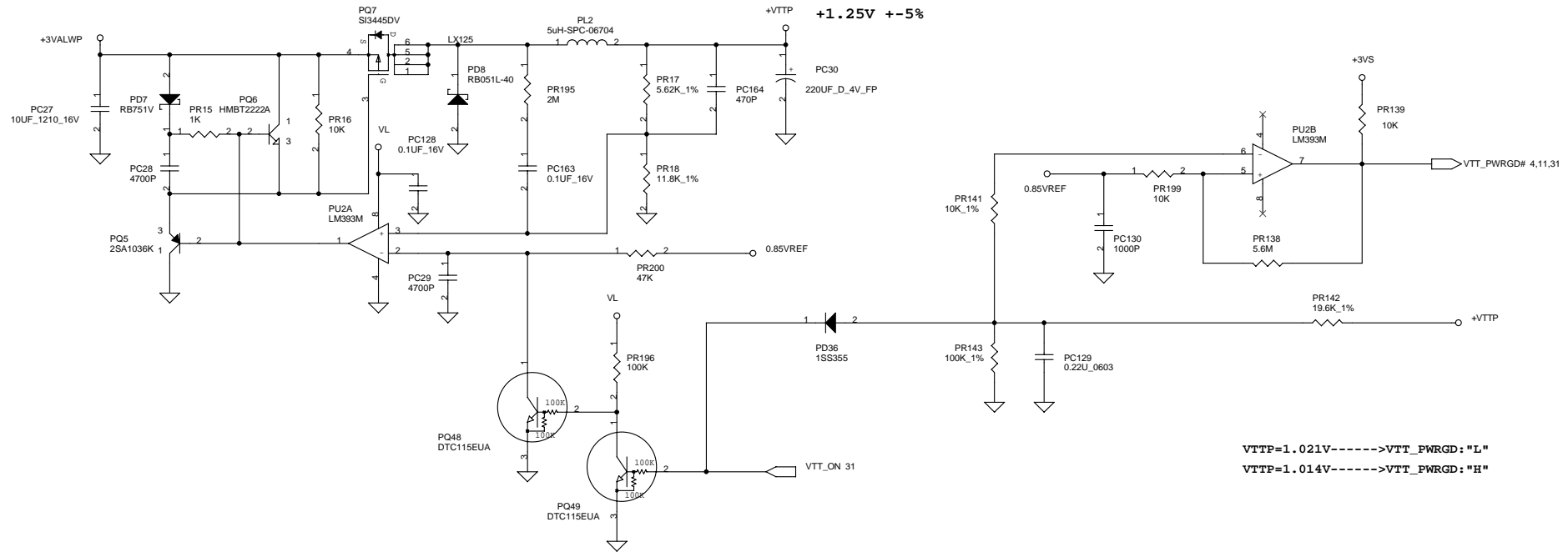
MODE	OFFSET	RBOTTOM	Vout (0A)	ADDA	ADDB
DEEPER SLEEP	0mV	X	0.850	X	X
BATTERY SLEEP	-5mV	16.2K	1.083	1	0
PERFORMANCE SLEEP	-51mV	19.6K	1.332	1	1
BATTERY MODE	-16mV	61.9K	1.131	0	0
PERFORMANCE MODE			1.400	0	1

						OUTPUT VOLTS	
D3	D2	D1	D0	D4 = 1	D4 = 0		
0	0	0	0	0.975	1.75		
0	0	0	1	0.950	1.70		
0	0	1	0	0.925	1.65		
0	0	1	1	0.900	1.60		
0	1	0	0	0.875	1.55		
0	1	0	1	0.850	1.50		
0	1	1	0	0.825	1.45		
0	1	1	1	0.800	1.40		
1	0	0	0	0.775	1.35		
1	0	0	1	0.750	1.30		
1	0	1	0	0.725	1.25		
1	0	1	1	0.700	1.20		
1	1	0	0	0.675	1.15		
1	1	0	1	0.650	1.10		
1	1	1	0	0.625	1.05		
1	1	1	1	0.600	1.00		



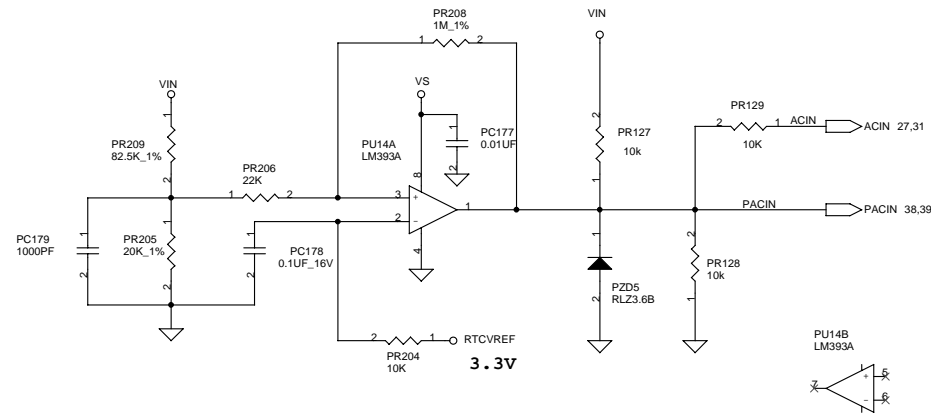
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VIN detector		
16.90	17.55	18.22
16.46	17.08	17.72

Detector



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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) I TP_PREQ# to +VCPU_I/O.
- 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)

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 deeper 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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