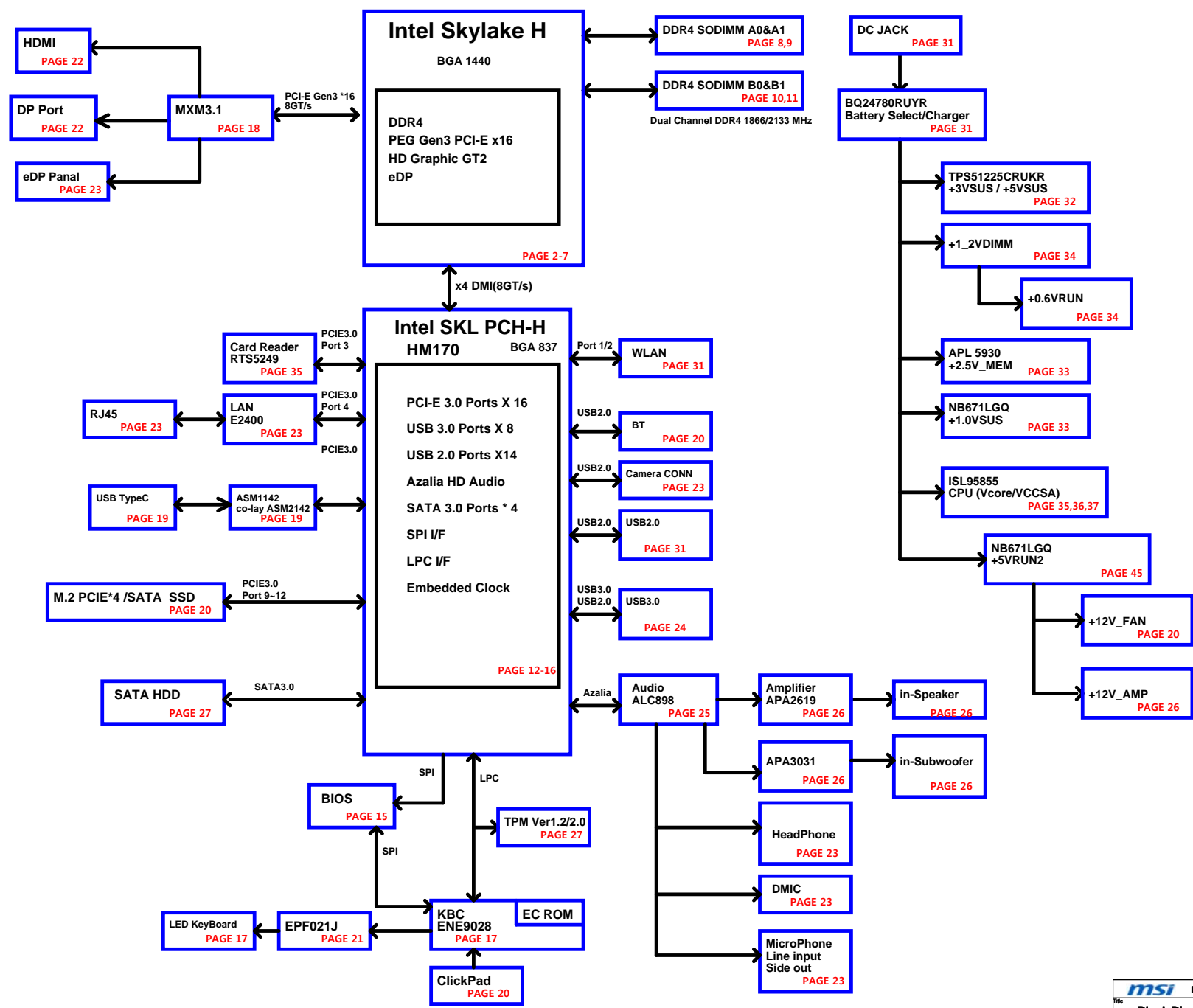
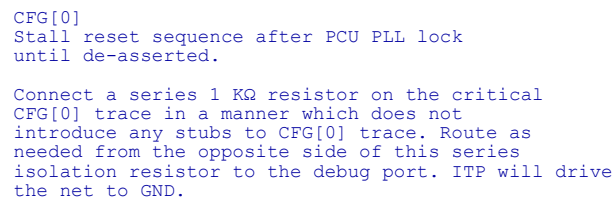
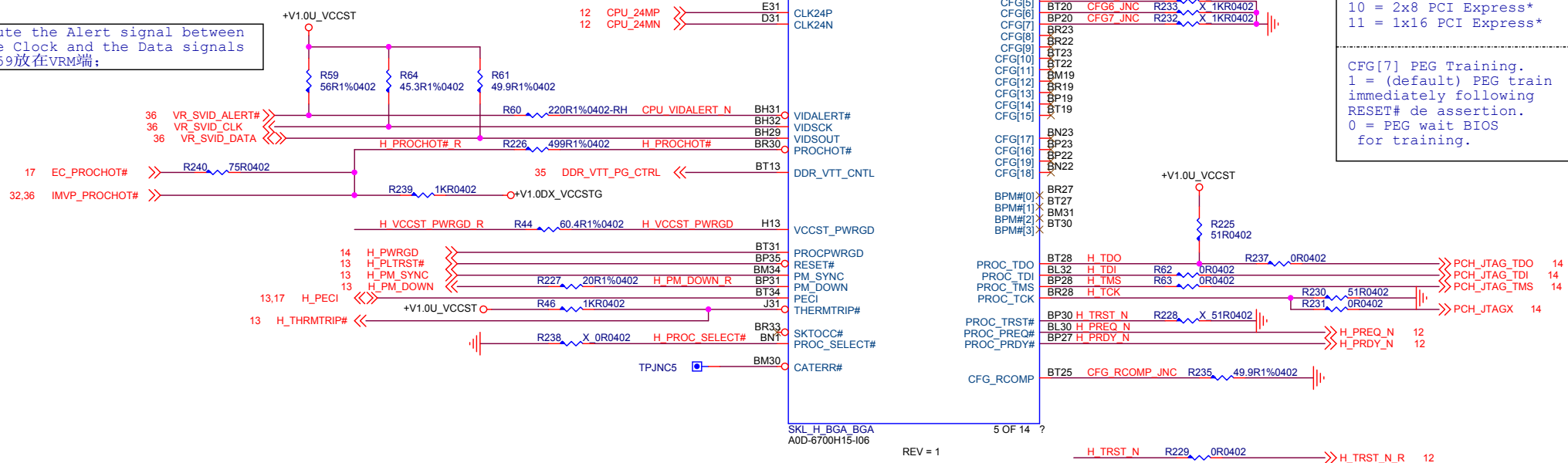


MS-16L21 Ver:0A Intel Skylake platform

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Page 02: Skylake(HOST)
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Page 04: Skylake(DMI/DISPLAY)
Page 05: Skylake(Power)
Page 06: Skylake(Power)
Page 07: Skylake(Power)
Page 08: DDR4 SODIMM A0
Page 09: DDR4 SODIMM A1
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Page 15: PCH-4 (SPI/GPIO)
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Page 40: Power Delivery Chart
Page 41: Power on Block Diagram
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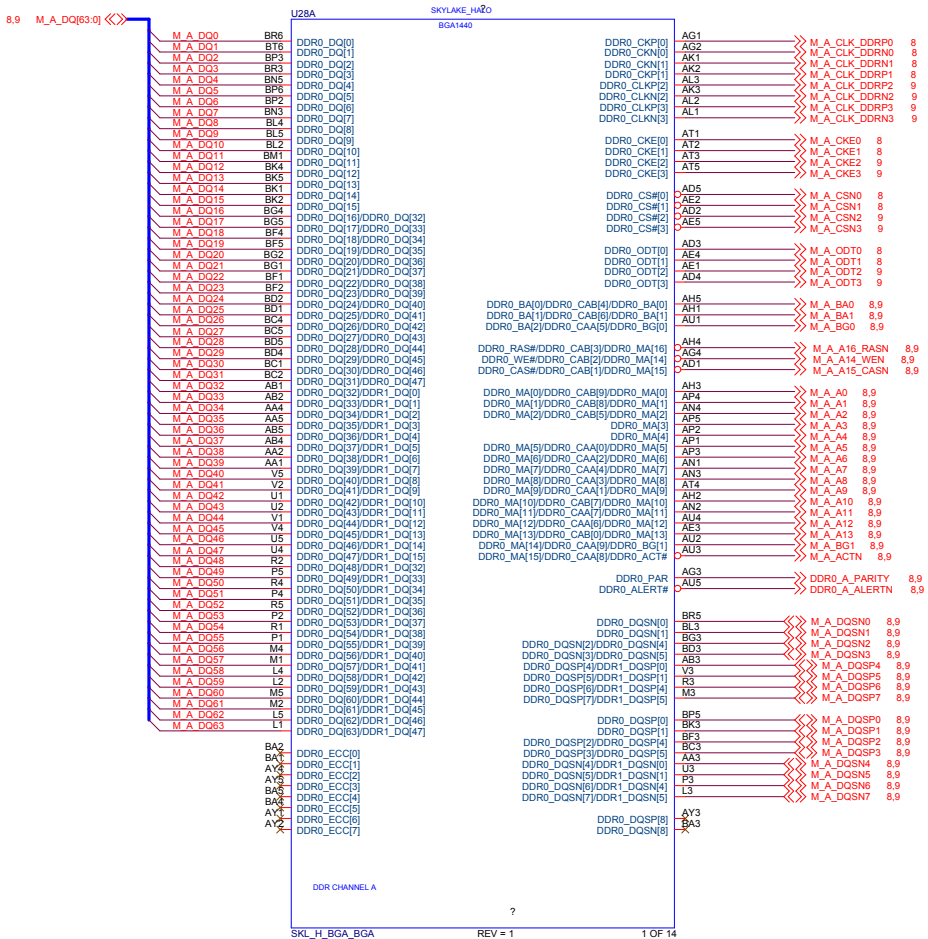




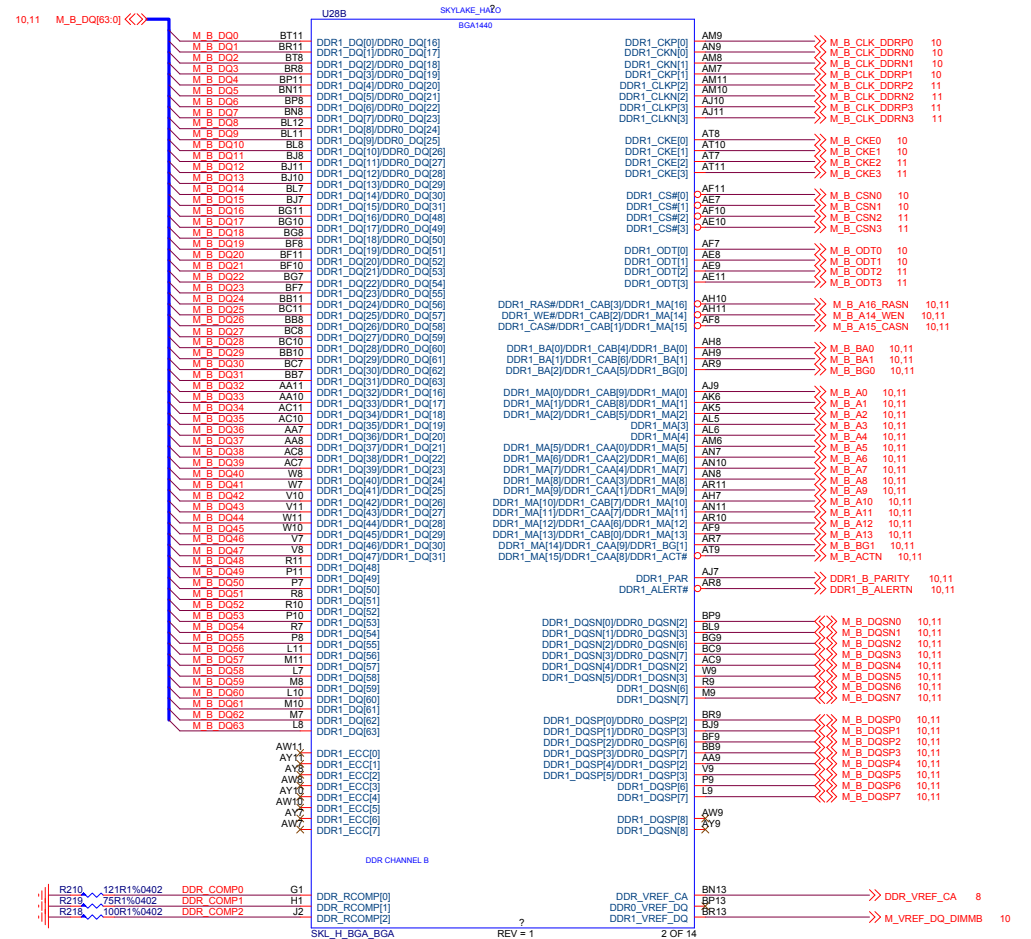
```
CFG[7] PEG Training.
1 = (default) PEG train
immediately following
RESET# de assertion.
0 = PEG wait BIOS
for training.
```

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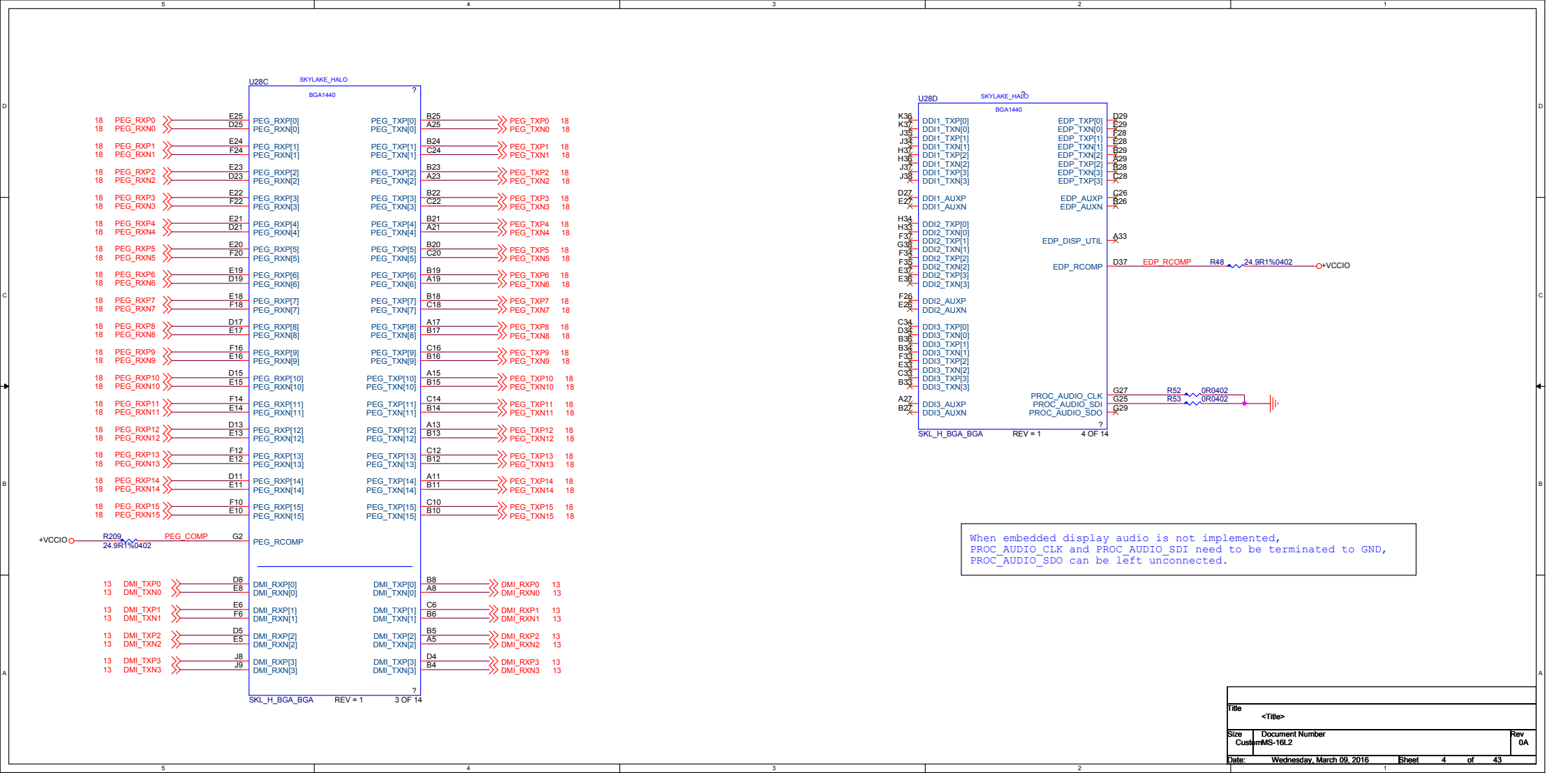
DDR Channel A

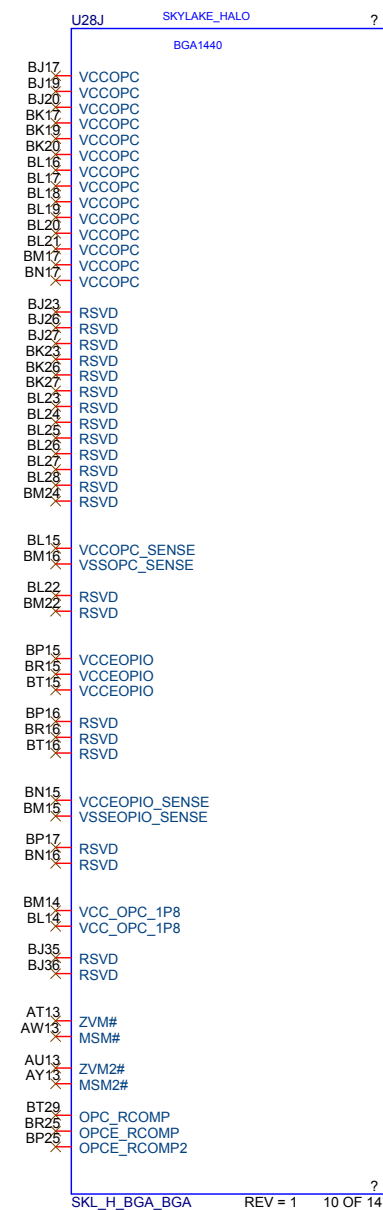
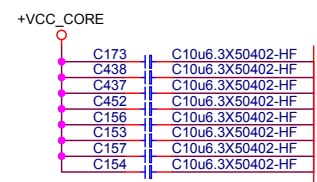
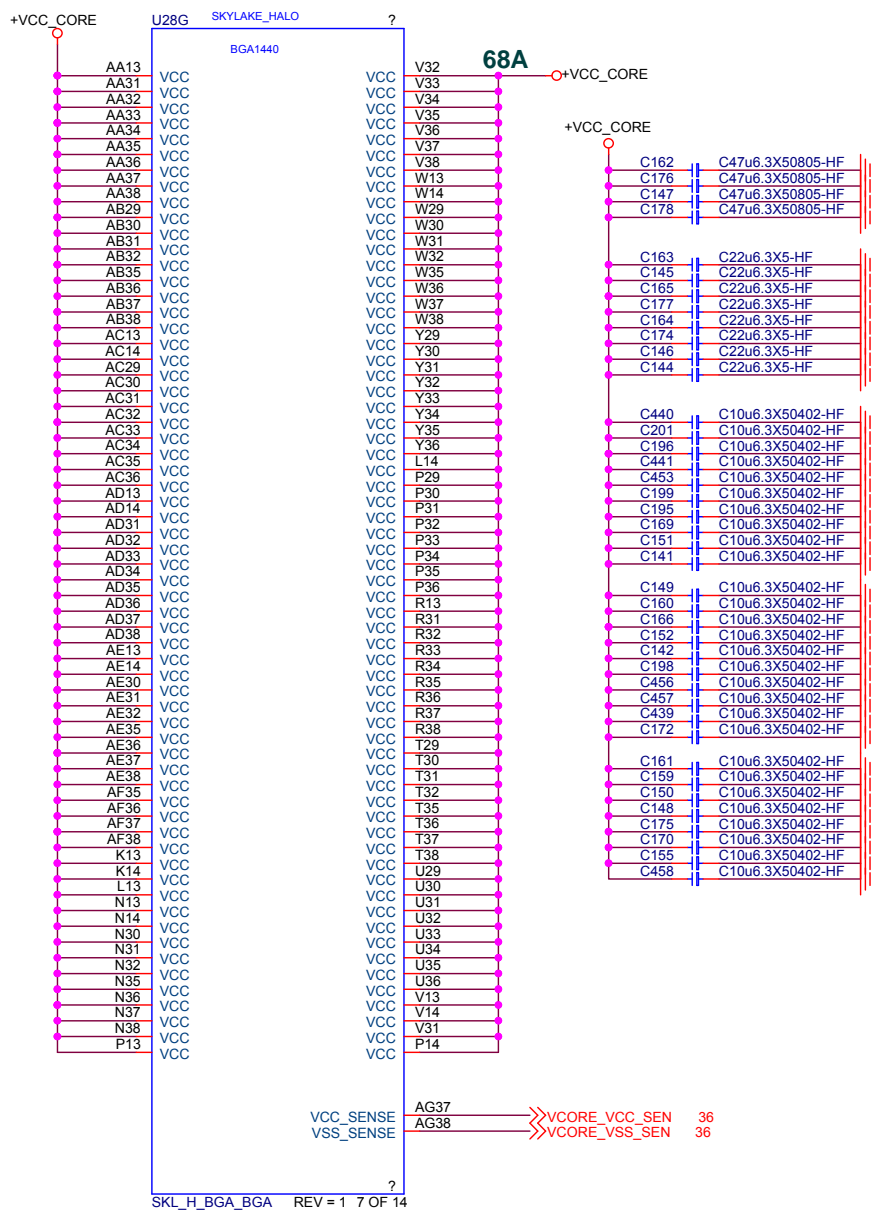


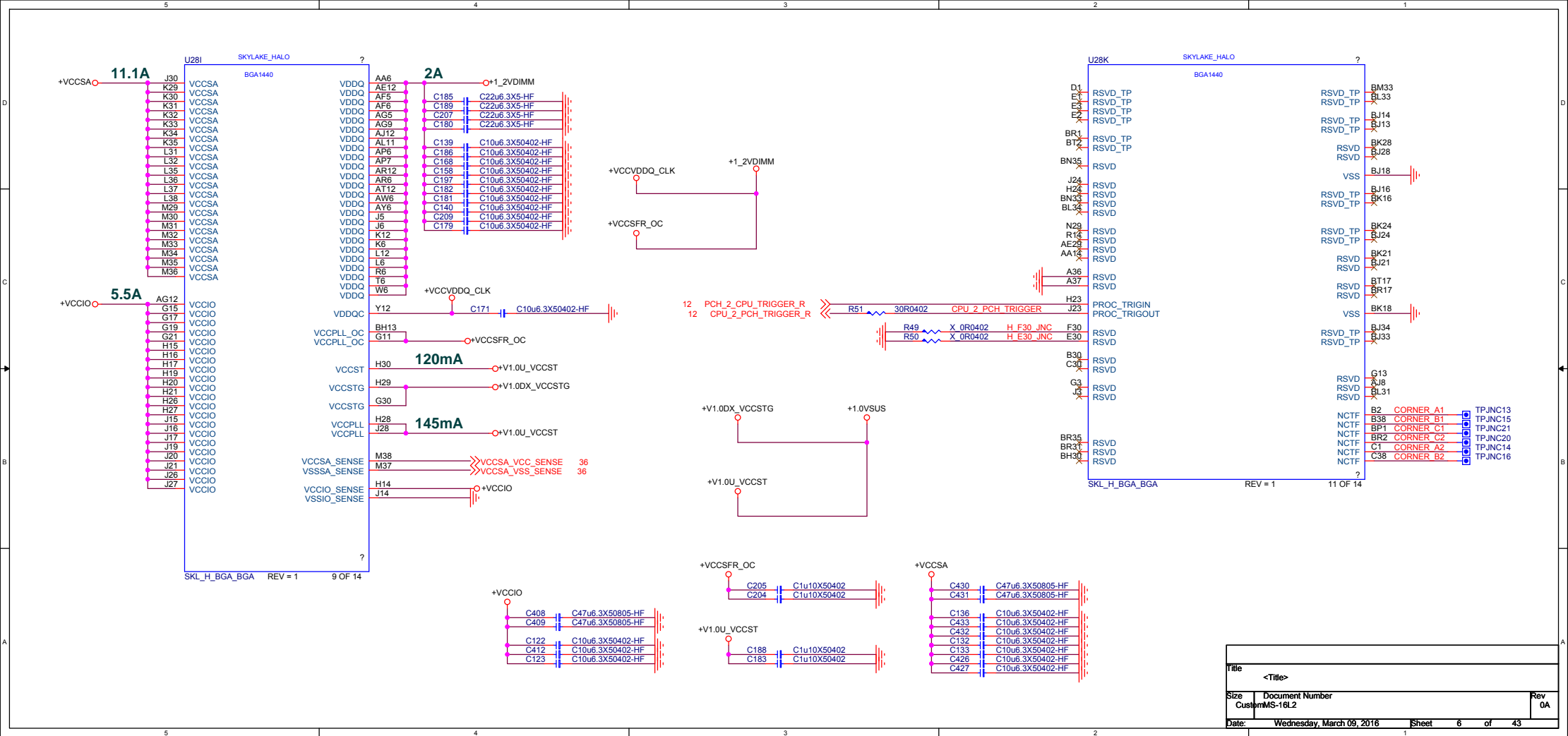
DDR Channel B

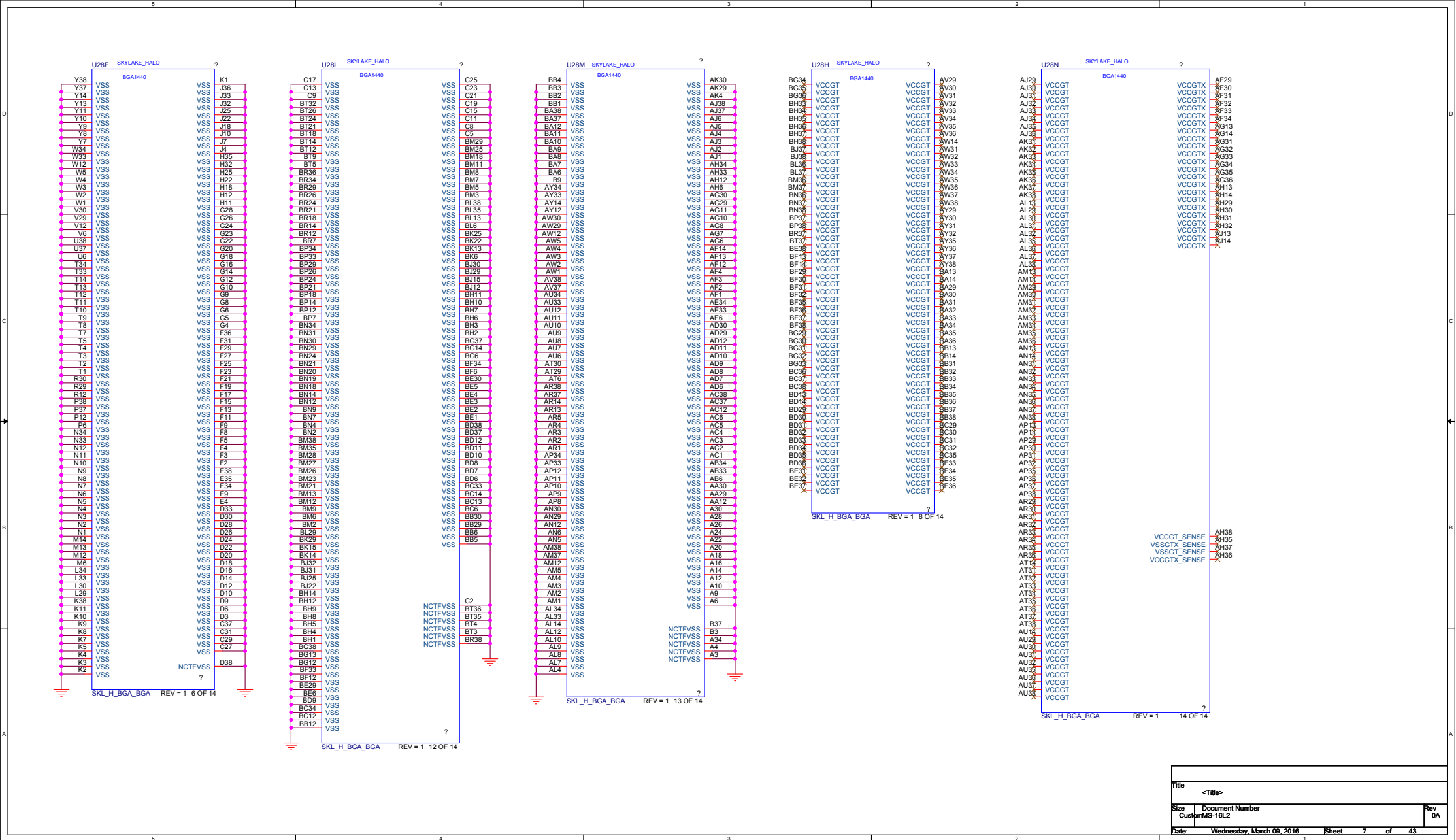


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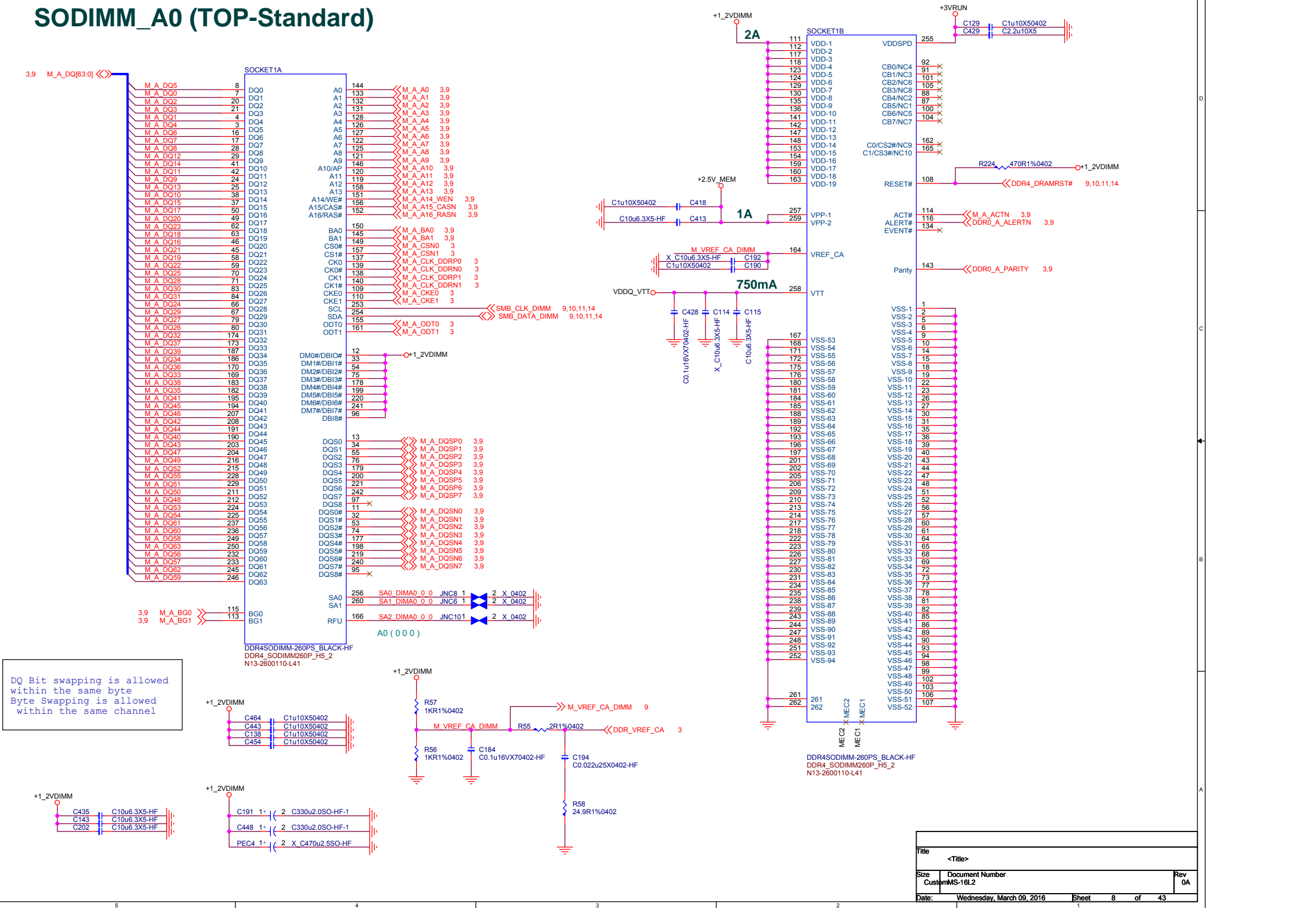








SODIMM_A0 (TOP-Standard)



DQ Bit swapping is allowed within the same byte
Byte Swapping is allowed within the same channel

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M_A_DQ[63:0]

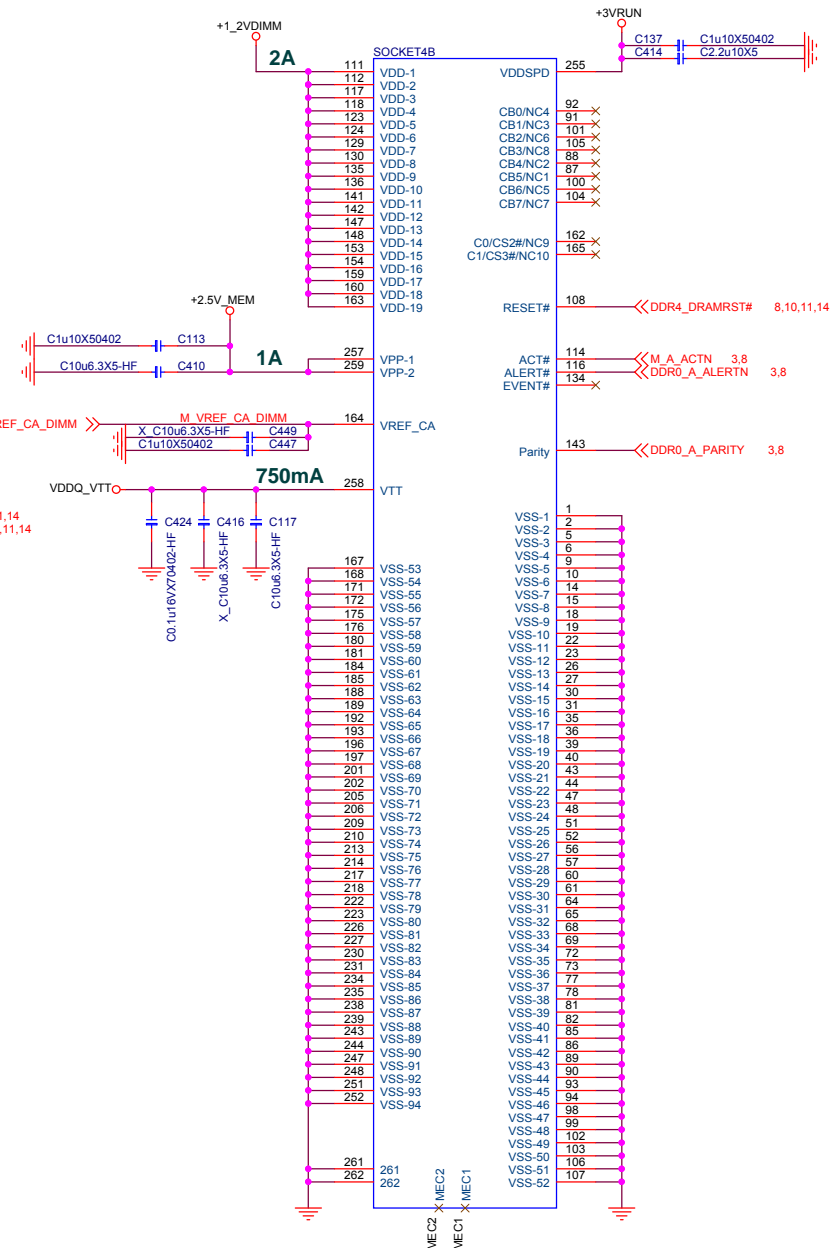
SOCKET4A

Pin Connections:

- M_A_DQ0 (8) to DQ0 (A0) 144
- M_A_DQ1 (7) to DQ1 (A1) 133
- M_A_DQ2 (20) to DQ2 (A2) 132
- M_A_DQ3 (21) to DQ3 (A3) 131
- M_A_DQ4 (4) to DQ4 (A4) 128
- M_A_DQ5 (3) to DQ5 (A5) 125
- M_A_DQ6 (16) to DQ6 (A6) 122
- M_A_DQ7 (17) to DQ7 (A7) 122
- M_A_DQ8 (28) to DQ8 (A8) 121
- M_A_DQ12 (29) to DQ9 (A9) 146
- M_A_DQ14 (41) to DQ10 (A10/AP) 120
- M_A_DQ11 (42) to DQ11 (A11) 119
- M_A_DQ9 (24) to DQ12 (A12) 151
- M_A_DQ13 (25) to DQ13 (A13) 151
- M_A_DQ10 (38) to DQ14 (A14/WE#) 158
- M_A_DQ15 (37) to DQ15 (A15/CAS#) 156
- M_A_DQ17 (50) to DQ16 (A16/RAS#) 152
- M_A_DQ18 (49) to DQ17 150
- M_A_DQ19 (62) to DQ18 145
- M_A_DQ20 (63) to DQ19 149
- M_A_DQ21 (46) to DQ20 157
- M_A_DQ22 (45) to DQ21 137
- M_A_DQ23 (59) to DQ22 139
- M_A_DQ24 (70) to DQ23 138
- M_A_DQ25 (71) to DQ24 140
- M_A_DQ26 (83) to DQ25 109
- M_A_DQ27 (84) to DQ26 110
- M_A_DQ28 (66) to DQ27 253
- M_A_DQ29 (67) to DQ28 254
- M_A_DQ30 (79) to DQ29 155
- M_A_DQ31 (80) to DQ30 161
- M_A_DQ32 (174) to DQ31 155
- M_A_DQ33 (173) to DQ32 161
- M_A_DQ34 (187) to DQ33 12
- M_A_DQ35 (186) to DQ34 33
- M_A_DQ36 (170) to DQ35 54
- M_A_DQ37 (169) to DQ36 75
- M_A_DQ38 (183) to DQ37 178
- M_A_DQ39 (182) to DQ38 199
- M_A_DQ40 (195) to DQ39 220
- M_A_DQ41 (194) to DQ40 241
- M_A_DQ42 (207) to DQ41 96
- M_A_DQ43 (208) to DQ42 13
- M_A_DQ44 (191) to DQ43 34
- M_A_DQ45 (190) to DQ44 55
- M_A_DQ46 (203) to DQ45 76
- M_A_DQ47 (204) to DQ46 179
- M_A_DQ48 (216) to DQ47 200
- M_A_DQ49 (215) to DQ48 221
- M_A_DQ50 (228) to DQ49 242
- M_A_DQ51 (229) to DQ50 97
- M_A_DQ52 (211) to DQ51 11
- M_A_DQ53 (212) to DQ52 32
- M_A_DQ54 (224) to DQ53 53
- M_A_DQ55 (225) to DQ54 77
- M_A_DQ56 (237) to DQ55 198
- M_A_DQ57 (236) to DQ56 219
- M_A_DQ58 (249) to DQ57 240
- M_A_DQ59 (250) to DQ58 95
- M_A_DQ60 (232) to DQ59 13
- M_A_DQ61 (233) to DQ60 34
- M_A_DQ62 (245) to DQ61 55
- M_A_DQ63 (246) to DQ62 76
- M_A_DQ64 (237) to DQ63 179
- M_A_DQ65 (238) to DQ64 200
- M_A_DQ66 (250) to DQ65 221
- M_A_DQ67 (242) to DQ66 242
- M_A_DQ68 (237) to DQ67 97
- M_A_DQ69 (238) to DQ68 11
- M_A_DQ70 (250) to DQ69 32
- M_A_DQ71 (251) to DQ70 53
- M_A_DQ72 (237) to DQ71 77
- M_A_DQ73 (238) to DQ72 198
- M_A_DQ74 (250) to DQ73 219
- M_A_DQ75 (251) to DQ74 240
- M_A_DQ76 (237) to DQ75 95
- M_A_DQ77 (238) to DQ76 13
- M_A_DQ78 (250) to DQ77 34
- M_A_DQ79 (251) to DQ78 55
- M_A_DQ80 (237) to DQ79 76
- M_A_DQ81 (238) to DQ80 179
- M_A_DQ82 (250) to DQ81 200
- M_A_DQ83 (251) to DQ82 221
- M_A_DQ84 (237) to DQ83 242
- M_A_DQ85 (238) to DQ84 97
- M_A_DQ86 (250) to DQ85 11
- M_A_DQ87 (251) to DQ86 32
- M_A_DQ88 (237) to DQ87 53
- M_A_DQ89 (238) to DQ88 77
- M_A_DQ90 (250) to DQ89 198
- M_A_DQ91 (251) to DQ90 219
- M_A_DQ92 (237) to DQ91 240
- M_A_DQ93 (238) to DQ92 95
- M_A_DQ94 (250) to DQ93 13
- M_A_DQ95 (251) to DQ94 34
- M_A_DQ96 (237) to DQ95 55
- M_A_DQ97 (238) to DQ96 76
- M_A_DQ98 (250) to DQ97 179
- M_A_DQ99 (251) to DQ98 200

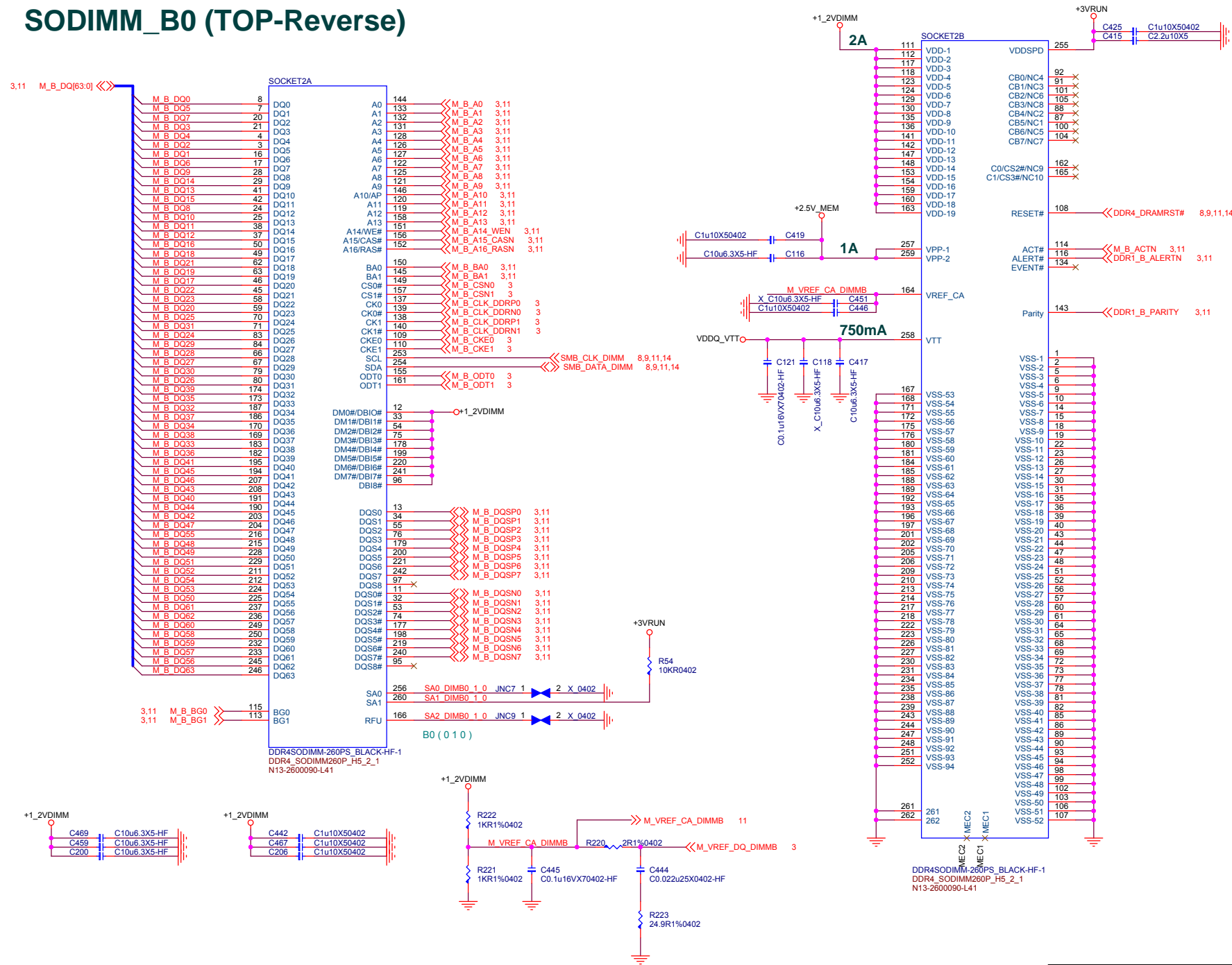
Additional Connections:

- M_A_DQ14 (41) to DQ10 (A10/AP) 120
- M_A_DQ15 (37) to DQ15 (A15/CAS#) 156
- M_A_DQ16 (50) to DQ16 (A16/RAS#) 152
- M_A_DQ17 (50) to DQ17 150
- M_A_DQ18 (62) to DQ18 145
- M_A_DQ19 (63) to DQ19 149
- M_A_DQ20 (46) to DQ20 157
- M_A_DQ21 (45) to DQ21 137
- M_A_DQ22 (59) to DQ22 139
- M_A_DQ23 (70) to DQ23 138
- M_A_DQ24 (71) to DQ24 140
- M_A_DQ25 (83) to DQ25 109
- M_A_DQ26 (84) to DQ26 110
- M_A_DQ27 (66) to DQ27 253
- M_A_DQ28 (67) to DQ28 254
- M_A_DQ29 (79) to DQ29 155
- M_A_DQ30 (80) to DQ30 161
- M_A_DQ31 (174) to DQ31 155
- M_A_DQ32 (173) to DQ32 161
- M_A_DQ33 (187) to DQ33 12
- M_A_DQ34 (186) to DQ34 33
- M_A_DQ35 (170) to DQ35 54
- M_A_DQ36 (169) to DQ36 75
- M_A_DQ37 (183) to DQ37 178
- M_A_DQ38 (182) to DQ38 199
- M_A_DQ39 (195) to DQ39 220
- M_A_DQ40 (194) to DQ40 241
- M_A_DQ41 (207) to DQ41 96
- M_A_DQ42 (208) to DQ42 13
- M_A_DQ43 (191) to DQ43 34
- M_A_DQ44 (190) to DQ44 55
- M_A_DQ45 (203) to DQ45 76
- M_A_DQ46 (204) to DQ46 179
- M_A_DQ47 (216) to DQ47 200
- M_A_DQ48 (215) to DQ48 221
- M_A_DQ49 (228) to DQ49 242
- M_A_DQ50 (229) to DQ50 97
- M_A_DQ51 (211) to DQ51 11
- M_A_DQ52 (212) to DQ52 32
- M_A_DQ53 (224) to DQ53 53
- M_A_DQ54 (225) to DQ54 77
- M_A_DQ55 (237) to DQ55 198
- M_A_DQ56 (236) to DQ56 219
- M_A_DQ57 (249) to DQ57 240
- M_A_DQ58 (250) to DQ58 95
- M_A_DQ59 (232) to DQ59



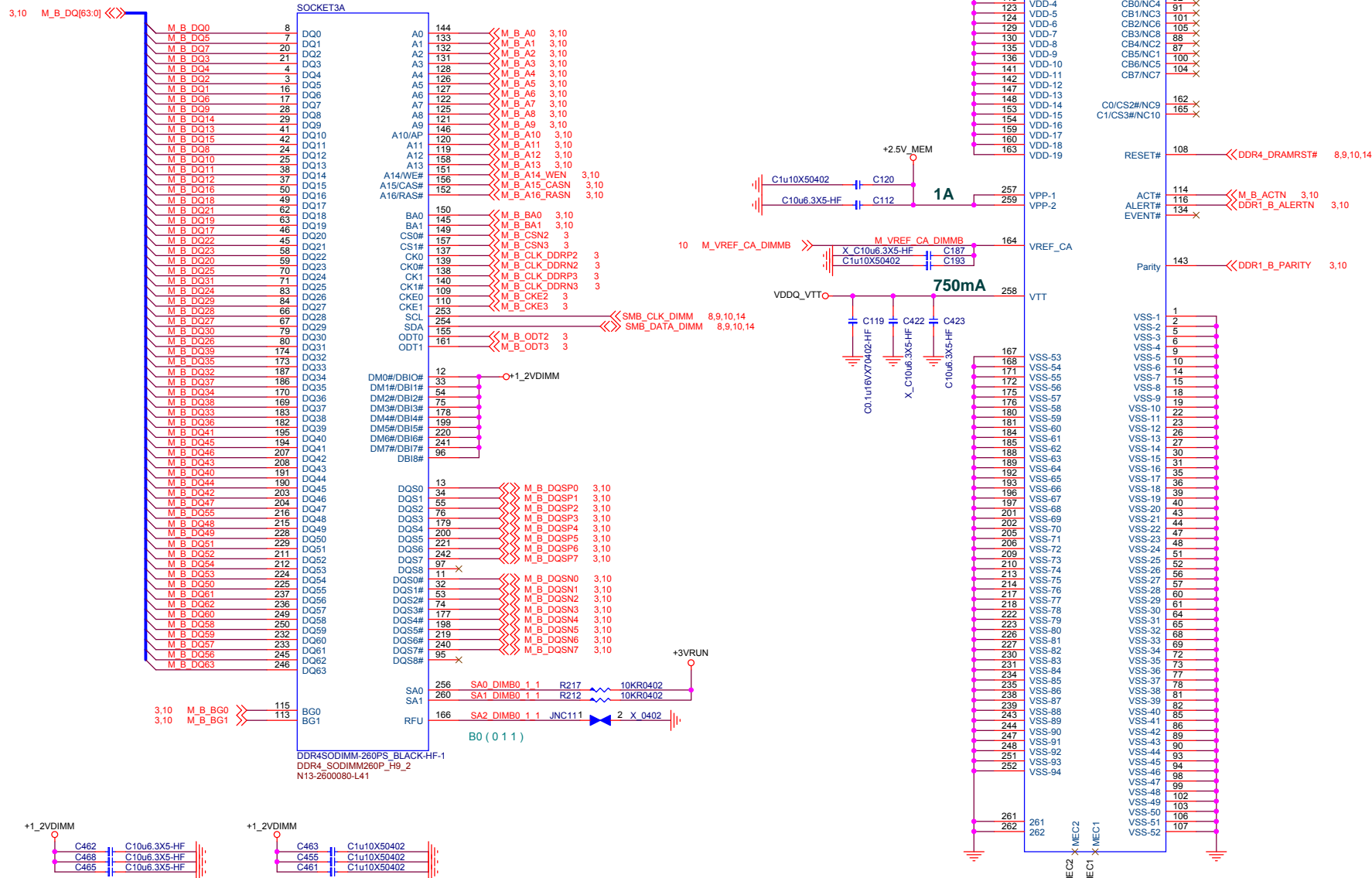
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SODIMM_B0 (TOP-Reverse)

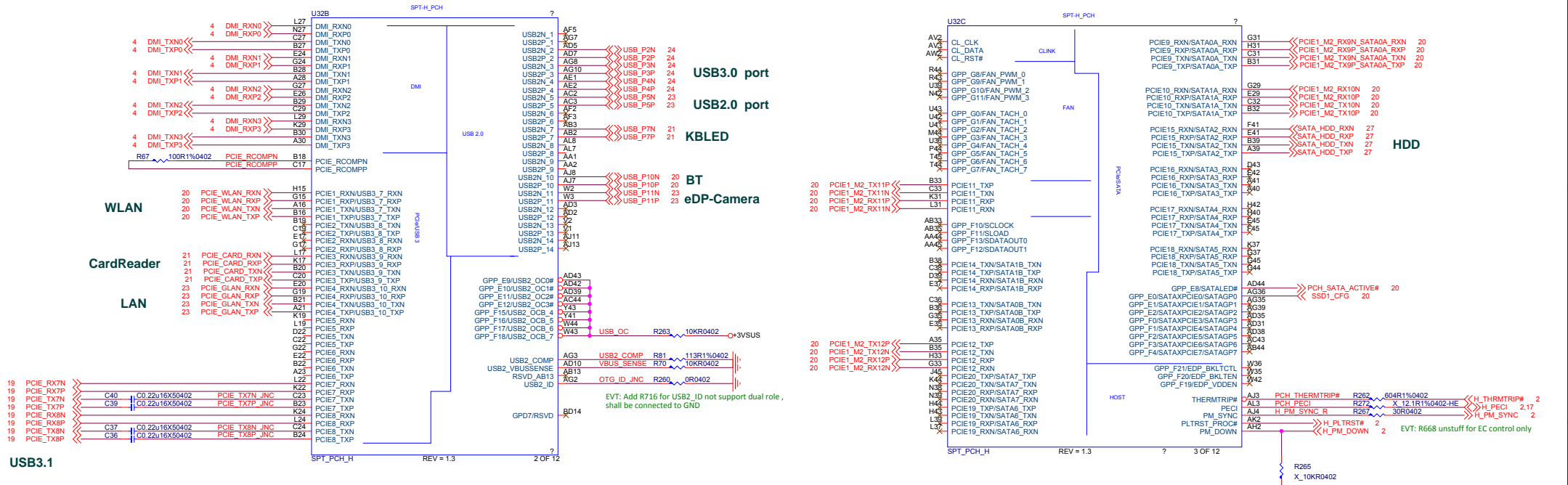


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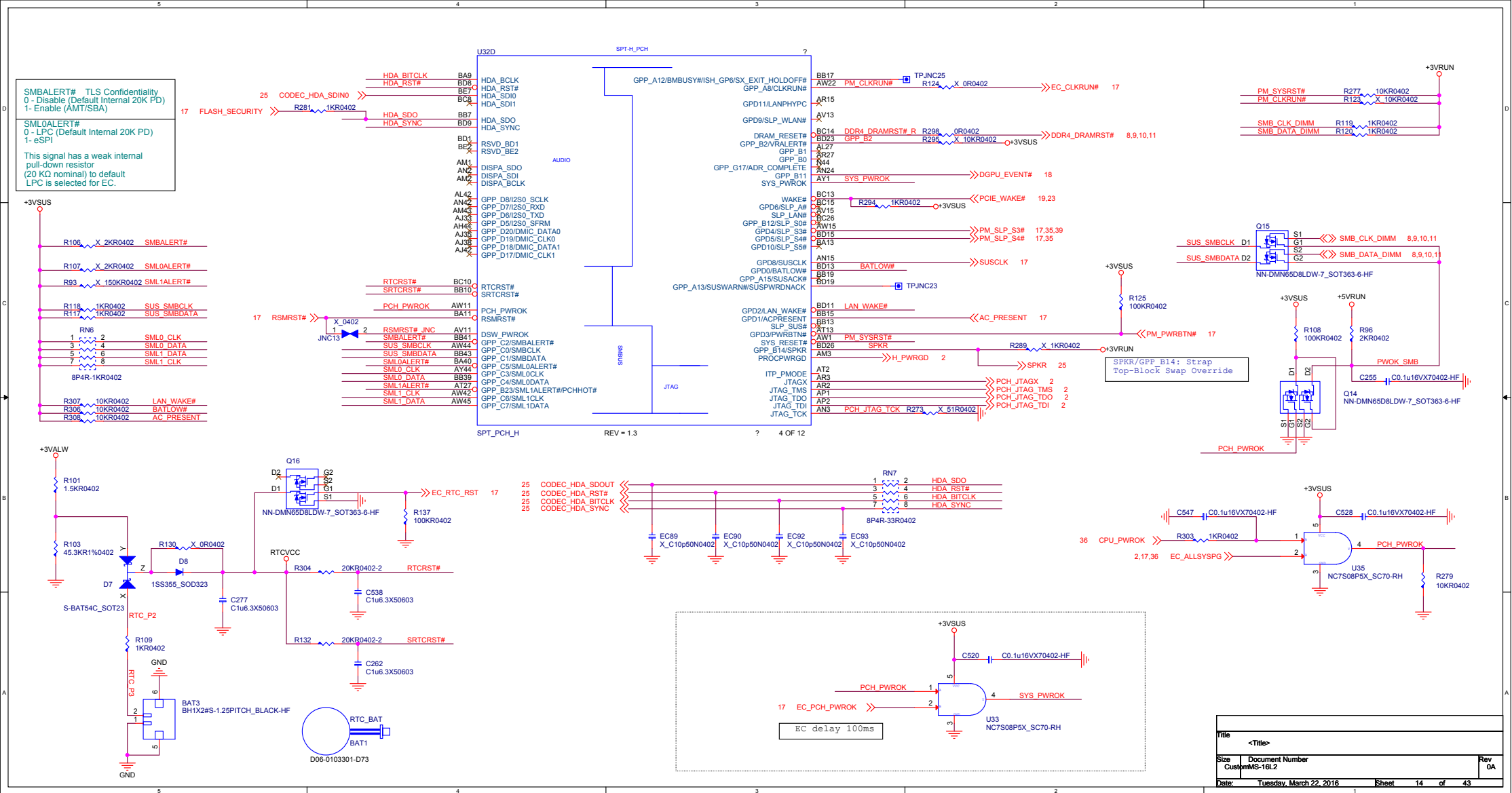
SODIMM_B1 (BOT-Reverse)

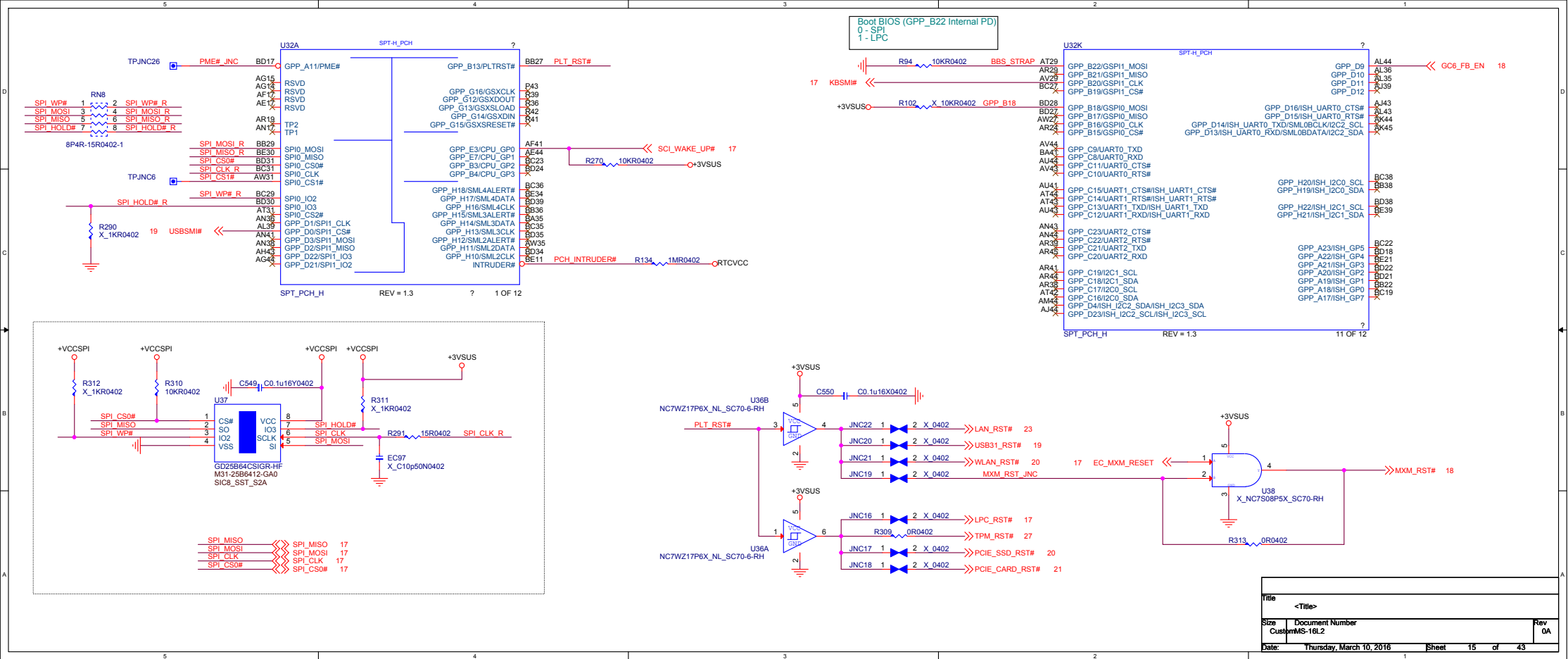


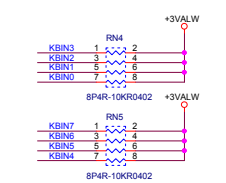
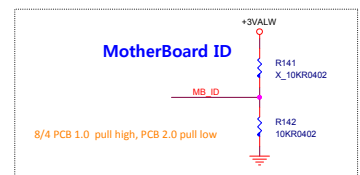
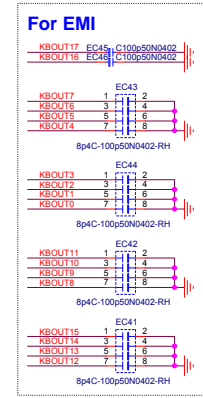
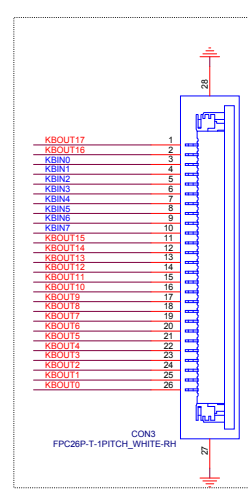
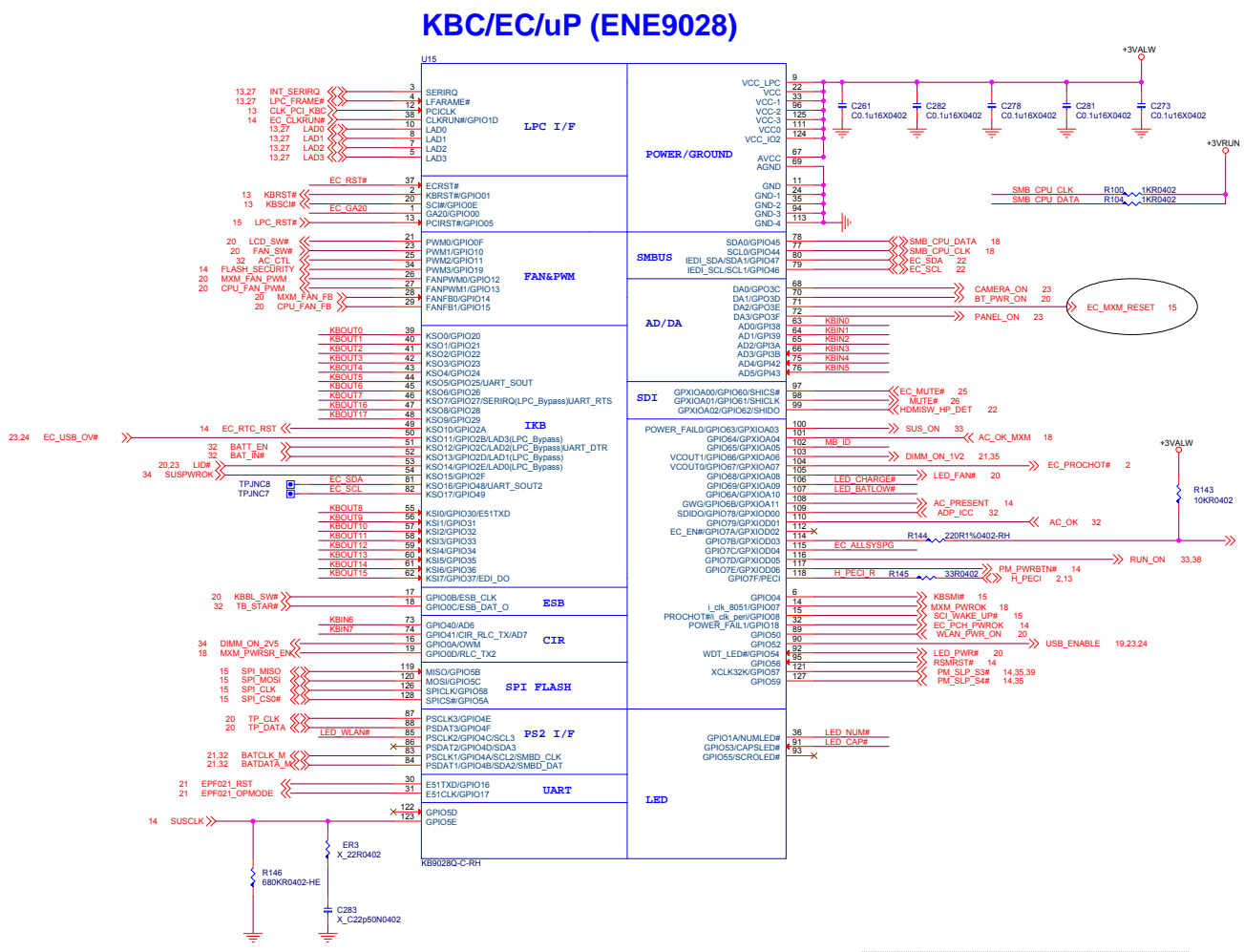
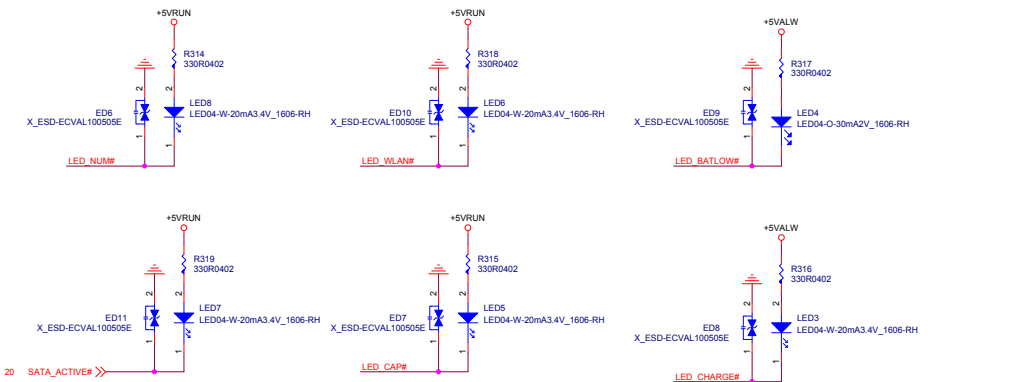
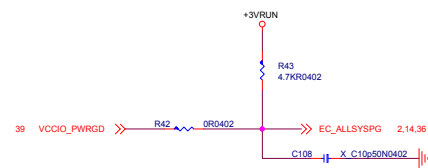
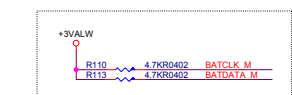
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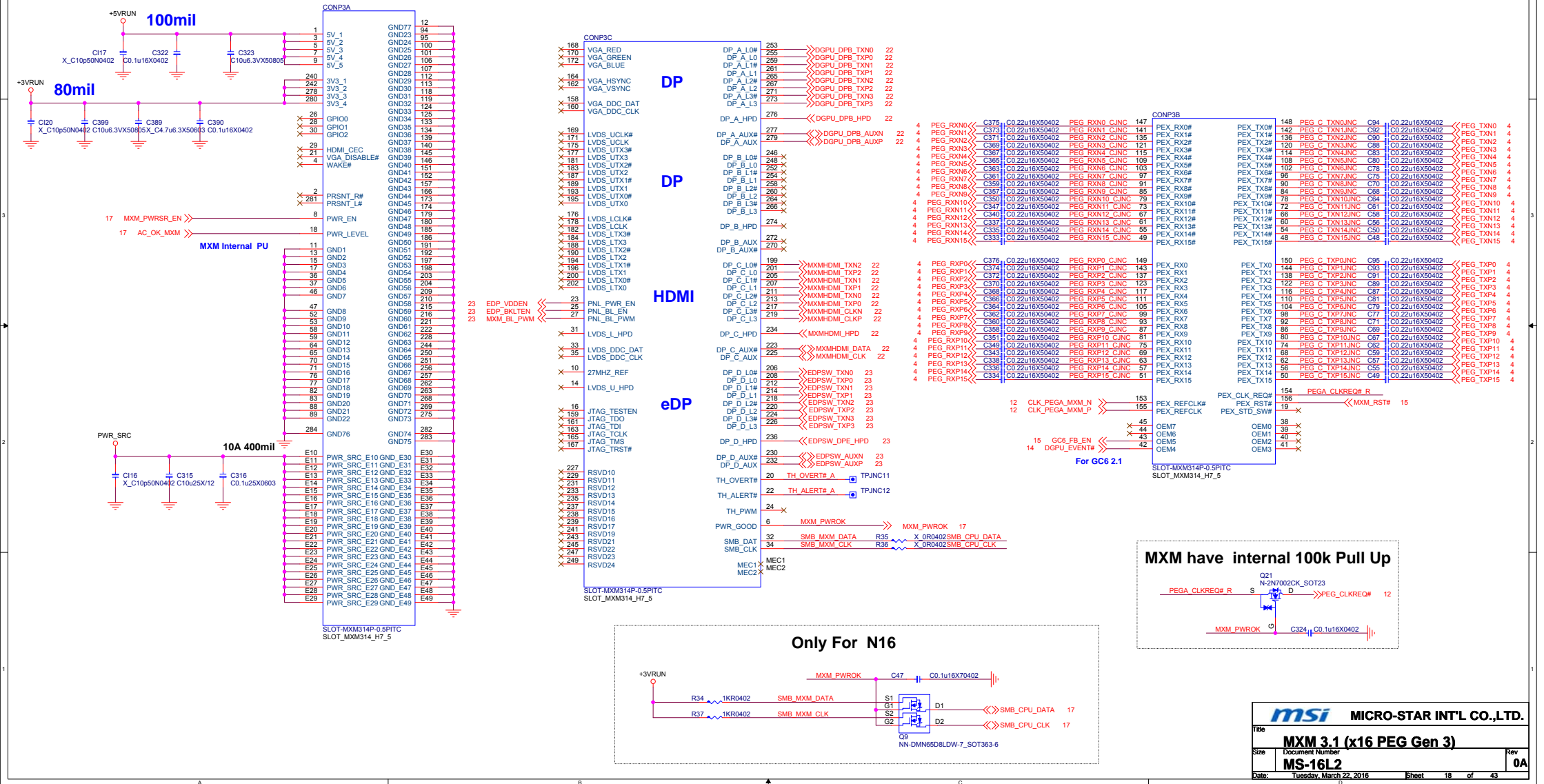
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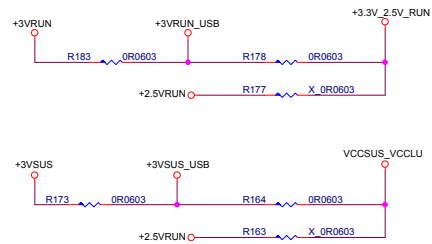




MXM 3.1 (x16 PEG Gen 3)

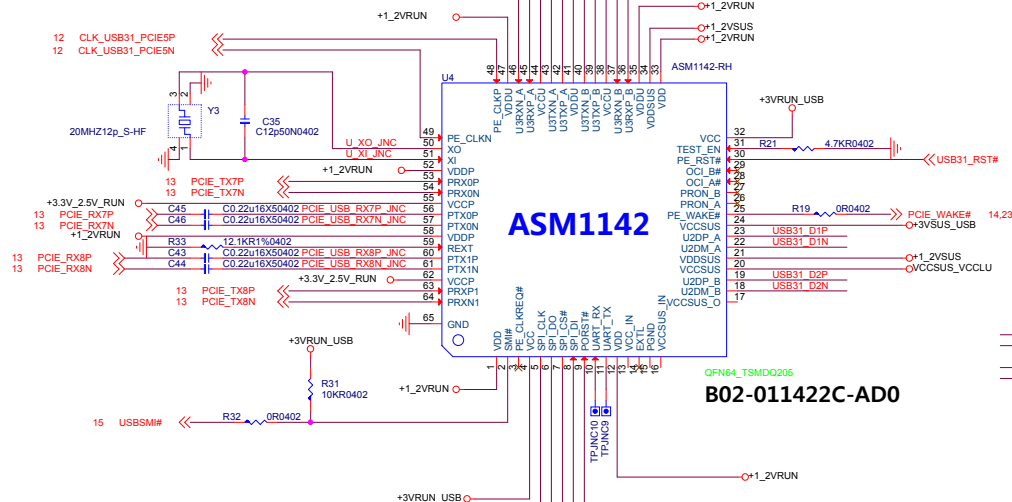
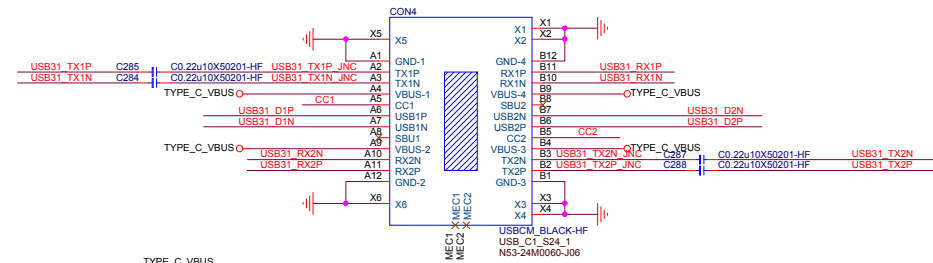


Co-lay ASM2142



NET	ASM1142	ASM2142
+3.3V_2.5V_RUN	+3V_RUN_USB	+2.5V_RUN
VCCSUS_VCCLU	+3VSUS_USB	+2.5V_RUN
+1_2VSUS	+1.2VSUS	+1.05VSUS
+1_2VRUN	+1.2VRUN	+1.05VRUN

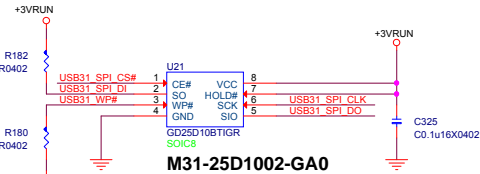
PCIE to USB 3.1



ASM1142

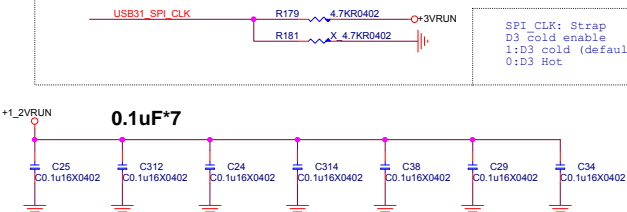
B02-011422C-AD0

SPI ROM For FW (stuff first)



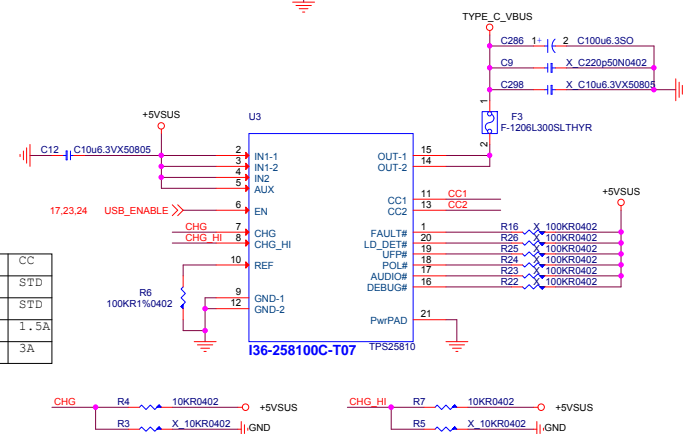
M31-25D1002-GA0

Aviod same wth EC ROM modidy PN



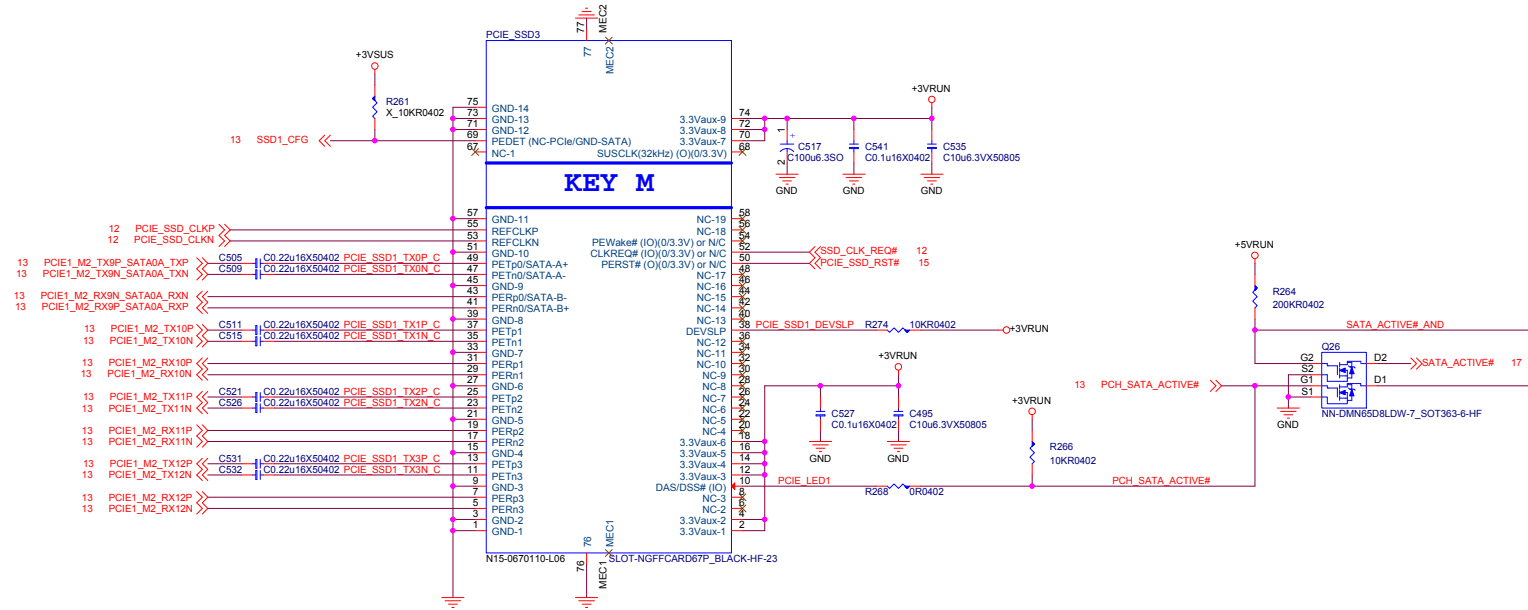
SPI_CLK: Strap
D3 Cold enable
1:D3 cold (default)
0:D3 Hot

CHG	CHG_HI	CC
0	0	STD
0	1	STD
1	0	1.5A
1	1	3A

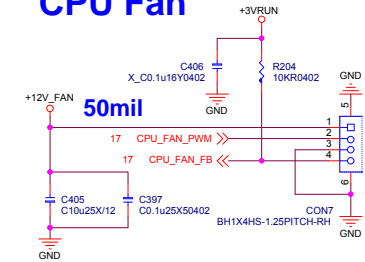


I36-258100C-T07

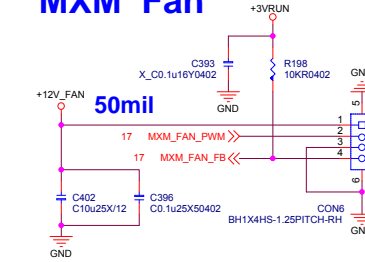
PCIe x4 M.2 SSD



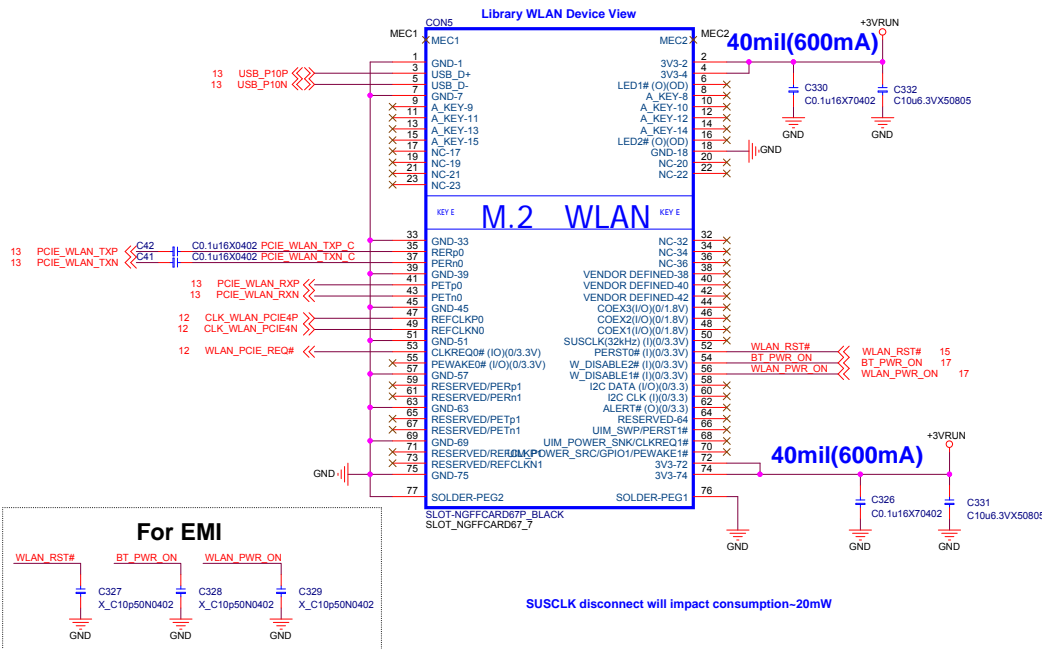
CPU Fan



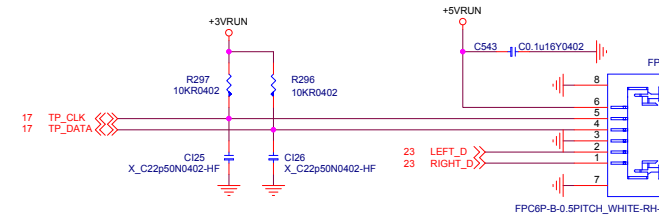
MXM Fan



WLAN/BT

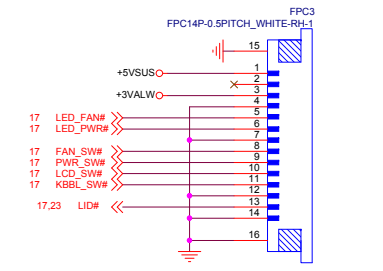


Touch Pad

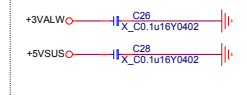


Launch Board

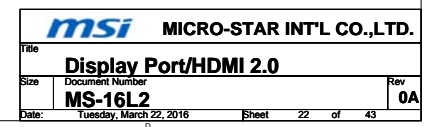
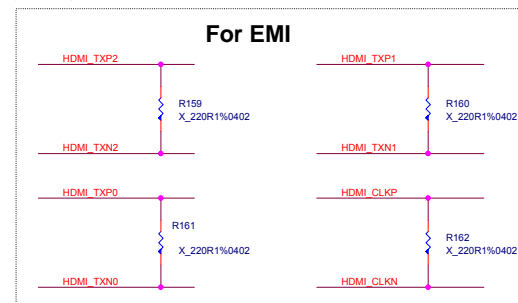
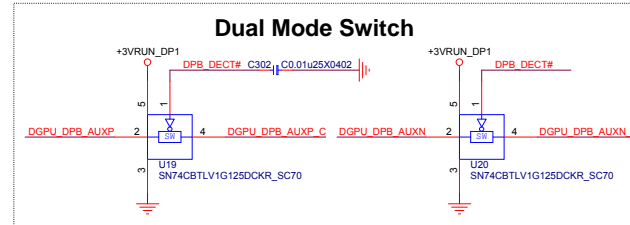
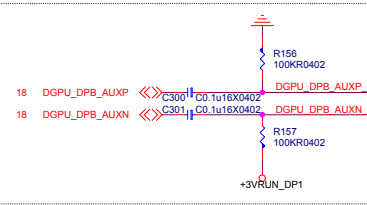
- Power On/Off
- CoolerBoost
- LCD on/off----- Game Caster
- Backlight KB on/off----- SSE



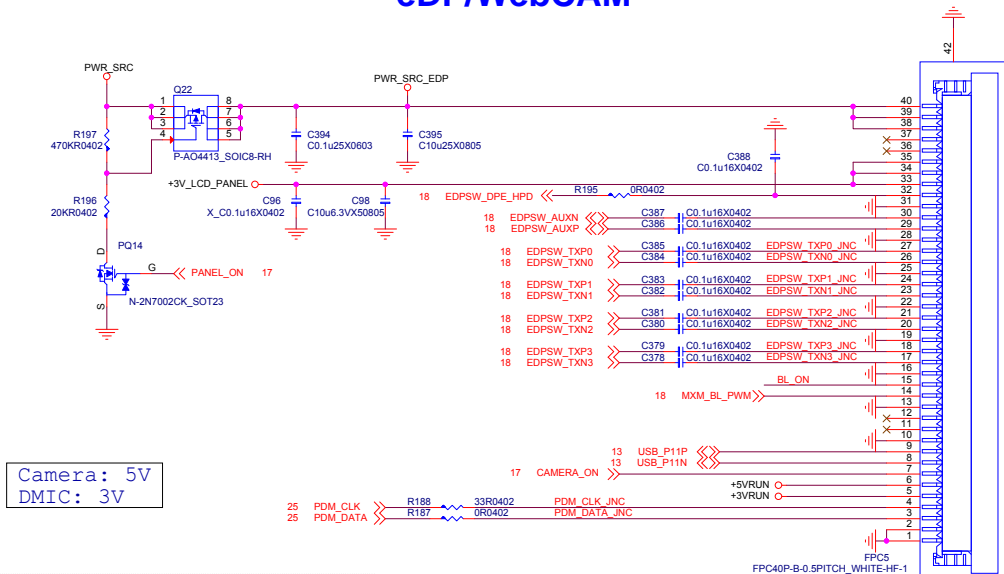
For EMI



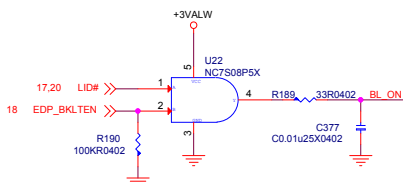
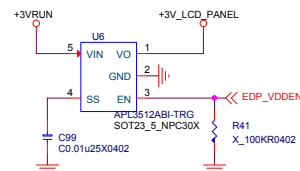
Display Port



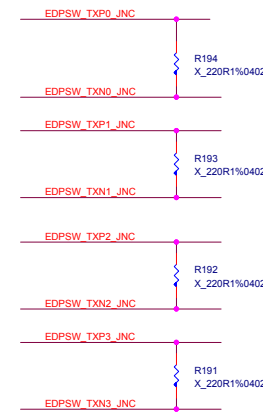
eDP/WebCAM



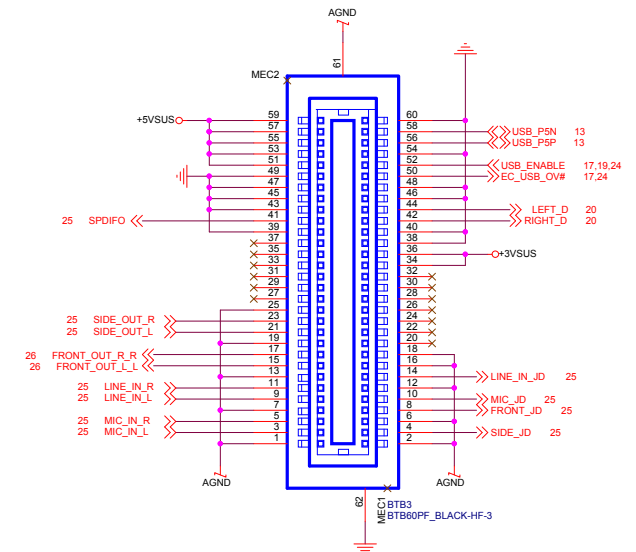
Panel Logic Power



For EMI



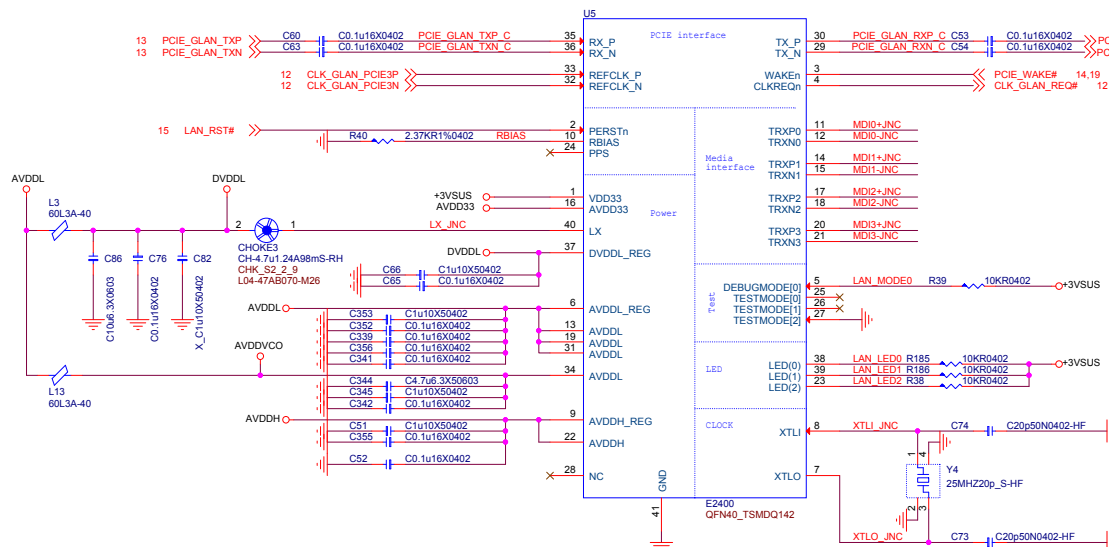
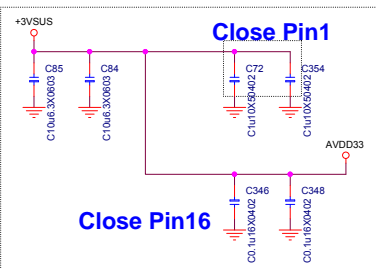
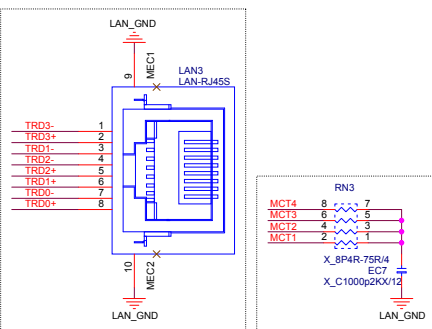
Audio BTB Conn.



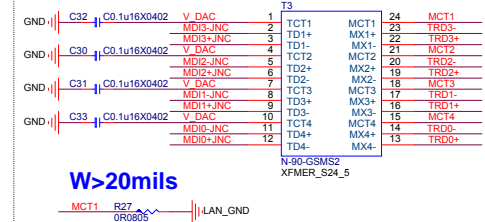
For EMI



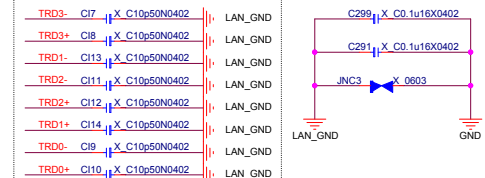
Giga LAN (Killer E2400)



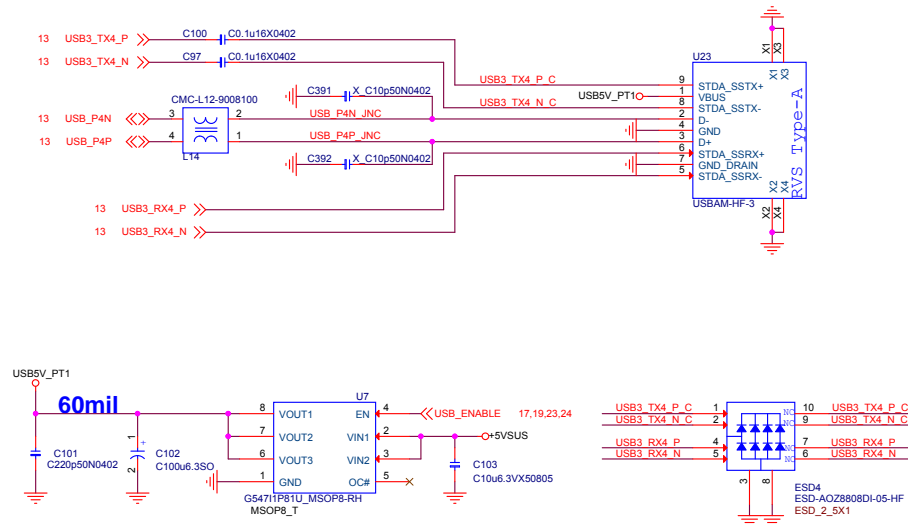
Transfer Mode



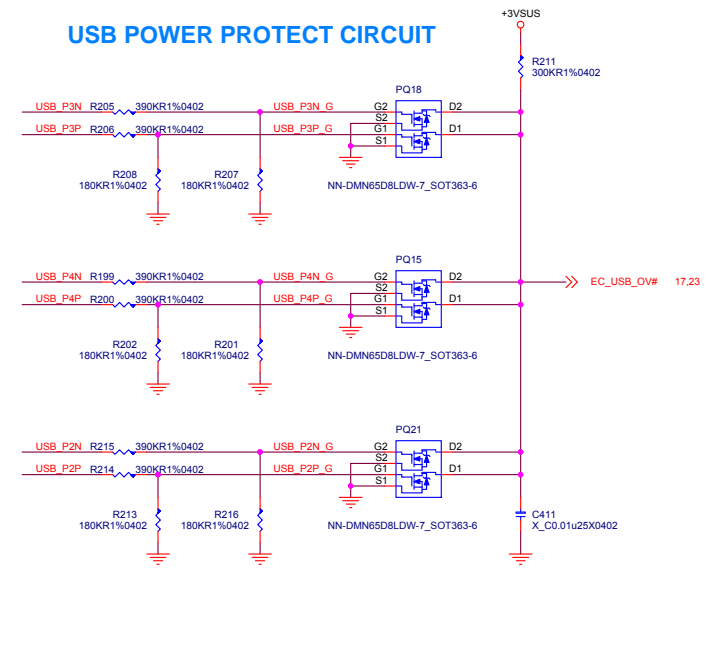
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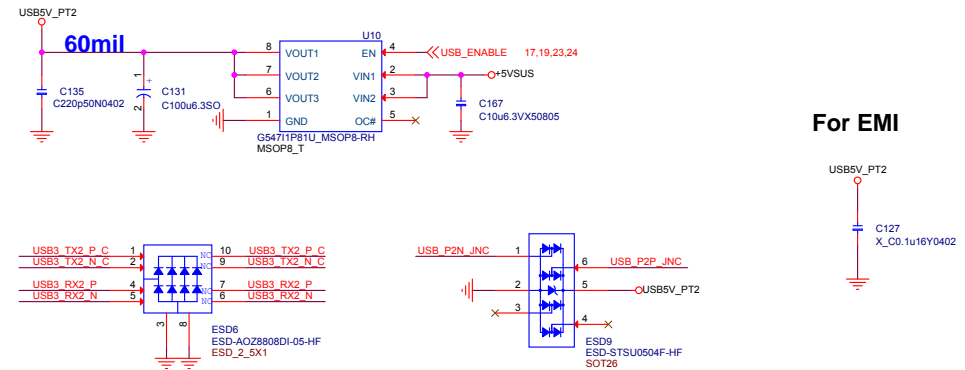
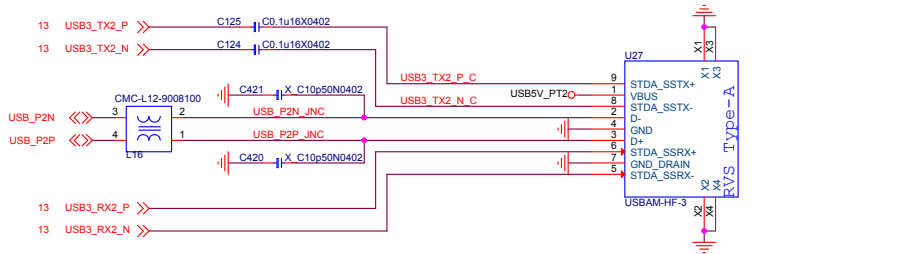
USB3.0 Port 1



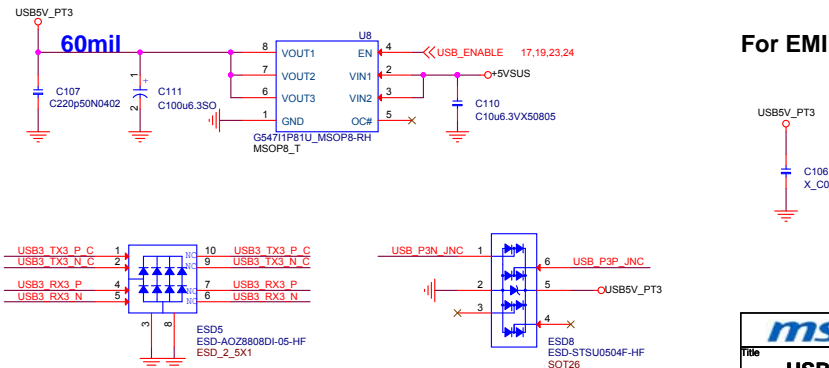
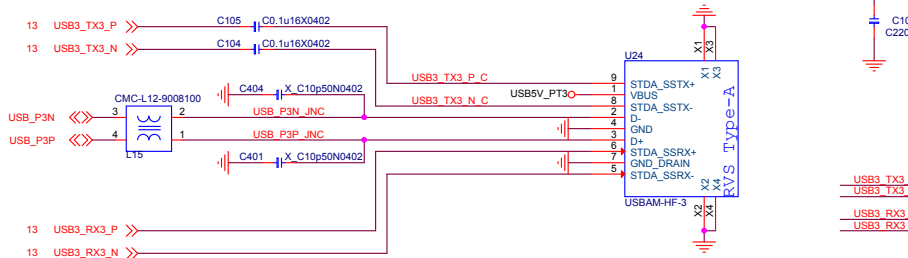
USB POWER PROTECT CIRCUIT



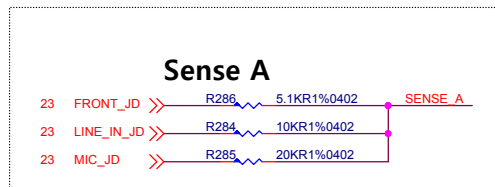
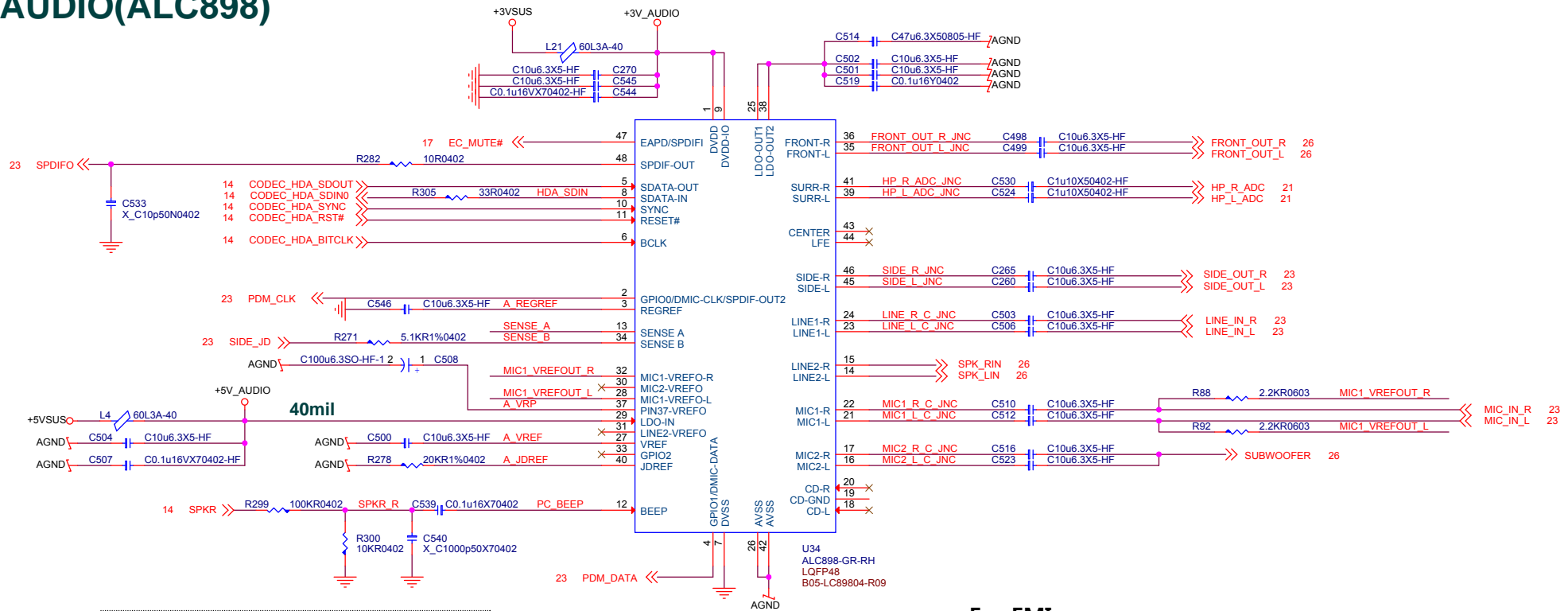
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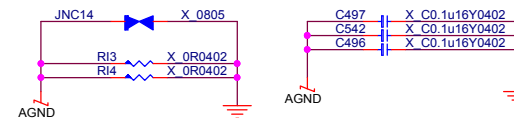
USB3.0 Port 3




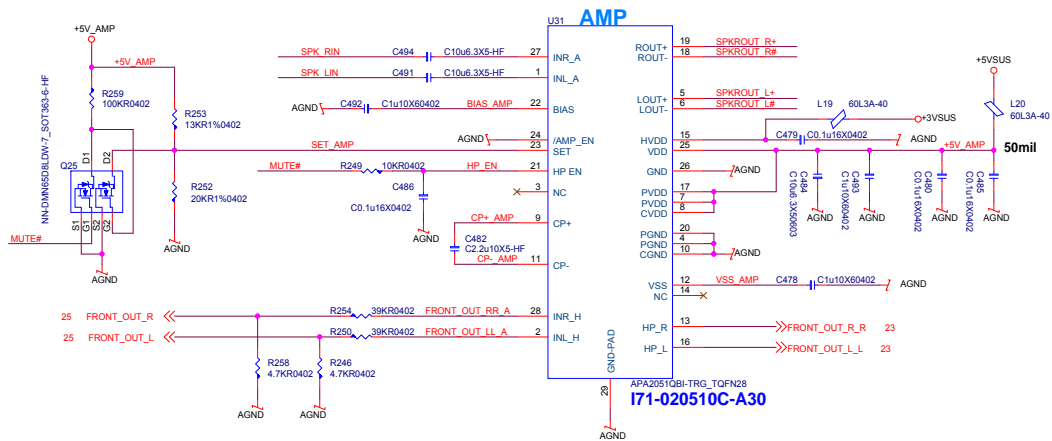
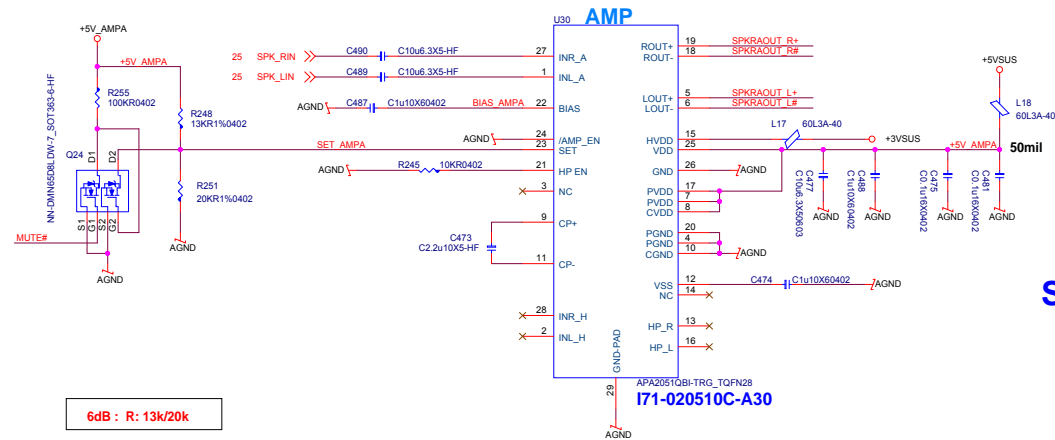
AUDIO(ALC898)



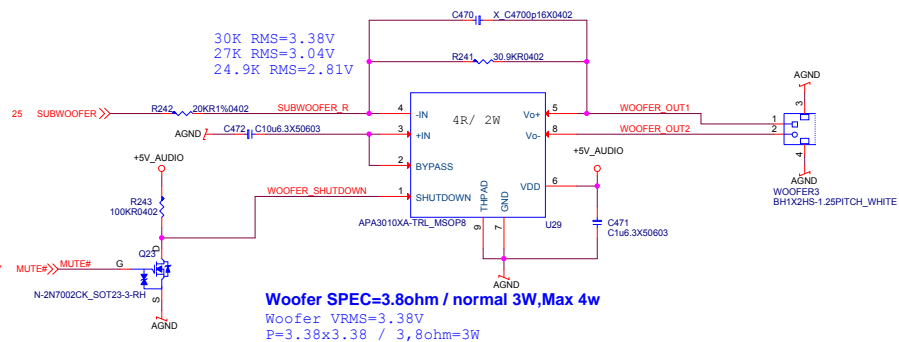
For EMI



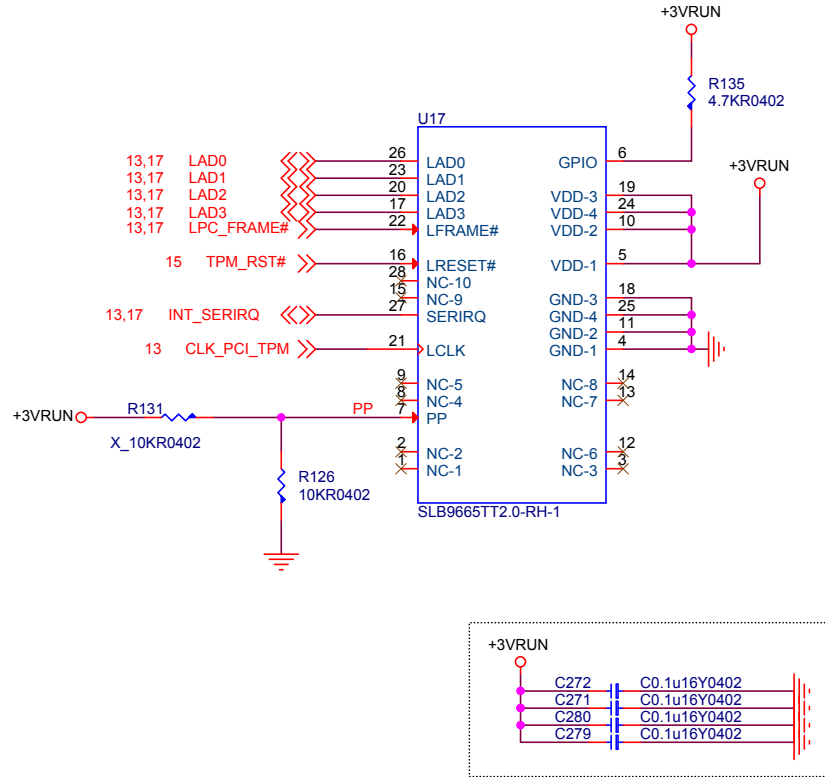
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Audio(ALC898)	
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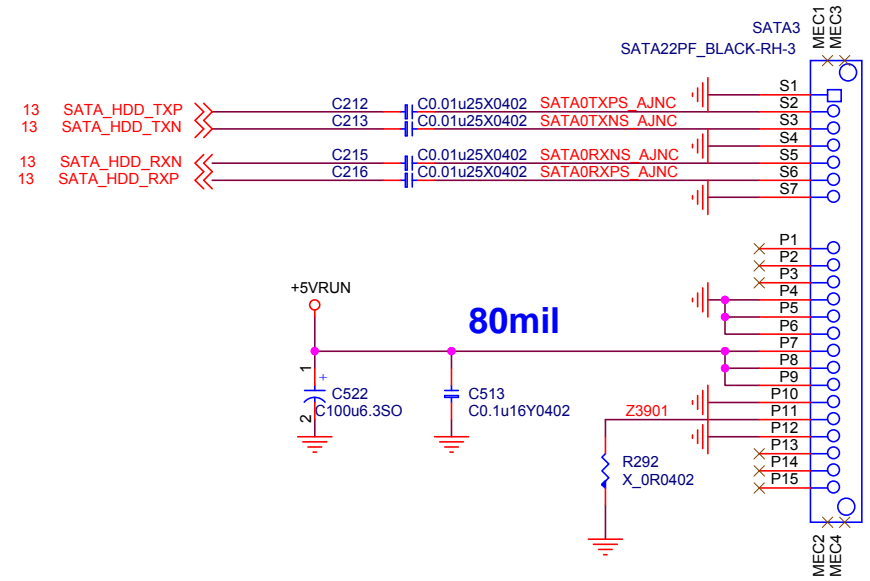
Subwoofer Amp(APA3010)



TPM



SATA HDD Gen 3



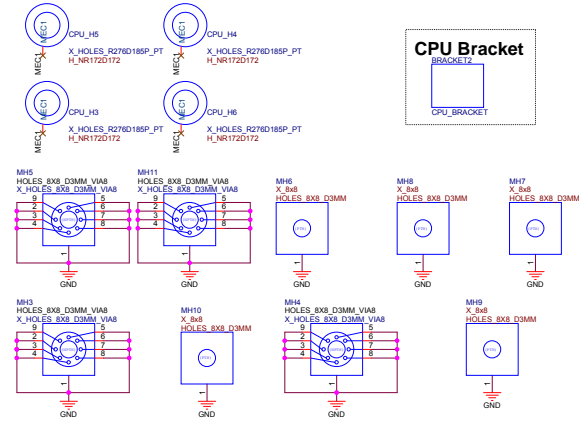
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Title	
TPM/HDD	
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EMI



Screw/ME

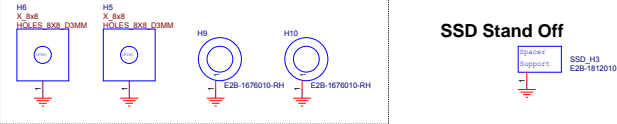
CPU Hole



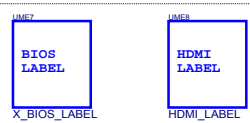
CPU Bracket



MXM & Fan Stand Off

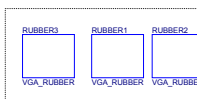
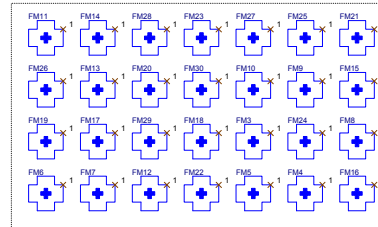


Audio Stand Off

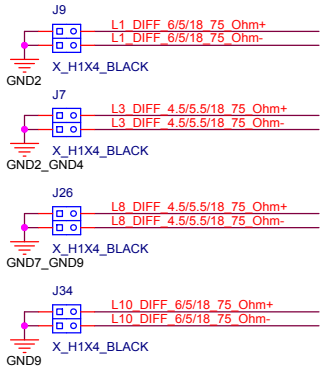


試產階段cost down 不上件，量產時上件：

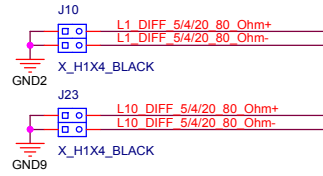
M.2 WiFi Stand Off



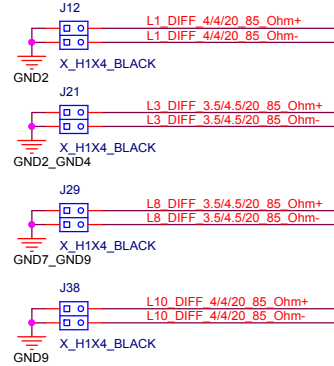
75 OHM / DDR4 DQS



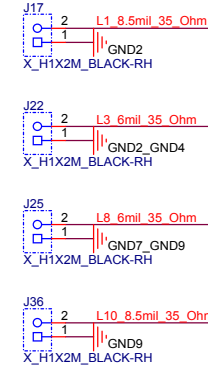
80 OHM / USB3.1



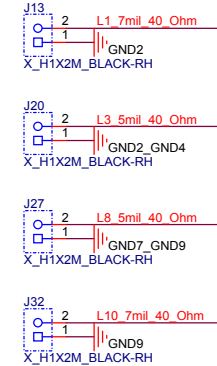
85 OHM /USB,PEG,DMI,CLK



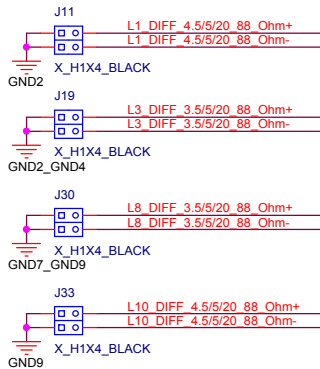
35 OHM / DDR4



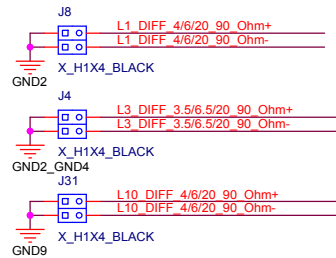
40 OHM / DDR4



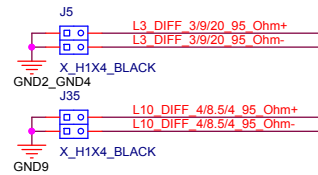
88 OHM / DDR4 CLK



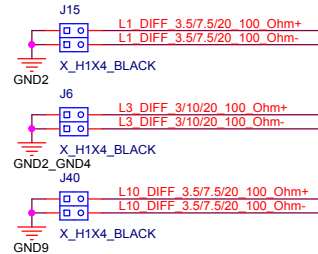
90 OHM / DP,eDP



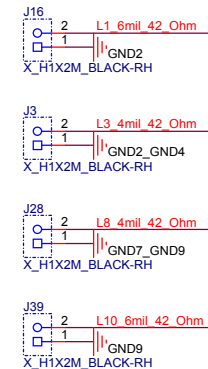
95 OHM / HDMI



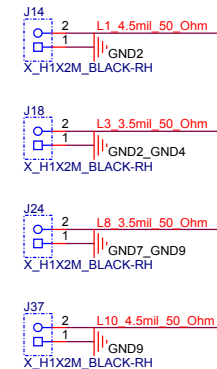
100 OHM / LAN,SD



42 OHM / DDR4

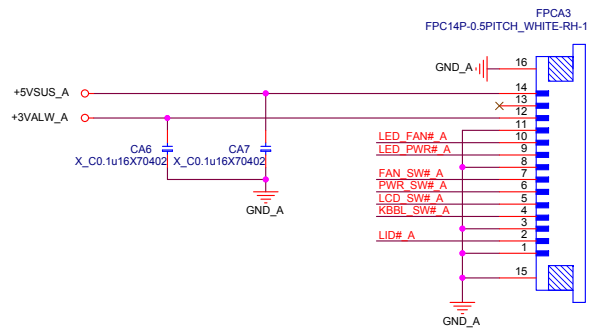


50 OHM

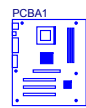
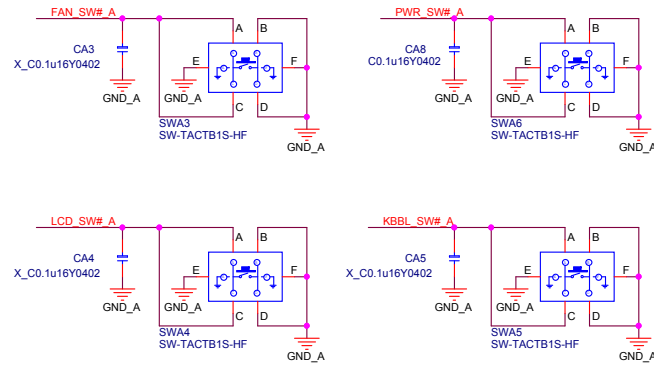


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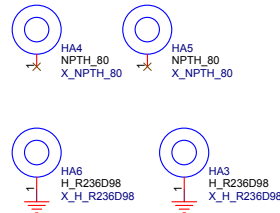
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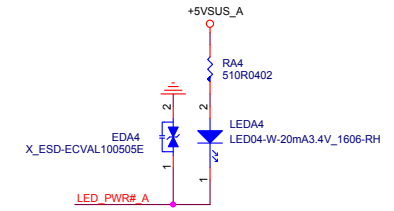
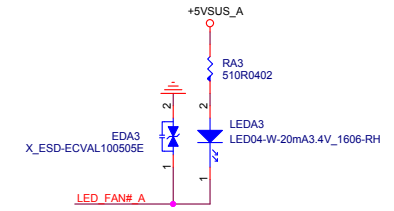
- Power On/Off
- CoolerBoost
- LCD on/off----- Game Caster
- Backlight KB on/off----- SSE



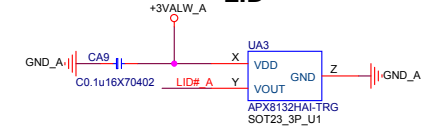
P30-16L2A0A-H73



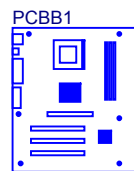
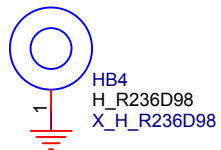
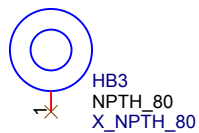
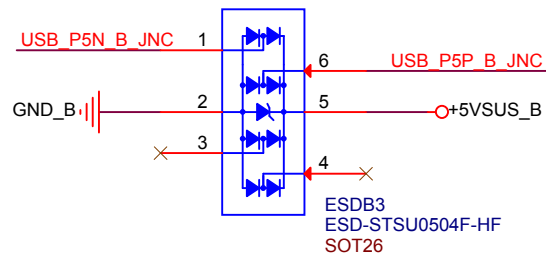
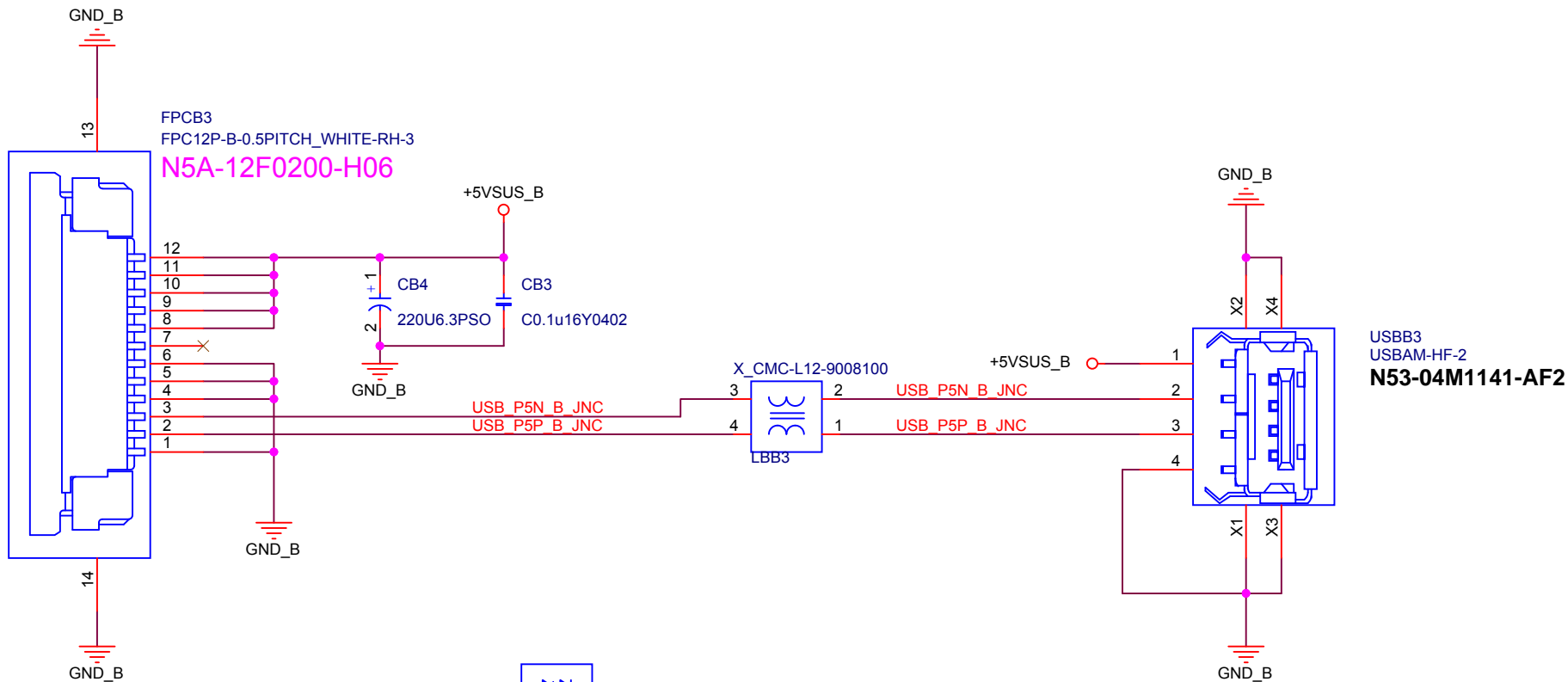
LED



LID



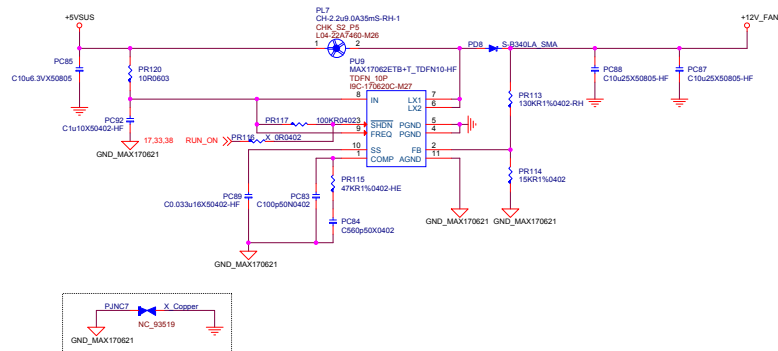
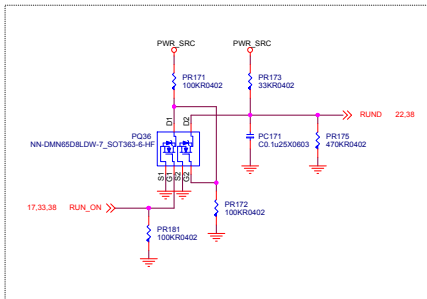
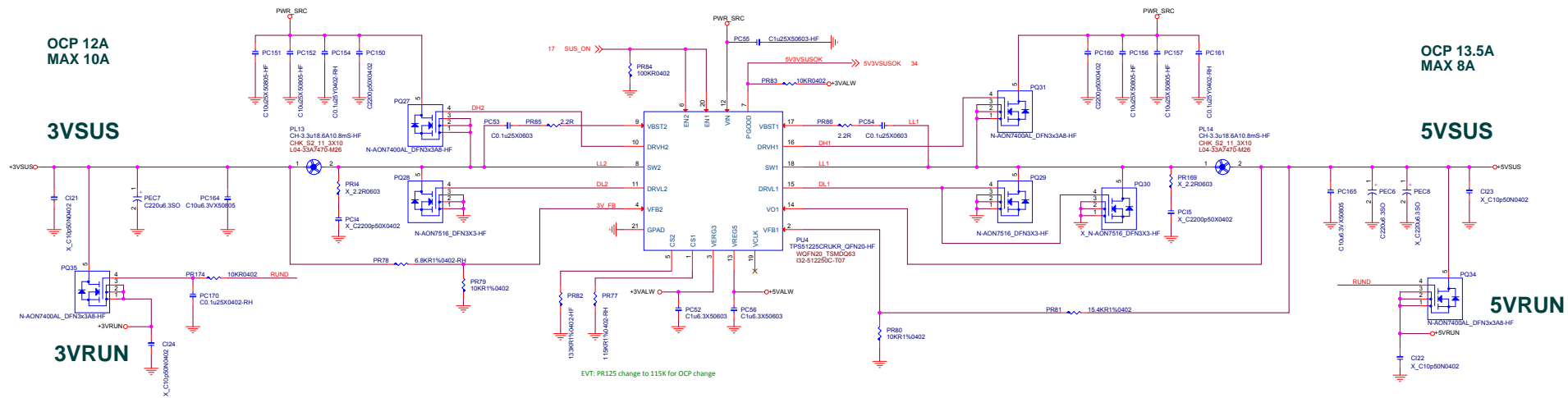
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Title	MS-16L1A Launch Board		
Size	Document Number	Rev	
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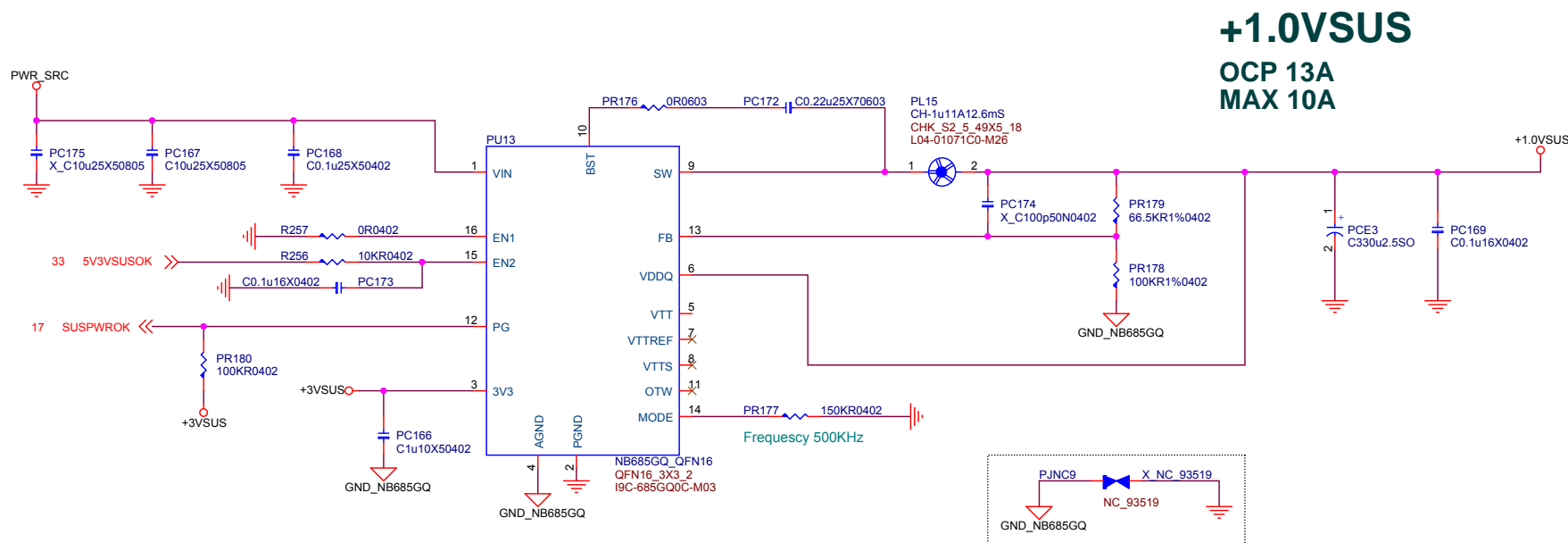
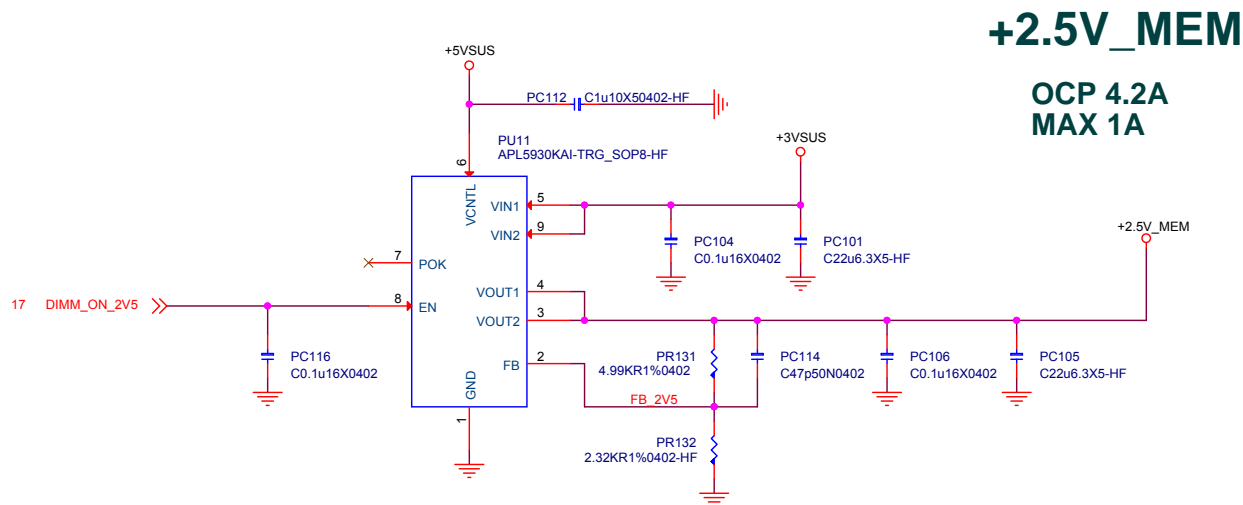


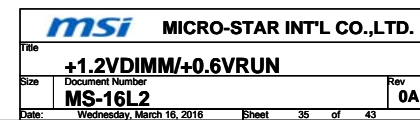
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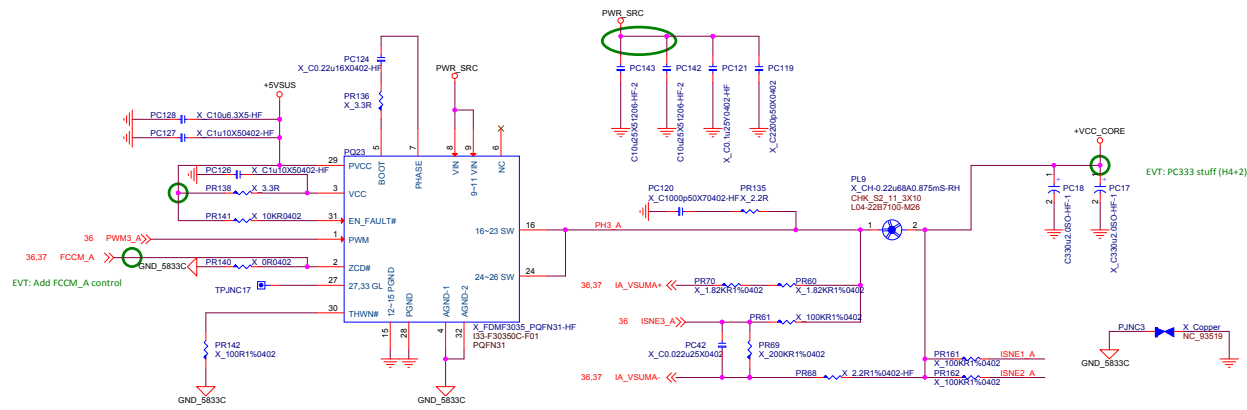
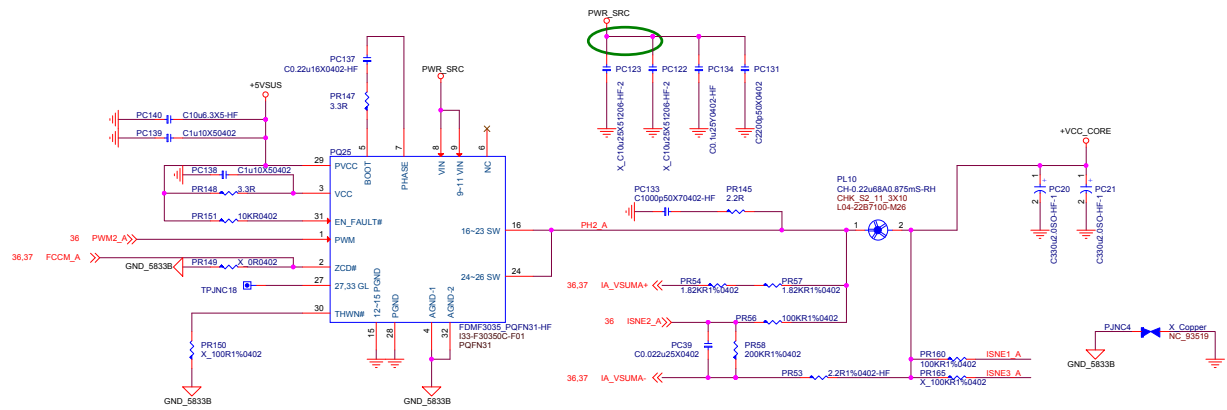
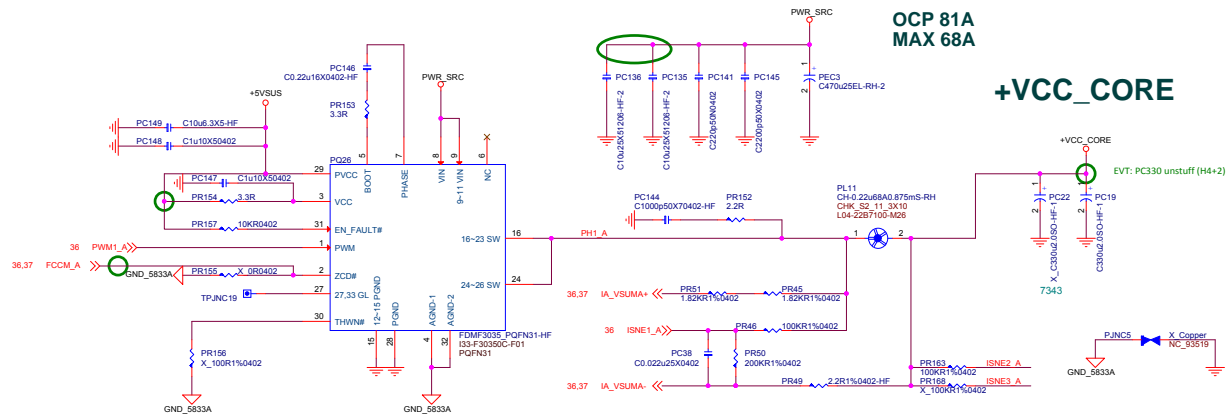
System Power

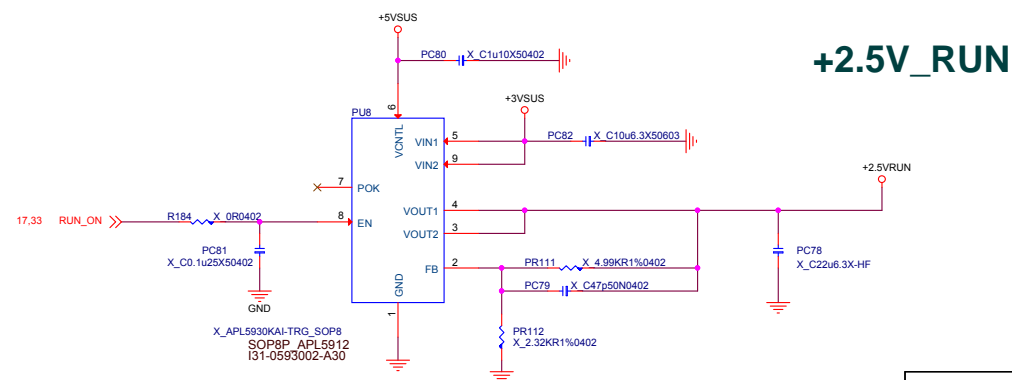
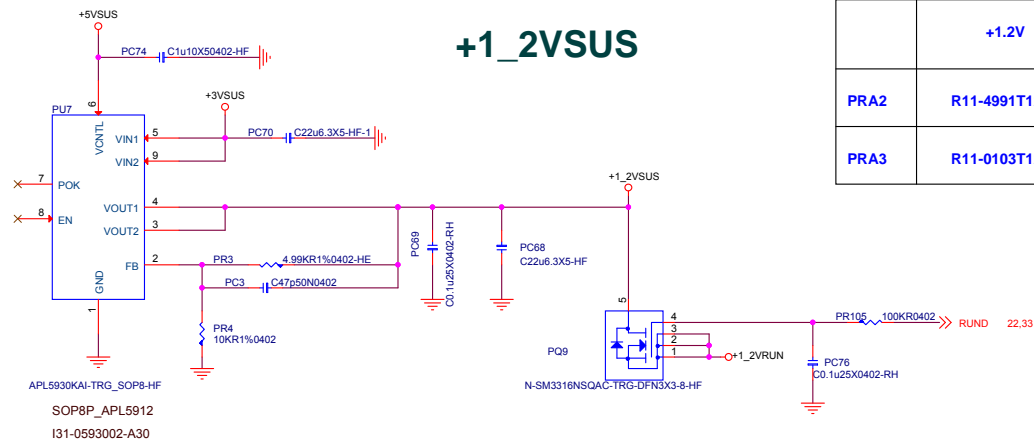
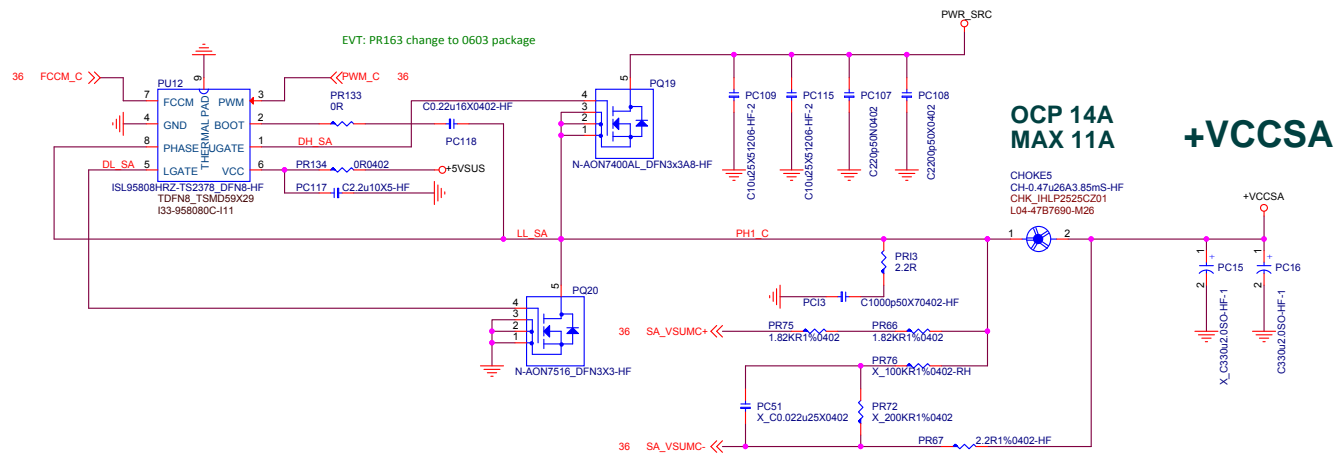




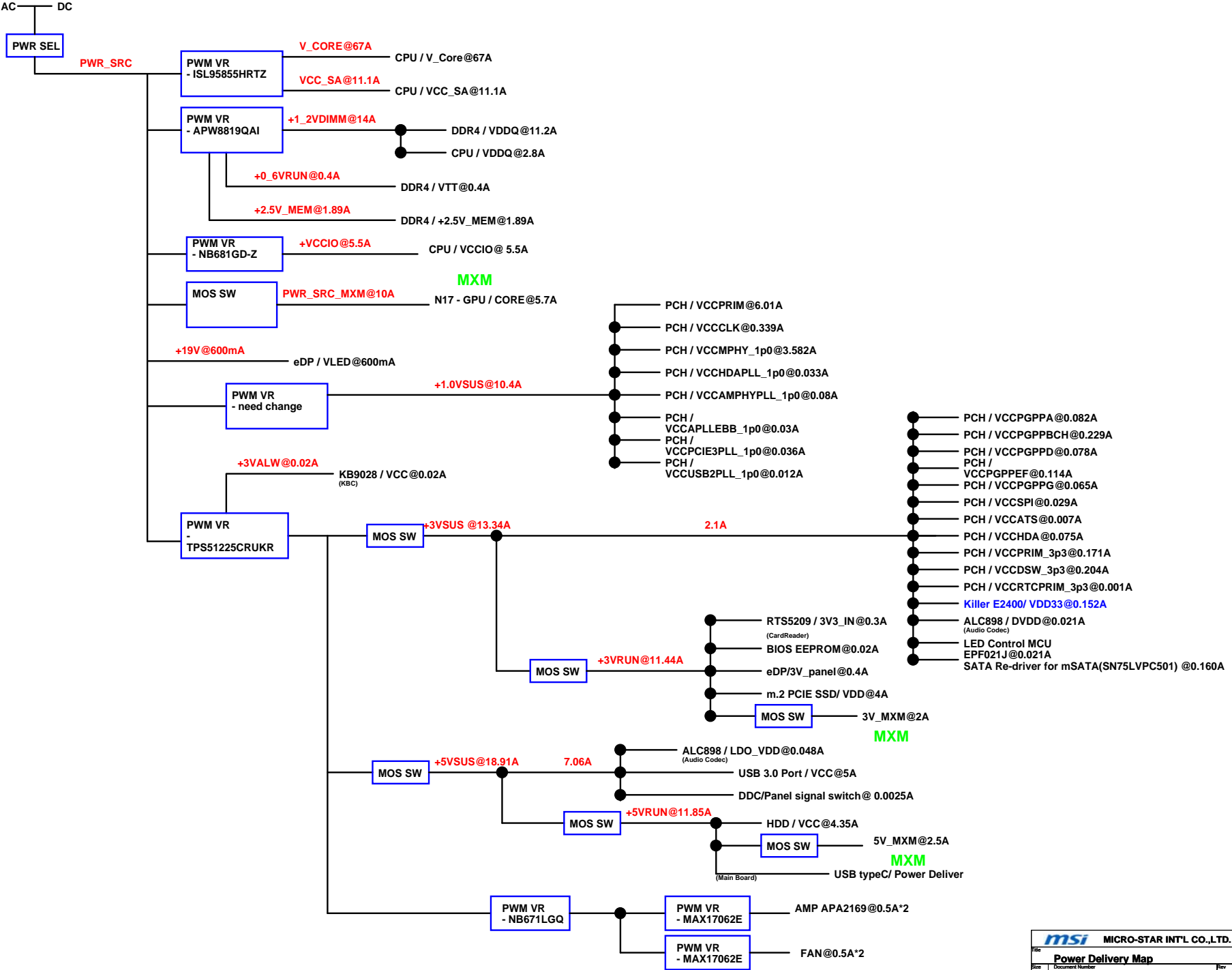


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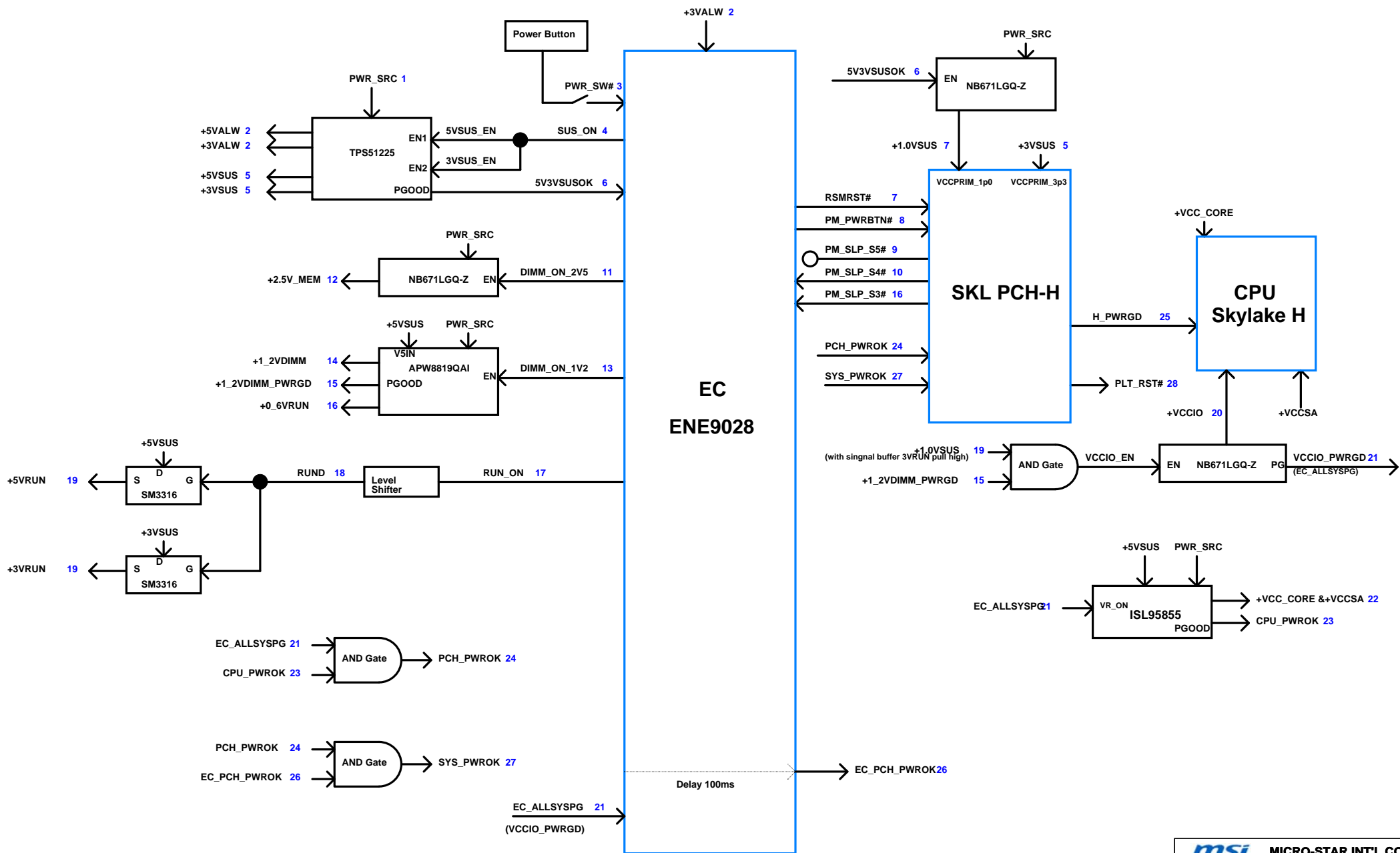




MS-16L2 Power Delivery Chart

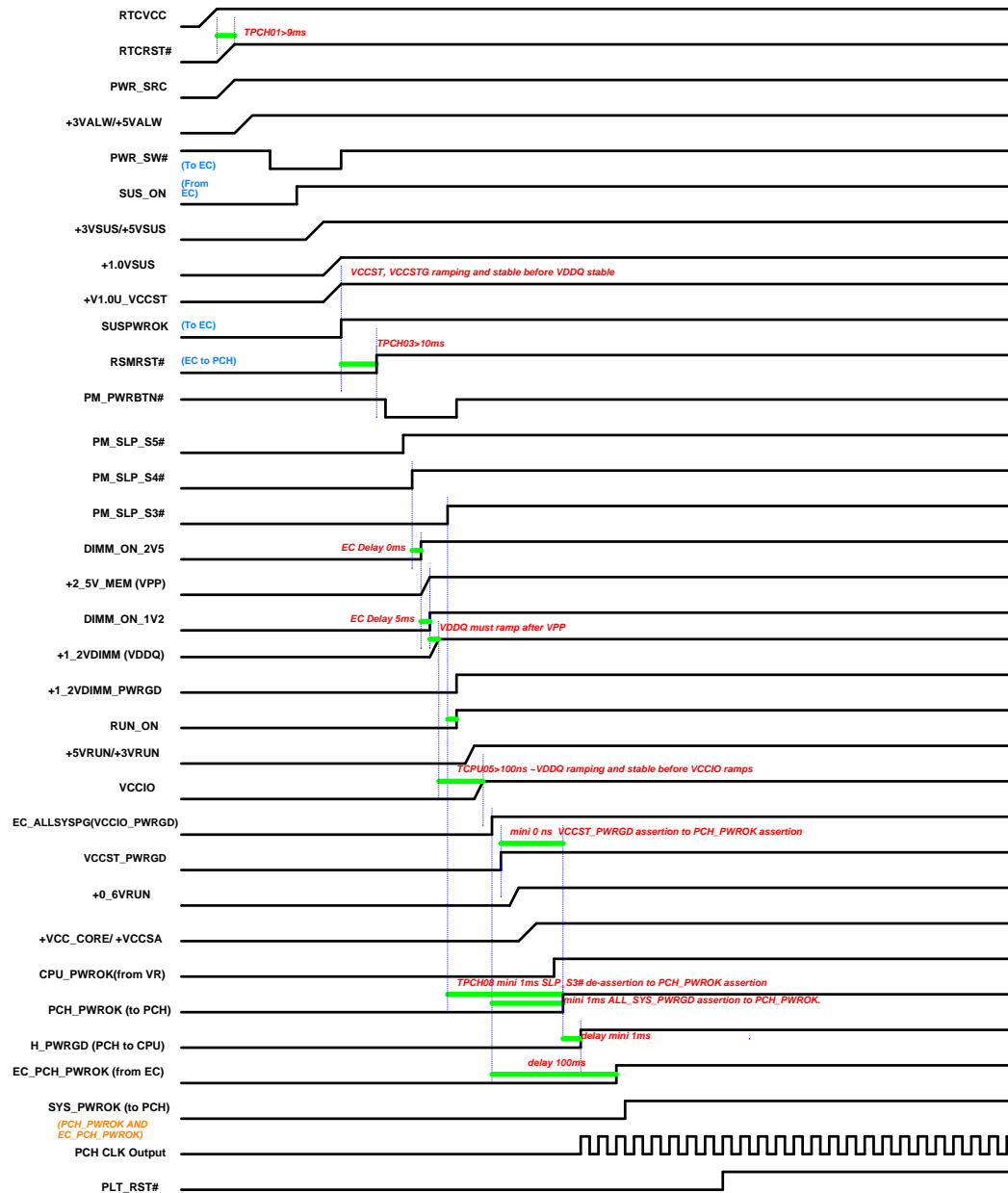


MS-16L2 Power on Block Diagram



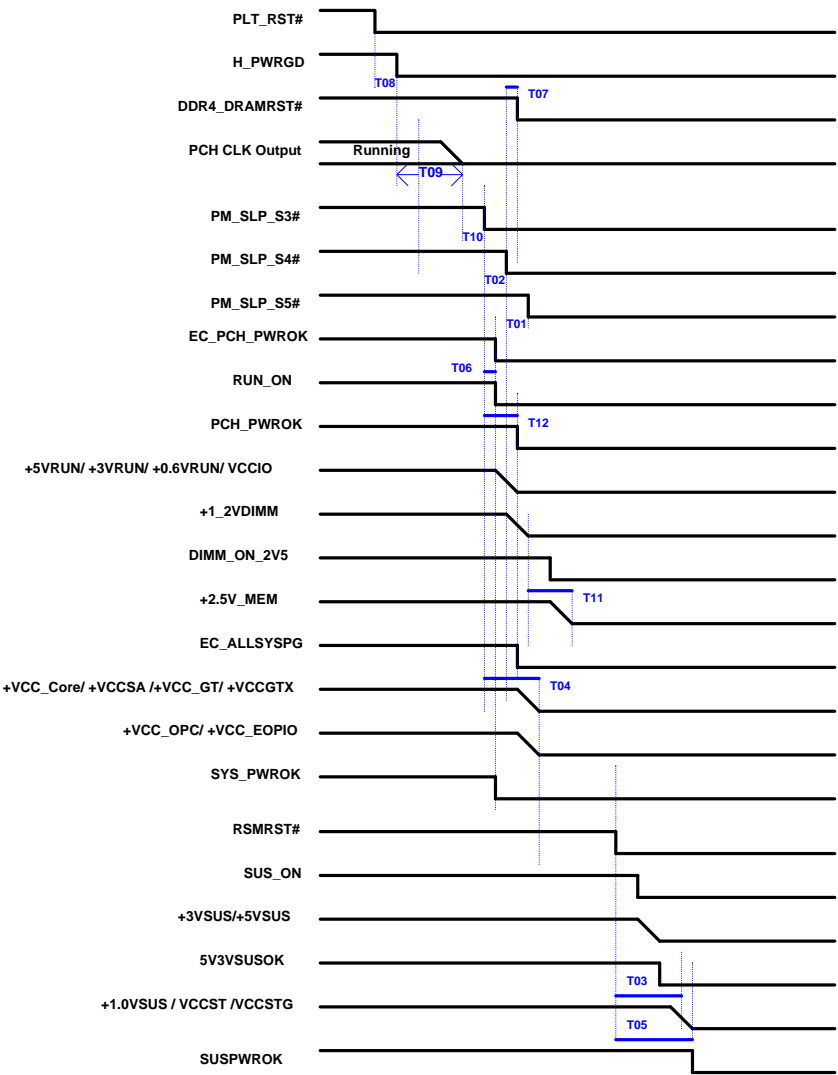
16L2 Power on Sequence

G3 -> S0



Power down Sequence

S0 -> G3



	MIN	MAX	Units	Description
T01	30		us	SLP_S5# assertion to SLP_S4#
T02	30		us	SLP_S4# assertion to SLP_S3#
T03	1		us	RSMRST# asserting to VccPRIM dropping 5% of nominal value
T04		500	ms	SLP_S3# assertion to VCC, VCCGT, VCCIO and VCCSA rails completely off.
T05	1		us	RSMRST# asserting to VccPRIM dropping 5% of nominal value
T06		1	us	SLP_S3# assertion to VCCIO VR disabled
T07	-100		ns	DDR_RESET# assertion to SLP_S4#
T08	30		us	PLTRST# assertion to PROCPWRGD deassertion
T09	10		us	PROCPWRGD de-assertion to CLKOUT_BCLK turning OFF.
T10	1		us	CLKOUT_BCLK turning OFF to SLP_S3#
T11	30		ms	VDDQ ramped down to VPP ramp down
T12	0		ms	SLP_S3# assertion to PCH_PWROK deassertion