

Project Name :PF4WN3F

Platform : WSL-U+N17S/N16S

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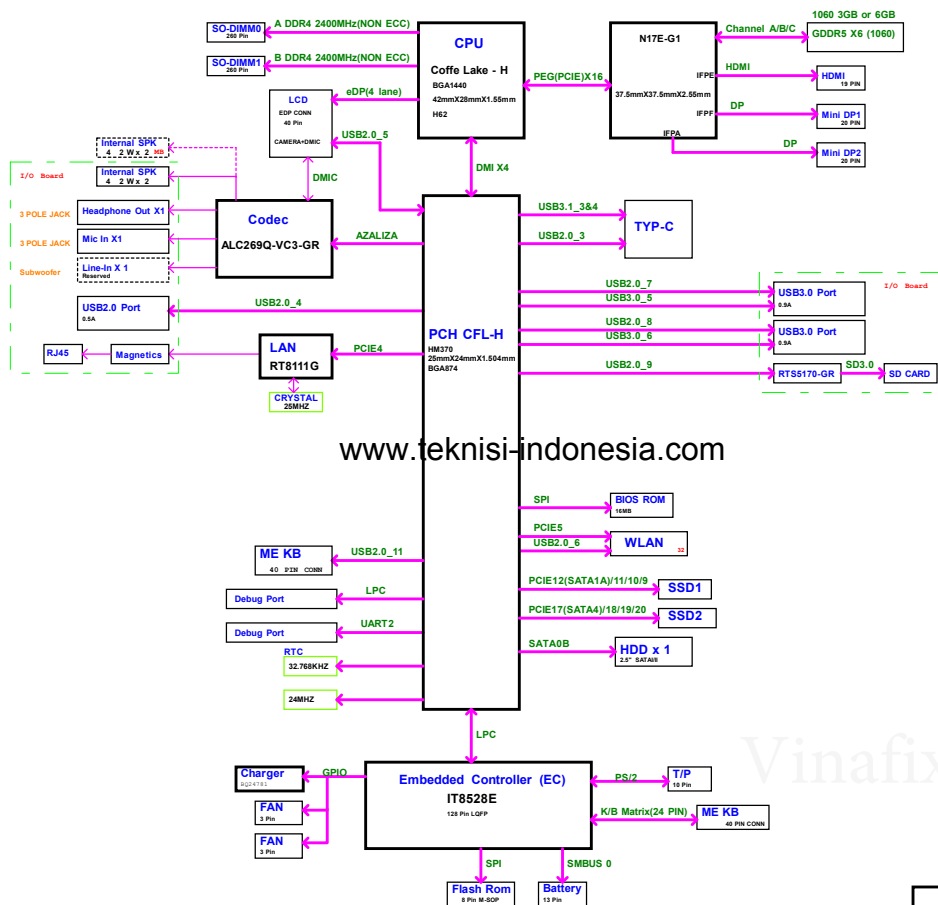
M/B Schematic Version Change List

| Release Date | Version | PCB P/N | PCB Description | PCBA P/N | Note |
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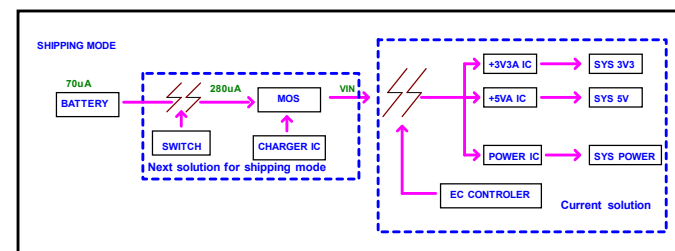
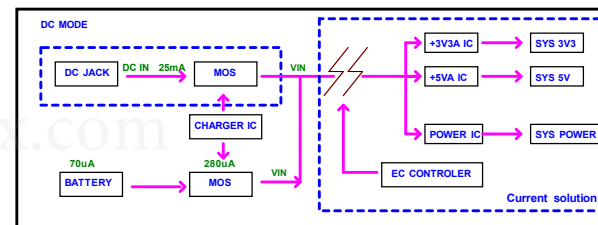
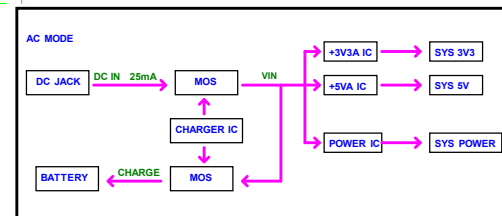
Daughter Board Schematic Version Change List

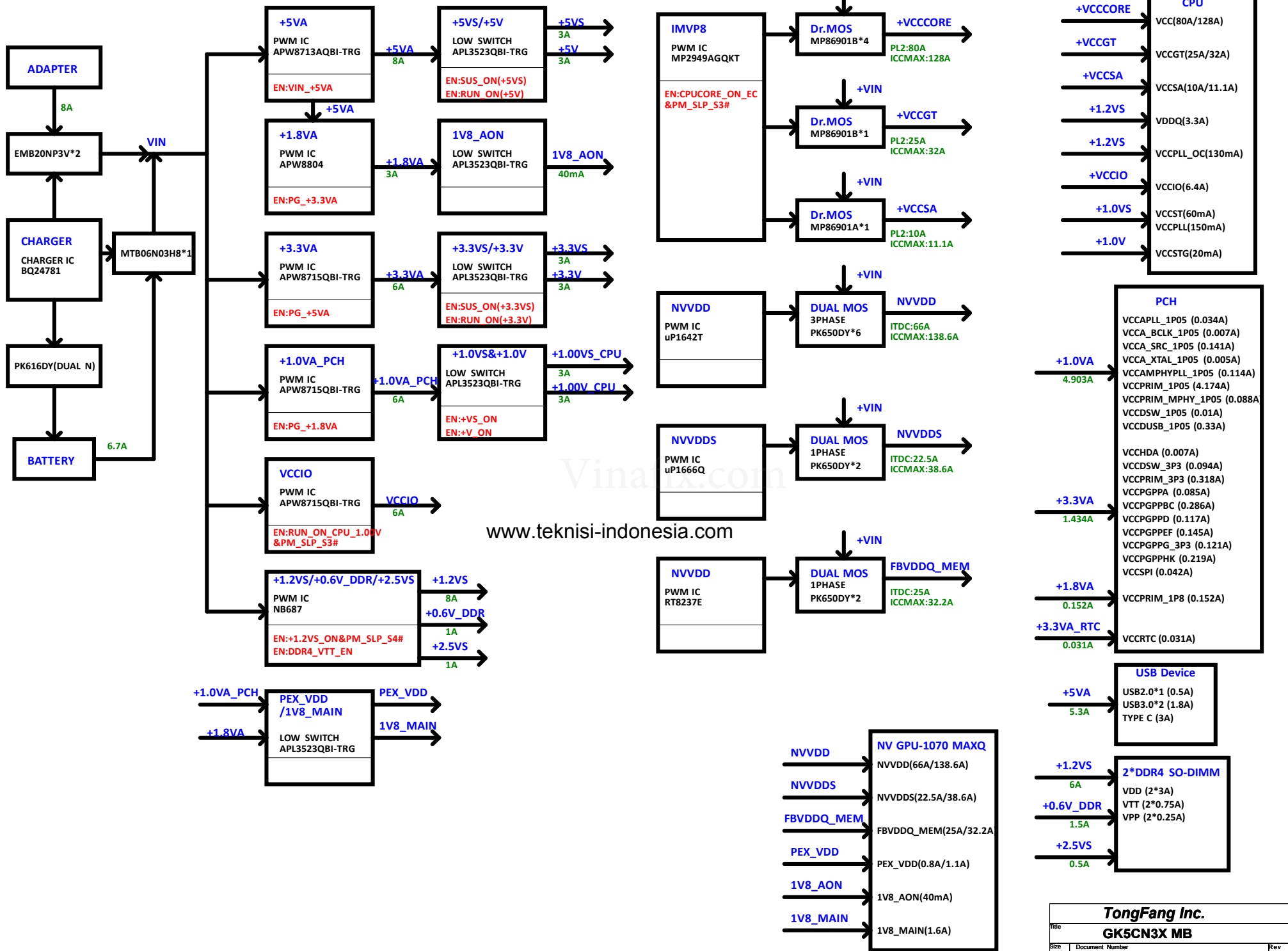
| Release Date | Version | PCB P/N | PCB Description | PCBA P/N | Note |
|--------------|---------|---------|-----------------|----------|------|
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SYSTEM BLOCK DIAGRAM



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POWER ON SEQUENCE

tPCH34
All PCH Primary Rails
should ramp up within 20ms.



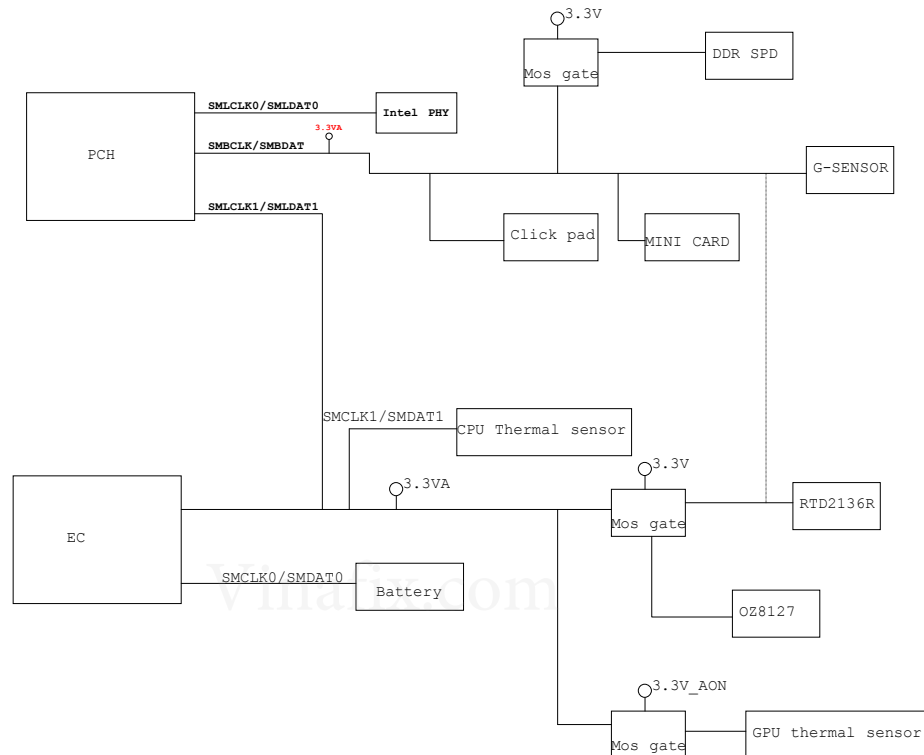
GK5KN3Z

| ITE8528 | | Default |
|---------|--------------------|-------------|
| GPIO | | Pull/Mode |
| GPA0 | CHG_G_LED | UP / GPIO |
| GPA1 | LS_RED_PWM | UP / GPIO |
| GPA2 | FAN_PWM_CTRL | UP / GPIO |
| GPA3 | LB_GREEN_PWM | UP / GPIO |
| GPA4 | CHG_O_LED# | UP / GPIO |
| GPA5 | PWR_LED# | UP / GPIO |
| GPA6 | LB_BLUE_PWM | UP / GPIO |
| GPA7 | Board_ID | UP / GPIO |
| GPB0 | PM_SLP_S4# | UP / GPIO |
| GPB1 | PM_SLP_S3# | UP / GPIO |
| GPB2 | GPU_Adaptor_In | DN / GPIO |
| GPB3 | BAT_SMBCLK | Z / GPIO |
| GPB4 | BAT_SMBDAT | Z / GPIO |
| GPB5 | H_A2OGATE | Z / GPIO |
| GPB6 | H_ACIN# | UP / GPIO |
| GPB7 | SAFTY_PROTECT | DN / GPIO |
| GPC0 | LAN_PWR | DN / GPIO |
| GPC1 | SMBCLK_EC | Z / GPIO |
| GPC2 | SMBDAT_EC | Z / GPIO |
| GPC3 | SENBAT_V | DN / GPIO |
| GPC4 | FE_VCORE_FW | DN / GPIO |
| GPC5 | SYS_PWROR | DN / GPIO |
| GPC6 | WEBSCAN_ON | DN / GPIO |
| GPC7 | EC_OVERT_GPU# | UP / GPIO |
| GPC8 | ADAP_IN | UP / GPIO |
| GPC9 | PWRBTN# | UP / GPIO |
| GPC10 | PLT_RST# | UP / GPIO |
| GPC11 | HDMI_HPD | UP / GPIO |
| GPC12 | EC_EXTSMI# | UP / GPIO |
| GPC13 | ME_WE# | UP / GPIO |
| GPC14 | FAN0_detect | DN / GPIO |
| GPC15 | FAN1_detect | DN / GPIO |
| GPC16 | LID# | DN / GPIO |
| GPC17 | THICKNESS_ID_DET | |
| GPC18 | PWR_USB# | |
| GPC19 | VCCIO_ON | |
| GPC20 | PWRSW | UP / GPIO |
| GPC21 | LVDS_VIN | DN / GPIO |
| GPC22 | WLAN_ON | DN / GPIO |
| GPC23 | AMP_MUTE# | UP / GPIO |
| GPC24 | QKEY1# | UP / GPIO |
| GPC25 | PCB_PWROR | UP / GPIO |
| GPC26 | BT_ON | UP / GPIO |
| GPC27 | QKEY2# | UP / GPIO |
| GPC28 | TP_STATUS | UP / GPIO |
| GPC29 | TP_LID# | UP / GPIO |
| GPC30 | EC_PECI | UP / GPIO |
| GPC31 | RUN_ON | UP / GPIO |
| GPC32 | PANEL_3.3V_ON | Z / GPIO |
| GPC33 | AC_REMOVAL | DN/GPIO/IO# |
| GPC34 | CPUCORE_ON_EC | Z / GPIO |
| GPC35 | SUS_ON | Z / GPIO |
| GPC36 | PM_CLKRUN# | DN/GPIO/IO# |
| GPC37 | PCB_BL_EN | DN/GPIO/IO# |
| GPC38 | QKEY0# | DN/GPIO/IO# |
| GPC39 | FAN_BOOST_WLAN_LED | DN/GPIO/IO# |
| GPC40 | FAN_BOOST# | DN/GPIO/IO# |
| GPC41 | HYB_ON# | DN/GPIO/IO# |
| GPC42 | Clear_CMOS | DN/GPIO/IO# |
| GPC43 | PM_RSMRST# | /GPIO/S |
| GPC44 | SYS_TEMP_EC | /GPIO/S |
| GPC45 | VR_READY | /GPIO/S |
| GPC46 | ME_KB_ID | /GPIO/S |
| GPC47 | BAT_I | /GPIO/S |
| GPC48 | BATT_TEMP | /GPIO/S |
| GPC49 | Iadapter_I_bat | /GPIO/S |
| GPC50 | BAT_V | /GPIO/S |
| GPC51 | EC_BL_ON | /GPIO/S |
| GPC52 | EC_PROCHOT | /GPIO/S |
| GPC53 | DGPU_RST_EC# | /GPIO/S |
| GPC54 | BATT_VA_OFF# | /GPIO/S |
| GPC55 | MERB_ON | /GPIO/S |
| GPC56 | CHG_REF | /GPIO/S |
| GPC57 | LPC_AD0 | /GPIO/S |
| GPC58 | LPC_AD1 | /GPIO/S |
| GPC59 | LPC_AD2 | /GPIO/S |
| GPC60 | LPC_AD3 | /GPIO/S |
| GPC61 | CLK_EC_LPC | /GPIO/S |
| GPC62 | LPC_FRAME# | /GPIO/S |
| GPC63 | INT_SERIRQ | /GPIO/S |

GK5KN

| ITE8528 | | Default |
|---------|-------------------------|-------------|
| GPIO | | Pull/Mode |
| GPA0 | PWM_KB_GREEN | UP / GPIO |
| GPA1 | Z/F_LED_PWM | UP / GPIO |
| GPA2 | PWM_KB_BLUE | UP / GPIO |
| GPA3 | PWM_KB_RED | UP / GPIO |
| GPA4 | PID_1_CHG_R_LED | UP / GPIO |
| GPA5 | PID_2_PWR_LED | UP / GPIO |
| GPA6 | PM_RSMRST# | UP / GPIO |
| GPA7 | Board_ID | UP / GPIO |
| GPB0 | PM_SLP_S4# | UP / GPIO |
| GPB1 | PM_SLP_S3# | UP / GPIO |
| GPB2 | GPU_Adaptor_In | DN / GPIO |
| GPB3 | BAT_SMBCLK | Z / GPIO |
| GPB4 | BAT_SMBDAT | Z / GPIO |
| GPB5 | H_A2OGATE | Z / GPIO |
| GPB6 | H_ACIN# | UP / GPIO |
| GPB7 | SAFTY_PROTECT | DN / GPIO |
| GPC0 | LAN_PWR | DN / GPIO |
| GPC1 | SMBCLK_EC | Z / GPIO |
| GPC2 | SMBDAT_EC | Z / GPIO |
| GPC3 | SENBAT_V | DN / GPIO |
| GPC4 | FAN_enable0 | DN / GPIO |
| GPC5 | SYS_PWROR | DN / GPIO |
| GPC6 | Boost_FAN_EN1 | DN / GPIO |
| GPC7 | +2.5VS_ON | UP / GPIO |
| GPC8 | ADAP_IN | UP / GPIO |
| GPC9 | PWRBTN# | UP / GPIO |
| GPC10 | PLT_RST# | UP / GPIO |
| GPC11 | HDMI_HPD | UP / GPIO |
| GPC12 | EC_EXTSMI# | UP / GPIO |
| GPC13 | ME_WE# | UP / GPIO |
| GPC14 | FAN0_detect | DN / GPIO |
| GPC15 | FAN1_detect | DN / GPIO |
| GPC16 | LID# | DN / GPIO |
| GPC17 | PL2_VS_ON | DN / GPIO |
| GPC18 | PWR_USB# | DN / GPIO |
| GPC19 | EXT_WIFI_ON | DN / GPIO |
| GPC20 | PWRSW | UP / GPIO |
| GPC21 | LVDS_VIN | DN / GPIO |
| GPC22 | WLAN_ON | DN / GPIO |
| GPC23 | AMP_MUTE# | UP / GPIO |
| GPC24 | DGPU_EN_EC | UP / GPIO |
| GPC25 | PCB_PWROR | UP / GPIO |
| GPC26 | BT_ON | UP / GPIO |
| GPC27 | Q_key1 | UP / GPIO |
| GPC28 | TP_CLK | UP / GPIO |
| GPC29 | TP_DATA | UP / GPIO |
| GPC30 | EC_PECI | UP / GPIO |
| GPC31 | RUN_ON | UP / GPIO |
| GPC32 | PANEL_3.3V_ON | Z / GPIO |
| GPC33 | Reserved for AC removal | DN/GPIO/IO# |
| GPC34 | CPUCORE_ON | Z / GPIO |
| GPC35 | WEBSCAN_ON/SUS_ON | Z / GPIO |
| GPC36 | PM_CLKRUN# | DN/GPIO/IO# |
| GPC37 | PCB_BL_EN | DN/GPIO/IO# |
| GPC38 | ID_DET | DN/GPIO/IO# |
| GPC39 | DGPU_EN_EC_Keep | DN/GPIO/IO# |
| GPC40 | Dgpu_RST_EC# | DN/GPIO/IO# |
| GPC41 | HYB_ON# | DN/GPIO/IO# |
| GPC42 | Clear_CMOS | DN/GPIO/IO# |
| GPC43 | Boost_FAN_EN | /GPIO/S |
| GPC44 | EC_OVERT_WWVDD# | /GPIO/S |
| GPC45 | PCIE_WAKE#/Dgpu_RST | /GPIO/S |
| GPC46 | FAN_enable1 | /GPIO/S |
| GPC47 | BAT_I | /GPIO/S |
| GPC48 | BATT_TEMP | /GPIO/S |
| GPC49 | Iadapter_I_bat | /GPIO/S |
| GPC50 | BAT_V | /GPIO/S |
| GPC51 | EC_BL_ON | /GPIO/S |
| GPC52 | EC_PROCHOT | /GPIO/S |
| GPC53 | FAN_CTRL0 | /GPIO/S |
| GPC54 | BATT_VA_OFF# | /GPIO/S |
| GPC55 | FAN_CTRL1 | /GPIO/S |
| GPC56 | CHG_REF | /GPIO/S |
| GPC57 | LPC_AD0 | /GPIO/S |
| GPC58 | LPC_AD1 | /GPIO/S |
| GPC59 | LPC_AD2 | /GPIO/S |
| GPC60 | LPC_AD3 | /GPIO/S |
| GPC61 | CLK_EC_LPC | /GPIO/S |
| GPC62 | LPC_FRAME# | /GPIO/S |
| GPC63 | INT_SERIRQ | /GPIO/S |

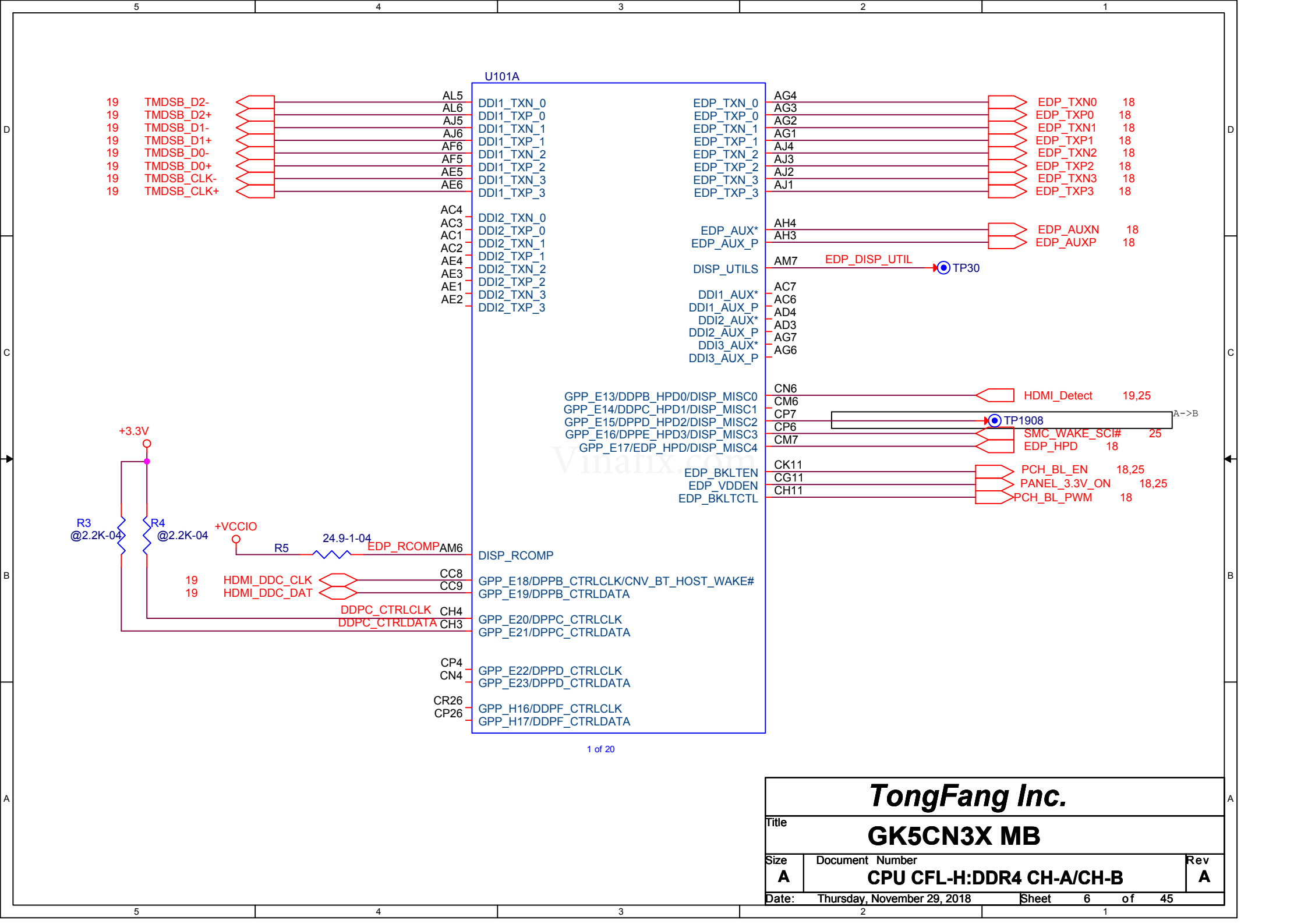
SMBUS BLOCK

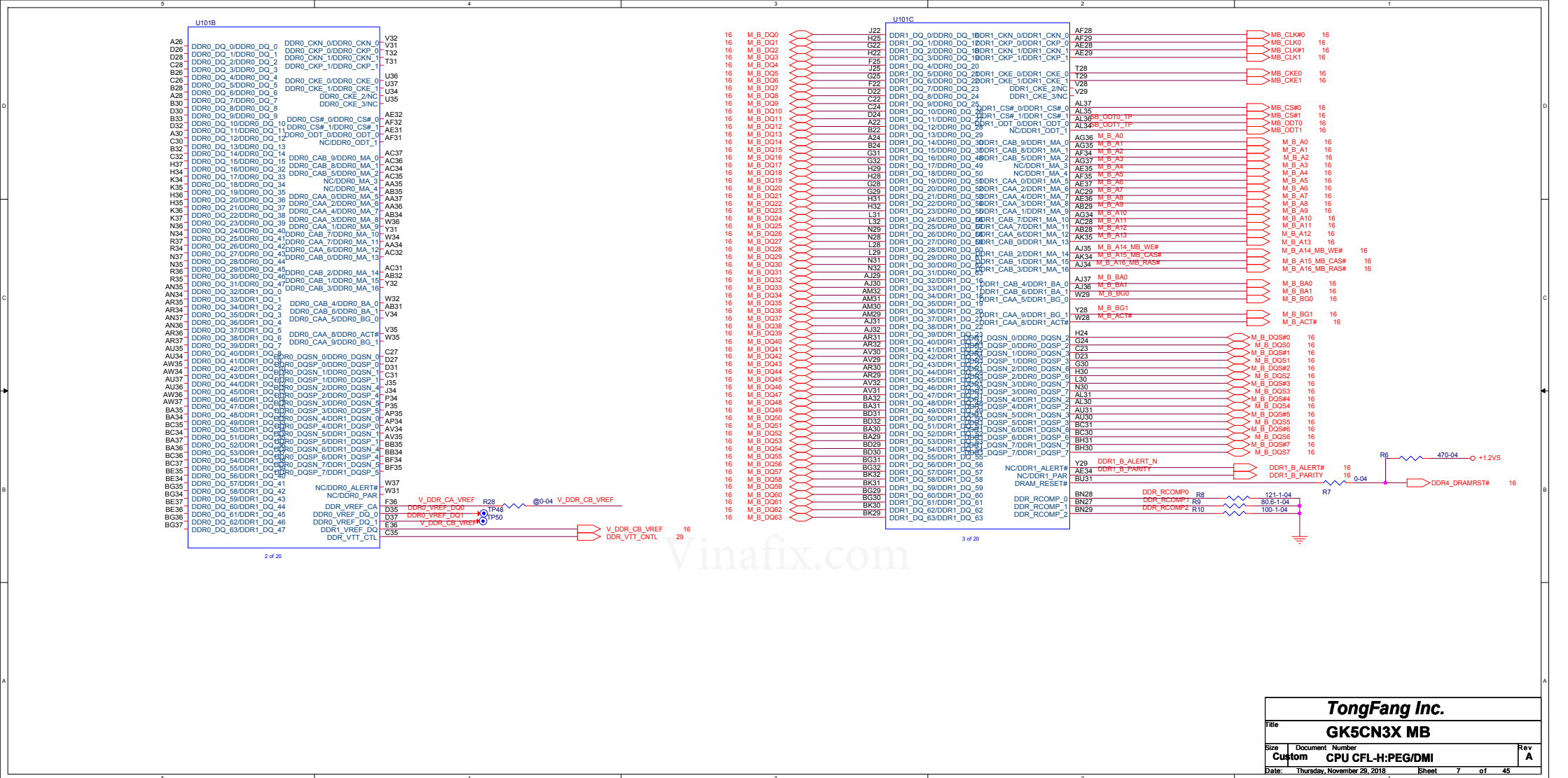


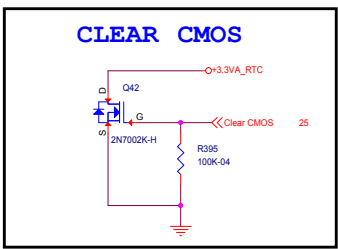
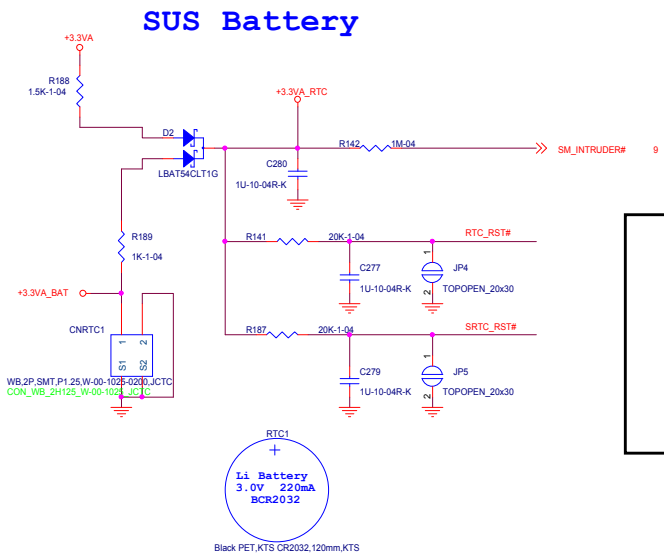
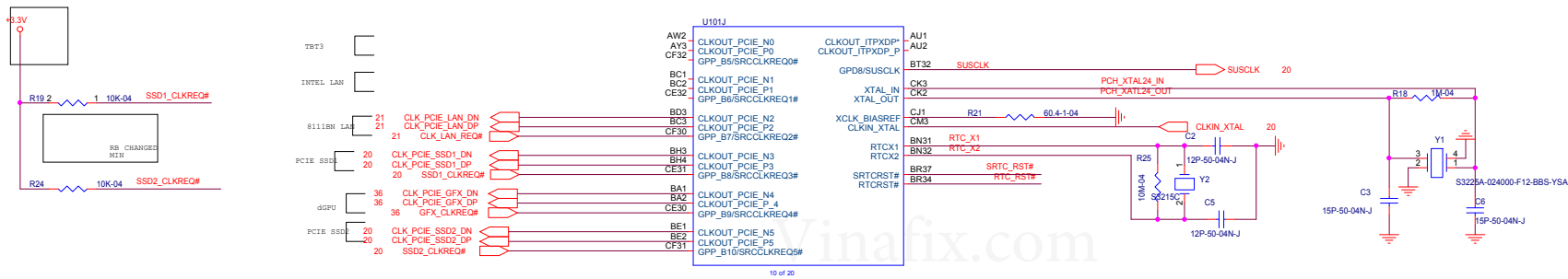
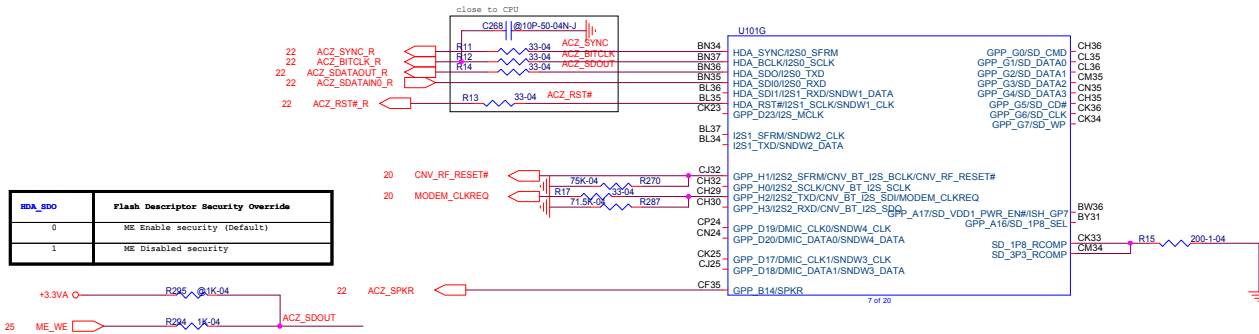
TongFang Inc.

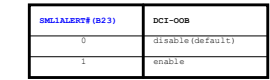
GK5CN3X MB

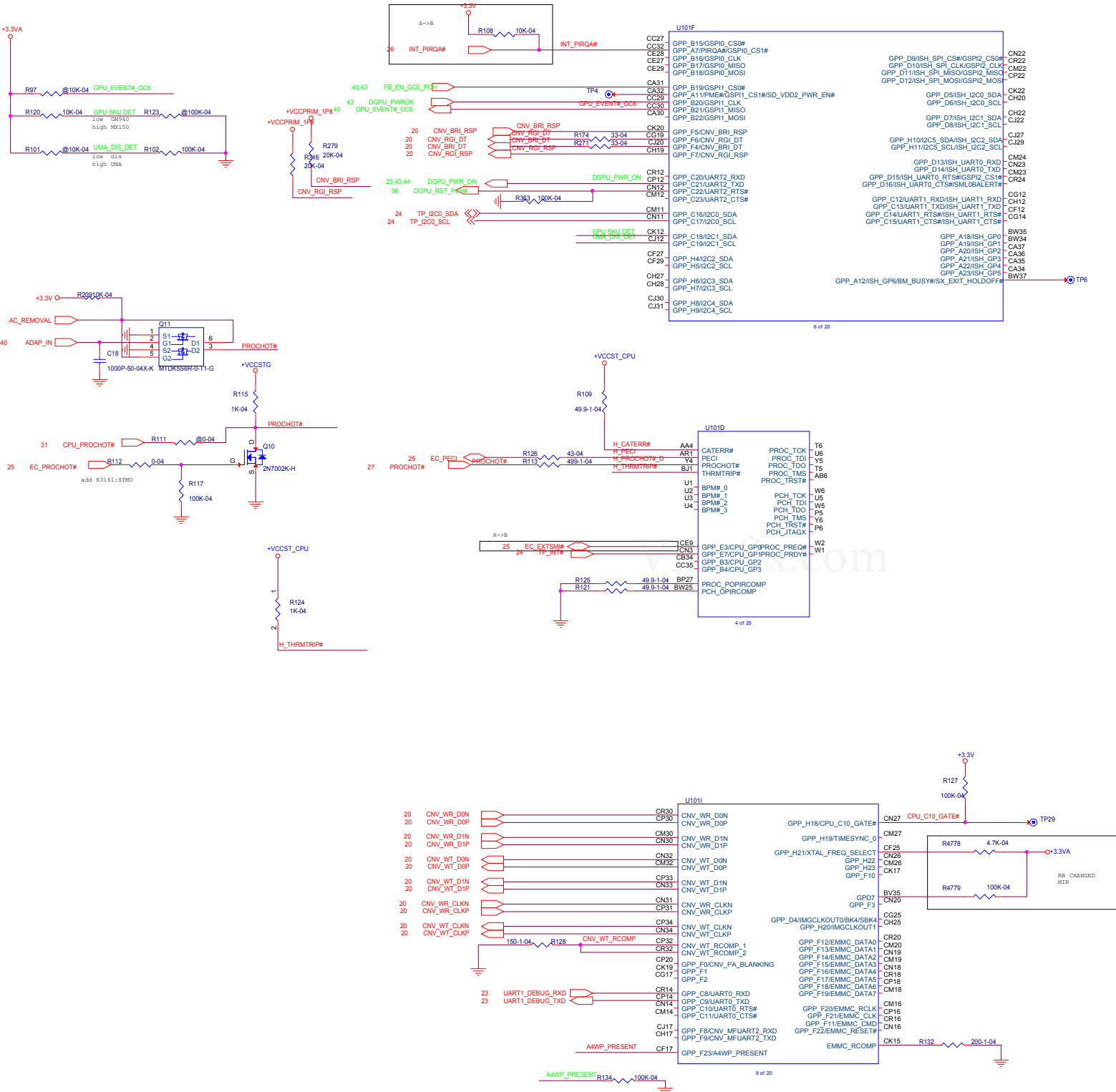
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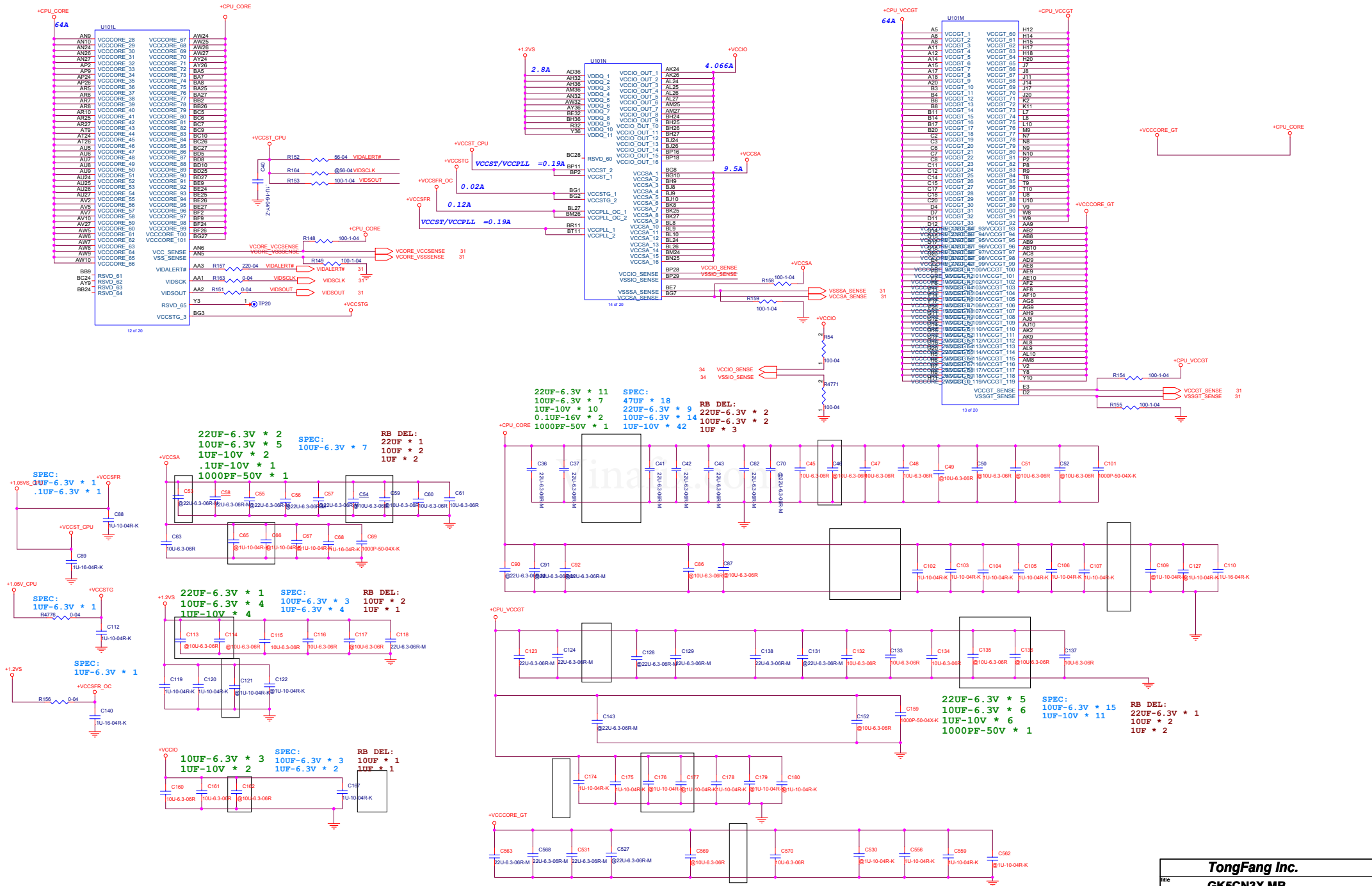


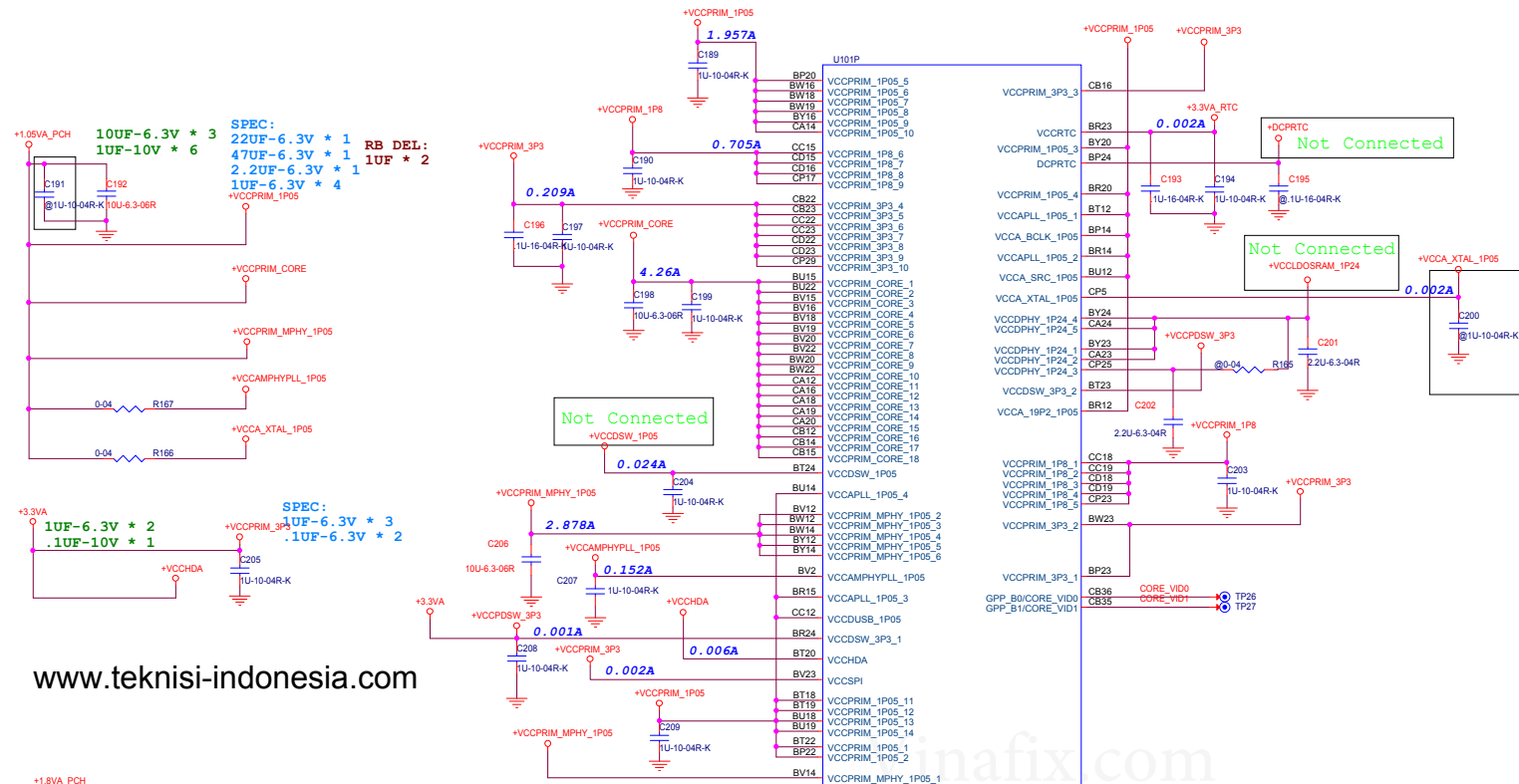




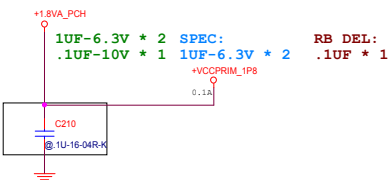
If the wireless solution is discrete Whiskey Lake PCH-LP USB 2.0 port 10 can be used for USB functionality.







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| U101Q | |
|-------|--|
| K12 | RSVD_25/VCC_OPC_1/RSVD_25/38/VCC_OPC_1/RSVD_30 |
| K14 | RSVD_26/VCC_OPC_2/RSVD_26/40/VCC_OPC_2/RSVD_40 |
| K15 | RSVD_27/VCC_OPC_3/RSVD_27/41/VCC_OPC_3/RSVD_41 |
| K17 | RSVD_28/VCC_OPC_4/RSVD_28/42/VCC_OPC_4/RSVD_42 |
| K20 | RSVD_29/VCC_OPC_5/RSVD_29/43/VCC_OPC_5/RSVD_43 |
| L25 | RSVD_30/VCC_OPC_6/RSVD_30/44/VCC_OPC_6/RSVD_44 |
| M24 | RSVD_31/VCC_OPC_7/RSVD_31/45/VCC_OPC_7/RSVD_45 |
| M26 | RSVD_32/VCC_OPC_8/RSVD_32/46/VCC_OPC_8/RSVD_46 |
| P24 | RSVD_33/VCC_OPC_9/RSVD_33/47/VCC_OPC_9/RSVD_47 |
| P26 | RSVD_34/VCC_OPC_10/RSVD_34/48/VCC_OPC_10/RSVD_48 |
| R24 | RSVD_35/VCC_OPC_11/RSVD_35/49/VCC_OPC_11/RSVD_49 |
| R25 | RSVD_36/VCC_OPC_12/RSVD_36/50/VCC_OPC_12/RSVD_50 |
| R26 | RSVD_37/VCC_OPC_13/RSVD_37/51/VCC_OPC_13/RSVD_51 |
| V24 | RSVD_38/VCC_OPC_14/RSVD_38/52/VCC_OPC_14/RSVD_52 |
| W25 | RSVD_39/VCC_OPC_15/RSVD_39/53/VCC_OPC_15/RSVD_53 |
| Y24 | RSVD_40/VCC_OPC_16/RSVD_40/54/VCC_OPC_16/RSVD_54 |
| Y25 | RSVD_41/VCC_OPC_17/RSVD_41/55/VCC_OPC_17/RSVD_55 |
| G2 | RSVD_42/VCC_OPC_18/RSVD_42/56/VCC_OPC_18/RSVD_56 |
| G1 | RSVD_43/VCC_OPC_19/RSVD_43/57/VCC_OPC_19/RSVD_57 |
| C34 | RSVD_44/VCC_OPC_20/RSVD_44/58/VCC_OPC_20/RSVD_58 |
| G3 | RSVD_45/VCC_OPC_21/RSVD_45/59/VCC_OPC_21/RSVD_59 |
| G4 | RSVD_46/VCC_OPC_22/RSVD_46/60/VCC_OPC_22/RSVD_60 |
| A34 | RSVD_47/VCC_OPC_23/RSVD_47/61/VCC_OPC_23/RSVD_61 |
| B35 | RSVD_48/VCC_OPC_24/RSVD_48/62/VCC_OPC_24/RSVD_62 |
| AJ27 | RSVD_49/VCC_OPC_25/RSVD_49/63/VCC_OPC_25/RSVD_63 |
| AH26 | RSVD_50/VCC_OPC_26/RSVD_50/64/VCC_OPC_26/RSVD_64 |
| L5 | RSVD_51/VCC_OPC_27/RSVD_51/65/VCC_OPC_27/RSVD_65 |

For CFL U43e, Pins L5 and N5 are OPCE_RCOMP and OPC_RCOMP respectively while in WHL SoC these pins are RSVD. To have motherboard compatibility with all three SoCs WHL/CFL, these pins should be pulled down to GND through 49.9Ω ±1% resistor. Refer to Section 3.1 RCOMP for more details on compensation resistors.

| U101T | | |
|-------|---------|---------|
| N6 | VSS_66 | VSS_99 |
| B37 | VSS_73 | VSS_106 |
| CB3 | VSS_79 | VSS_115 |
| P10 | VSS_84 | VSS_126 |
| B5 | VSS_89 | VSS_139 |
| CB33 | VSS_95 | VSS_8 |
| P3 | VSS_102 | VSS_19 |
| B7 | VSS_110 | VSS_29 |
| CB4 | VSS_120 | VSS_83 |
| P33 | VSS_132 | VSS_87 |
| B9 | VSS_145 | VSS_92 |
| CB7 | VSS_14 | VSS_98 |
| P36 | VSS_25 | VSS_105 |
| BA10 | VSS_35 | VSS_114 |
| CC11 | VSS_44 | VSS_125 |
| P4 | VSS_52 | VSS_138 |
| BA28 | VSS_59 | VSS_7 |
| P7 | VSS_65 | VSS_18 |
| BA3 | VSS_78 | VSS_77 |
| CC20 | VSS_88 | VSS_82 |
| R27 | VSS_131 | VSS_86 |
| BB3 | VSS_144 | VSS_91 |
| CC25 | VSS_13 | VSS_97 |
| R28 | VSS_24 | VSS_104 |
| BB33 | VSS_34 | VSS_113 |
| CC28 | VSS_43 | VSS_124 |
| R29 | VSS_51 | VSS_137 |
| BB36 | VSS_58 | VSS_6 |
| CC31 | VSS_64 | VSS_70 |
| R30 | VSS_71 | VSS_76 |
| BB4 | VSS_119 | VSS_81 |
| CC7 | VSS_130 | VSS_85 |
| R31 | VSS_143 | VSS_90 |
| BC25 | VSS_12 | VSS_96 |
| CD11 | VSS_23 | VSS_103 |
| T27 | VSS_33 | VSS_112 |
| CD12 | VSS_42 | VSS_123 |
| T30 | VSS_50 | VSS_136 |
| BC29 | VSS_57 | VSS_5 |
| CD14 | VSS_63 | VSS_17 |
| T33 | VSS_109 | VSS_28 |
| T35 | VSS_118 | VSS_38 |
| BC32 | VSS_129 | VSS_47 |
| CD24 | VSS_142 | VSS_55 |
| T36 | VSS_11 | VSS_62 |
| CD25 | VSS_22 | VSS_69 |
| T7 | VSS_32 | VSS_75 |
| BC8 | VSS_41 | VSS_80 |
| CE33 | VSS_49 | VSS_135 |
| U26 | VSS_56 | VSS_4 |
| BD28 | VSS_101 | VSS_16 |
| CE35 | VSS_108 | VSS_27 |
| U7 | VSS_117 | VSS_37 |
| BD33 | VSS_128 | VSS_46 |
| CE36 | VSS_141 | VSS_54 |
| V26 | VSS_10 | VSS_61 |
| BD35 | VSS_21 | VSS_68 |
| CE7 | VSS_31 | VSS_74 |
| V27 | VSS_40 | VSS_122 |
| BD36 | VSS_48 | VSS_134 |
| CF11 | VSS_94 | VSS_3 |
| V3 | VSS_100 | VSS_15 |
| BE10 | VSS_107 | VSS_26 |
| CF14 | VSS_116 | VSS_36 |
| V30 | VSS_127 | VSS_45 |
| BE28 | VSS_140 | VSS_53 |
| CF19 | VSS_9 | VSS_60 |
| V33 | VSS_20 | VSS_67 |
| BE29 | VSS_30 | VSS_111 |
| CF2 | VSS_39 | VSS_121 |
| V36 | VSS_88 | VSS_133 |
| BE3 | VSS_93 | VSS_2 |

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| U101S | | |
|-------|---------|---------|
| BT35 | VSS_277 | VSS_180 |
| D6 | VSS_290 | VSS_183 |
| AL32 | VSS_156 | VSS_186 |
| BT36 | VSS_165 | VSS_245 |
| D8 | VSS_172 | VSS_257 |
| AL7 | VSS_208 | VSS_270 |
| D9 | VSS_217 | VSS_284 |
| AM10 | VSS_227 | VSS_151 |
| BU11 | VSS_238 | VSS_161 |
| E23 | VSS_250 | VSS_169 |
| AM28 | VSS_263 | VSS_175 |
| E37 | VSS_276 | VSS_179 |
| AM33 | VSS_289 | VSS_182 |
| BU23 | VSS_155 | VSS_233 |
| E29 | VSS_164 | VSS_244 |
| AM35 | VSS_200 | VSS_256 |
| BU24 | VSS_207 | VSS_269 |
| E31 | VSS_216 | VSS_283 |
| BU25 | VSS_226 | VSS_150 |
| E33 | VSS_237 | VSS_160 |
| AN25 | VSS_249 | VSS_168 |
| BU7 | VSS_262 | VSS_174 |
| E9 | VSS_275 | VSS_178 |
| AN28 | VSS_288 | VSS_222 |
| BV11 | VSS_154 | VSS_232 |
| F12 | VSS_194 | VSS_243 |
| AN29 | VSS_199 | VSS_255 |
| F15 | VSS_206 | VSS_268 |
| AN30 | VSS_215 | VSS_282 |
| F18 | VSS_225 | VSS_149 |
| AN31 | VSS_236 | VSS_159 |
| BV3 | VSS_248 | VSS_167 |
| F2 | VSS_261 | VSS_173 |
| AN7 | VSS_274 | VSS_212 |
| BV31 | VSS_287 | VSS_221 |
| F21 | VSS_189 | VSS_231 |
| AN8 | VSS_193 | VSS_242 |
| BV33 | VSS_198 | VSS_254 |
| F24 | VSS_205 | VSS_267 |
| BV4 | VSS_214 | VSS_281 |
| F3 | VSS_224 | VSS_148 |
| AP3 | VSS_235 | VSS_158 |
| BW11 | VSS_247 | VSS_166 |
| F4 | VSS_260 | VSS_203 |
| AP33 | VSS_273 | VSS_211 |
| BW15 | VSS_185 | VSS_220 |
| G21 | VSS_188 | VSS_230 |
| AP36 | VSS_192 | VSS_241 |
| G27 | VSS_197 | VSS_253 |
| AP4 | VSS_204 | VSS_266 |
| G33 | VSS_213 | VSS_280 |
| AR28 | VSS_223 | VSS_147 |
| G35 | VSS_234 | VSS_157 |
| G36 | VSS_246 | VSS_196 |
| AT33 | VSS_259 | VSS_202 |
| BW24 | VSS_272 | VSS_210 |
| G9 | VSS_286 | VSS_219 |
| AT35 | VSS_153 | VSS_229 |
| H21 | VSS_163 | VSS_240 |
| AT36 | VSS_171 | VSS_252 |
| BW7 | VSS_177 | VSS_265 |
| H27 | VSS_181 | VSS_279 |
| AT4 | VSS_184 | VSS_146 |
| BY11 | VSS_187 | VSS_190 |
| AU10 | VSS_191 | VSS_195 |
| BY15 | VSS_258 | VSS_201 |
| H9 | VSS_271 | VSS_209 |
| AU28 | VSS_285 | VSS_218 |
| BY22 | VSS_152 | VSS_228 |
| J12 | VSS_162 | VSS_239 |
| AU29 | VSS_170 | VSS_251 |
| J15 | VSS_176 | VSS_264 |
| | | VSS_278 |

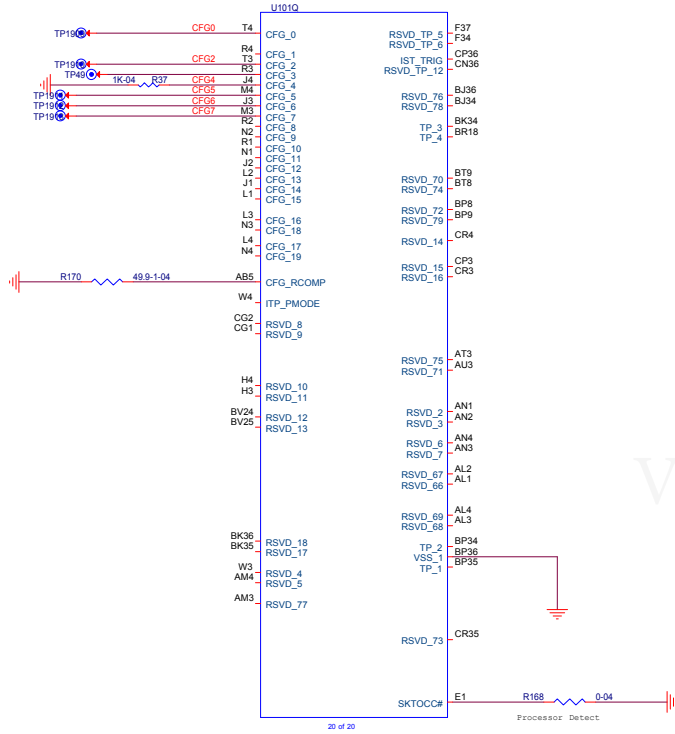
18 of 20

| U101R | | |
|-------|---------|---------|
| CR34 | VSS_342 | VSS_330 |
| BT5 | VSS_351 | VSS_337 |
| BY5 | VSS_361 | VSS_345 |
| CP35 | VSS_371 | VSS_354 |
| CM37 | VSS_381 | VSS_364 |
| CM37 | VSS_391 | VSS_374 |
| AW1 | VSS_401 | VSS_384 |
| CM1 | VSS_411 | VSS_392 |
| BD6 | VSS_421 | VSS_398 |
| AY4 | VSS_360 | VSS_315 |
| B34 | VSS_370 | VSS_322 |
| E35 | VSS_380 | VSS_329 |
| A4 | VSS_390 | VSS_336 |
| AE24 | VSS_400 | VSS_344 |
| AE26 | VSS_410 | VSS_353 |
| AF25 | VSS_420 | VSS_363 |
| AG24 | VSS_428 | VSS_373 |
| AG26 | VSS_434 | VSS_295 |
| AH24 | VSS_296 | VSS_301 |
| AH25 | VSS_350 | VSS_307 |
| B2 | VSS_359 | VSS_314 |
| B36 | VSS_369 | VSS_321 |
| C36 | VSS_379 | VSS_328 |
| C37 | VSS_389 | VSS_335 |
| CN1 | VSS_399 | VSS_343 |
| CN2 | VSS_409 | VSS_352 |
| CN37 | VSS_419 | VSS_362 |
| CP2 | VSS_427 | VSS_416 |
| D1 | VSS_433 | VSS_425 |
| A32 | VSS_341 | VSS_432 |
| F33 | VSS_349 | VSS_294 |
| A3 | VSS_358 | VSS_300 |
| BJ7 | VSS_368 | VSS_306 |
| CJ36 | VSS_378 | VSS_313 |
| A36 | VSS_388 | VSS_320 |
| BK10 | VSS_398 | VSS_327 |
| CJ4 | VSS_408 | VSS_334 |
| AB27 | VSS_418 | VSS_405 |
| BK2 | VSS_428 | VSS_415 |
| CK1 | VSS_333 | VSS_424 |
| AB3 | VSS_340 | VSS_431 |
| BK28 | VSS_348 | VSS_293 |
| AB30 | VSS_357 | VSS_299 |
| BK3 | VSS_367 | VSS_305 |
| CK4 | VSS_377 | VSS_312 |
| AB33 | VSS_387 | VSS_319 |
| BK33 | VSS_397 | VSS_326 |
| CK7 | VSS_407 | VSS_394 |
| AB36 | VSS_417 | VSS_404 |
| BK4 | VSS_325 | VSS_414 |
| CL2 | VSS_332 | VSS_423 |
| AB4 | VSS_339 | VSS_430 |
| BK7 | VSS_347 | VSS_292 |
| CM13 | VSS_356 | VSS_298 |
| AB7 | VSS_366 | VSS_304 |
| BL25 | VSS_376 | VSS_311 |
| CM117 | VSS_386 | VSS_318 |
| AC10 | VSS_396 | VSS_383 |
| BL28 | VSS_406 | VSS_393 |
| CM21 | VSS_317 | VSS_403 |
| AC27 | VSS_324 | VSS_413 |
| BL29 | VSS_331 | VSS_422 |
| CM25 | VSS_338 | VSS_429 |
| AC30 | VSS_346 | VSS_291 |
| BL30 | VSS_355 | VSS_297 |
| CM29 | VSS_365 | VSS_303 |
| BL31 | VSS_375 | VSS_310 |
| CM31 | VSS_385 | VSS_372 |
| AD33 | VSS_395 | VSS_382 |
| BL32 | VSS_309 | VSS_392 |
| CM33 | VSS_316 | VSS_402 |
| AD35 | VSS_323 | VSS_412 |

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| TongFang Inc. | | |
|---------------|-----------------------------|----------------|
| Title | | |
| GK5CN3X MB | | |
| Size | Document Number | Rev |
| B | CPU CFL-H:TRIG/RSVD | A |
| Date: | Thursday, November 29, 2018 | Sheet 14 of 45 |

| CFG[4] | EDP Interface |
|--------|---------------|
| 0 | Enable |
| 1 | Disable |



Configuration Signals: The CFG signals have a default value of '1' if not terminated on the board. Refer to the appropriate platform design guide for pull-down recommendations when a logic low is desired.

Intel recommends placing test points on the board for CFG pins.

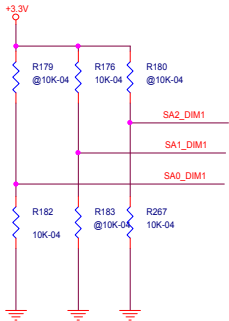
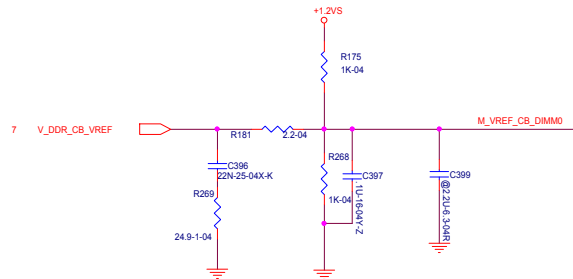
- **CFG[0]:** Stall reset sequence after PCU PLL lock until de-asserted:
 - 1 = (Default) Normal Operation; No stall.
 - 0 = Stall.
- **CFG[1]:** Reserved configuration lane.
- **CFG[2]:** PCI Express* Static x16 Lane Numbering Reversal.
 - 1 = Normal operation
 - 0 = Lane numbers reversed.
- **CFG[3]:** Reserved configuration lane.
- **CFG[4]:** eDP enable:
 - 1 = Disabled.
 - 0 = Enabled.
- **CFG[6:5]:** PCI Express* Bifurcation
 - 00 = 1 x8, 2 x4 PCI Express*
 - 01 = reserved
 - 10 = 2 x8 PCI Express*
 - 11 = 1 x16 PCI Express*
- **CFG[7]:** PEG Training:
 - 1 = (default) PEG Train immediately following RESET# de assertion.
 - 0 = PEG Wait for BIOS for training.
- **CFG[19:8]:** Reserved configuration lanes.

I

GTL

SE

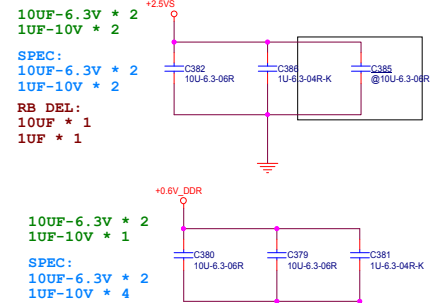
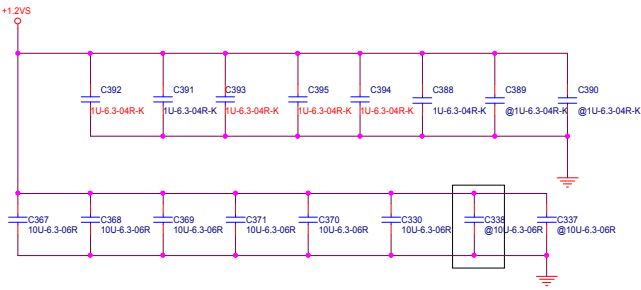
U - Processor Lines.
CFG[2], CFG[6:5] and
CFG[7] are not
relevant for U
Processor Lines.



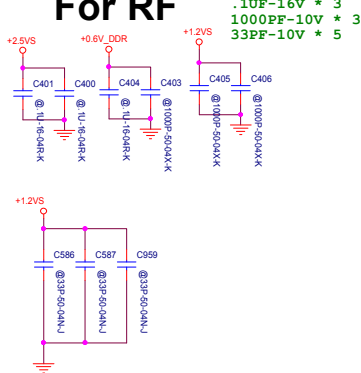
10UF-6.3V * 7
1UF-10V * 6

SPEC:
10UF-6.3V * 16
1UF-10V * 16
330UF * 1

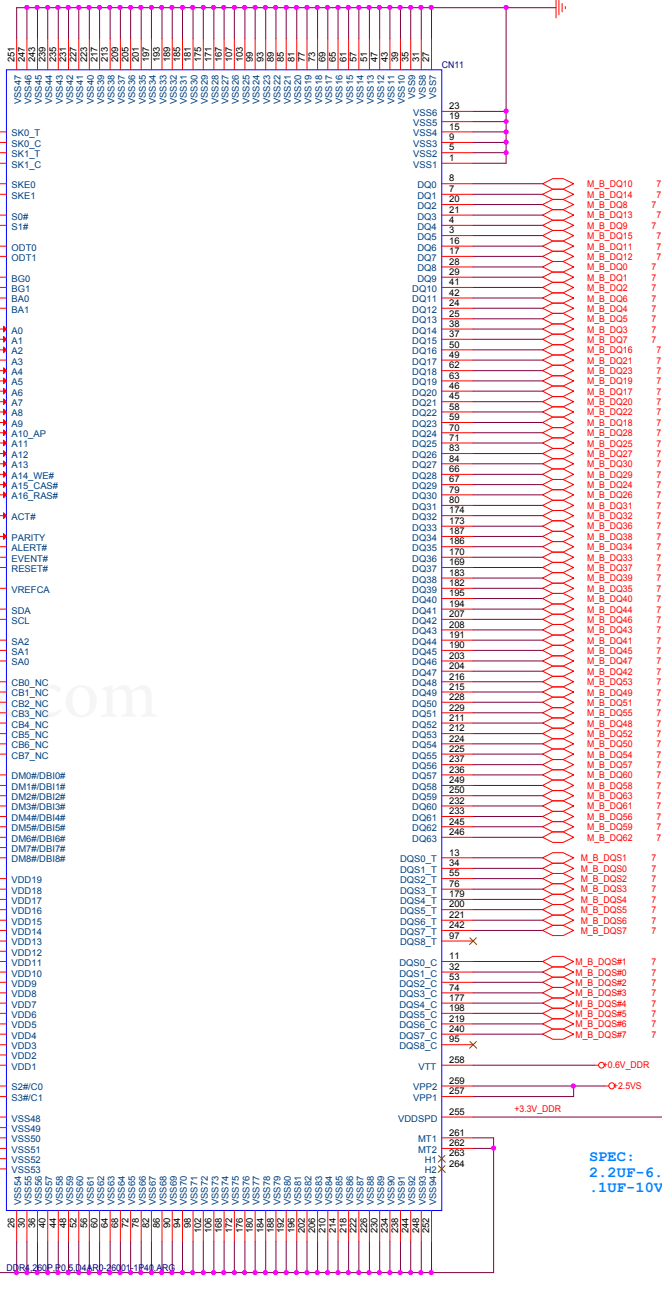
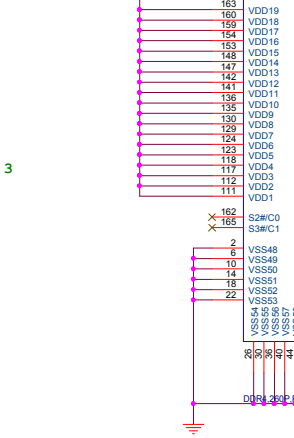
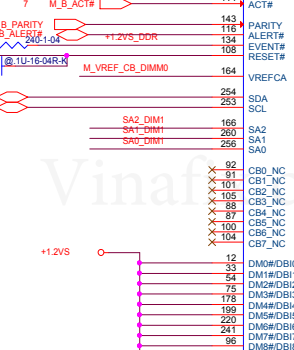
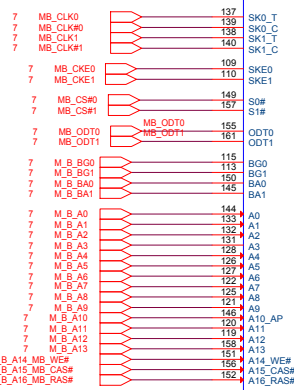
RB DEL:
10UF * 1



For RF



1UF-16V * 3
1000PF-10V * 3
33PF-10V * 5

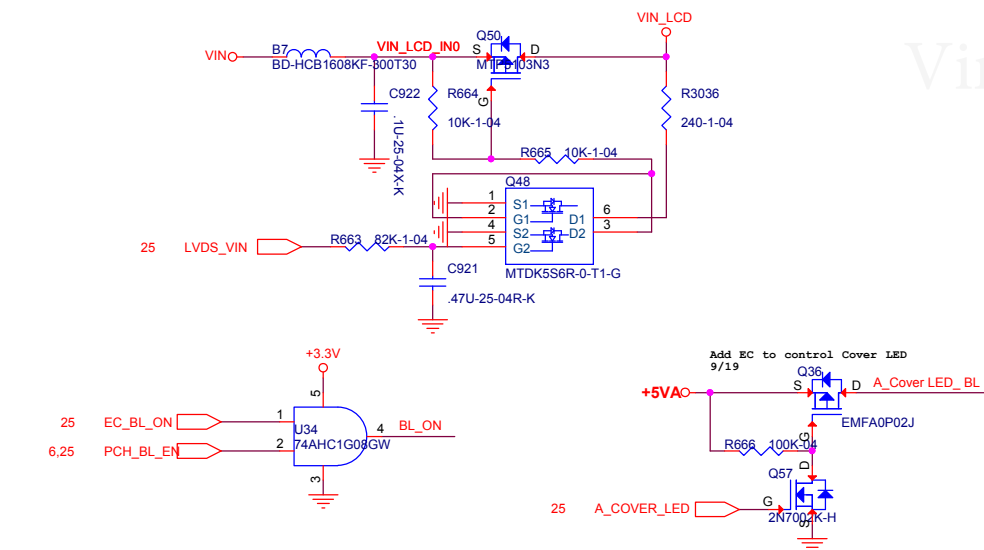
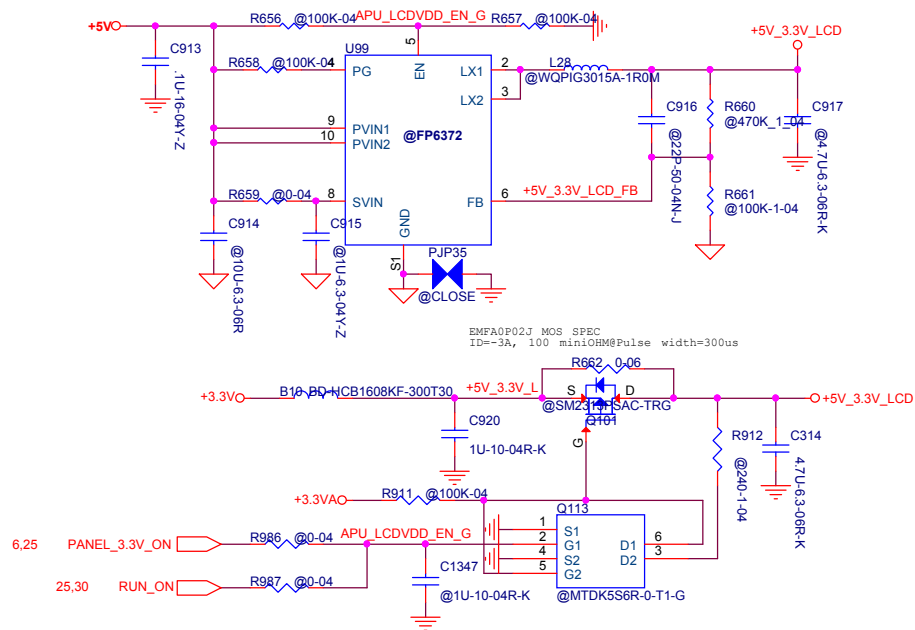


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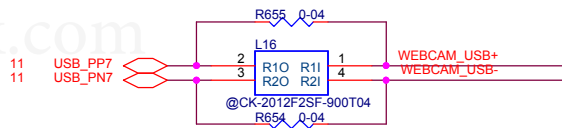
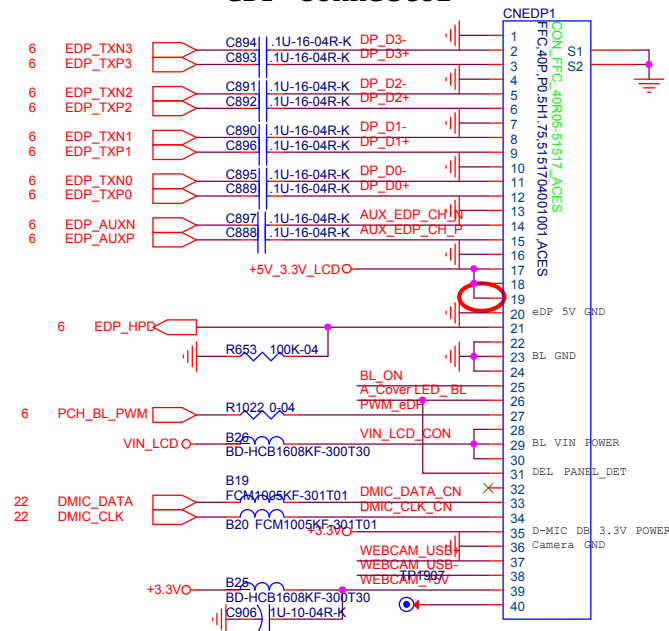
Vinafix.com

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|---------------|-----------------------------|----------------|
| TongFang Inc. | | |
| Title | | |
| GK5CN3X MB | | |
| Size | Document Number | Rev |
| B | PCH CFL-H:SATA/PCIE | A |
| Date: | Thursday, November 29, 2018 | Sheet 17 of 45 |

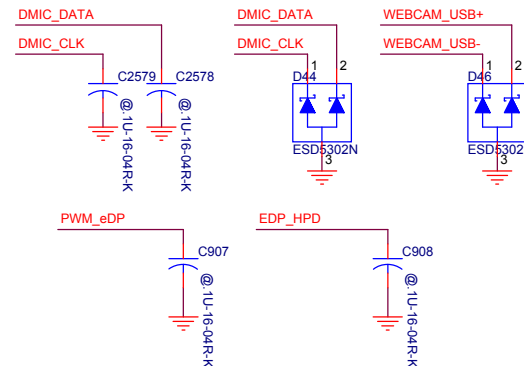
Power Control



eDP Connector

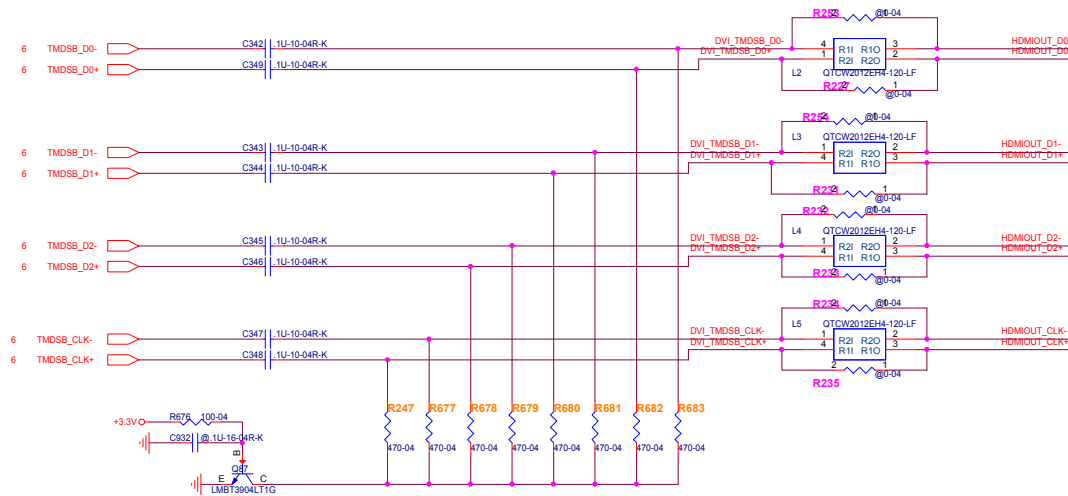


FOR EMI solution

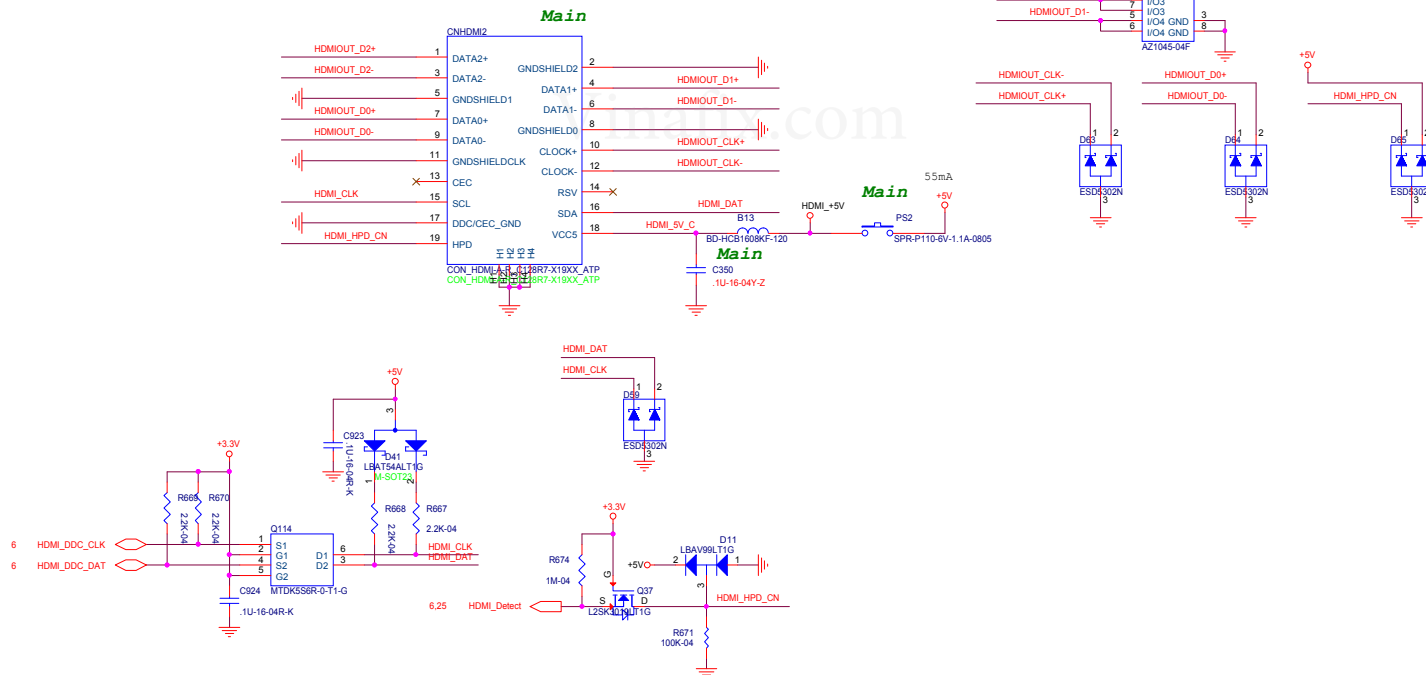


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|---------------|------------------------------|-------|----------|
| TongFang Inc. | | | |
| Title | | | |
| GK5CN3X MB | | | |
| Size | Document Number | Rev | |
| B | PCH CFL-H : HDA/SMBUS/PM/JTG | A | |
| Date: | Thursday, November 29, 2018 | Sheet | 18 of 45 |

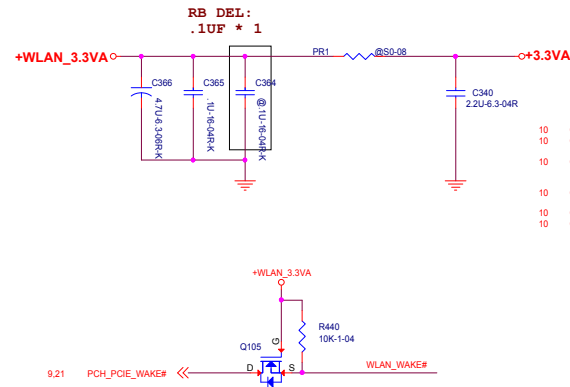
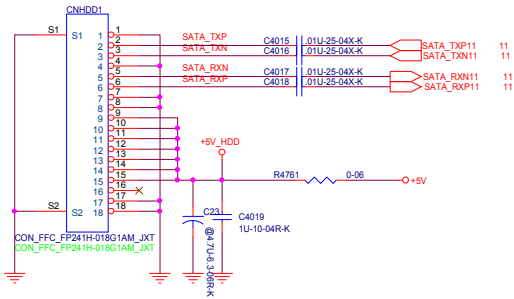
HDMI CONN



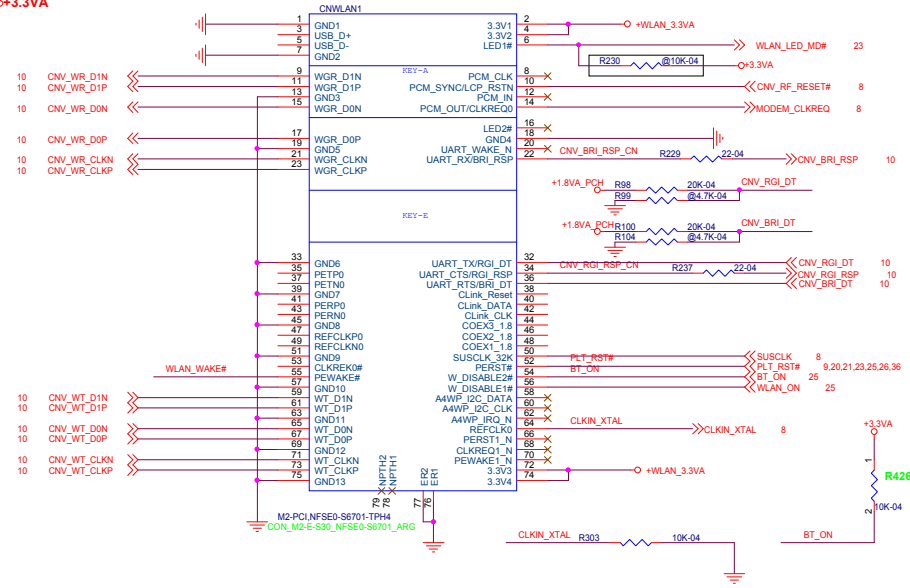
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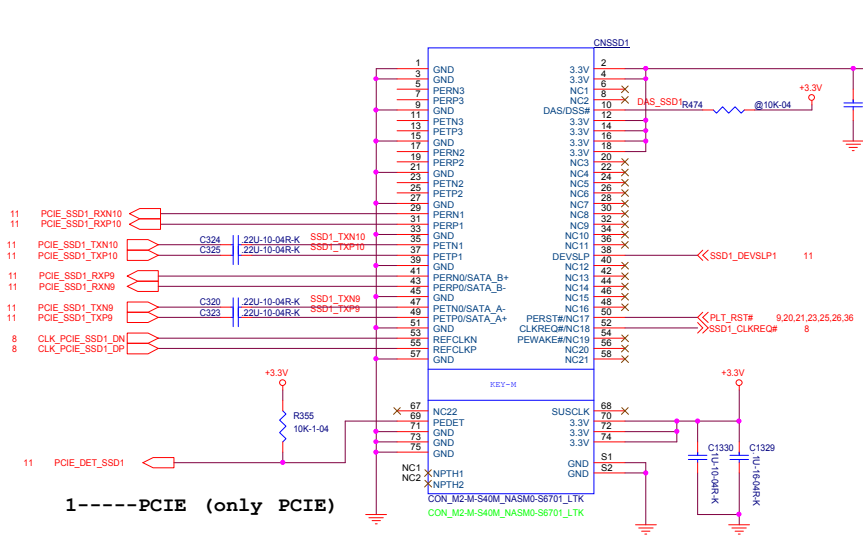
HDD



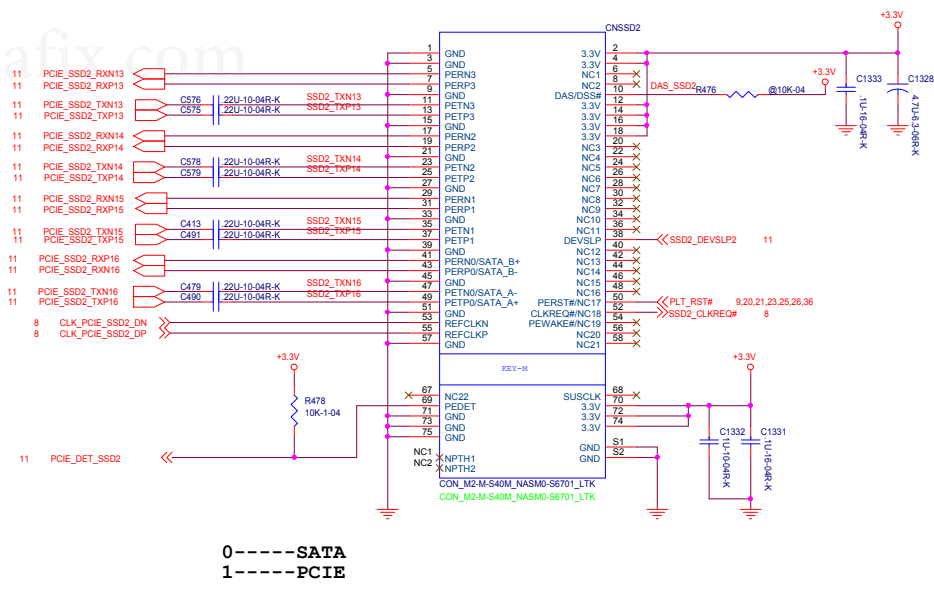
WLAN CONN



SSD1

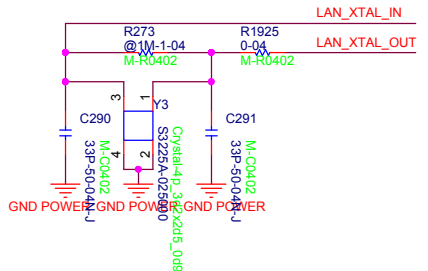
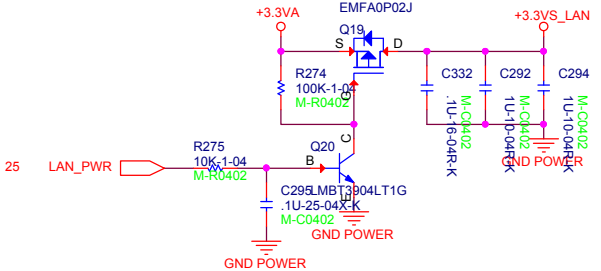
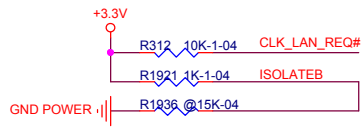
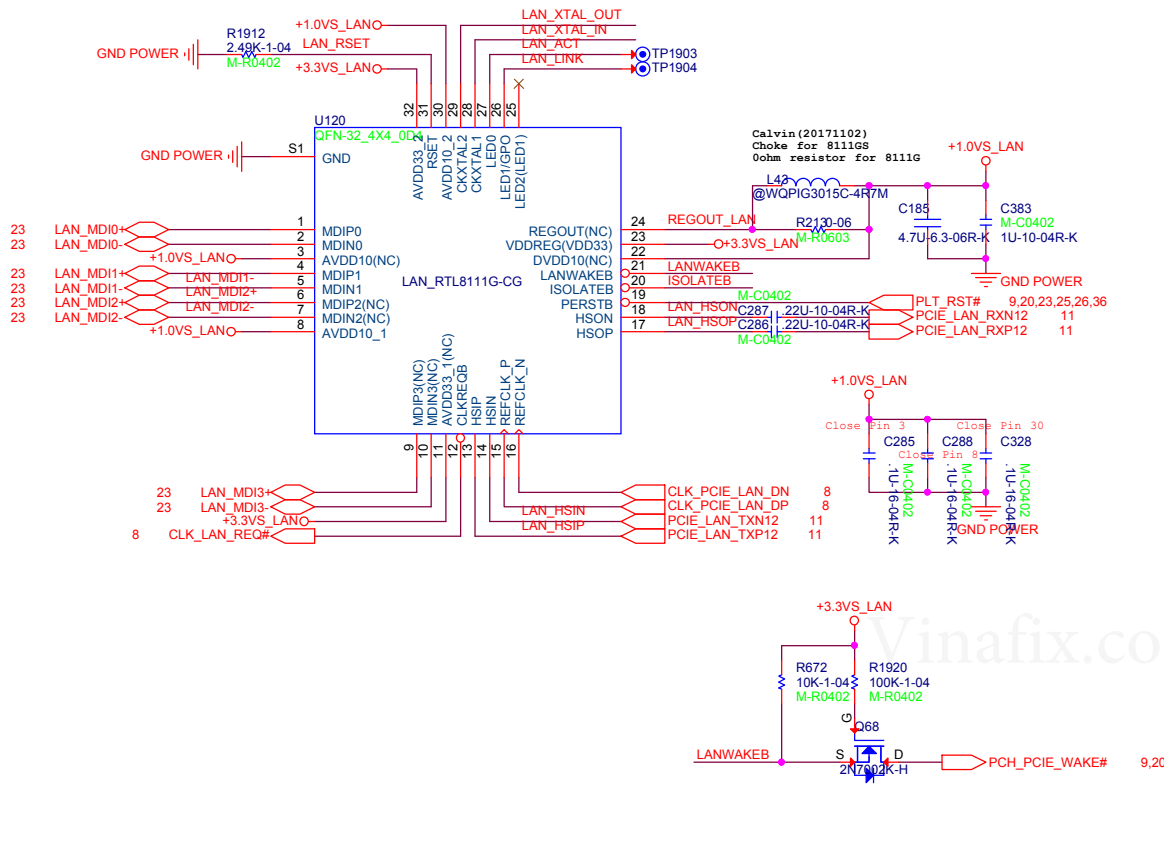


SSD2



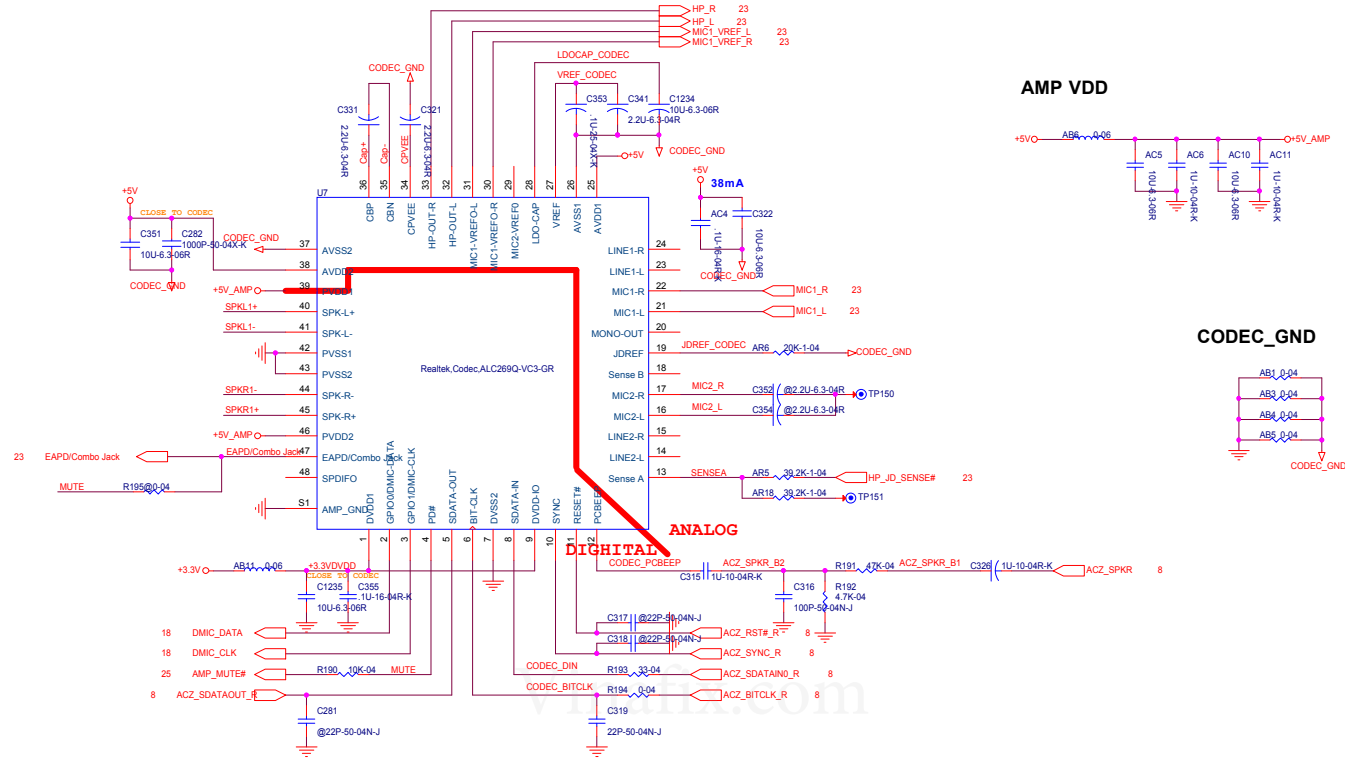
Others

RTL8111G

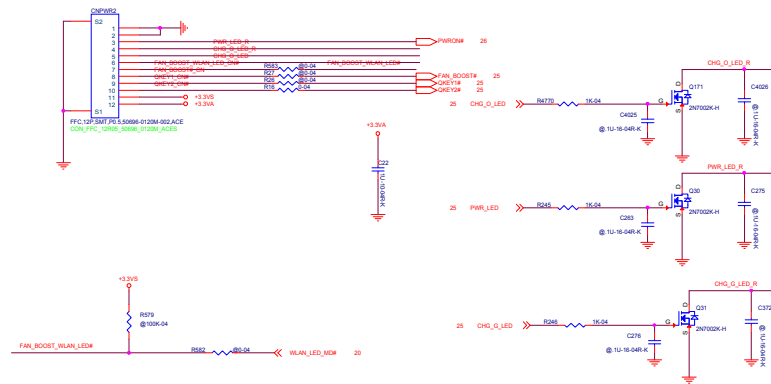


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|---------------|-----------------------------|-------|----------|
| TongFang Inc. | | | |
| Title | | | |
| GK5CN3X MB | | | |
| Size | Document Number | Rev | |
| B | PCH CFL-H:CLK | A | |
| Date: | Thursday, November 29, 2018 | Sheet | 21 of 45 |

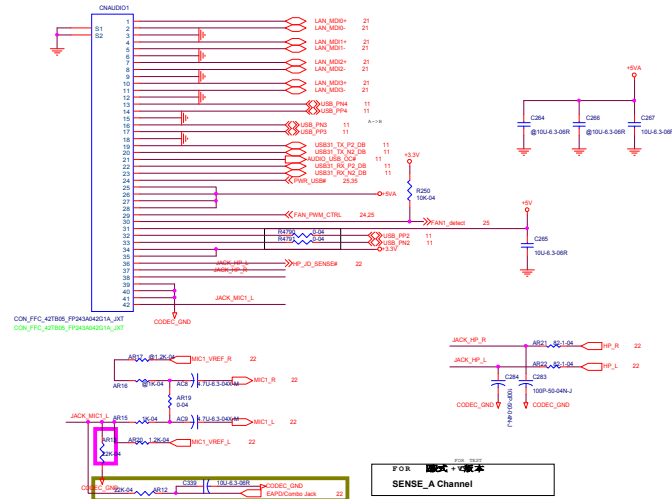
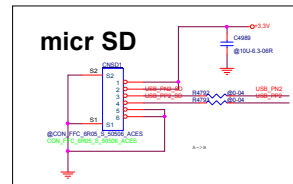
ALC269Q



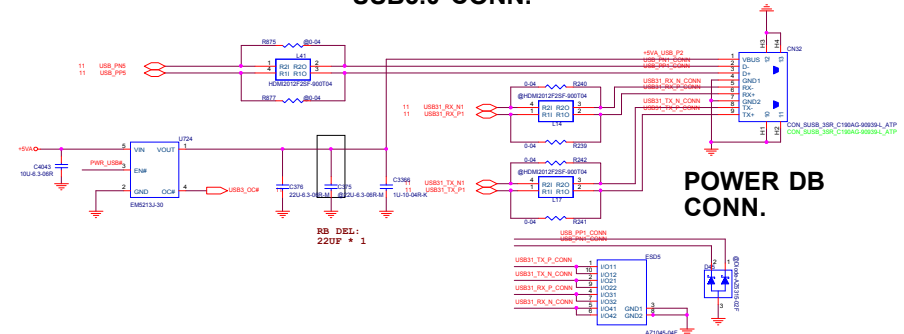
POWER DB CONN.



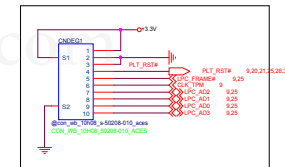
Audio&LAN DB CONN.



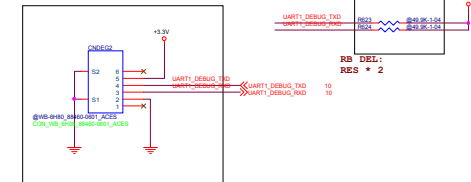
USB3.0 CONN.



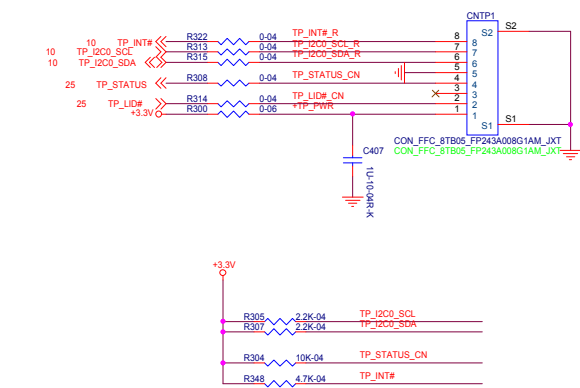
LPC debug port



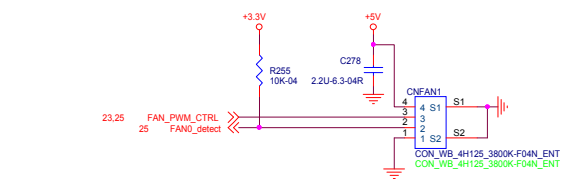
UART debug port



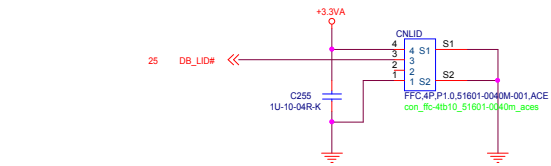
Touch Pad CONN



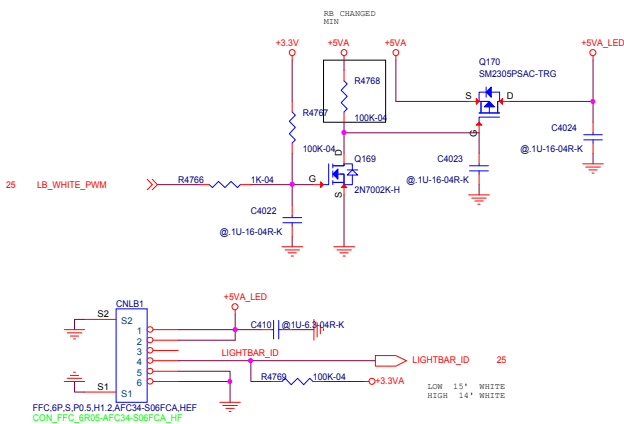
FAN CONNECT



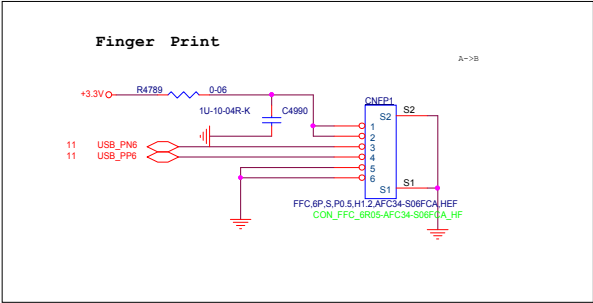
LID Switch CONN



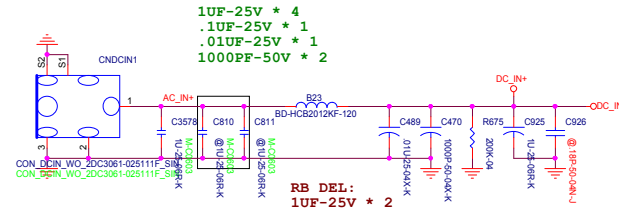
Light bar Control CON



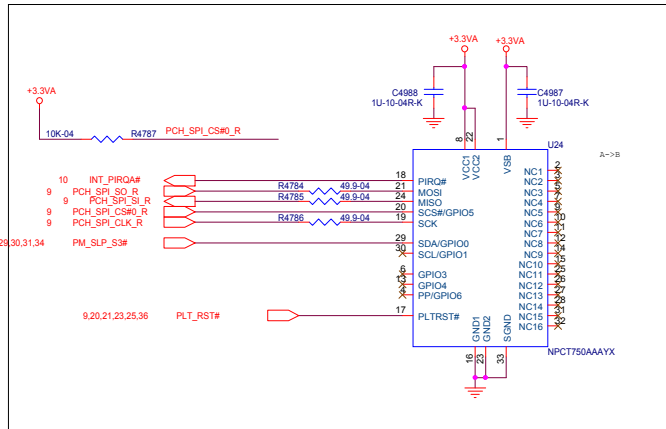
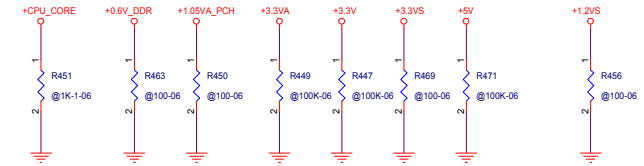
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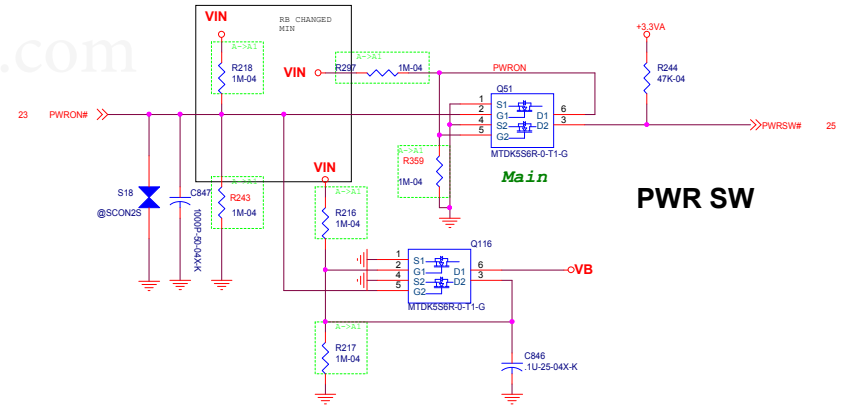
DC IN



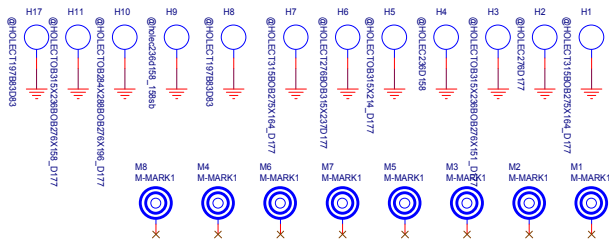
Discharge Resistor



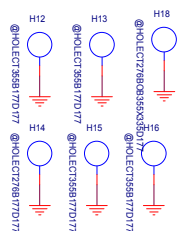
POWER SW

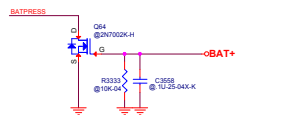
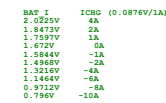


PCB HOLE



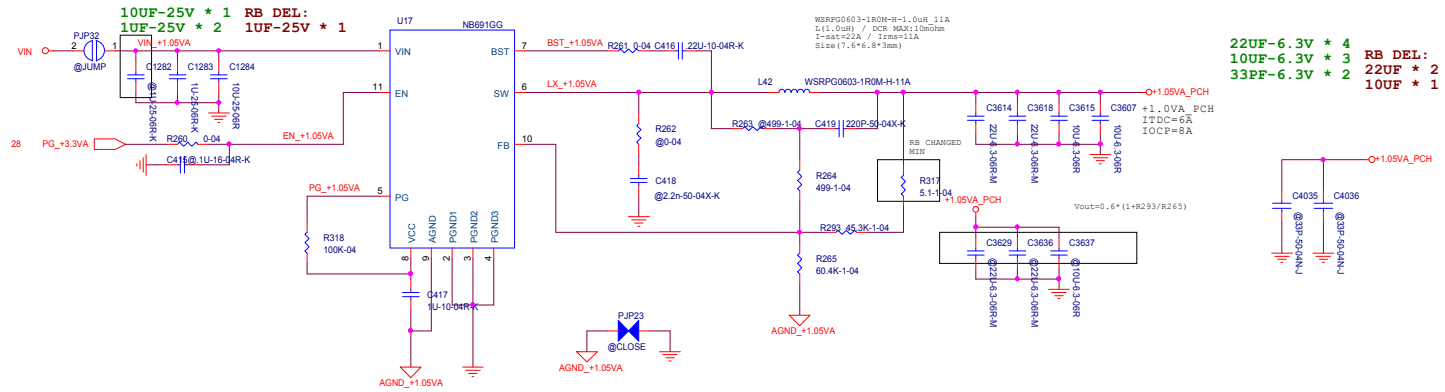
THERMAL HOLE



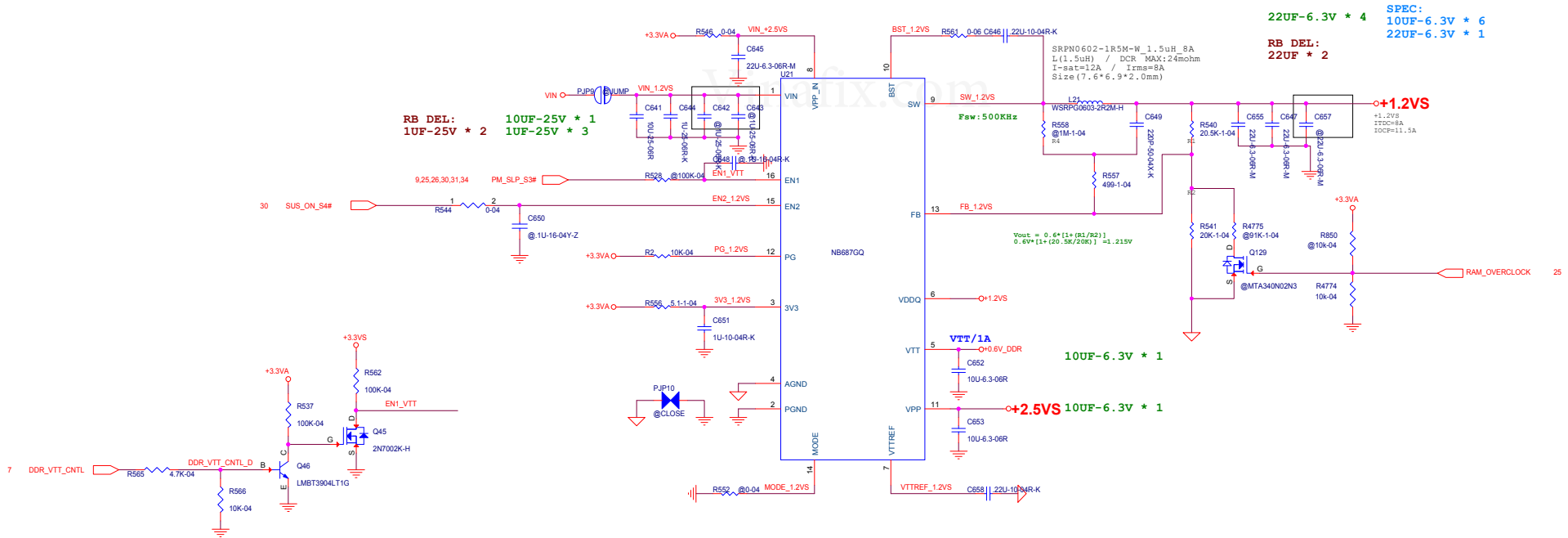
[illegible]

+1.05VA_PCH

CFL U43e is 1.05V
1.05V & VCCIO & VCCPRIM is Merage
ICCMAX=8.2A
NB671LA MAX=9A ,TDC=6A



VDDQ(+1.2VS)

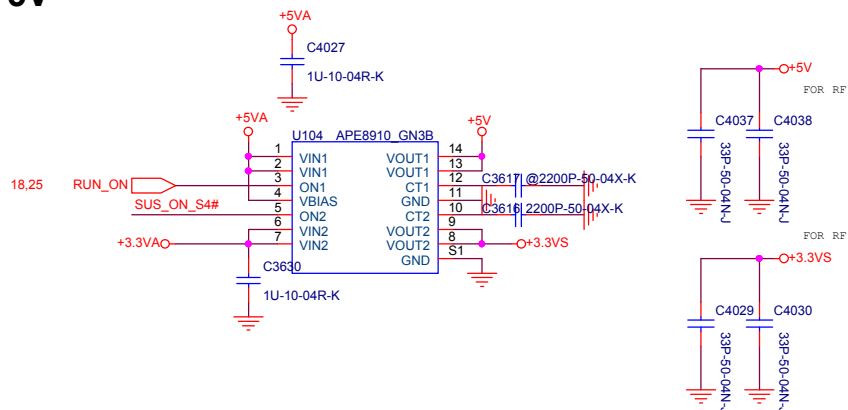


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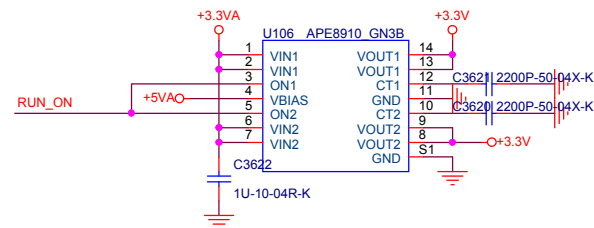
GK5CN3X MB

| | | |
|-------|-----------------------------|----------------|
| Size | Document Number | Rev |
| C | EC IT8528E/BIOS/KB CONN | A |
| Date: | Thursday, November 29, 2018 | Sheet 29 of 45 |

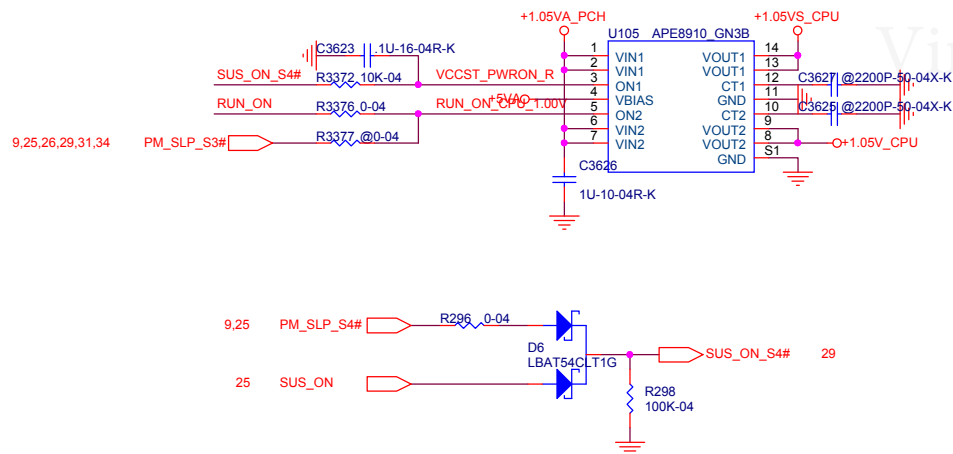
+3.3VS/+5V



+3.3V



+1.05VS_CPU +1.05V_CPU



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|--|------------------------|----------|
| Title | | |
| GK5CN3X MB | | |
| Size | Document Number | Rev |
| B | PSW/PWR DB CONN | A |
| Date: Thursday, November 29, 2018 Sheet 30 of 45 | | |

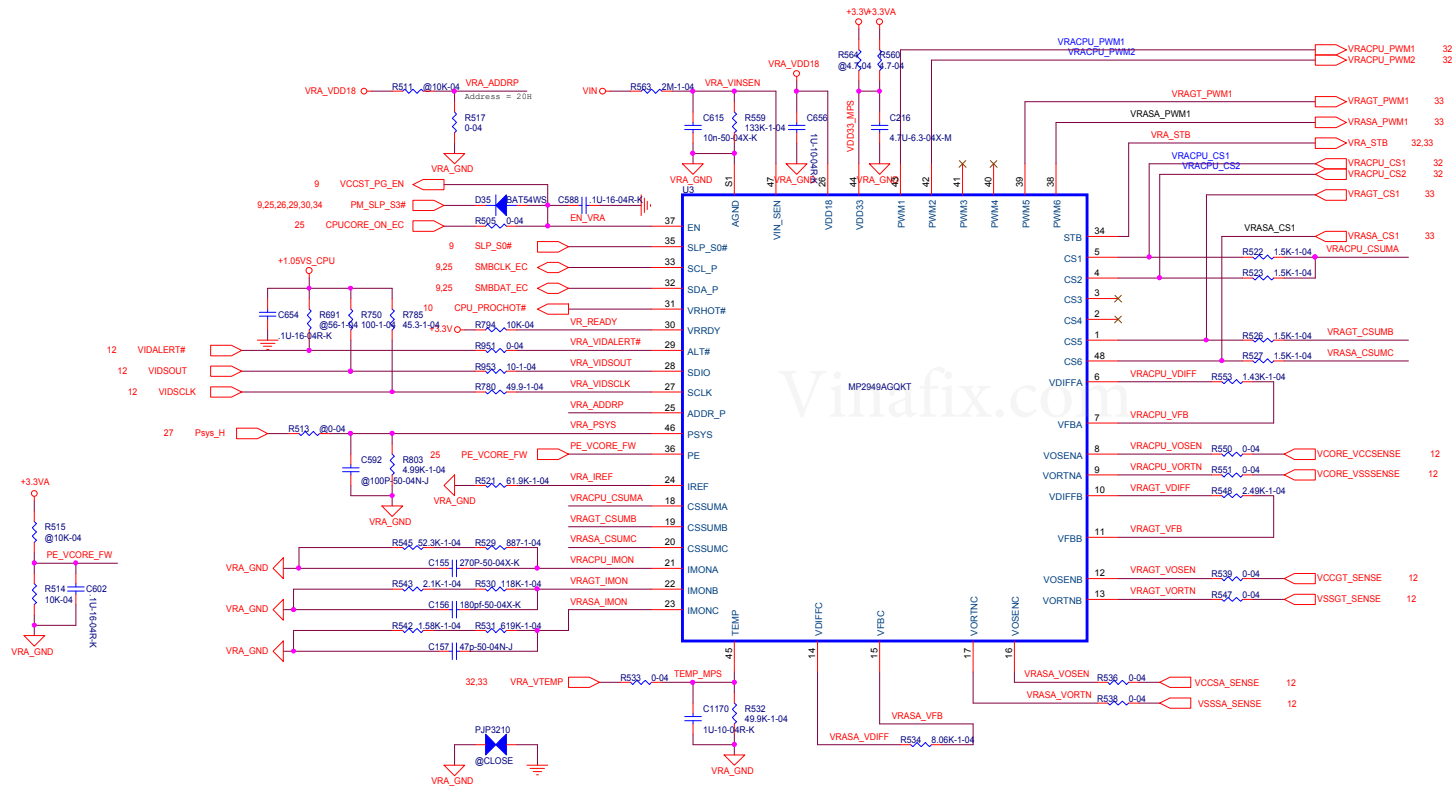
WHL-U42

Core: Iccmax=70A, PL2=48A, LL=1.8mOhm

GT: Iccmax=31A, PL2=18A, LL=3.1mOhm

SA: Iccmax=6A, PL2=4A, LL=10.3mOhm

PHASE : 2+1+1



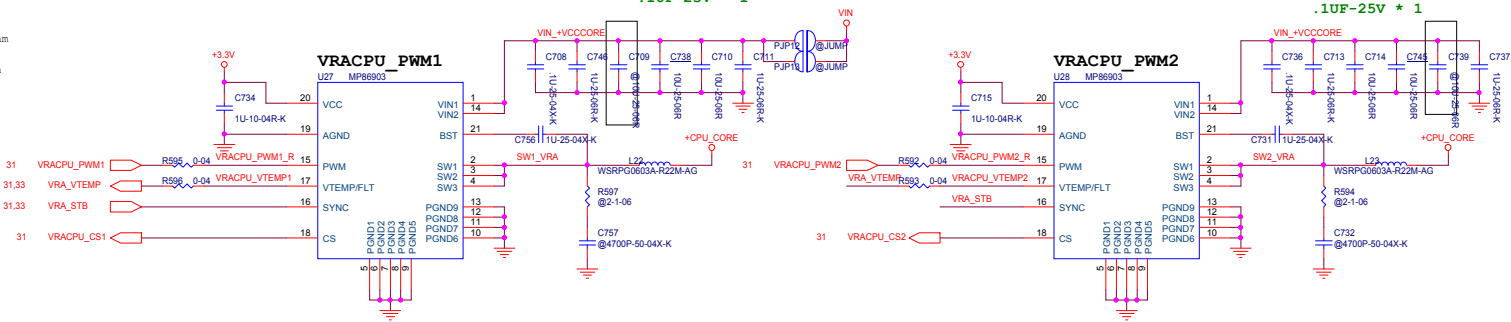
VCCCORE

WHL-U42
Core: iccmax=70A, PL2=48A, LL=1.8mOhm
C71: iccmax=31A, PL2=18A, LL=3.3mOhm
SA: iccmax=6A, PL2=4A, LL=10.3mOhm

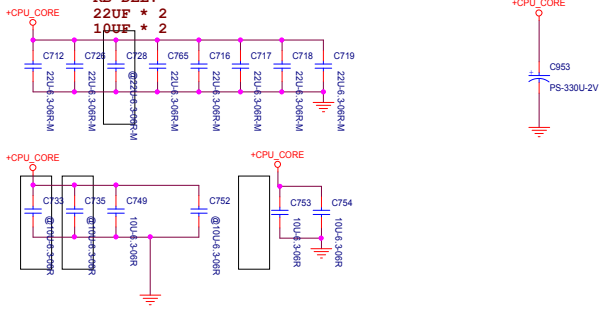
WSRPG0603A-R22M-AG
L:0.22uH
DCR Typ:2.5mohm,Max:2.75mohm
Isat:40A, Irms:23A
Size:7.6*6.8*3mm
High side
Rds(on) TYP:10.5mohm
Low side
Rds(on) TYP:3.7mohm
MP86910B
ITDC:20A
ICCMAX:35A

10UF-25V * 3 RB DEL:
1UF-25V * 2 10UF-25V * 1
.1UF-25V * 1

10UF-25V * 3 RB DEL:
1UF-25V * 2 10UF-25V * 1
.1UF-25V * 1



22UF-6.3 * 8 SPEC:
10UF-6.3 * 6 220UF * 4
330UF-PS * 1 10UF-6.3V * 8
RB DEL:
22UF * 2
10UF * 2



VCCGT

The schematic shows the MP8690-1 BGLT IC connected to various components:

- Input:** VIN+VCCGT is connected to the input pins (VIN1, VIN2) through capacitors C834 (1μF), C835 (10μF), and C836 (100nF). A bootstrap capacitor C843 (1μF) is connected between BST and SW1_GT.
- Output:** The output filter consists of inductor L25 (WSRPG050A-R22M-AG) and capacitor C828 (PS-330U-2V). The output voltage is VOUT, which is also labeled as +VCCGT.
- Control and Timing:** VRAGT_PWM1, VRAGT_PWM2_R15, VRAGT_VTEMP1, VRAGT_VTEMP1_17, VRAGT_STB, and VRAGT_CS1 are connected to the PWM, VTEMP/FLT, SYNC, and CS pins respectively. Resistor R603 (0.04Ω) is connected to VRAGT_PWM1, and resistor R604 (0.04Ω) is connected to VRAGT_VTEMP1.
- Power and Grounding:** The IC is powered by +3.3V_O and grounded at AGND and PGND. Various ground connections are shown, including PGND1 through PGND6.

| Value | Count | Spec |
|----------|-------|----------------|
| 22uF-6.3 | 3 | 220uF * 2 |
| 10uF-6.3 | 4 | 22uF-6.3V * 15 |
| 330uF-PS | 1 | 47uF * 4 |

FOR EMI solution

$1000\text{PF}-50\text{V} * 2$
 $.1\mu\text{F}-16\text{V} * 2$

+CPU_VCCGT

C816 @ 100PF-5004X
C817 @ 100PF-5004X
C823 @ .1U-1604RK

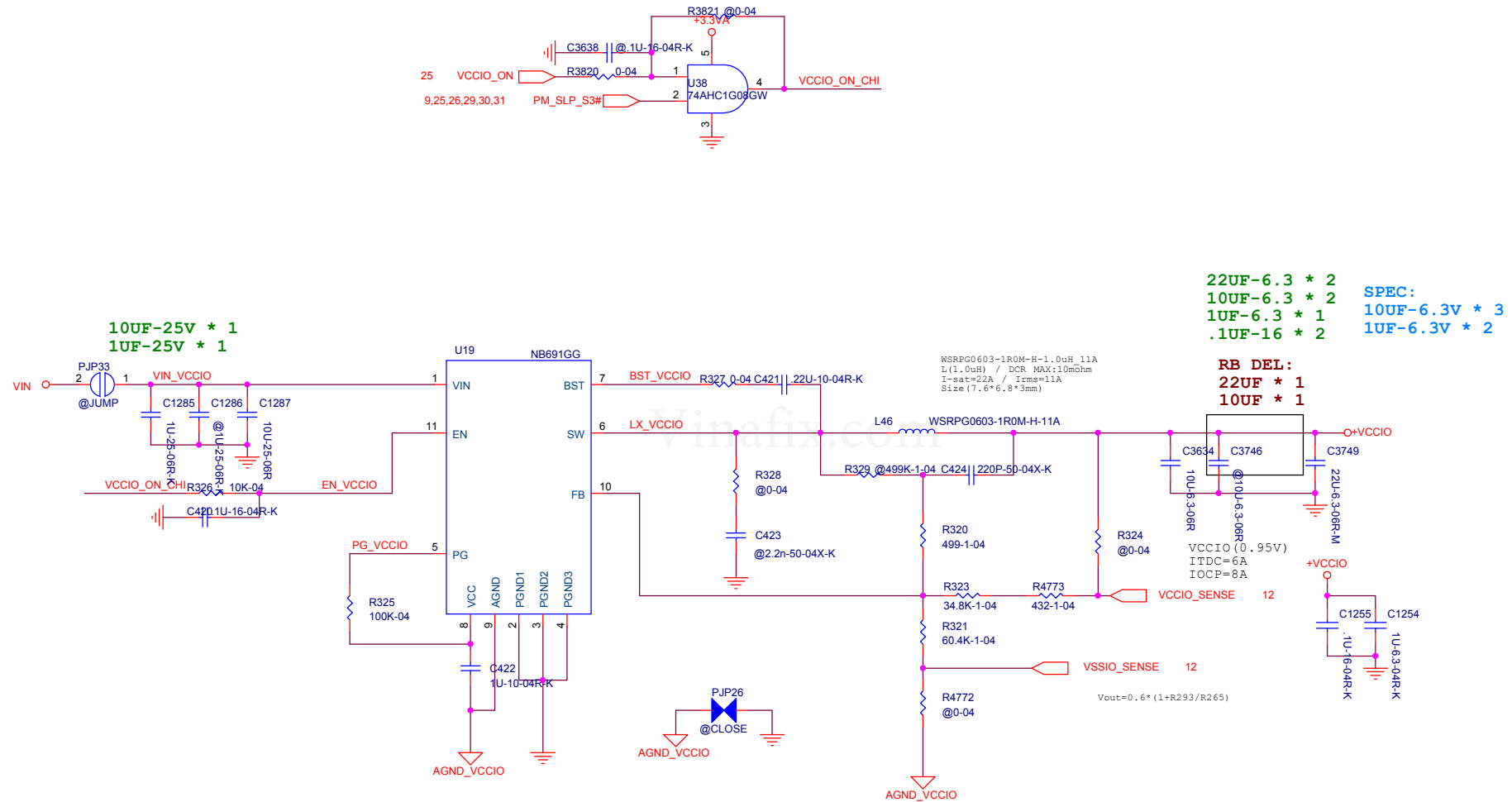
The diagram shows a parallel combination of three capacitors connected between a power supply line labeled +CPU_VCCGT and a common ground. The capacitors are labeled C816, C817, and C823. C816 and C817 are both specified as 100PF-5004X, and C823 is specified as .1U-1604RK. The text 'FOR EMI solution' is written above the capacitors, and the values '1000PF-50V * 2' and '.1UF-16V * 2' are listed at the top right.

VCCSA

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The left diagram shows a parallel combination of three capacitors: C830 (22uF 3.0-68R M), C826 (22uF 3.0-68R M), and C827 (22uF 3.0-68R M). They are connected between +VCCSA and ground. The right diagram shows a single capacitor C83 (10uF 3.0-68R) connected between +VCCSA and ground.

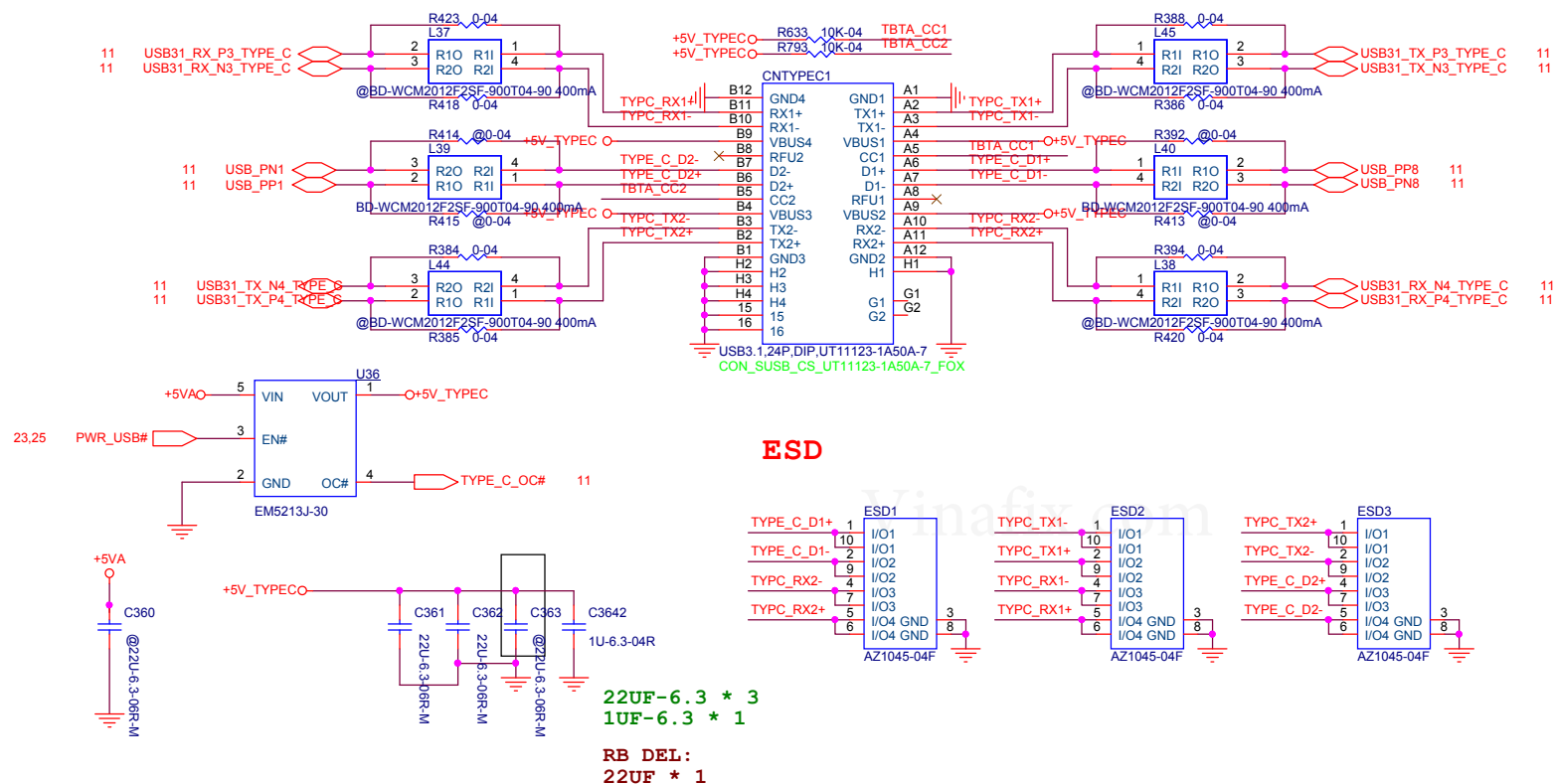
+VCCIO



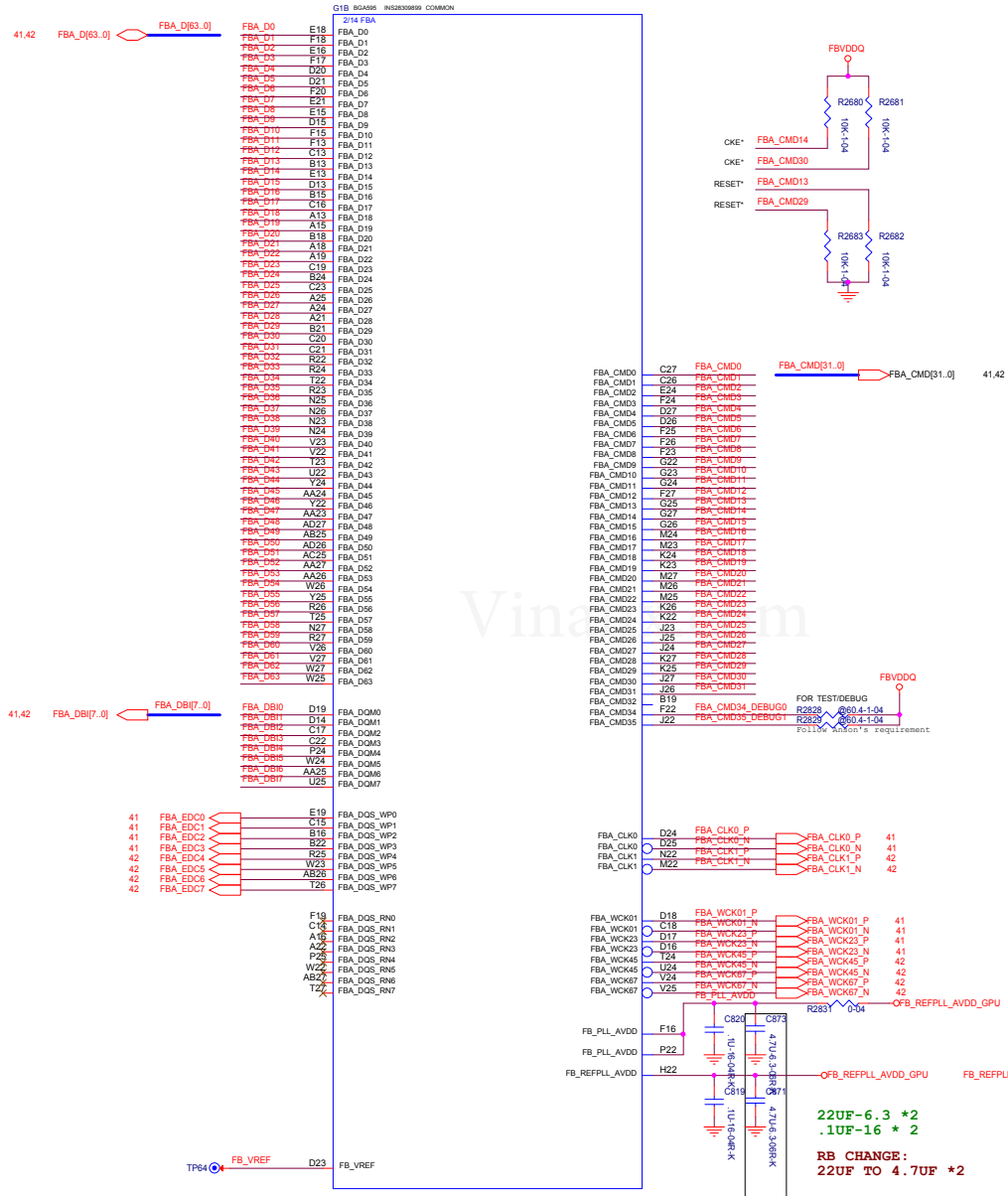
TongFang Inc.

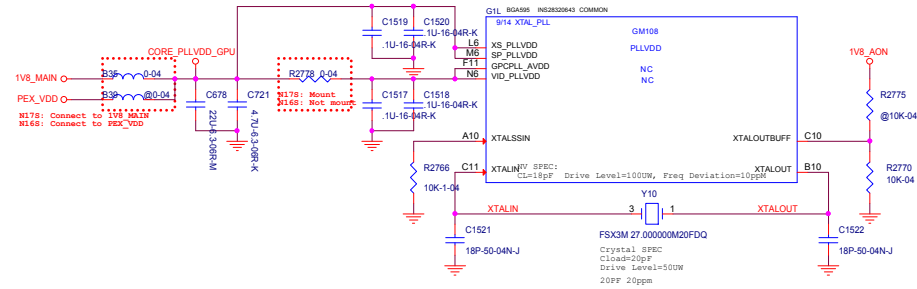
| | | | |
|-------------------|-----------------------------------|----------|----------|
| Title | | | |
| GK5CN3X MB | | | |
| Size | Document Number | Rev | |
| B | EXT_AUDIO/USB3.0/FAN/DEBUG | A | |
| Date: | Thursday, November 29, 2018 | Sheet | 34 of 45 |

USB3.0 TYPE-C



| | | | |
|-----------------------------|-----------------------------|-------|----------|
| <i>TongFang Inc.</i> | | | |
| Title | | | |
| GK5CN3X MB | | | |
| Size | Document Number | | Rev |
| B | TP/USB/YPEC | | A |
| Date: | Thursday, November 29, 2018 | Sheet | 35 of 45 |





| STRAP | PIN | ROM | SCLK | STRAP0 | STRAP1 | STRAP2 | STRAP3 | STRAP4 | STRAP5 | |
|-------|------|-------|----------|--------|----------|----------|----------|--------|--------|------|
| N17S | HIGH | 100K | 100K | 100K | Optional | Optional | Optional | 100K | NA | NA |
| | LOW | NA | NA | 100K | | | | NA | 100K | 100K |
| N16S | HIGH | NA | Optional | NA | 49.9K | NA | NA | NA | NA | NA |
| | LOW | 4.99K | | 4.99K | NA | NA | NA | NA | NA | NA |

| GDDR5 | | | | | | | |
|---------|---------|--------------------|-------|-------|--------|--------|--------|
| Density | Vendor | Part Number | Die | Strap | Strap2 | Strap3 | Strap4 |
| 4GB | Samsung | K4C80325F8-HC28 | B-die | 0X0 | L | L | L |
| 4GB | Micron | MT513J256M2HF-70;A | B-die | 0X1 | L | L | H |
| 4GB | Hynix | H5GCBH24MR-ROC | M-die | 0X2 | L | H | H |
| 2GB | Samsung | K4C41325F8-HC28 | E-die | 0X7 | H | H | H |
| 2GB | Hynix | H5GC4N24JR-ROC | A-die | 0X6 | R | L | L |
| 2GB | Micron | EDW4032ABG-70 F | A-die | 0X8 | L | L | M |

| | Voltage(V) | | |
|---------|-----------------------|--------|-------|
| LEVEL | Min | Normal | Max |
| H | 1.5 | 1.8 | 1.854 |
| M | 0.5 | 0.9 | 1.3 |
| L | 0 | 0 | 0.3 |
| Invalid | 1.3V<pin voltage<1.5V | | |
| | 0.3V<pin voltage<0.5V | | |

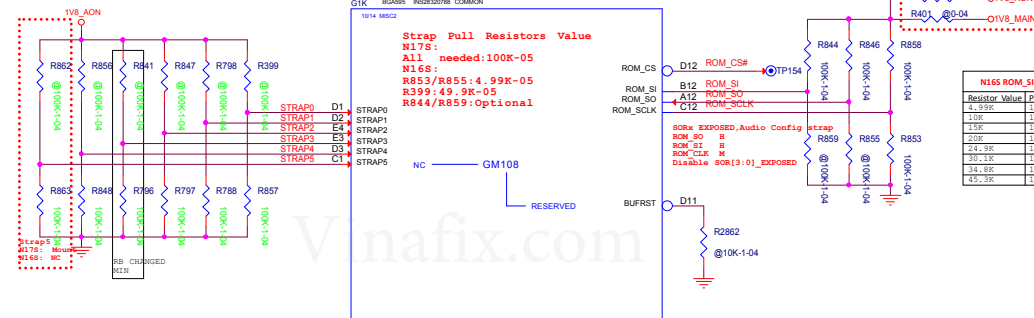
Strap5,4,3 LLH

```
1:SMB_ALT_ADDR  ENABLE
0:SMB_ALT_ADDR  DISABLE (Select)
```

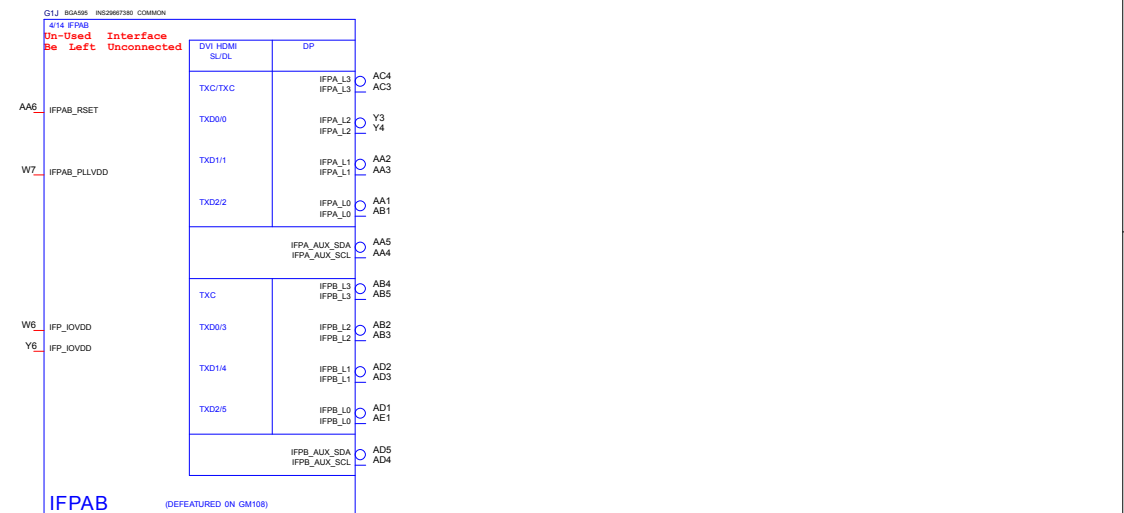
```
1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGINAL (Select)
```

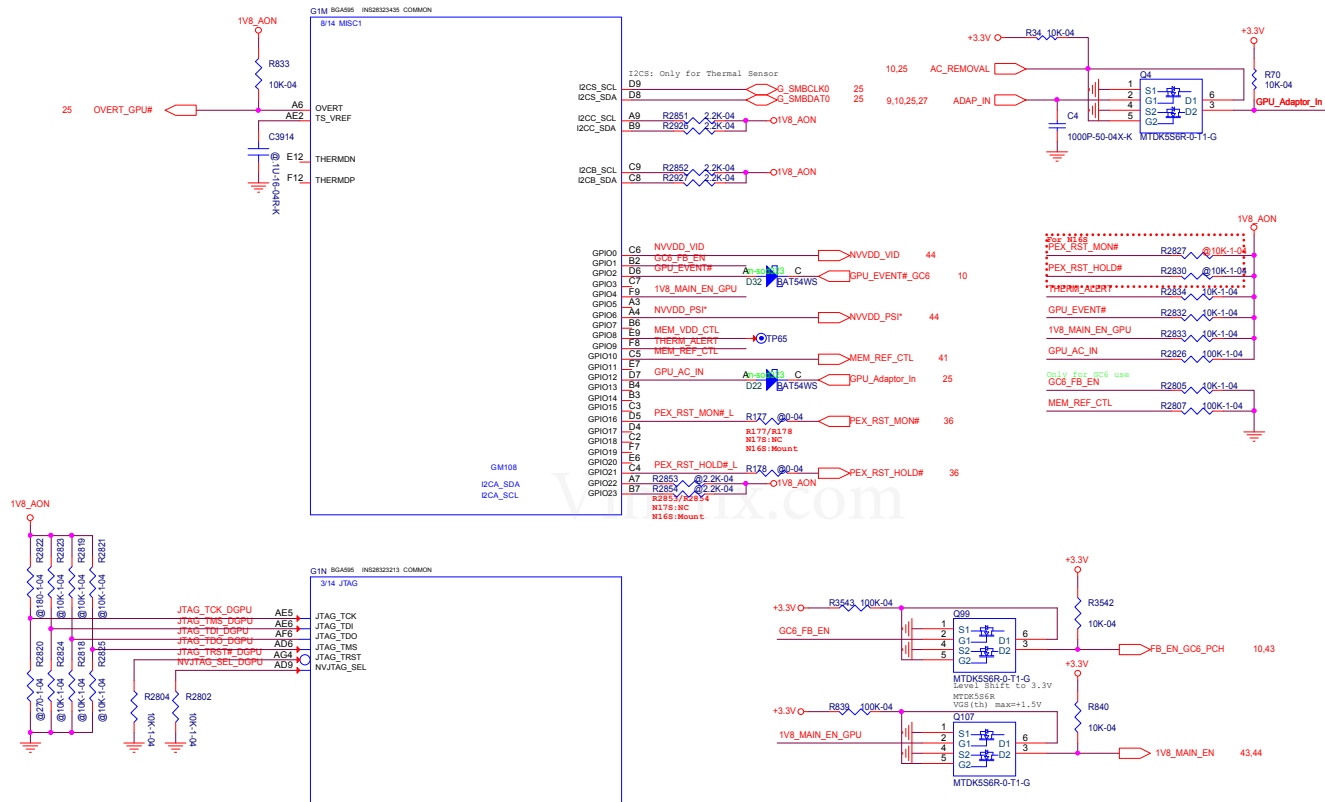
```
1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER(Select)
```

```
1:VGA_DEVICE  ENABLE(Select)
0:VGA_DEVICE  DISABLE
```

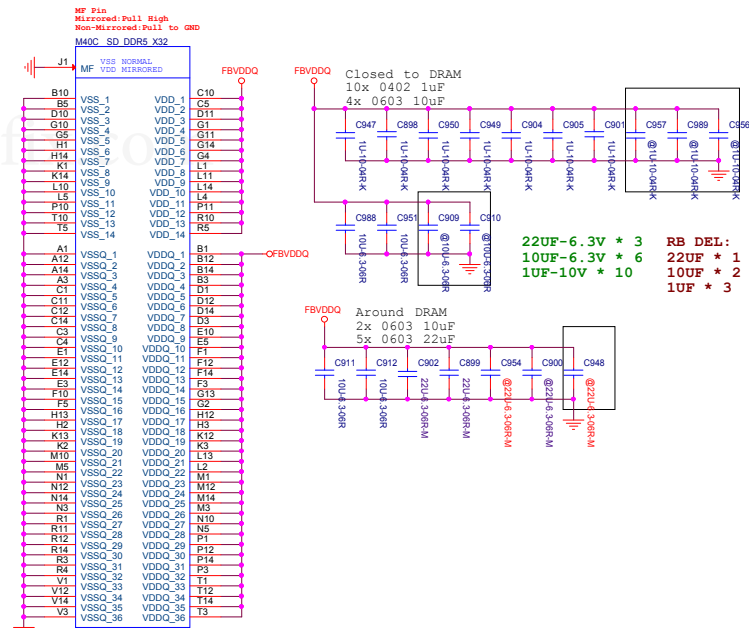
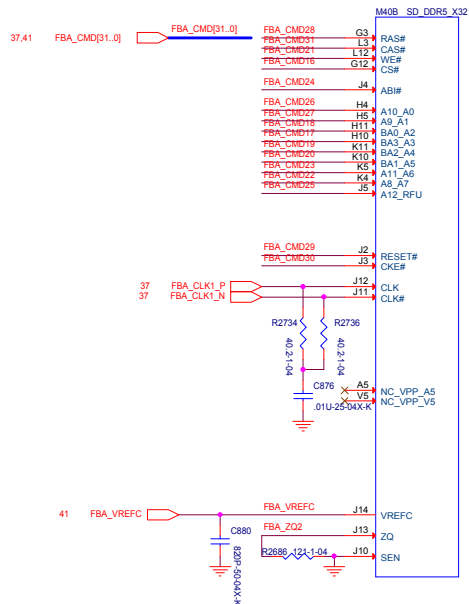
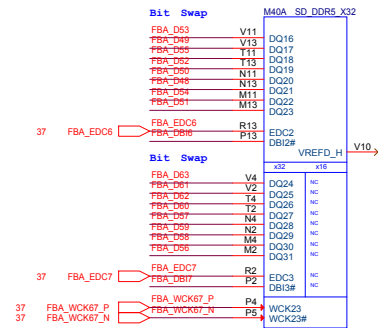
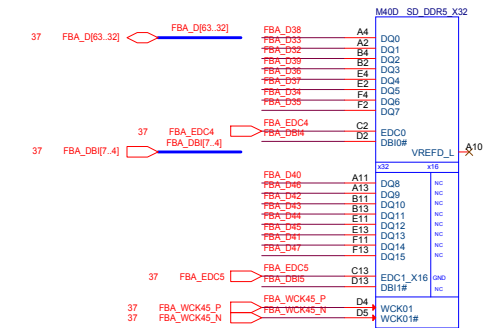


| Resistor Value | Pull-Up to 3V3 AON | Pull-Down to GND |
|----------------|--------------------|------------------|
| 4.99K | 1000 | 0000 |
| 10K | 1001 | 0001 |
| 15K | 1010 | 0010 |
| 20K | 1011 | 0011 |
| 24.9K | 1100 | 0100 |
| 30.1K | 1101 | 0101 |
| 34.8K | 1110 | 0110 |
| 45.3K | 1111 | 0111 |

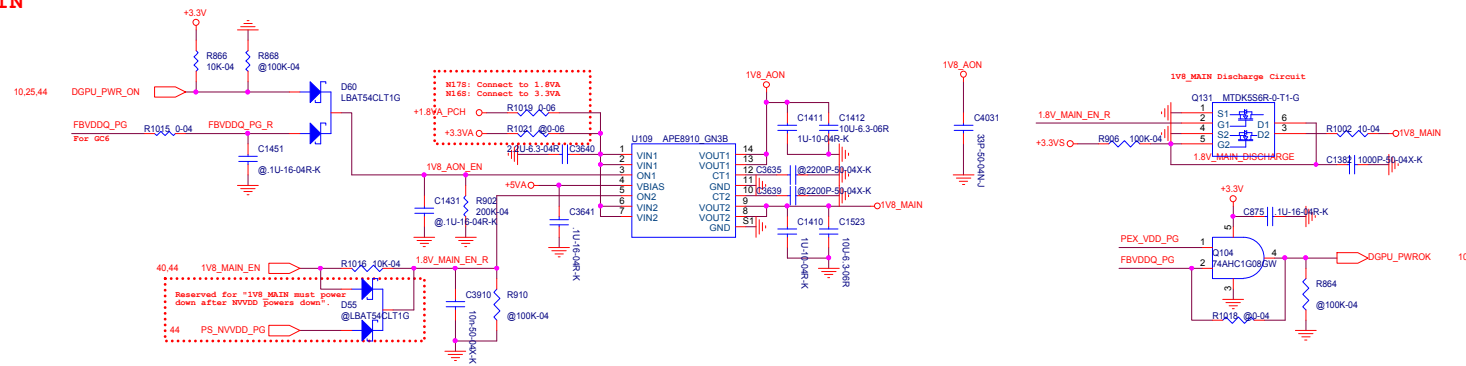




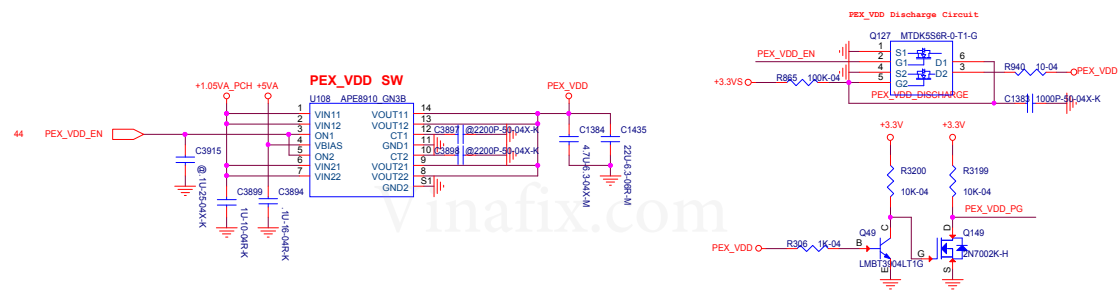
Maximum VRAM case Temp is 85 celcibus degree



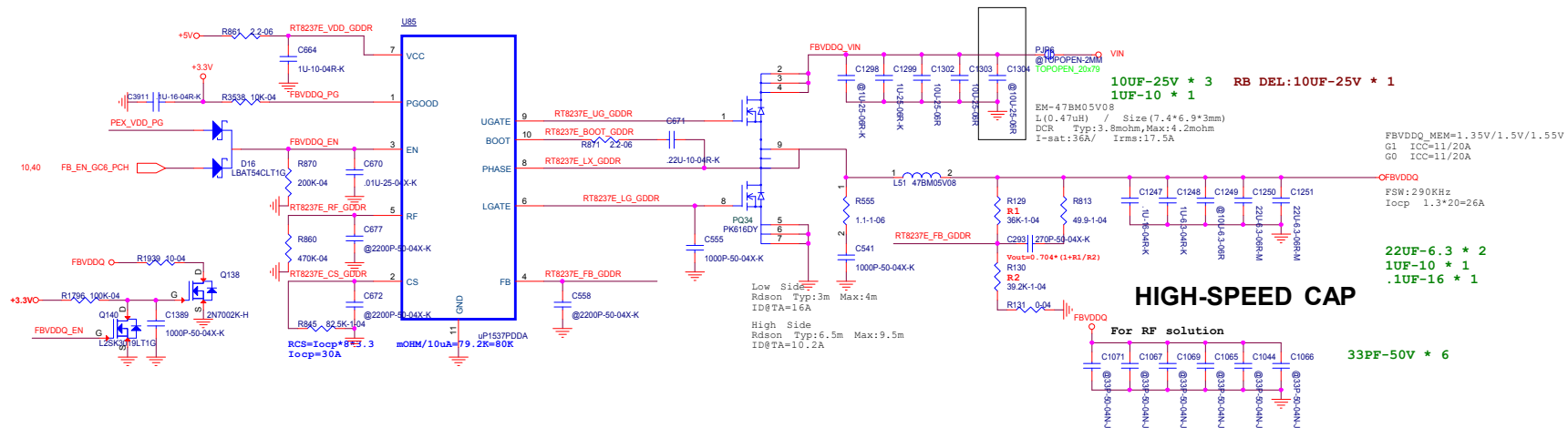
1V8_AON/1V8_MAIN



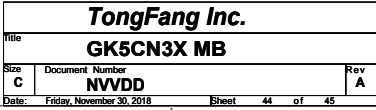
PEX_VDD



FBVDDQ_MEM



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B PHASE CHANGE LIST

- 1 PAGE 10: R4778,R4779 pull up 3.3VA
- 2 PAGE 26: +VIN POWER CHANGE TO VIN
- 3 PAGE 8: R22 NO STUFF
- 4 PAGE 24: R4768 CHANGE TO 100K FROM 1K
- 5 PAGE 25: ADD R4777 PULL 3V3A
- 6 PAGE 29: R317 STUFF
- 7 PAGE 28: R220 CHANGE TO 200K,R221 CHANGE TO 100K
- 8 PAGE 27: R480 CHANGE TO 45.3K,R482 CHANGE TO 2K,R491 NO STUFF. PAGE 25: CHG_REF DEL
- 9 PAGE 35: U36 CHANGE TO EM5213
- 10 PAGE 25: DEL R286,RT10
- 11 PAGE 25: ADD DGPU_PWR_ON
- 12 PAGE 6 & 10: CHANGE SMI SIGNAL FORM GPP_E15 TO GPP_E3 PORT
- 13 PAGE 39: R796 STUFF,R841 NOSTUFF
- 14 PAGE 26 & 10: ADD TPM
- 15 PAGE 11 & 24: ADD FINGER PRINTER
- 16 PAGE 27: ADD SHIPPING MODE

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