

野火 EBF RK3588S LBC4

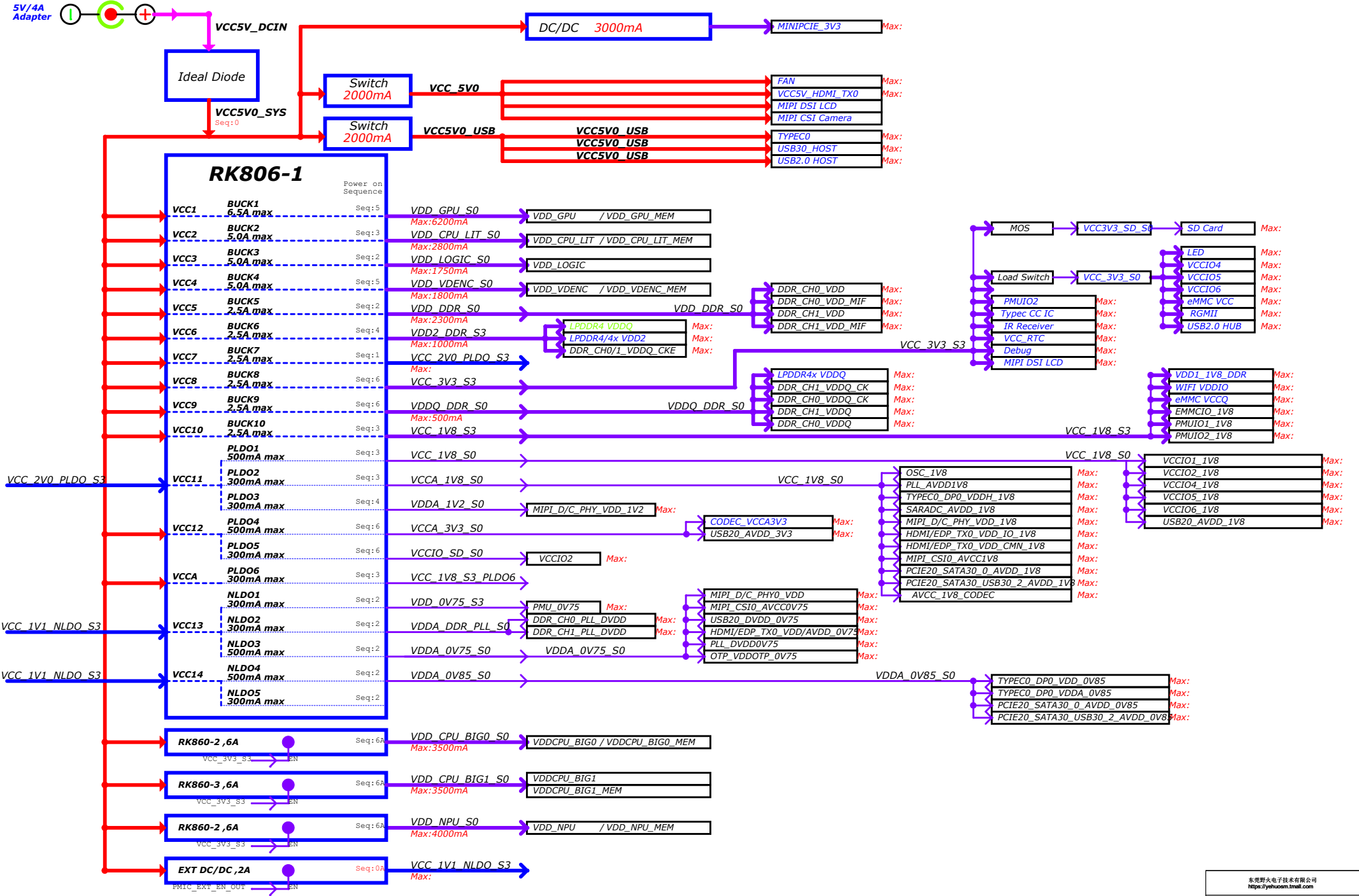
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历史版本

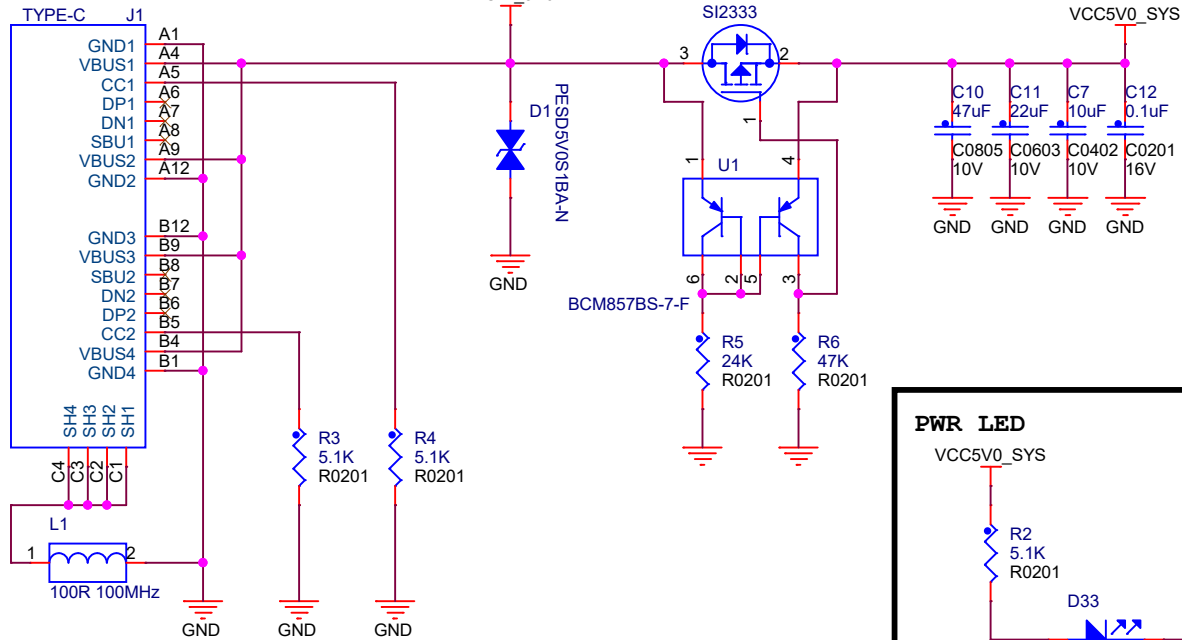
| 版本号 | 日期 | 设计 | 描述 |
|------|------------|-----|--|
| V1.0 | 2023-01-25 | llm | 初始版本, 开发阶段 |
| V1.1 | 2023-05-18 | llm | 修复初始版本的一些问题，增加SATA接口， typec添加OTG自动识别host/device功能 |
| V1.2 | 2023-07-27 | llm | 1.MIPI CSI 添加2 Lanes 2.更新MINI PCIE、M.2 PCIE封装，添加独立的定位孔 3.把Z4、Z3、Z2、Z1位号改前缀为D的位号 4.把sim卡座位号U18改为J18 5.把mini pcie位号CON1改为J17 |
| V1.3 | 2023-12-12 | llm | 1.更新board id，EBF410116V1版本设置的baord id为：0x0102 2.把DCIN 5V0接到40pin排针的5V供电，让40pin排针的5V支持输入/输出双向供电 3.mipi dis接口与40pin排针调换IO，排针引出CAN： mipi dsi0: CTP0_RST (CAN0_RX_M0) <---> GPIO1_A0 LCD0_RST (CAN0_TX_M0) <---> GPIO1_A1 mipi dsi1: CTP1_INT (CAN2_RX_M0) <---> GPIO4_A1 CTP1_RST (CAN2_TX_M0) <---> GPIO4_A2 4.CAM3_PWDN改接GPIO3_A6，CAM3_RSTn改接GPIO4_A0 5. mini pcie电源增加220uF钽电容，兼容5G模块供电 |
| V1.4 | 2024-06-05 | llm | 1. 网口125MHz时钟串联电阻R99由22R改为33R 2. 网口晶振负载电容C380、C381由18pF改为22pF，并添加串并联电阻 3. 网口PHY与RJ45之间串接共模电感，用于改善emi、EFT问题 4. HDMI添加共模电感改善EMI问题，耳机接口添加ESD |

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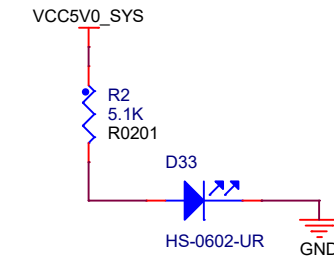
Power Tree



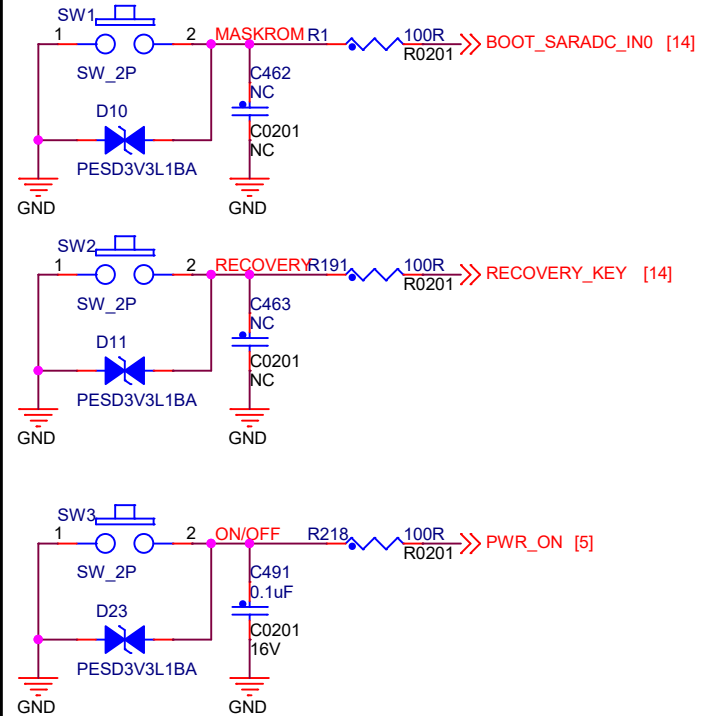
DC IN: 5V/4A



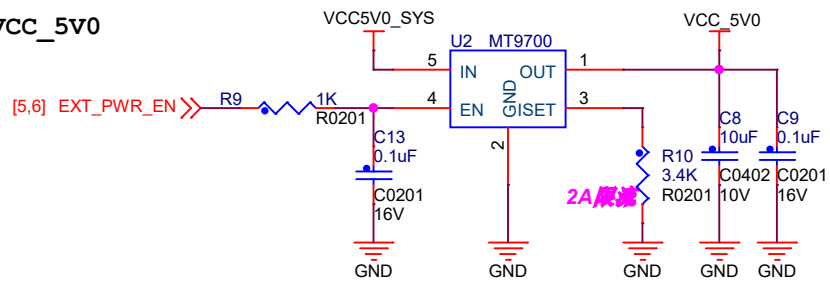
PWR LED



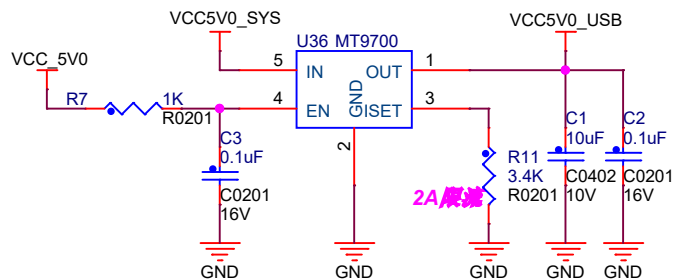
按键



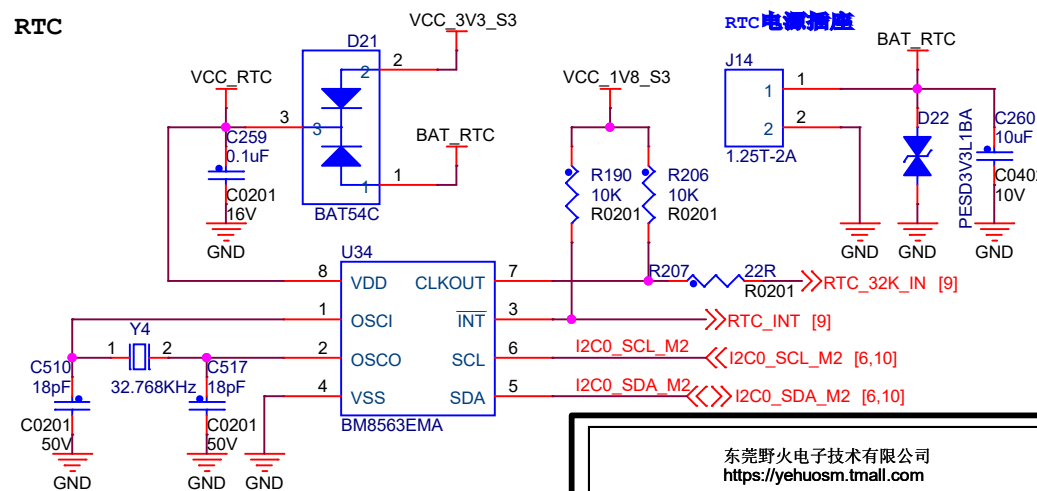
VCC_5V0



VCC5V0_USB



RTC



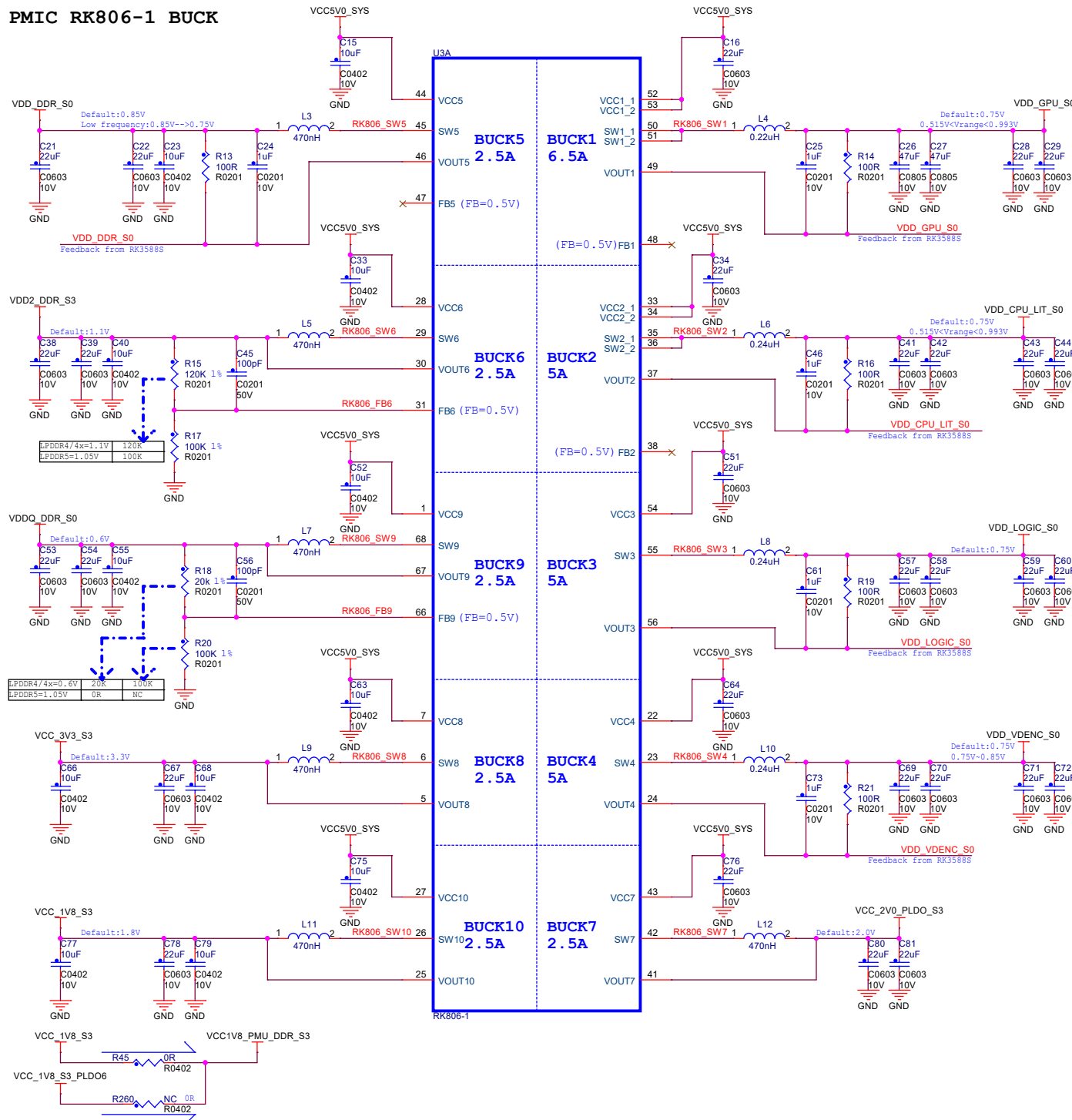
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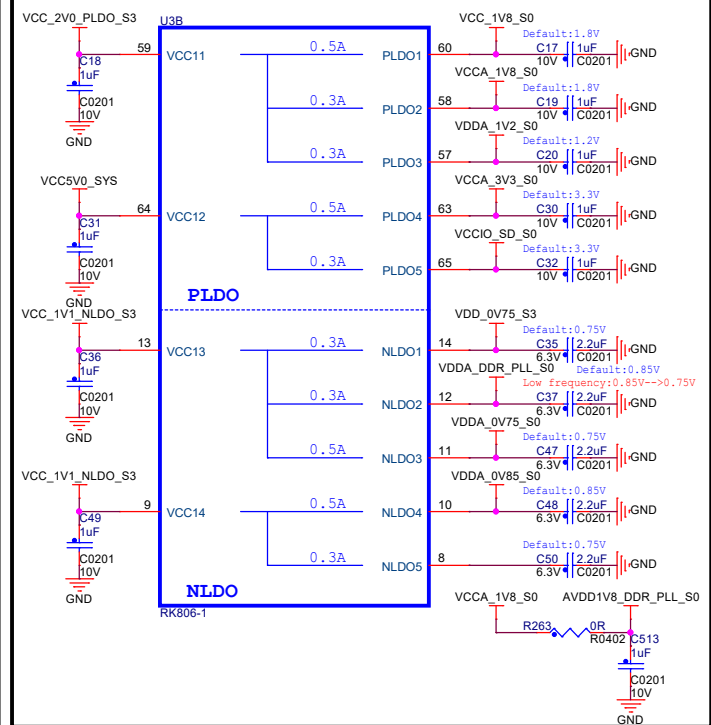
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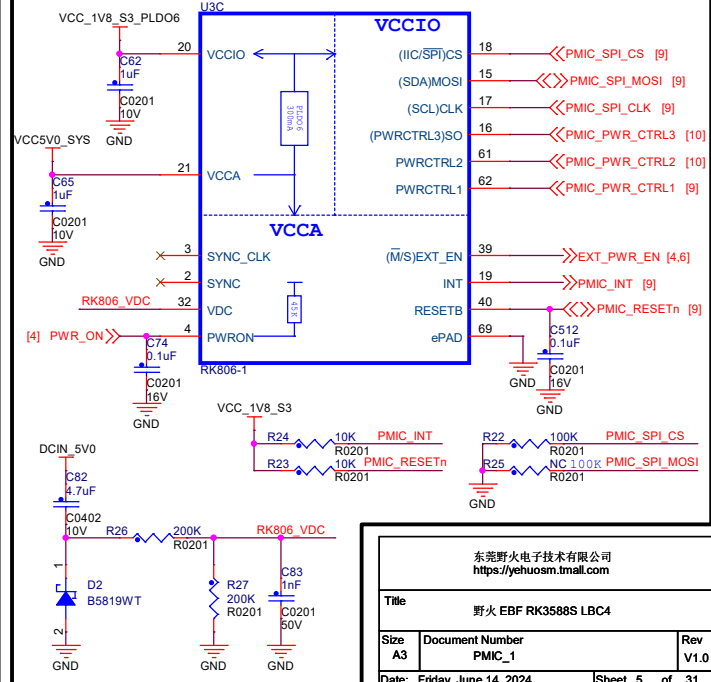
PMIC RK806-1 BUCK



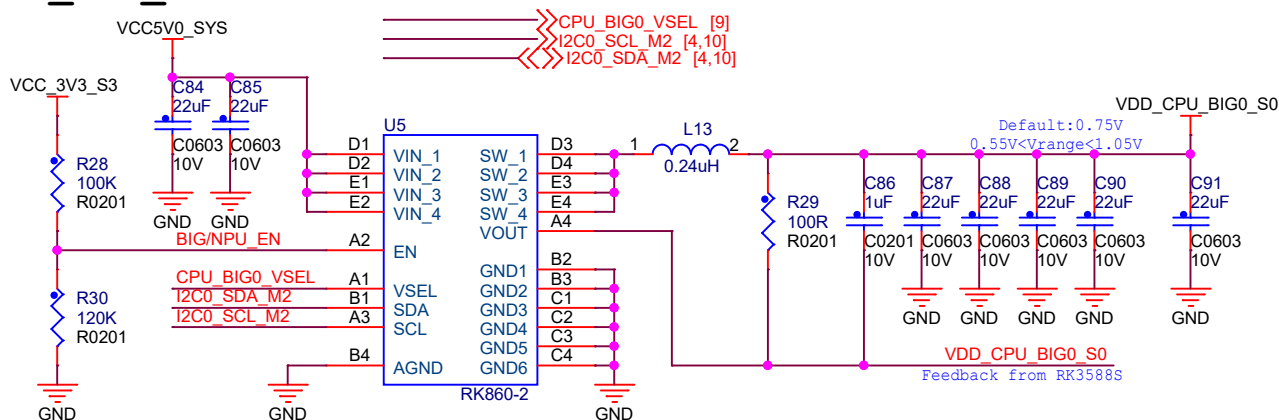
PMIC RK806-1 LDO



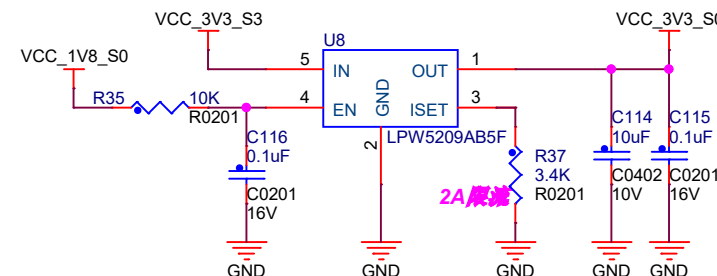
PMIC RK806-1 LDO



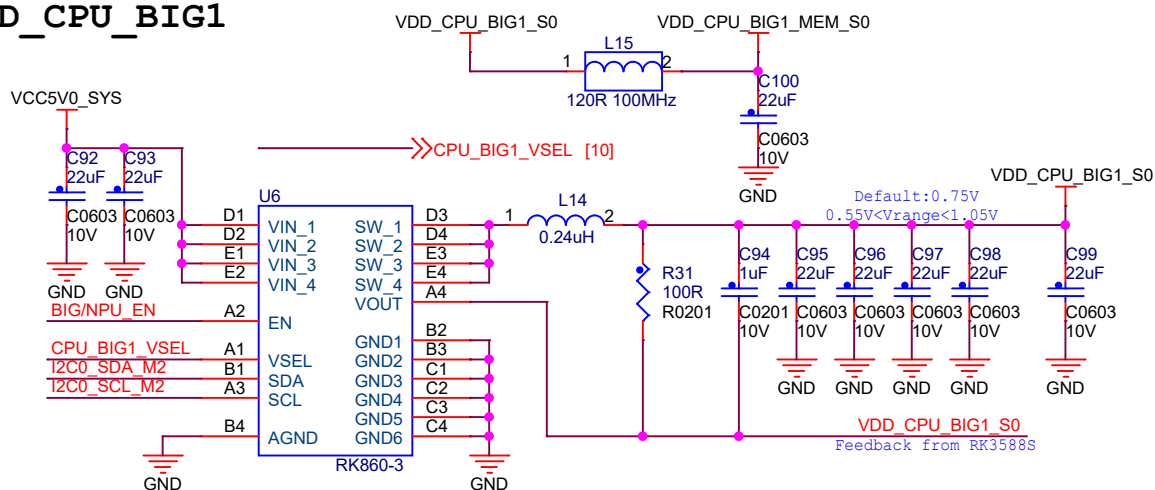
VDD_CPU_BIG0



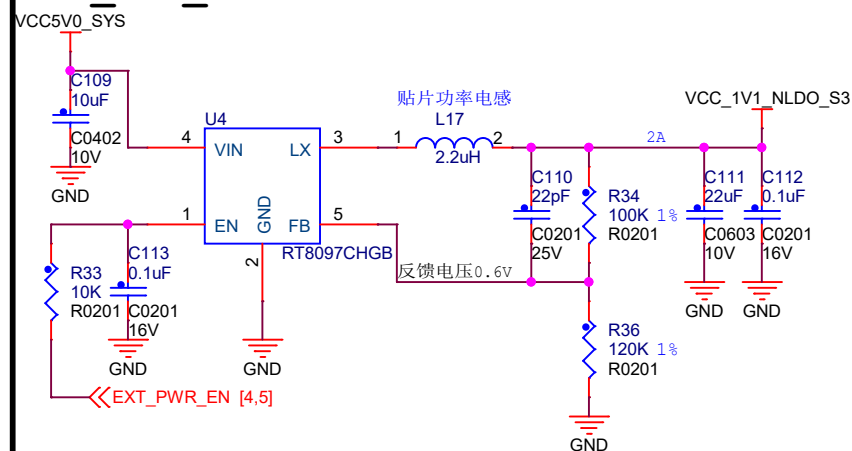
VCC_3V3_S0



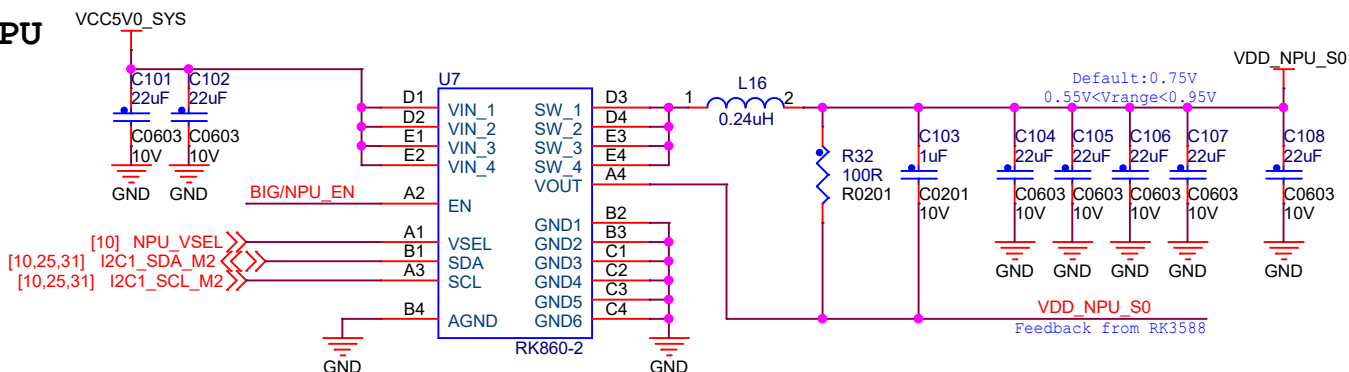
VDD_CPU_BIG1



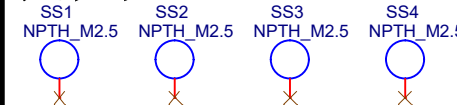
VCC_1V1_NLDO



VDD_NPU



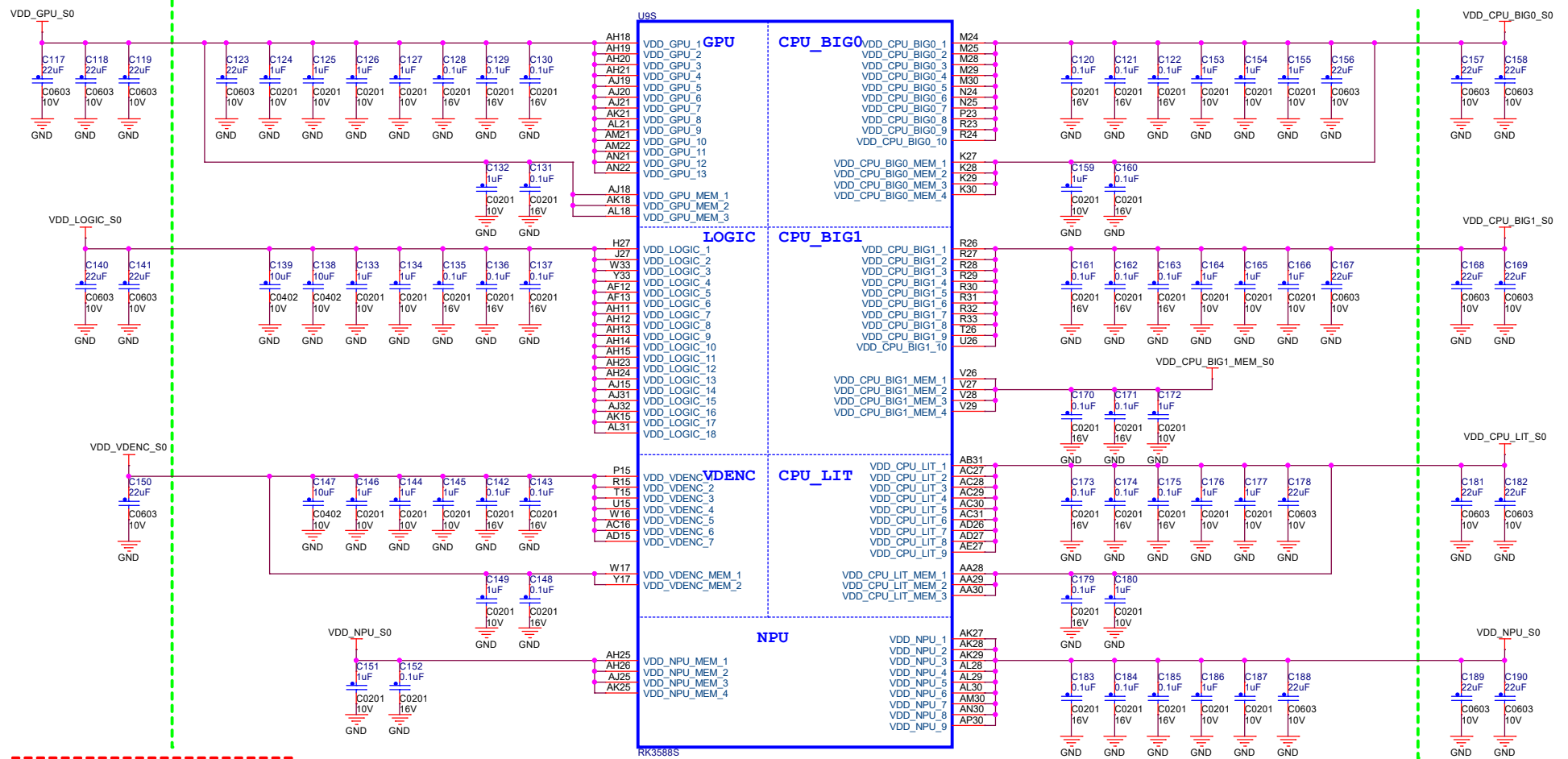
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| Title | | | 野火 EBF RK3588S LBC4 | | |
| Size | Document Number | | | | Rev |
| A4 | PMIC_2 | | | | V1.0 |
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RK3588S POWER



Note:
The Caps between green line and U9 should be placed under the U9 package. Other caps should be placed close to the U9 package

RK3588S GND

| U8T | | |
|-----|--------|---------|
| A1 | VSS_1 | VSS_51 |
| A2 | VSS_2 | D26 |
| A42 | VSS_3 | D30 |
| B3 | VSS_4 | D31 |
| B5 | VSS_5 | D32 |
| B8 | VSS_6 | VSS_55 |
| B10 | VSS_6 | VSS_56 |
| B11 | VSS_7 | VSS_57 |
| B14 | VSS_8 | VSS_58 |
| B17 | VSS_9 | VSS_59 |
| B19 | VSS_10 | VSS_60 |
| B21 | VSS_11 | VSS_61 |
| B23 | VSS_12 | VSS_62 |
| B26 | VSS_13 | VSS_63 |
| B27 | VSS_14 | VSS_64 |
| B29 | VSS_15 | VSS_65 |
| B31 | VSS_16 | VSS_66 |
| B34 | VSS_17 | VSS_67 |
| B35 | VSS_18 | VSS_68 |
| B36 | VSS_19 | VSS_69 |
| B38 | VSS_20 | VSS_70 |
| B40 | VSS_21 | VSS_71 |
| B42 | VSS_22 | VSS_72 |
| C1 | VSS_23 | VSS_73 |
| C2 | VSS_24 | VSS_74 |
| C6 | VSS_25 | VSS_75 |
| C7 | VSS_26 | VSS_76 |
| C9 | VSS_27 | VSS_77 |
| C11 | VSS_28 | VSS_78 |
| C12 | VSS_29 | VSS_79 |
| C14 | VSS_30 | VSS_80 |
| C15 | VSS_31 | VSS_81 |
| C18 | VSS_32 | VSS_82 |
| C19 | VSS_33 | VSS_83 |
| C20 | VSS_34 | VSS_84 |
| C22 | VSS_35 | VSS_85 |
| C24 | VSS_36 | VSS_86 |
| C26 | VSS_37 | VSS_87 |
| C28 | VSS_38 | VSS_88 |
| C30 | VSS_39 | VSS_89 |
| C35 | VSS_40 | VSS_90 |
| C37 | VSS_41 | VSS_91 |
| C39 | VSS_42 | VSS_92 |
| D3 | VSS_43 | VSS_93 |
| D4 | VSS_44 | VSS_94 |
| D7 | VSS_45 | VSS_95 |
| D11 | VSS_46 | VSS_96 |
| D14 | VSS_47 | VSS_97 |
| D15 | VSS_48 | VSS_98 |
| D18 | VSS_49 | VSS_99 |
| D19 | VSS_50 | VSS_100 |

GND

GND

| U8U | | |
|-----|---------|---------|
| G9 | VSS_101 | VSS_151 |
| G10 | VSS_102 | VSS_152 |
| G12 | VSS_103 | VSS_153 |
| G20 | VSS_104 | VSS_154 |
| G21 | VSS_105 | VSS_155 |
| G22 | VSS_106 | VSS_156 |
| G25 | VSS_107 | VSS_157 |
| G26 | VSS_108 | VSS_158 |
| G29 | VSS_109 | VSS_159 |
| H3 | VSS_110 | VSS_160 |
| H4 | VSS_111 | VSS_161 |
| H5 | VSS_112 | VSS_162 |
| H6 | VSS_113 | VSS_163 |
| H11 | VSS_114 | VSS_164 |
| H12 | VSS_115 | VSS_165 |
| H22 | VSS_116 | VSS_166 |
| H25 | VSS_117 | VSS_167 |
| H29 | VSS_118 | VSS_168 |
| J2 | VSS_119 | VSS_169 |
| J6 | VSS_120 | VSS_170 |
| J7 | VSS_121 | VSS_171 |
| J8 | VSS_122 | VSS_172 |
| J9 | VSS_123 | VSS_173 |
| J10 | VSS_124 | VSS_174 |
| J12 | VSS_125 | VSS_175 |
| J14 | VSS_126 | VSS_176 |
| J15 | VSS_127 | VSS_177 |
| J16 | VSS_128 | VSS_178 |
| J22 | VSS_129 | VSS_179 |
| J24 | VSS_130 | VSS_180 |
| J26 | VSS_131 | VSS_181 |
| J29 | VSS_132 | VSS_182 |
| J30 | VSS_133 | VSS_183 |
| J31 | VSS_134 | VSS_184 |
| K3 | VSS_135 | VSS_185 |
| K6 | VSS_136 | VSS_186 |
| K7 | VSS_137 | VSS_187 |
| K10 | VSS_138 | VSS_188 |
| K11 | VSS_139 | VSS_189 |
| K12 | VSS_140 | VSS_190 |
| K14 | VSS_141 | VSS_191 |
| K17 | VSS_142 | VSS_192 |
| K22 | VSS_143 | VSS_193 |
| K23 | VSS_144 | VSS_194 |
| K25 | VSS_145 | VSS_195 |
| K26 | VSS_146 | VSS_196 |
| K31 | VSS_147 | VSS_197 |
| K32 | VSS_148 | VSS_198 |
| K33 | VSS_149 | VSS_199 |
| L2 | VSS_150 | VSS_200 |

GND

GND

| U8V | | |
|-----|---------|---------|
| P19 | VSS_201 | VSS_251 |
| P25 | VSS_202 | VSS_252 |
| P26 | VSS_203 | VSS_253 |
| P27 | VSS_204 | VSS_254 |
| P28 | VSS_205 | VSS_255 |
| P29 | VSS_206 | VSS_256 |
| P30 | VSS_207 | VSS_257 |
| P31 | VSS_208 | VSS_258 |
| P32 | VSS_209 | VSS_259 |
| P33 | VSS_210 | VSS_260 |
| P34 | VSS_211 | VSS_261 |
| R3 | VSS_212 | VSS_262 |
| R4 | VSS_213 | VSS_263 |
| R8 | VSS_214 | VSS_264 |
| R16 | VSS_215 | VSS_265 |
| R20 | VSS_216 | VSS_266 |
| R21 | VSS_217 | VSS_267 |
| R25 | VSS_218 | VSS_268 |
| R35 | VSS_219 | VSS_269 |
| T2 | VSS_220 | VSS_270 |
| T3 | VSS_221 | VSS_271 |
| T4 | VSS_222 | VSS_272 |
| T7 | VSS_223 | VSS_273 |
| T16 | VSS_224 | VSS_274 |
| T17 | VSS_225 | VSS_275 |
| T18 | VSS_226 | VSS_276 |
| T20 | VSS_227 | VSS_277 |
| T21 | VSS_228 | VSS_278 |
| T24 | VSS_229 | VSS_279 |
| T25 | VSS_230 | VSS_280 |
| T35 | VSS_231 | VSS_281 |
| T36 | VSS_232 | VSS_282 |
| T37 | VSS_233 | VSS_283 |
| T38 | VSS_234 | VSS_284 |
| T39 | VSS_235 | VSS_285 |
| T40 | VSS_236 | VSS_286 |
| U6 | VSS_237 | VSS_287 |
| U7 | VSS_238 | VSS_288 |
| U8 | VSS_239 | VSS_289 |
| U16 | VSS_240 | VSS_290 |
| U17 | VSS_241 | VSS_291 |
| U18 | VSS_242 | VSS_292 |
| U20 | VSS_243 | VSS_293 |
| U21 | VSS_244 | VSS_294 |
| U22 | VSS_245 | VSS_295 |
| U23 | VSS_246 | VSS_296 |
| U24 | VSS_247 | VSS_297 |
| U25 | VSS_248 | VSS_298 |
| U39 | VSS_249 | VSS_299 |
| U40 | VSS_250 | VSS_300 |

GND

GND

| U8W | | |
|------|---------|---------|
| AA10 | VSS_301 | VSS_351 |
| AA11 | VSS_302 | VSS_352 |
| AA12 | VSS_303 | VSS_353 |
| AA19 | VSS_304 | VSS_354 |
| AA22 | VSS_305 | VSS_355 |
| AA23 | VSS_306 | VSS_356 |
| AA31 | VSS_307 | VSS_357 |
| AA37 | VSS_308 | VSS_358 |
| AA38 | VSS_309 | VSS_359 |
| AA39 | VSS_310 | VSS_360 |
| AA40 | VSS_311 | VSS_361 |
| AB2 | VSS_312 | VSS_362 |
| AB6 | VSS_313 | VSS_363 |
| AB9 | VSS_314 | VSS_364 |
| AB10 | VSS_315 | VSS_365 |
| AB11 | VSS_316 | VSS_366 |
| AB12 | VSS_317 | VSS_367 |
| AB19 | VSS_318 | VSS_368 |
| AB20 | VSS_319 | VSS_369 |
| AB21 | VSS_320 | VSS_370 |
| AB22 | VSS_321 | VSS_371 |
| AB23 | VSS_322 | VSS_372 |
| AB24 | VSS_323 | VSS_373 |
| AB32 | VSS_324 | VSS_374 |
| AB33 | VSS_325 | VSS_375 |
| AB34 | VSS_326 | VSS_376 |
| AB36 | VSS_327 | VSS_377 |
| AB37 | VSS_328 | VSS_378 |
| AB38 | VSS_329 | VSS_379 |
| AB39 | VSS_330 | VSS_380 |
| AB40 | VSS_331 | VSS_381 |
| AC3 | VSS_332 | VSS_382 |
| AC4 | VSS_333 | VSS_383 |
| AC5 | VSS_334 | VSS_384 |
| AC6 | VSS_335 | VSS_385 |
| AC17 | VSS_336 | VSS_386 |
| AC18 | VSS_337 | VSS_387 |
| AC22 | VSS_338 | VSS_388 |
| AC23 | VSS_339 | VSS_389 |
| AC24 | VSS_340 | VSS_390 |
| AC25 | VSS_341 | VSS_391 |
| AC26 | VSS_342 | VSS_392 |
| AC41 | VSS_343 | VSS_393 |
| AD2 | VSS_344 | VSS_394 |
| AD3 | VSS_345 | VSS_395 |
| AD5 | VSS_346 | VSS_396 |
| AD6 | VSS_347 | VSS_397 |
| AD8 | VSS_348 | VSS_398 |
| AD9 | VSS_349 | VSS_399 |
| AD10 | VSS_350 | VSS_400 |

GND

GND

| U9X | | |
|------|---------|---------|
| AF34 | VSS_401 | VSS_451 |
| AF37 | VSS_402 | VSS_452 |
| AF38 | VSS_403 | VSS_453 |
| AF39 | VSS_404 | VSS_454 |
| AF40 | VSS_405 | VSS_455 |
| AG3 | VSS_406 | VSS_456 |
| AG3 | VSS_407 | VSS_457 |
| AG4 | VSS_408 | VSS_458 |
| AG5 | VSS_409 | VSS_459 |
| AG6 | VSS_410 | VSS_460 |
| AG7 | VSS_411 | VSS_461 |
| AG8 | VSS_412 | VSS_462 |
| AG15 | VSS_413 | VSS_463 |
| AG16 | VSS_414 | VSS_464 |
| AG17 | VSS_415 | VSS_465 |
| AG18 | VSS_416 | VSS_466 |
| AG19 | VSS_417 | VSS_467 |
| AG20 | VSS_418 | VSS_468 |
| AG21 | VSS_419 | VSS_469 |
| AG22 | VSS_420 | VSS_470 |
| AG23 | VSS_421 | VSS_471 |
| AG24 | VSS_422 | VSS_472 |
| AG25 | VSS_423 | VSS_473 |
| AG28 | VSS_424 | VSS_474 |
| AG29 | VSS_425 | VSS_475 |
| AG31 | VSS_426 | VSS_476 |
| AG32 | VSS_427 | VSS_477 |
| AG33 | VSS_428 | VSS_478 |
| AG34 | VSS_429 | VSS_479 |
| AG35 | VSS_430 | VSS_480 |
| AG40 | VSS_431 | VSS_481 |
| AH2 | VSS_432 | VSS_482 |
| AH3 | VSS_433 | VSS_483 |
| AH4 | VSS_434 | VSS_484 |
| AH5 | VSS_435 | VSS_485 |
| AH7 | VSS_436 | VSS_486 |
| AH8 | VSS_437 | VSS_487 |
| AH9 | VSS_438 | VSS_488 |
| AH10 | VSS_439 | VSS_489 |
| AH16 | VSS_440 | VSS_490 |
| AH17 | VSS_441 | VSS_491 |
| AH28 | VSS_442 | VSS_492 |
| AH29 | VSS_443 | VSS_493 |
| AH36 | VSS_444 | VSS_494 |
| AJ5 | VSS_445 | VSS_495 |
| AJ7 | VSS_446 | VSS_496 |
| AJ8 | VSS_447 | VSS_497 |
| AJ9 | VSS_448 | VSS_498 |
| AJ10 | VSS_449 | VSS_499 |
| AJ11 | VSS_450 | VSS_500 |

GND

GND

| U9Y | | |
|------|---------|---------|
| AN40 | VSS_501 | AVSS_11 |
| AP2 | VSS_502 | AVSS_12 |
| AP5 | VSS_503 | AVSS_13 |
| AP6 | VSS_504 | AVSS_14 |
| AP25 | VSS_505 | AVSS_15 |
| AP27 | VSS_506 | AVSS_16 |
| AP33 | VSS_507 | AVSS_17 |
| AP34 | VSS_508 | AVSS_18 |
| AP35 | VSS_509 | AVSS_19 |
| AP37 | VSS_510 | AVSS_20 |
| AP38 | VSS_511 | AVSS_21 |
| AP39 | VSS_512 | AVSS_22 |
| AP40 | VSS_513 | AVSS_23 |
| AR3 | VSS_514 | AVSS_24 |
| AR4 | VSS_515 | AVSS_25 |
| AR40 | VSS_516 | AVSS_26 |
| AR41 | VSS_517 | AVSS_27 |
| AT2 | VSS_518 | AVSS_28 |
| AT5 | VSS_519 | AVSS_29 |
| AT6 | VSS_520 | AVSS_30 |
| AT36 | VSS_521 | AVSS_31 |
| AU2 | VSS_522 | AVSS_32 |
| AU3 | VSS_523 | AVSS_33 |
| AU4 | VSS_524 | AVSS_34 |
| AU35 | VSS_525 | AVSS_35 |
| AU38 | VSS_526 | AVSS_36 |
| AU39 | VSS_527 | AVSS_37 |
| AU40 | VSS_528 | AVSS_38 |
| AV5 | VSS_529 | AVSS_39 |
| AV36 | VSS_530 | AVSS_40 |
| AV41 | VSS_531 | AVSS_41 |
| AW3 | VSS_532 | AVSS_42 |
| AW4 | VSS_533 | AVSS_43 |
| E41 | AVSS_1 | AVSS_44 |
| E40 | AVSS_2 | AVSS_45 |
| F40 | AVSS_3 | AVSS_46 |
| G36 | AVSS_4 | AVSS_47 |
| G41 | AVSS_5 | AVSS_48 |
| H37 | AVSS_6 | AVSS_49 |
| H40 | AVSS_7 | AVSS_50 |
| J38 | AVSS_8 | AVSS_51 |
| J39 | AVSS_9 | AVSS_52 |
| J40 | AVSS_10 | AVSS_53 |

GND

GND

| U8Z | | |
|------|---------|----------|
| AT22 | AVSS_54 | AVSS_94 |
| AT23 | AVSS_55 | AVSS_95 |
| AT29 | AVSS_56 | AVSS_96 |
| AU8 | AVSS_57 | AVSS_97 |
| AU16 | AVSS_58 | AVSS_98 |
| AU18 | AVSS_59 | AVSS_99 |
| AU19 | AVSS_60 | AVSS_100 |
| AU21 | AVSS_61 | AVSS_101 |
| AU24 | AVSS_62 | AVSS_102 |
| AU25 | AVSS_63 | AVSS_103 |
| AU27 | AVSS_64 | AVSS_104 |
| AU28 | AVSS_65 | AVSS_105 |
| AU29 | AVSS_66 | AVSS_106 |
| AU31 | AVSS_67 | AVSS_107 |
| AV8 | AVSS_68 | AVSS_108 |
| AV9 | AVSS_69 | AVSS_109 |
| AV12 | AVSS_70 | AVSS_110 |
| AV14 | AVSS_71 | AVSS_111 |
| AV15 | AVSS_72 | AVSS_112 |
| AV16 | AVSS_73 | AVSS_113 |
| AV21 | AVSS_74 | AVSS_114 |
| AV25 | AVSS_75 | AVSS_115 |
| AV29 | AVSS_76 | AVSS_116 |
| AV32 | AVSS_77 | AVSS_117 |
| AV33 | AVSS_78 | AVSS_118 |
| AW8 | AVSS_79 | AVSS_119 |
| AW9 | AVSS_80 | AVSS_120 |
| AW12 | AVSS_81 | AVSS_121 |
| AW14 | AVSS_82 | AVSS_122 |
| AW16 | AVSS_83 | AVSS_123 |
| AW17 | AVSS_84 | AVSS_124 |
| AW21 | AVSS_85 | AVSS_125 |
| AW25 | AVSS_86 | AVSS_126 |
| AW28 | AVSS_87 | AVSS_127 |
| AW29 | AVSS_88 | AVSS_128 |
| AW32 | AVSS_89 | AVSS_129 |
| AW33 | AVSS_90 | |
| AW36 | AVSS_91 | |
| AW40 | AVSS_92 | |
| AY2 | AVSS_93 | |

GND

GND

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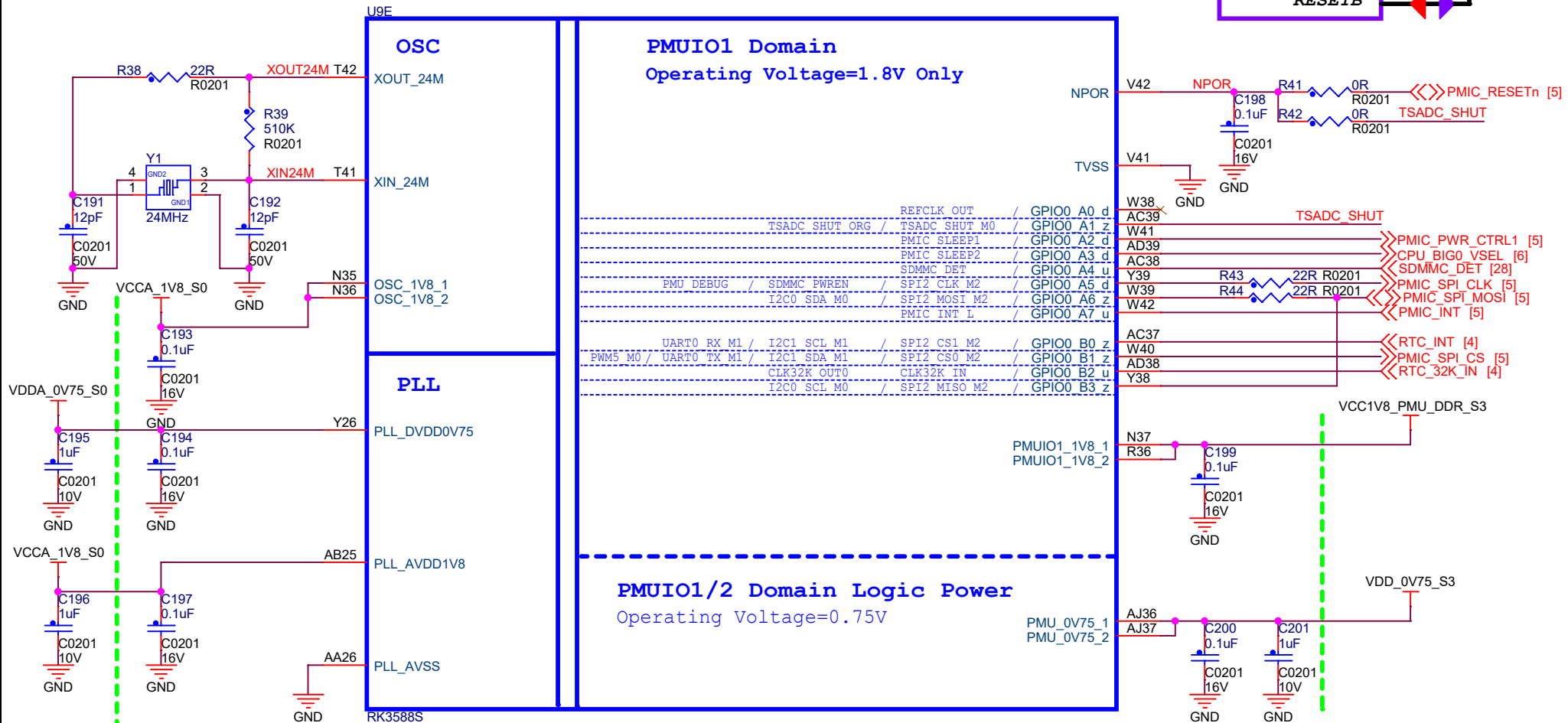
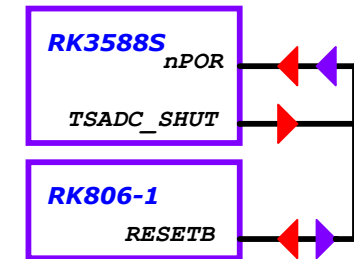
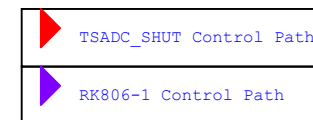
Title 野火 EBF RK3588S LBC4

| | | |
|---------|-----------------------------|----------|
| Size A3 | Document Number RK3588S GND | Rev V1.0 |
|---------|-----------------------------|----------|

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RK3588S OSC/PLL/PMUIO1

Note:



Note:

The Caps between green line and U9 should be placed under the U9 package. Other caps should be placed close to the U9 package

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Title
野火 EBF RK3588S LBC4

| | | |
|------------|---|-------------|
| Size A4 | Document Number RK3588S OSC/PLL/PMUIO1 | Rev V1.0 |
|------------|---|-------------|

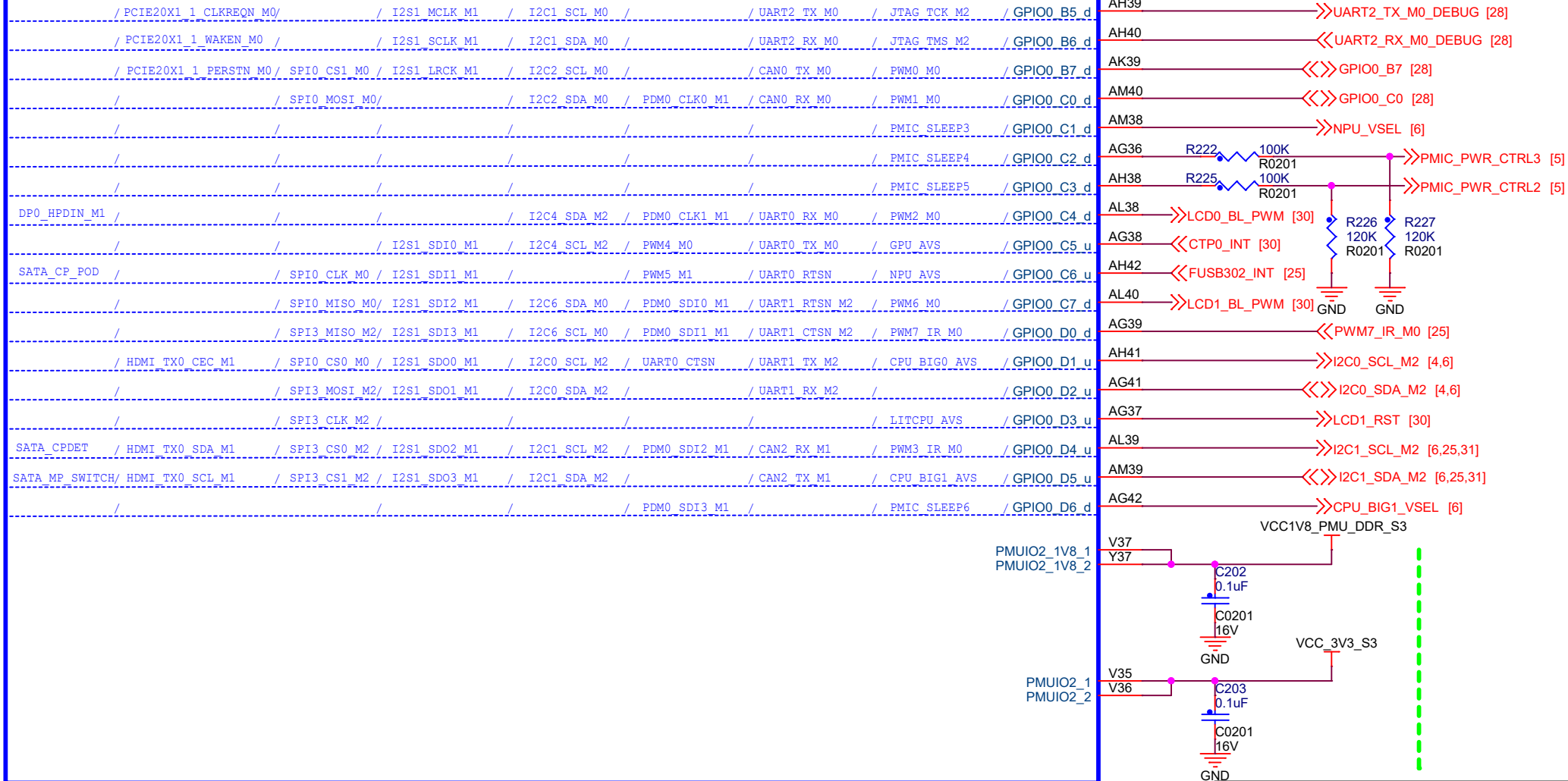
| | |
|--------------------------------|---------------|
| Date: Friday, October 25, 2024 | Sheet 9 of 31 |
|--------------------------------|---------------|

RK3588S PMUIO2

U9F

PMUIO2 Domain

Operating Voltage=1.8V/3.3V



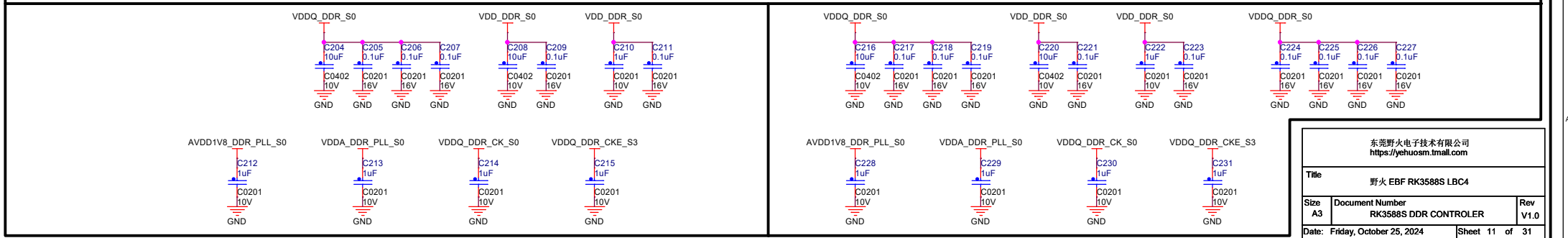
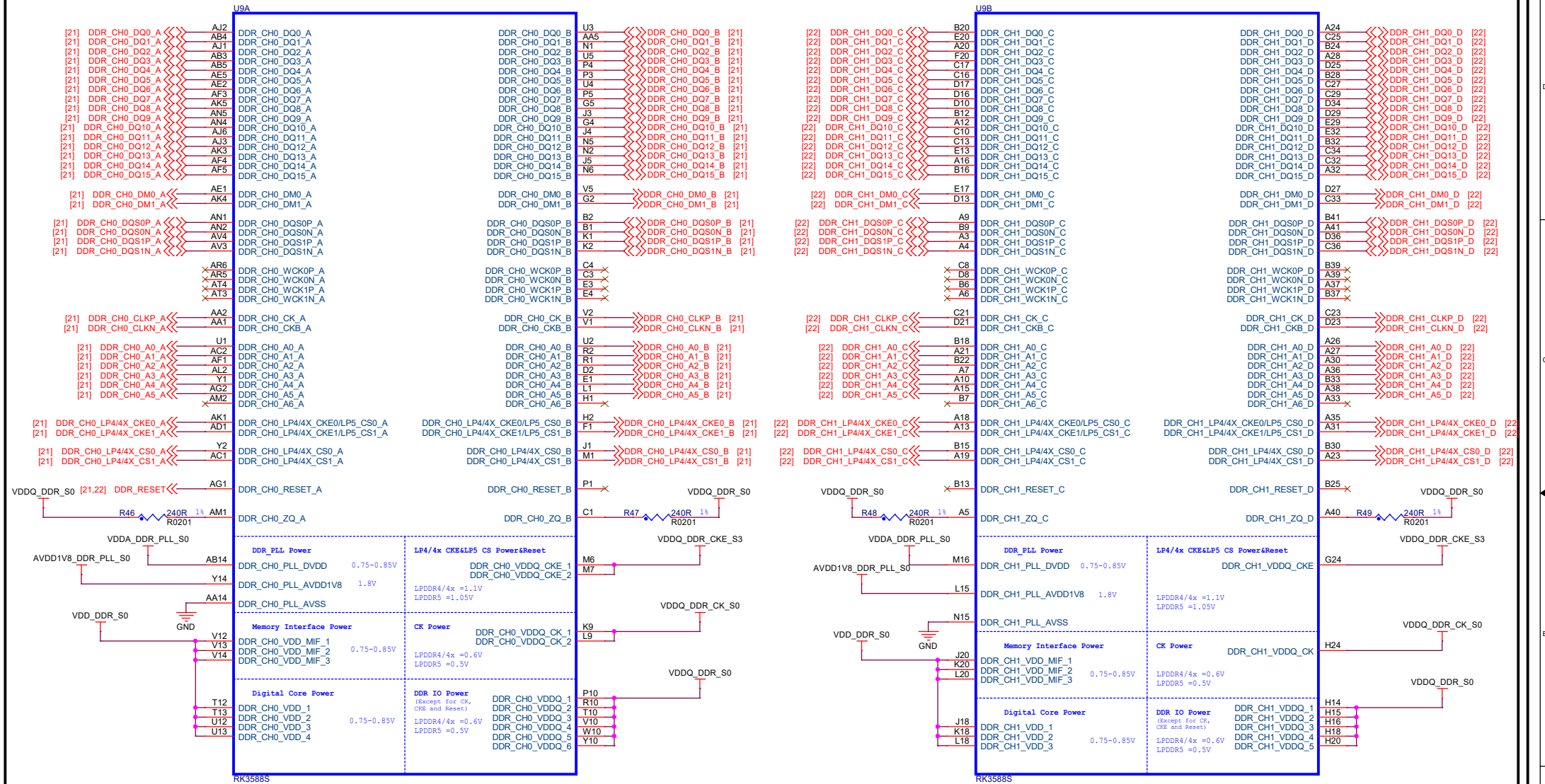
RK3588S

Note:
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| | | |
|--------------------------------|-----------------------------------|----------------|
| Title 野火 EBF RK3588S LBC4 | | |
| Size A4 | Document Number RK3588S PMUIO2 | Rev V1.0 |
| Date: Friday, October 25, 2024 | | Sheet 10 of 31 |

RK3588S DDR CONTROLLER



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Title: 野火 EBF RK3588S LBC4

Size: A3 | Document Number: RK3588S DDR CONTROLLER | Rev: V1.0

Date: Friday, October 25, 2024 | Sheet 11 of 31

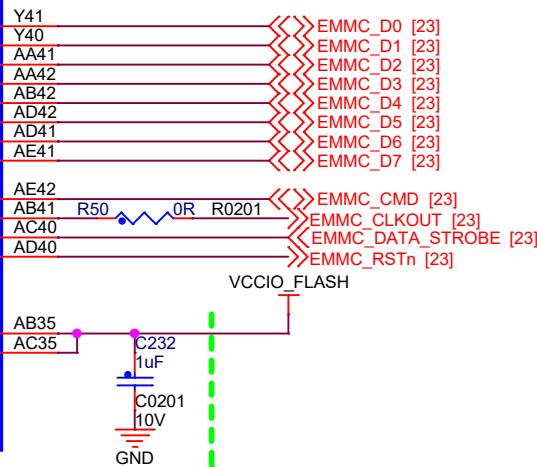
RK3588S EMMCIO

U9C

EMMCIO Domain

Operating Voltage=1.8V Only

| | | |
|---------------------|--------------------|--------------|
| FSPI_D0_M0 | / EMMC_D0 | / GPIO2_D0_u |
| FSPI_D1_M0 | / EMMC_D1 | / GPIO2_D1_u |
| FSPI_D2_M0 | / EMMC_D2 | / GPIO2_D2_u |
| FSPI_D3_M0 | / EMMC_D3 | / GPIO2_D3_u |
| FSPI_D4_M0 | / EMMC_D4 | / GPIO2_D4_u |
| FSPI_D5_M0 | / EMMC_D5 | / GPIO2_D5_u |
| FSPI_D6_M0 | / EMMC_D6 | / GPIO2_D6_u |
| FSPI_D7_M0 | / EMMC_D7 | / GPIO2_D7_u |
| FSPI_CLK_M0 | / EMMC_CMD | / GPIO2_A0_u |
| FSPI_CLKOUT_M0 | / EMMC_CLKOUT | / GPIO2_A1_d |
| FSPI_DATA_STROBE_M0 | / EMMC_DATA_STROBE | / GPIO2_A2_d |
| FSPI_RSTN_M0 | / EMMC_RSTN | / GPIO2_A3_d |



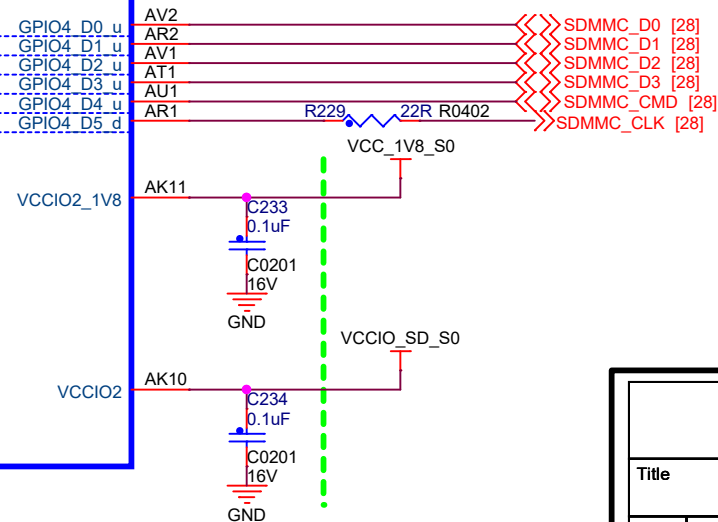
RK3588S VCCIO2

U9D

VCCIO2 Domain

Operating Voltage=1.8V/3.3V

| | | | | | | |
|----------------|---------------|----------------|-------------------|-----------------|-------------|--------------|
| PWM8_M1 | / I2C3_SCL_M4 | / PDM1_SDI3_M0 | / JTAG_TCK_M1 | / UART2_TX_M1 | / SDMMC_D0 | / GPIO4_D0_u |
| PWM9_M1 | / I2C3_SDA_M4 | / PDM1_SDI2_M0 | / JTAG_TMS_M1 | / UART2_RX_M1 | / SDMMC_D1 | / GPIO4_D1_u |
| PWM10_M1 | / I2C8_SCL_M0 | / PDM1_SDI1_M0 | / JTAG_TCK_M0 | / UART5_CTSN_M0 | / SDMMC_D2 | / GPIO4_D2_u |
| PWM10_M1 | / I2C8_SDA_M0 | / PDM1_SDI0_M0 | / JTAG_TMS_M0 | / UART5_RTSN_M0 | / SDMMC_D3 | / GPIO4_D3_u |
| PWM7_IR_M1 | / CAN0_TX_M1 | / PDM1_CLK1_M0 | / MCU_JTAG_TCK_M0 | / UART5_RX_M0 | / SDMMC_CMD | / GPIO4_D4_u |
| TEST_CLKOUT_M0 | / CAN0_RX_M1 | / PDM1_CLK0_M0 | / MCU_JTAG_TMS_M0 | / UART5_TX_M0 | / SDMMC_CLK | / GPIO4_D5_d |



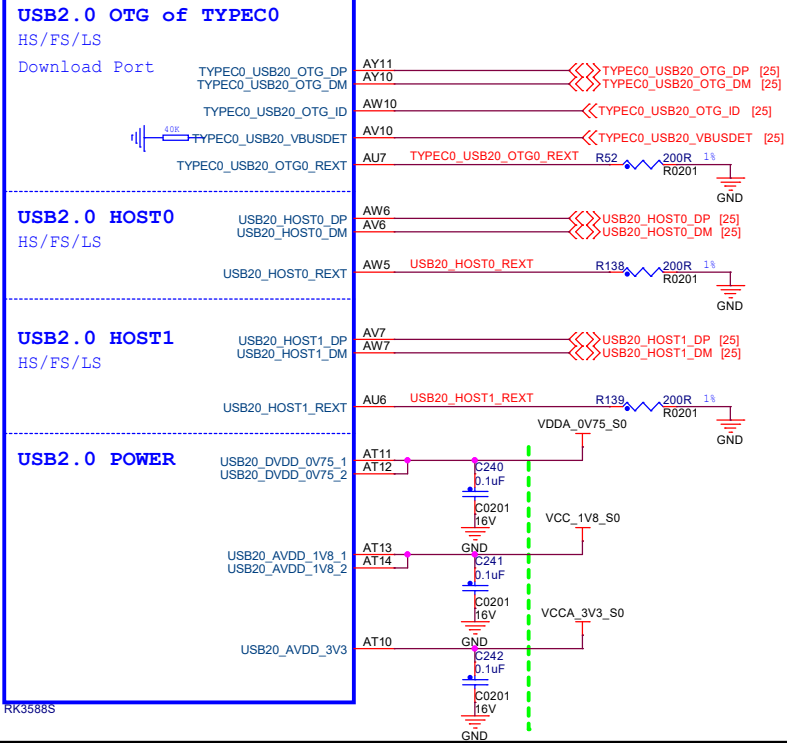
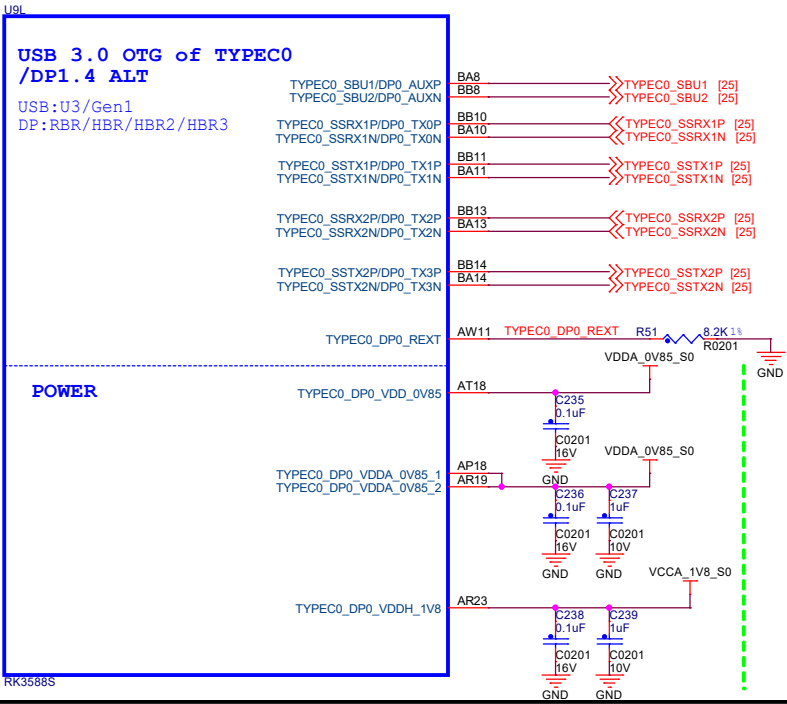
Note:

The Caps between green line and U9 should be placed under the U9 package. Other caps should be placed close to the U9 package

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| | | |
|--------------------------------|--|----------------|
| Title 野火 EBF RK3588S LBC4 | | |
| Size A4 | Document Number RK3588S EMMCIO/VCCIO2 | Rev V1.0 |
| Date: Friday, October 25, 2024 | | Sheet 12 of 31 |

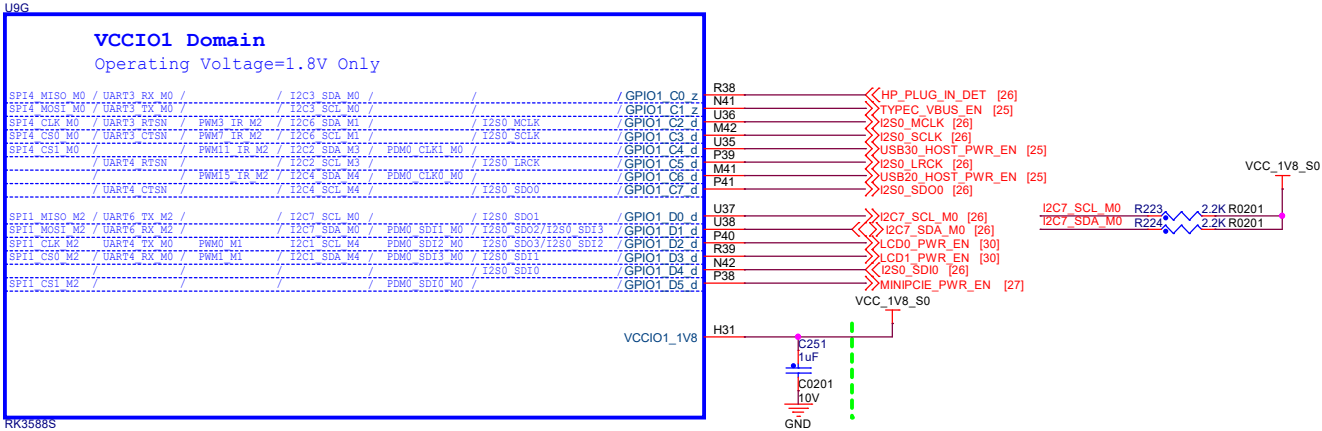
RK3588S USB CONTROLLER



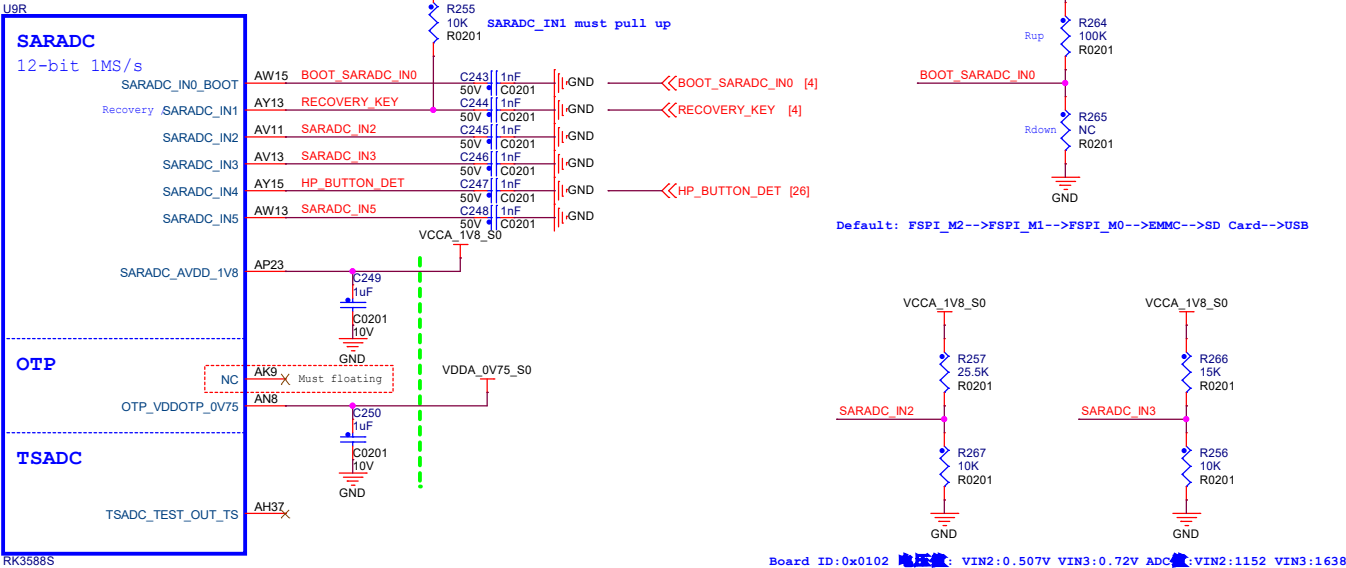
Note:
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|---|--|----------------|
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| Title 野火 EBF RK3588S LBC4 | | |
| Size A3 | Document Number RK3588S USB CONTROLLER | Rev V1.0 |
| Date: Friday, October 25, 2024 | | Sheet 13 of 31 |

RK3588S VCCIO1

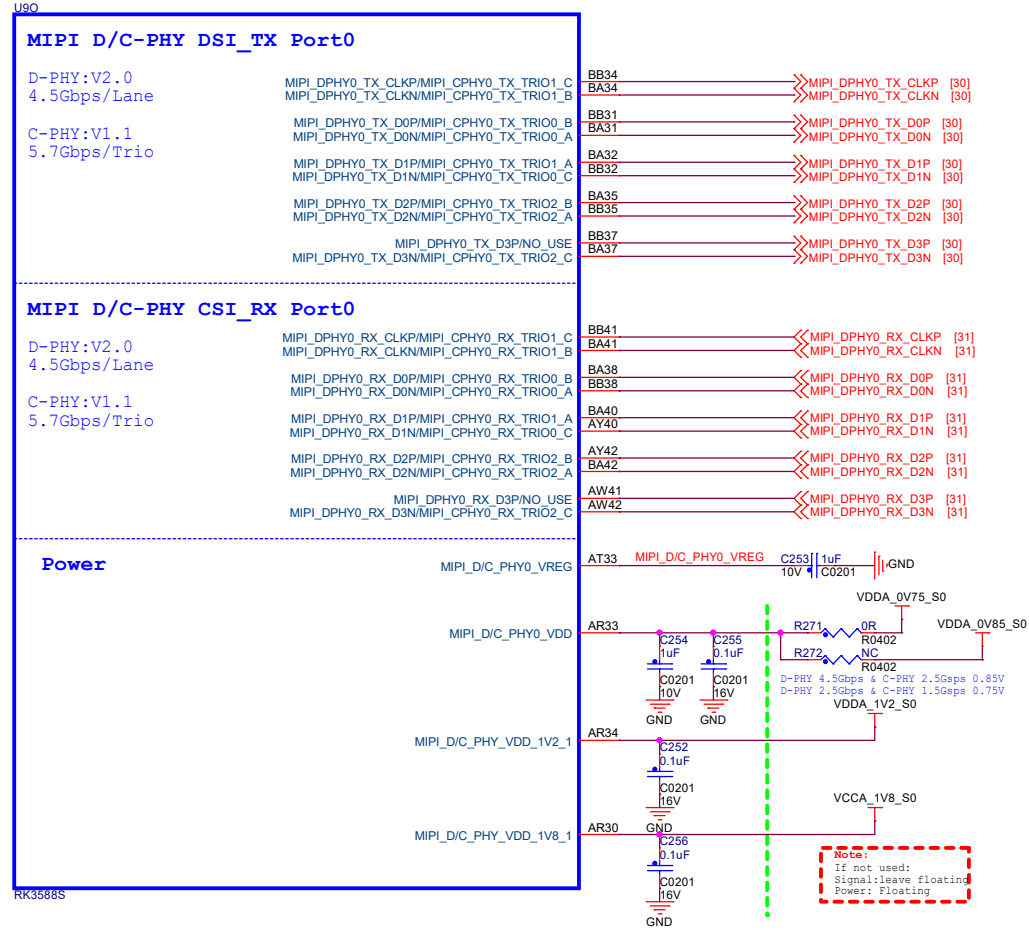


RK3588S SARADC



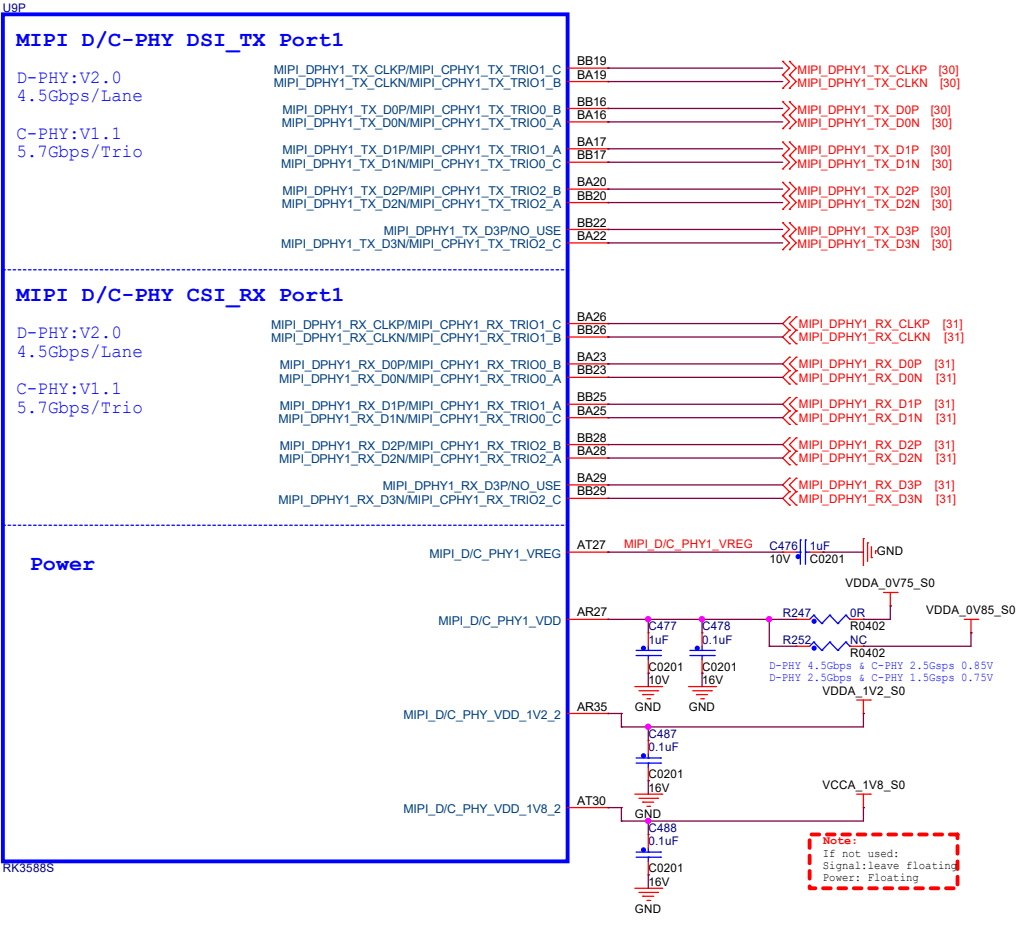
| BOOT MODE CONFIG | | | | | |
|------------------|------|-------|------|------|--|
| Item | Rup | Rdown | ADC | VOL | BOOT MODE |
| LEVEL1 | DNP | 100K | 0 | 0V | USB (Maskrom mode) |
| LEVEL2 | 100K | 20K | 682 | 0.3V | SD Card-USB |
| LEVEL3 | 100K | 51K | 1365 | 0.6V | EMMC-USB |
| LEVEL4 | 100K | 100K | 2047 | 0.9V | FSPI M0-USB |
| LEVEL5 | 100K | 200K | 2730 | 1.2V | FSPI M1-USB |
| LEVEL6 | 100K | 499K | 3412 | 1.5V | FSPI M2-USB |
| LEVEL7 | 100K | DNP | 4095 | 1.8V | FSPI_M2-FSPI_M1-FSPI_M0-EMMC-SD Card-USB |

RK3588S MIPI_D/C PHY0



Note:
The Caps between green line and U9 should be placed under the U9 package.Other caps should be placed close to the U9 package

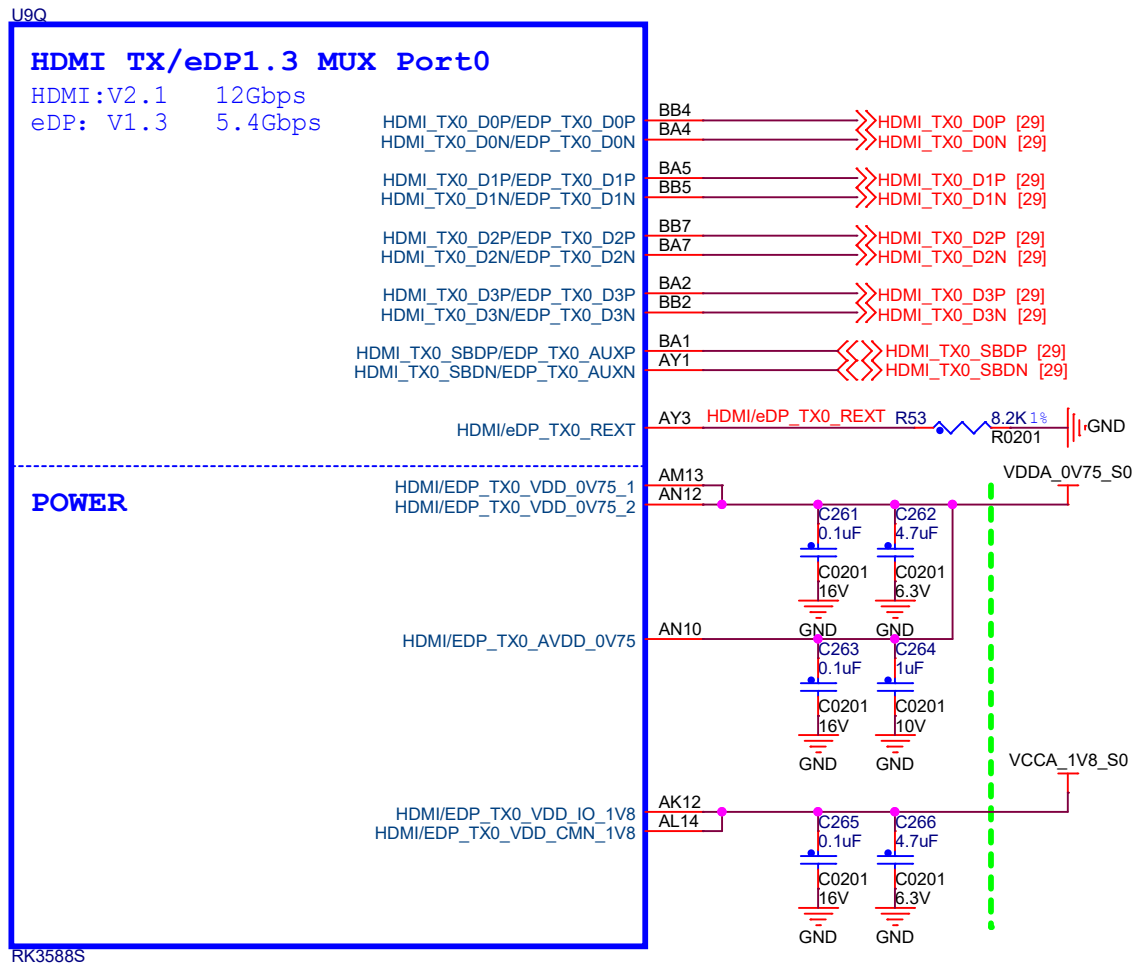
RK3588S MIPI_D/C PHY1



Note:
The Caps between green line and U9 should be placed under the U9 package.Other caps should be placed close to the U9 package

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| Title 野火 EBF RK3588S LBC4 | | |
| Size A3 | Document Number RK3588S MIPI_D/C_PHY0/1 | Rev V1.0 |
| Date: Friday, October 25, 2024 | | Sheet 15 of 31 |

RK3588S HDMI2.1 TX/eDP1.3 TX

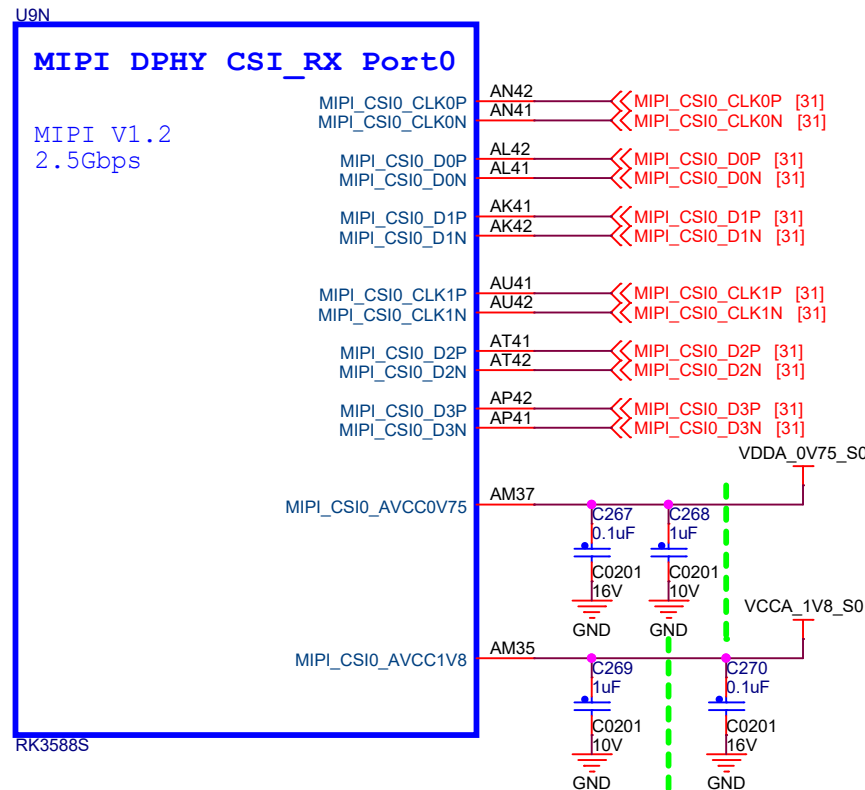


RK3588S

Note:

The Caps between green line and U9 should be placed under the U9 package. Other caps should be placed close to the U9 package

RK3588S MIPI_DPHY CSI0 RX



RK3588S

MIPI CSI RX Configuration

| | | |
|---------|---------------------------------------|--------------------------------------|
| Option1 | Sensor1 x4Lane | MIPI_CSI_RX_D0-3 MIPI_CSI_RX_CLK0 |
| Option2 | Sensor1 x2Lane + Sensor2 x2Lane | MIPI_CSI_RX_D0-1 MIPI_CSI_RX_CLK0 |
| | | MIPI_CSI_RX_D2-3 MIPI_CSI_RX_CLK1 |

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Title 野火 EBF RK3588S LBC4

Size A4 Document Number RK3588S MIPI CSI/HDMI2.1 TX Rev V1.0

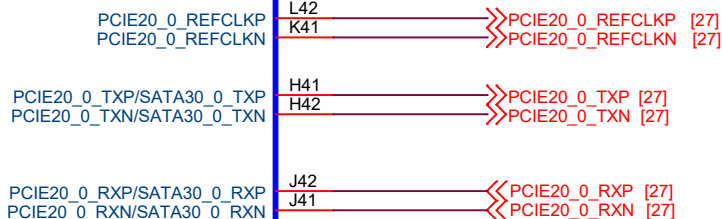
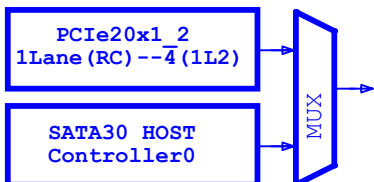
Date: Friday, October 25, 2024 Sheet 16 of 31

RK3588S PCIe20/SATA30/USB30

U9M

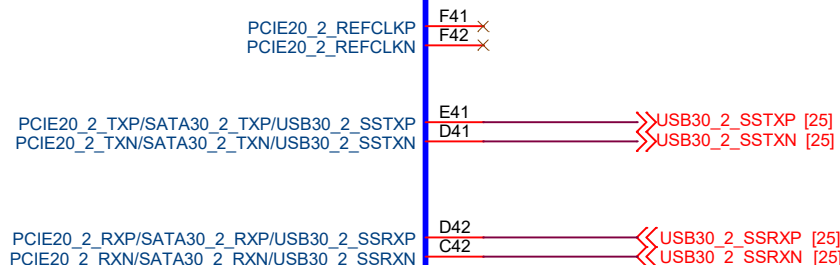
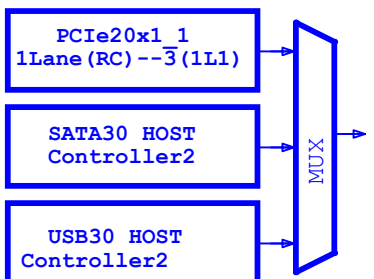
PCIe20/SATA30 Mux0

PCIe20:Gen1/Gen2
SATA30:Gen1/Gen2/Gen3

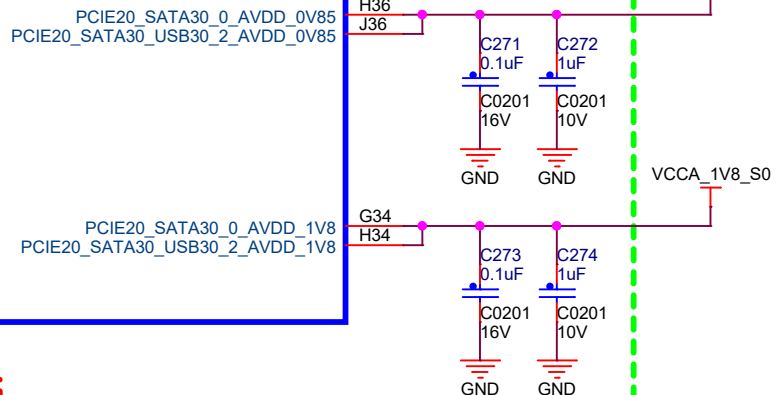


PCIe20/SATA30/USB30 HOST Mux2

PCIe20:Gen1/Gen2
SATA30:Gen1/Gen2/Gen3
USB 30:Gen1



Power



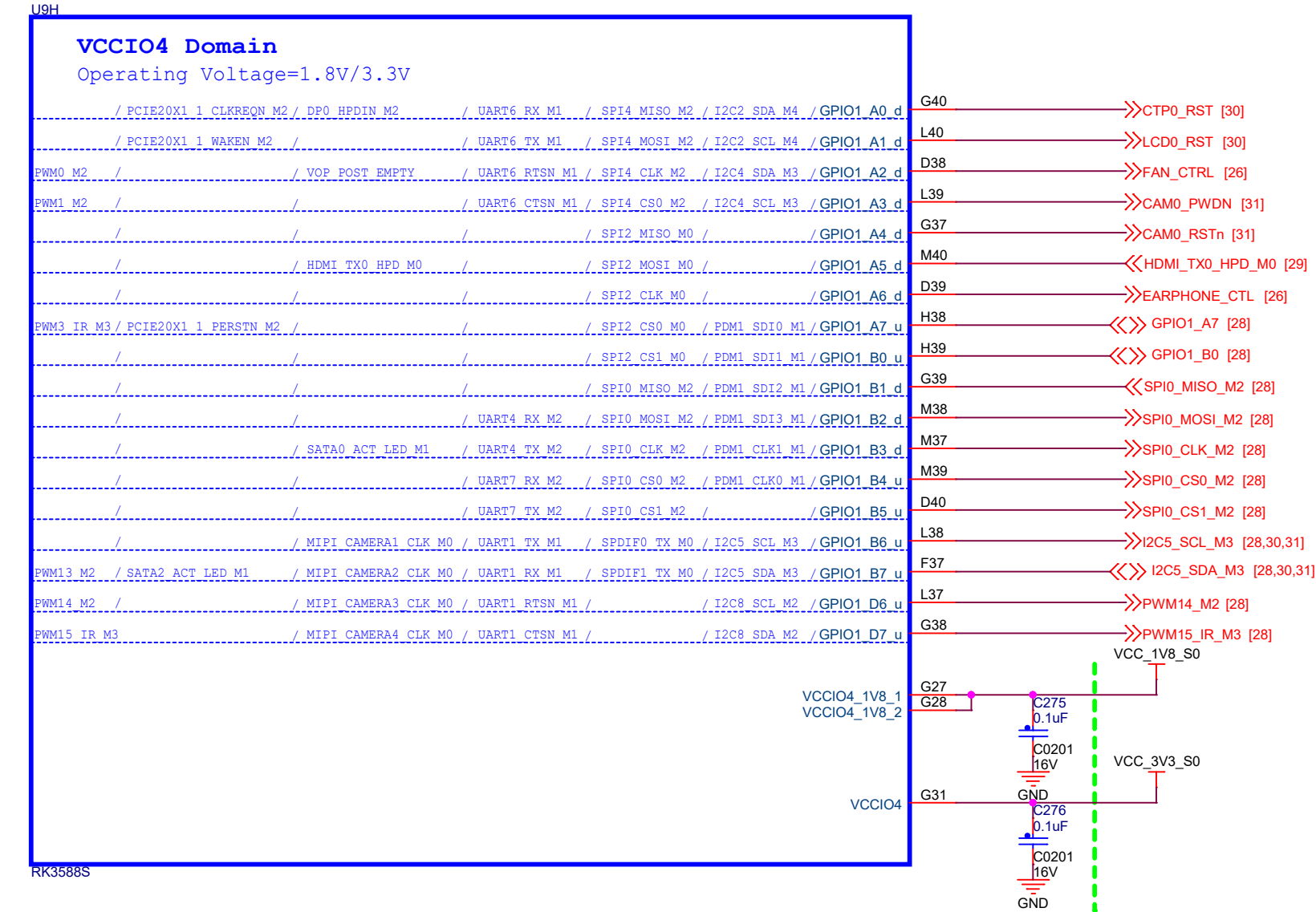
RK3588S

Note:
The Caps between green line and U9 should be placed under the U9 package. Other caps should be placed close to the U9 package

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|--------------------------------|---|-------------|
| Title 野火 EBF RK3588S LBC4 | | |
| Size A4 | Document Number RK3588SPCIE20/SATA30/USB30 | Rev V1.0 |
| Date: Friday, October 25, 2024 | Sheet 17 of 31 | |

RK3588S VCCIO4



Note:
The Caps between green line and U9 should be placed under the U9 package. Other caps should be placed close to the U9 package

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| Title 野火 EBF RK3588S LBC4 | | |
| Size A4 | Document Number RK3588S VCCIO4 | Rev V1.0 |
| Date: Friday, October 25, 2024 | | Sheet 18 of 31 |

RK3588S VCCIO5

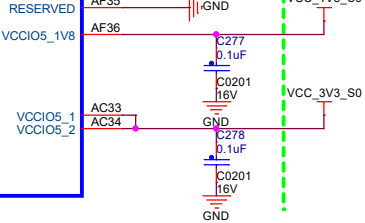
U9I

VCCIO5 Domain
Operating Voltage=1.8V/3.3V

| | | | | | | | | | |
|------------|-----------------|----------------|---------------|--------------------|-------------------|-----------------------|---------------|--------------|--------------|
| / PWM10 M0 | / SPI4 MISO M1 | / I2C6 SDA M4 | / GMAC1 TXD2 | / I2S3 MCLK | / FSPI D0 M2 | / SDIO D0 M1 | / GPIO3_A0 u | | |
| AUDDSM_LN | / PWM11 IR M0 | / SPI4 MOSI M1 | / I2C6 SCL M4 | / GMAC1 TXD3 | / I2S3 SCLK | / FSPI D1 M2 | / SDIO D1 M1 | / GPIO3_A1 u | |
| AUDDSM_LP | / UART8 TX M1 | / SPI4 CLK M1 | / | / GMAC1 RXD2 | / I2S3 LRCK | / FSPI D2 M2 | / SDIO D2 M1 | / GPIO3_A2 u | |
| AUDDSM_RN | / UART8 RX M1 | / SPI4 CS0 M1 | / | / GMAC1 RXD3 | / I2S3 SDO | / FSPI D3 M2 | / SDIO D3 M1 | / GPIO3_A3 u | |
| AUDDSM_RP | / UART8 RTSN M1 | / SPI4 CS1 M1 | / | / GMAC1 TXCLK | / I2S3 SDI | / | / SDIO CMD M1 | / GPIO3_A4 d | |
| / | / UART8 CTSN M1 | / | / I2C4 SDA M0 | / GMAC1 RXCLK | / FSPI CLK M2 | / MIPI_CAMERA0_CLK M1 | / SDIO CLK M1 | / GPIO3_A5 d | |
| / | / | / | / I2C4 SCL M0 | / ETH1_REFCLK0_25M | / | / MIPI_CAMERA1_CLK M1 | / | / GPIO3_A6 d | |
| / | / | / | / | / GMAC1 RXD0 | / | / MIPI_CAMERA2_CLK M1 | / PWM8 M0 | / GPIO3_A7 u | |
| / | / | / | / | / GMAC1 RXD1 | / | / MIPI_CAMERA3_CLK M1 | / PWM9 M0 | / GPIO3_B0 u | |
| / | / | / | / | / GMAC1 RXDV_CRS | / | / MIPI_CAMERA4_CLK M1 | / PWM2 M1 | / GPIO3_B1 d | |
| / | / | / | / | / GMAC1 TXER | / I2S2 SDI M1 | / | / PWM3 IR M1 | / GPIO3_B2 d | |
| / | / | / | / | / GMAC1 TXD0 | / I2S2 SDO M1 | / | / | / GPIO3_B3 u | |
| / | / | / | / | / GMAC1 TXD1 | / I2S2 MCLK M1 | / | / | / GPIO3_B4 u | |
| / | / | / | / | / GMAC1 TXEN | / I2S2 SCLK M1 | / | / PWM12 M0 | / GPIO3_B5 u | |
| / | / | / | / | / CAN1 TX M0 | / GMAC1_MCLKINOUT | / I2S2_LRCK M1 | / | / PWM13 M0 | / GPIO3_B6 d |
| / | / | / | / | / SPI1 MOSI M1 | / I2C3 SCL M1 | / GMAC1_PTP_REF_CLK | / | / | / GPIO3_B7 d |
| / | / | / | / | / | / | / | / | / | / GPIO3_C0 d |
| / | / | / | / | / | / | / | / | / | / GPIO3_C1 d |
| / | / | / | / | / | / | / | / | / | / GPIO3_C2 d |
| / | / | / | / | / | / | / | / | / | / GPIO3_C3 d |
| / | / | / | / | / | / | / | / | / | / GPIO3_C4 u |
| / | / | / | / | / | / | / | / | / | / GPIO3_C5 u |
| / | / | / | / | / | / | / | / | / | / GPIO3_C6 u |
| / | / | / | / | / | / | / | / | / | / GPIO3_C7 u |
| / | / | / | / | / | / | / | / | / | / GPIO3_D0 u |
| / | / | / | / | / | / | / | / | / | / GPIO3_D1 d |
| / | / | / | / | / | / | / | / | / | / GPIO3_D2 d |
| / | / | / | / | / | / | / | / | / | / GPIO3_D3 d |
| / | / | / | / | / | / | / | / | / | / GPIO3_D4 d |
| / | / | / | / | / | / | / | / | / | / GPIO3_D5 d |

| | | | | | |
|------|----------------|------|----|-------|-------------------------------|
| AR38 | MAC1_TXD2 | R107 | 0R | R0201 | >>>GMAC1_TXD2 [24] |
| AR37 | MAC1_TXD3 | R108 | 0R | R0201 | >>>GMAC1_TXD3 [24] |
| AT38 | | | | | >>>GMAC1_RXD2 [24] |
| AT40 | | | | | >>>GMAC1_RXD3 [24] |
| AT39 | MAC1_TXCLK | R111 | 0R | R0201 | >>>GMAC1_TXCLK [24] |
| AV38 | | | | | >>>GMAC1_RXCLK [24] |
| AV37 | | | | | >>>GPIO3_A6 [28.31] |
| AT37 | | | | | >>>GMAC1_RXD0 [24] |
| AR39 | | | | | >>>GMAC1_RXD1 [24] |
| AV39 | | | | | >>>GMAC1_RXDV_CRS [24] |
| AW34 | | | | | >>>GMAC1_RStn [24] |
| AW35 | MAC1_TXD0 | R109 | 0R | R0201 | >>>GMAC1_TXD0 [24] |
| AV35 | MAC1_TXD1 | R110 | 0R | R0201 | >>>GMAC1_TXD1 [24] |
| AY35 | MAC1_TXEN | R112 | 0R | R0201 | >>>GMAC1_TXEN [24] |
| AW37 | MAC1_MCLKINOUT | R115 | 0R | R0201 | >>>GMAC1_MCLKINOUT [24] |
| AY34 | | | | | >>>GPIO3_B7 [28] |
| AR36 | | | | | >>>GPIO3_C0 [28] |
| AW38 | | | | | >>>GPIO3_C1 [28] |
| AV40 | MAC1_MDC | R113 | 0R | R0201 | >>>GMAC1_MDC [24] |
| AW39 | MAC1_MDIO | R114 | 0R | R0201 | >>>GMAC1_MDIO [24] |
| AU34 | | | | | >>>GPIO3_C4 [28] |
| AV34 | | | | | >>>GPIO3_C5 [28] |
| AV30 | | | | | >>>MINIPICIE_nWDISABLE [27] |
| AU30 | | | | | >>>PCIE20X1_2_CLKREQN_M0 [27] |
| AW31 | | | | | >>>PCIE20X1_2_WAKEN_M0 [27] |
| AY27 | | | | | >>>PCIE20X1_2_PERSTN_M0 [27] |
| AY30 | | | | | >>>GPIO3_D2 [28] |
| AY31 | | | | | >>>PWM10_M2 [28] |
| AV31 | | | | | >>>GPIO3_D4 [28] |
| AW30 | | | | | >>>PWM11_IR_M3 [28] |

RK3588S



Note:
The Caps between green line and U9 should be placed under the U9 package.Other caps should be placed close to the U9 package

| | | |
|---|--------------------------------|----------------|
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| Title 野火 EBF RK3588S LBC4 | | |
| Size A3 | Document Number RK3588S VCCIO5 | Rev V1.0 |
| Date: Friday, October 25, 2024 | | Sheet 19 of 31 |

RK3588S VCCIO6

U9J

VCCIO6 Domain
Operating Voltage=1.8V/3.3V

| | | | | | | | | | | | | | | | | | | |
|---------------|---|---------------------|---|------------------|--------------|-----------------|---------------|-----------------|--------------|---------------|-------------|-----------------------|---|----------------------|---|------------------------|------------|------------|
| BT1120 D0 | / | CIF D0 | / | / | I2S1 MCLK M0 | / | UART9 RTSN M1 | / | SPI0 MISO M1 | / | / | PCIE20X1 1 CLKREQN M1 | / | GPIO4 A0 d | | | | |
| BT1120 D1 | / | CIF D1 | / | / | I2S1 SCLK M0 | / | UART9 CTSN M1 | / | SPI0 MOSI M1 | / | / | PCIE20X1 1 WAKEN M1 | / | GPIO4 A1 d | | | | |
| BT1120 D2 | / | CIF D2 | / | / | I2S1 LRCK M0 | / | / | / | SPI0 CLK M1 | / | / | PCIE20X1 1 PERSTN M1 | / | GPIO4 A2 d | | | | |
| BT1120 D3 | / | CIF D3 | / | / | / | / | UART0 TX M2 | / | / | / | / | / | / | GPIO4 A3 d | | | | |
| BT1120 D4 | / | CIF D4 | / | / | / | / | UART0 RX M2 | / | SPI2 MISO M1 | / | I2C3 SCL M2 | / | / | GPIO4 A4 d | | | | |
| BT1120 D5 | / | CIF D5 | / | / | I2S1 SDIO M0 | / | UART3 TX M2 | / | SPI2 MOSI M1 | / | I2C3 SDA M2 | / | / | GPIO4 A5 d | | | | |
| BT1120 D6 | / | CIF D6 | / | / | I2S1 SDI1 M0 | / | UART3 RX M2 | / | SPI2 CLK M1 | / | I2C5 SCL M2 | / | / | GPIO4 A6 d | | | | |
| BT1120 D7 | / | CIF D7 | / | / | I2S1 SDI2 M0 | / | / | / | SPI2 CS0 M1 | / | I2C5 SDA M2 | / | / | GPIO4 A7 d | | | | |
| BT1120 CLKOUT | / | CIF CLKIN | / | / | I2S1 SDI3 M0 | / | UART8 TX M0 | / | SPI2 CS1 M1 | / | I2C6 SDA M3 | / | / | GPIO4 B0 d | | | | |
| SPDIF1 TX M1 | / | MIP1 CAMERA0 CLK M0 | / | SATA2 ACT LED M0 | / | I2S1 SDO0 M0 | / | UART8 RX M0 | / | SPI0 CS1 M1 | / | I2C6 SCL M3 | / | GPIO4 B1 u | | | | |
| CAN1 RX M1 | / | BT1120 D8 | / | CIF HREF | / | PWM14 M1 | / | I2S1 SDO1 M0 | / | UART8 RTSN M0 | / | SPI0 CS0 M1 | / | I2C7 SCL M3 | / | PCIE20X1 1 BUTTON RSTN | / | GPIO4 B2 u |
| CAN1 TX M1 | / | BT1120 D9 | / | CIF VSYNC | / | PWM15 IR M1 | / | I2S1 SDO2 M0 | / | UART8 CTSN M0 | / | / | / | I2C7 SDA M3 | / | PCIE20X1 2 BUTTON RSTN | / | GPIO4 B3 u |
| BT1120 D10 | / | CIF CLKOUT | / | PWM11 IR M1 | / | I2S1 SDO3 M0 | / | UART9 TX M1 | / | / | / | DP0 HPDIN M0 | / | SPDIF0 TX M1 | / | / | GPIO4 B4 u | |
| BT1120 D11 | / | / | / | PWM12 M1 | / | / | / | UART9 RX M1 | / | SPI3 MISO M1 | / | / | / | / | / | / | GPIO4 B5 d | |
| BT1120 D12 | / | / | / | PWM13 M1 | / | / | / | / | / | SPI3 MOSI M1 | / | I2C5 SCL M1 | / | SATA0 ACT LED M0 | / | / | GPIO4 B6 d | |
| BT1120 D13 | / | / | / | / | / | / | / | HDMI TX0 SCL M0 | / | / | / | SPI3 CLK M1 | / | I2C5 SDA M1 | / | PCIE20X1 2 CLKREQN M1 | / | GPIO4 B7 u |
| BT1120 D14 | / | / | / | / | / | / | / | HDMI TX0 SDA M0 | / | / | / | SPI3 CS0 M1 | / | I2C8 SCL M3 | / | PCIE20X1 2 WAKEN M1 | / | GPIO4 C0 u |
| BT1120 D15 | / | SPDIF1 TX M2 | / | PWM6 M1 | / | HDMI TX0 CEC M0 | / | / | / | SPI3 CS1 M1 | / | I2C8 SDA M3 | / | PCIE20X1 2 PERSTN M1 | / | / | GPIO4 C1 d | |

Note:
BT1120 Only Support Output

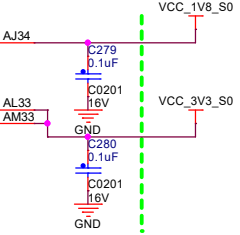
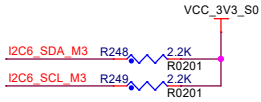
VCCIO6_1V8

VCCIO6_1

VCCIO6_2

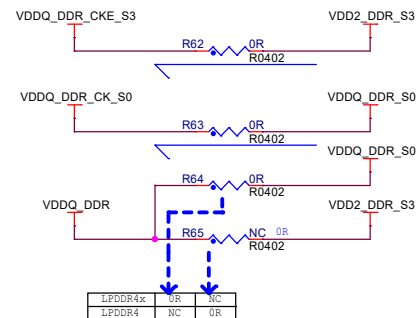
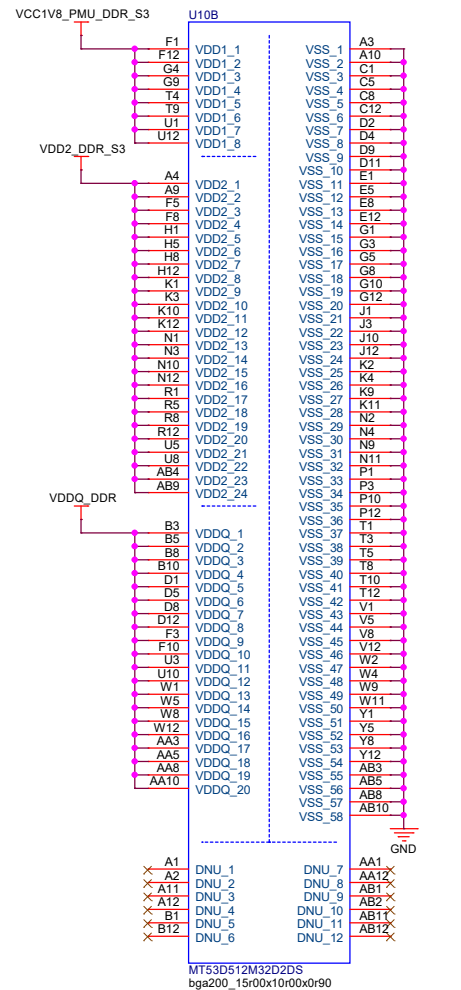
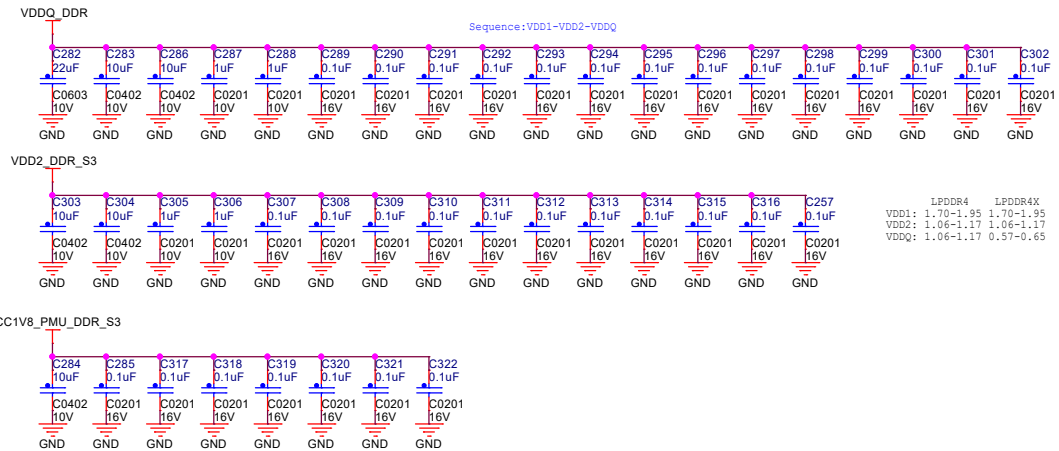
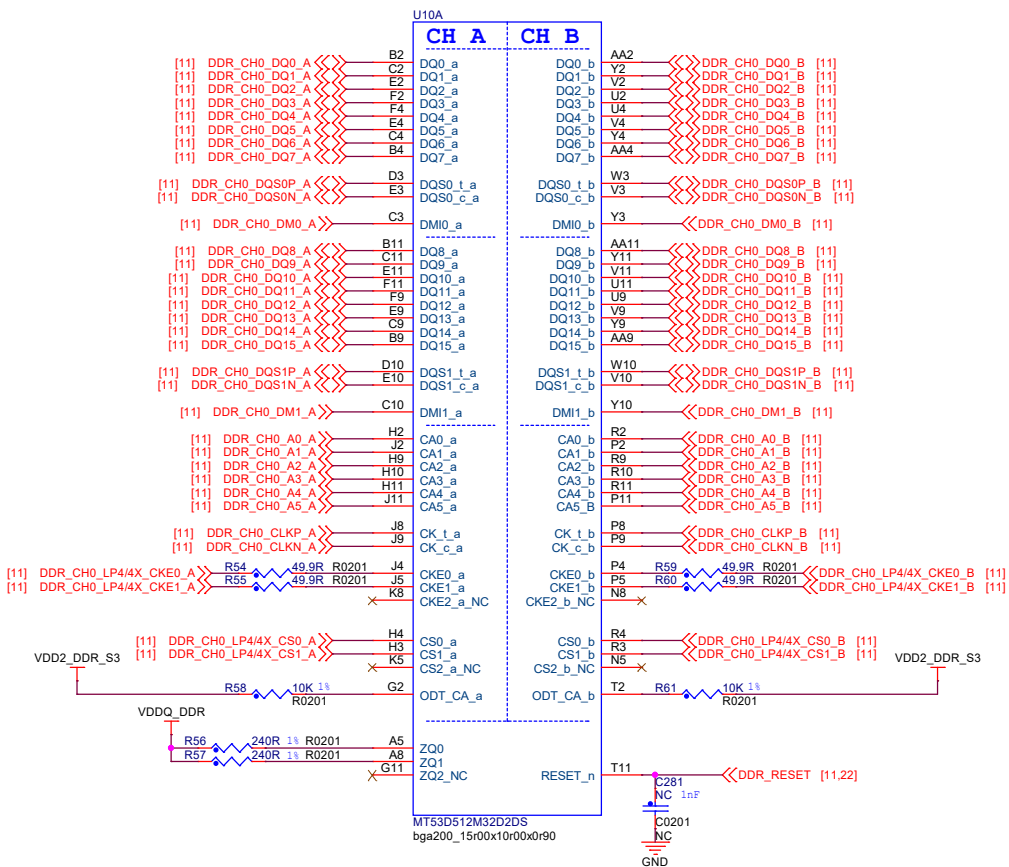
RK3588S

| | | |
|------|--------|------------------------|
| AV19 | <<<>>> | GPIO4_A0 [28,31] |
| AW18 | <<<>>> | CTP1_INT [30] |
| AV26 | <<<>>> | CTP1_RST [30] |
| AY19 | <<<>>> | UART0_TX_M2 [28] |
| AW19 | <<<>>> | UART0_RX_M2 [28] |
| AU15 | <<<>>> | CAM1_PWDN [31] |
| AV18 | <<<>>> | CAM1_RSTn [31] |
| AW26 | <<<>>> | CAM2_PWDN [31] |
| AW27 | <<<>>> | I2C6_SDA_M3 [28,30,31] |
| AU22 | <<<>>> | I2C6_SCL_M3 [28,30,31] |
| AT15 | <<<>>> | CAM2_RSTn [31] |
| AV23 | <<<>>> | TYPECO_SBU1_DC [25] |
| AV27 | <<<>>> | TYPECO_SBU2_DC [25] |
| AU23 | <<<>>> | SYS_LED [26] |
| AW22 | <<<>>> | HDMI0_TX_ON [29] |
| AV22 | <<<>>> | HDMI_TX0_SCL_M0 [29] |
| AW23 | <<<>>> | HDMI_TX0_SDA_M0 [29] |
| AY26 | <<<>>> | HDMI_TX0_CEC_M0 [29] |



Note:
The Caps between green line and U9 should be placed under the U9 package. Other caps should be placed close to the U9 package

LPDDR4/LPDDR4x_1



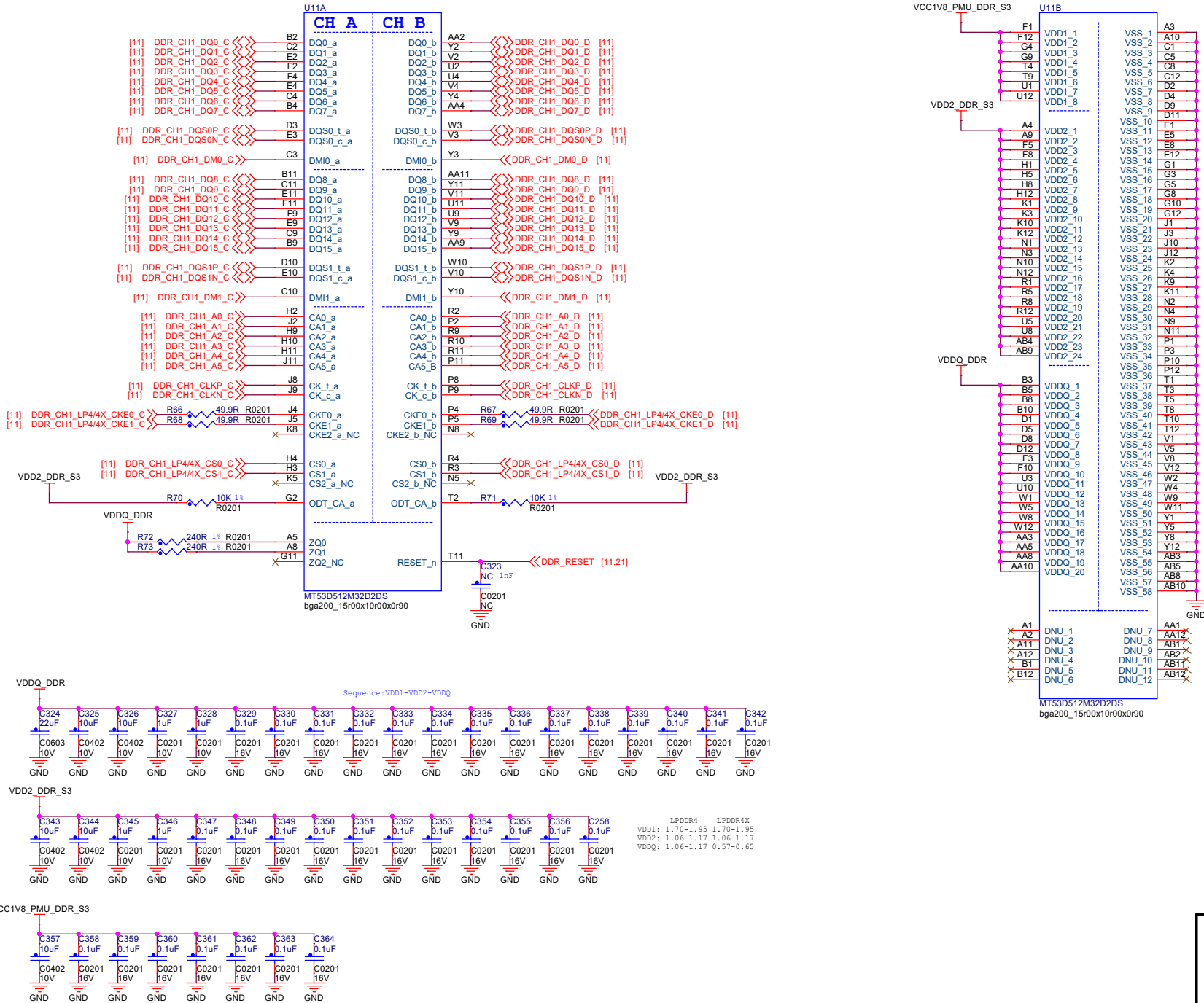
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| Title | 野火 EBF RK3588S LBC4 |
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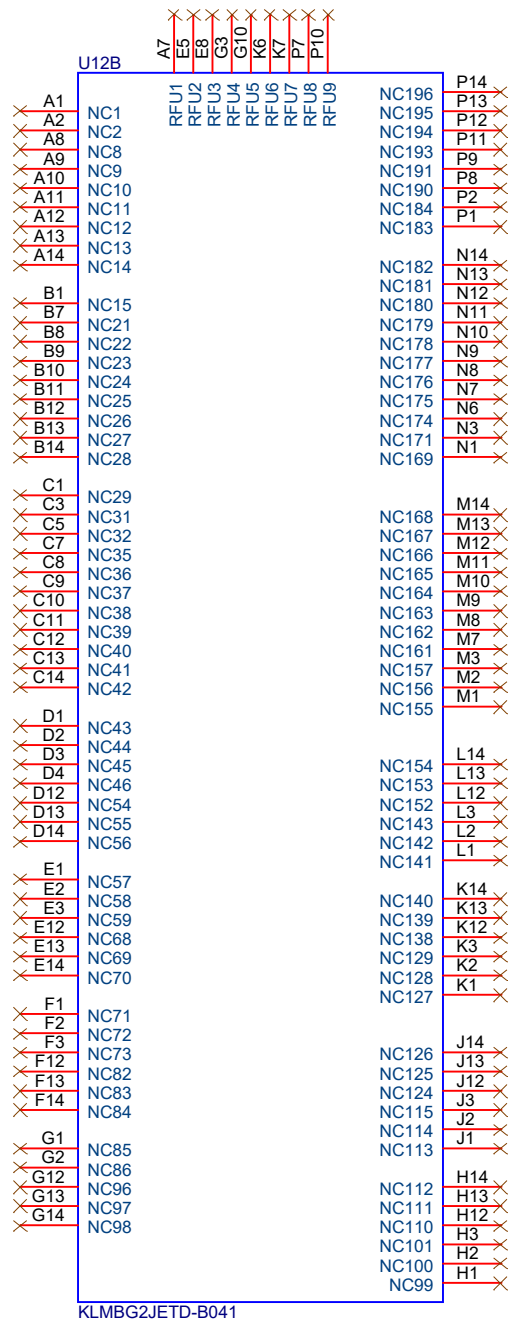
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| A3 | 1 PDDR4/1 PDDR4x 1 | V1.0 |

Date: Friday, June 14, 2024 Sheet 21 of 31

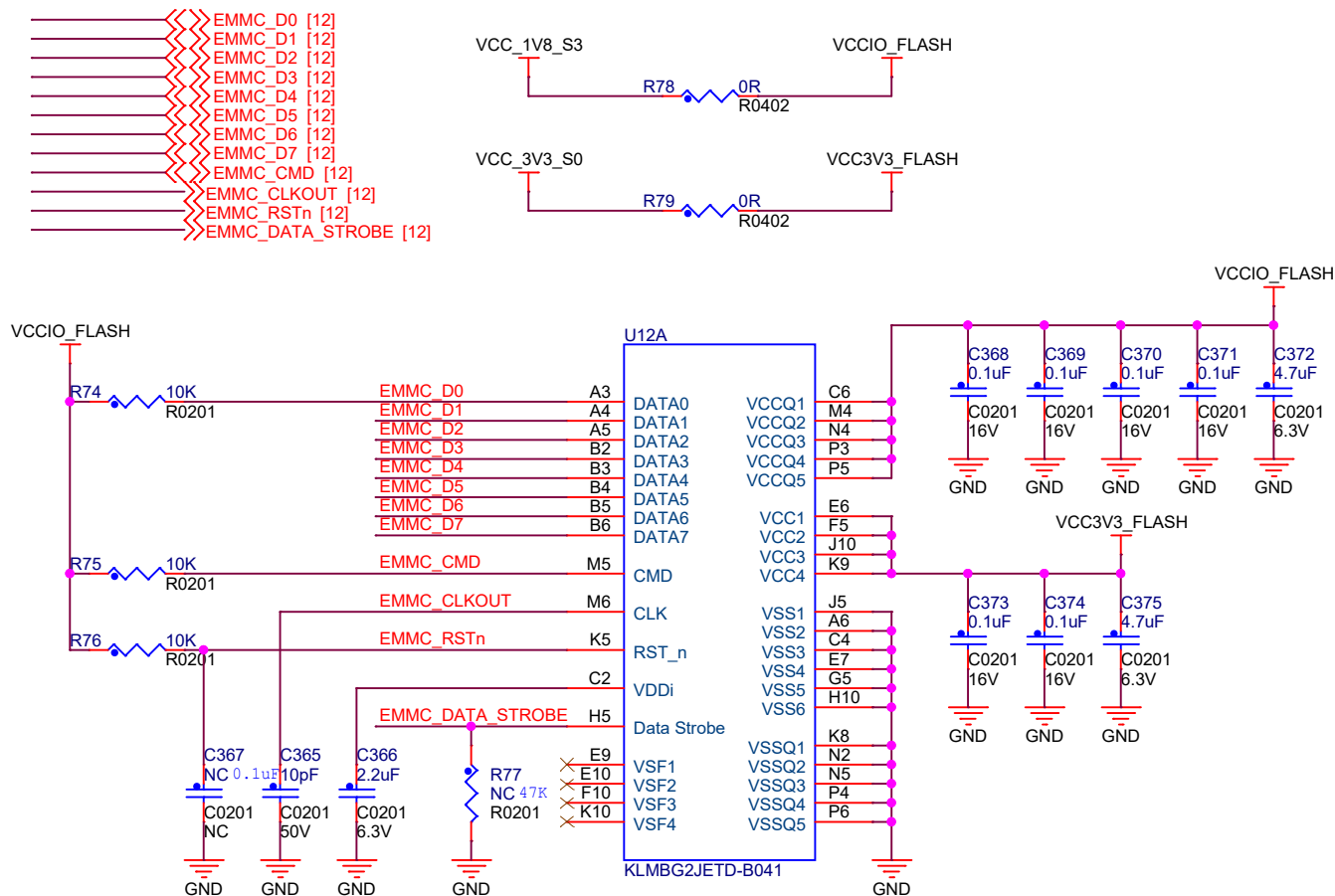
LPDDR4/LPDDR4x_2



EMMC FLASH

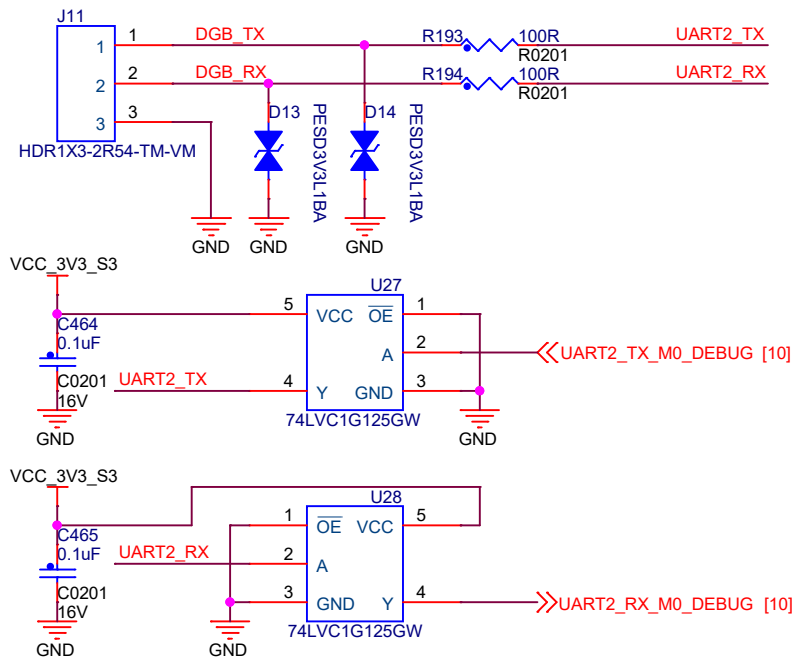


KLMBG2JETD-B041

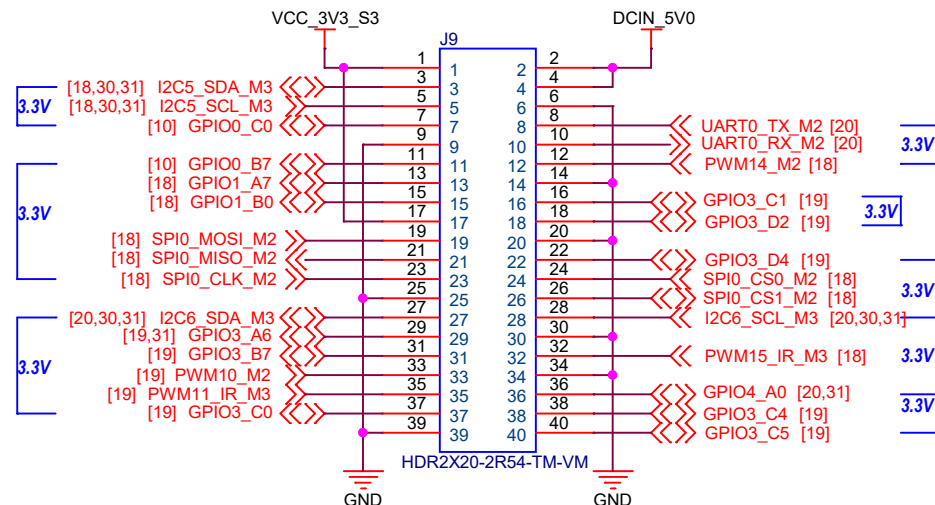


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| Title 野火 EBF RK3588S LBC4 | | |
| Size A4 | Document Number EMMC FLASH | Rev V1.0 |
| Date: Friday, June 14, 2024 | | Sheet 23 of 31 |

Debug接口

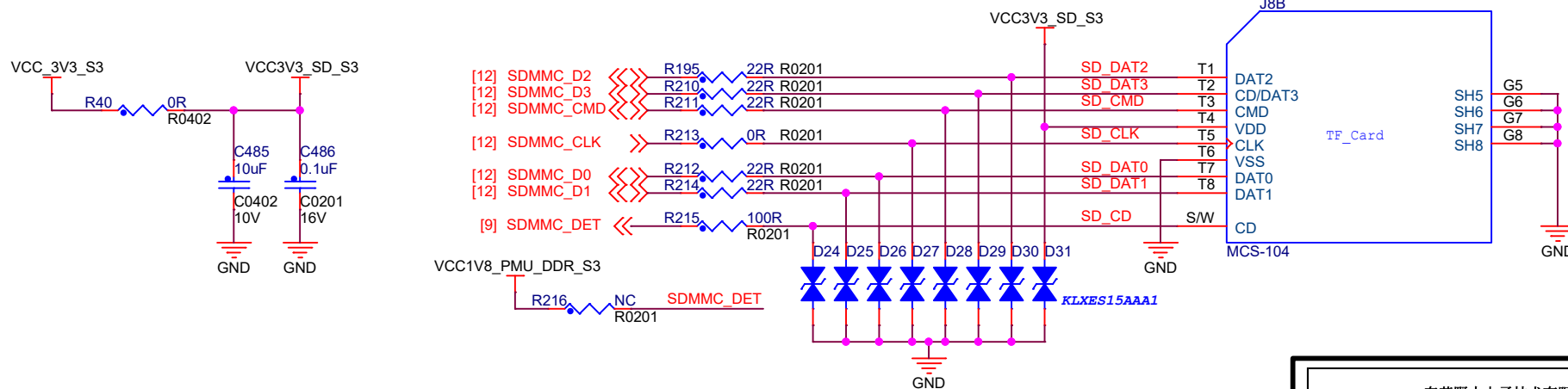


IO 引出



注：所有引出的GPIO只兼容3.3V

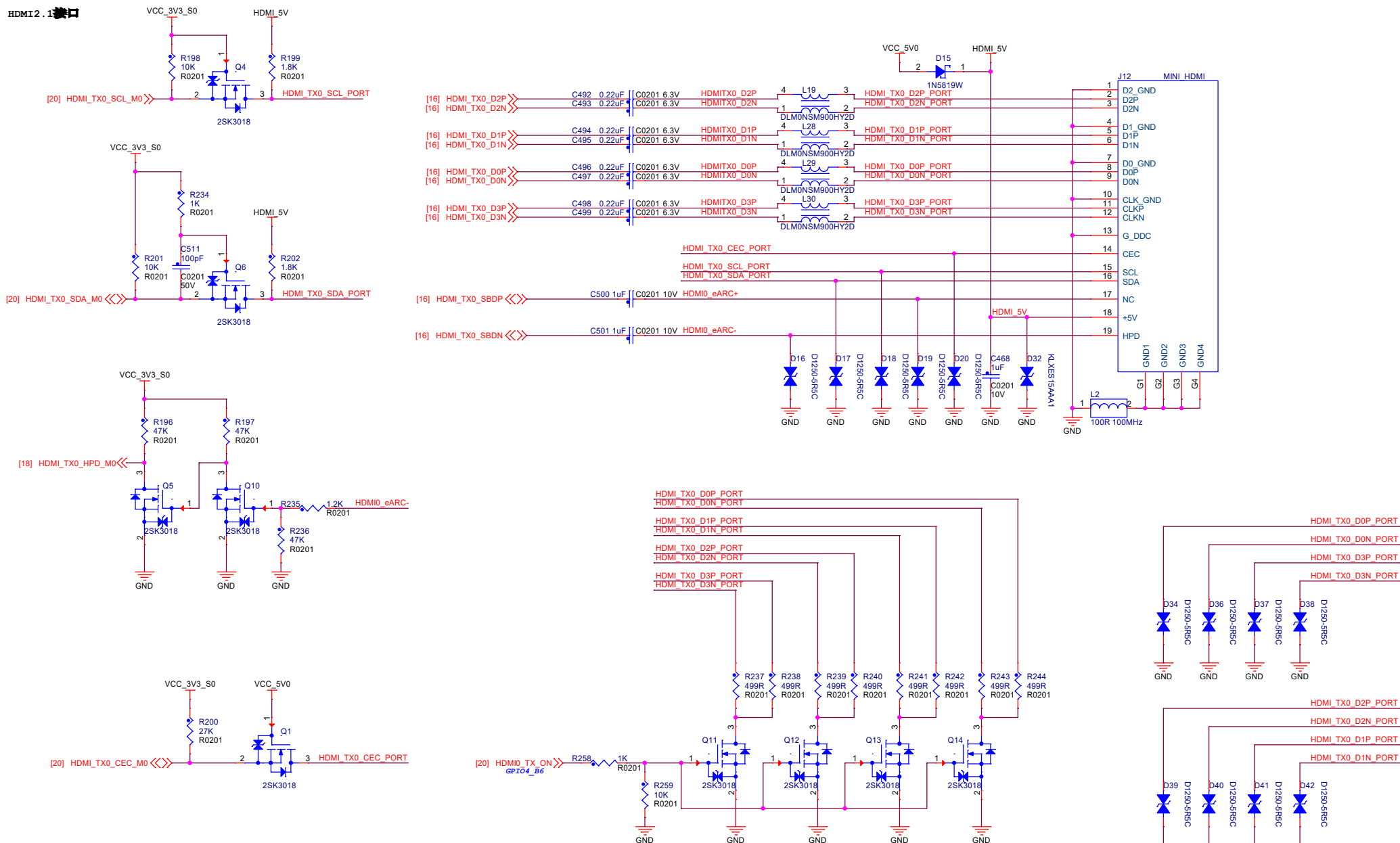
SD Card



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|--------------------------------|---------------------------------------|----------------|
| Title 野火 EBF RK3588S LBC4 | | |
| Size A4 | Document Number SD Card/DEBUG/IO引出 | Rev V1.0 |
| Date: Friday, October 25, 2024 | | Sheet 28 of 31 |

HDMI2.1接口



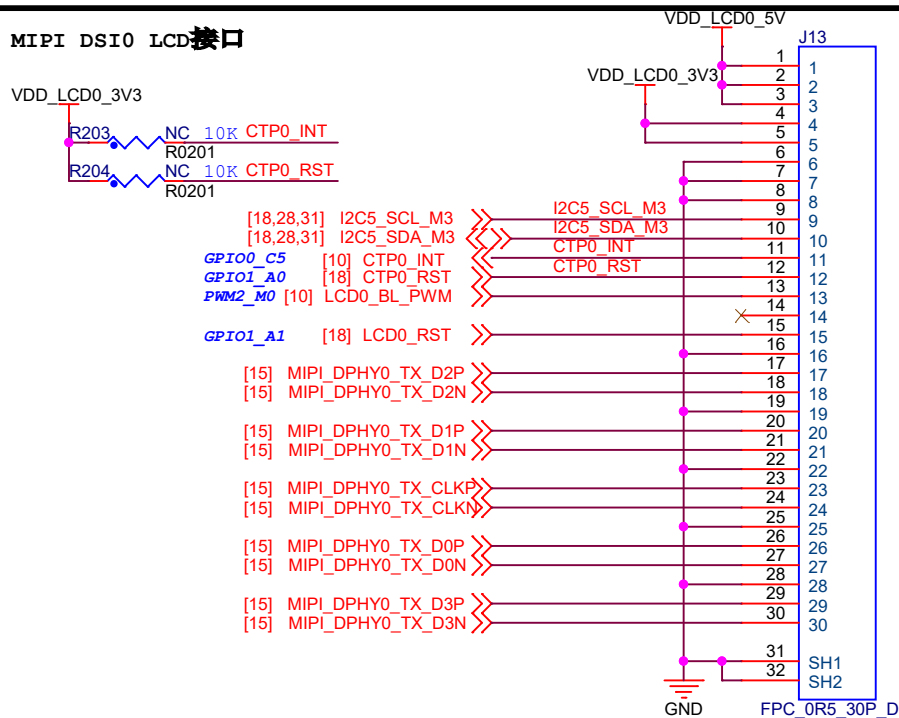
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Title 野火 EBF RK3588S LBC4

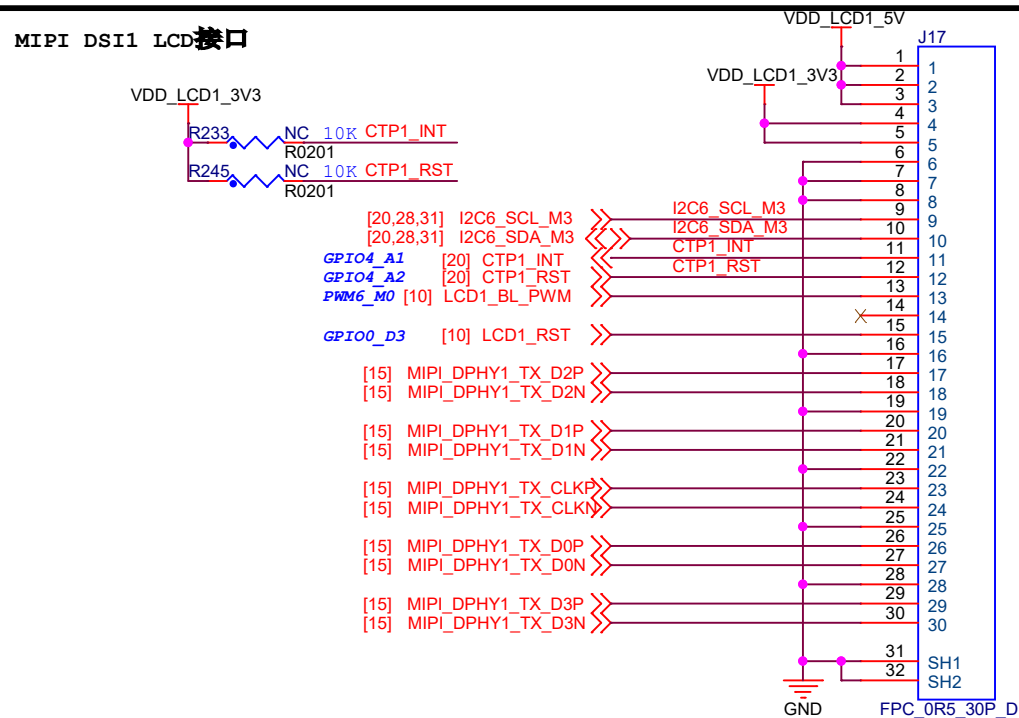
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|------|-----------------|------|
| A3 | HDMI2.1接口 | V1.0 |

Date: Saturday, October 26, 2024 Sheet 29 of 31

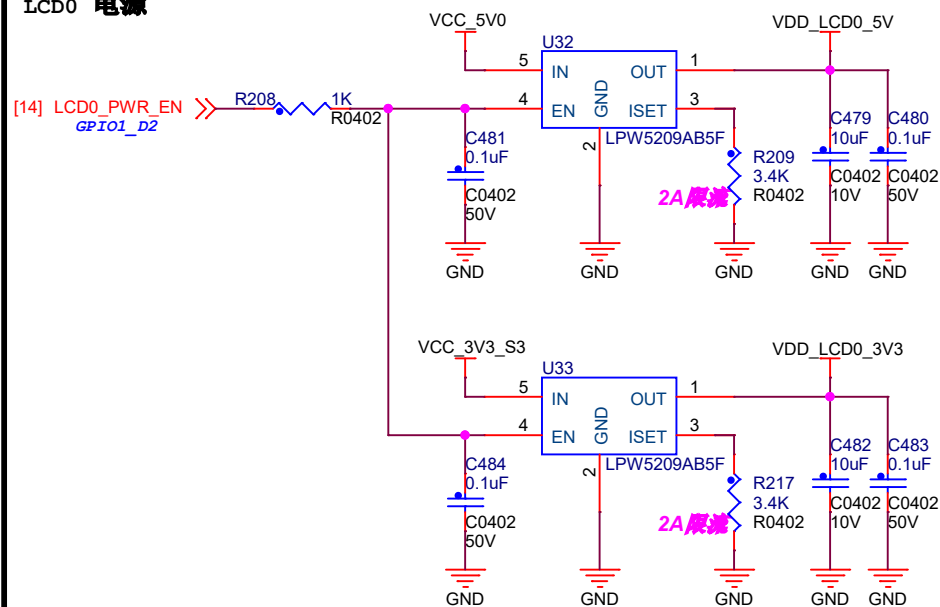
MIPI DSI0 LCD接口



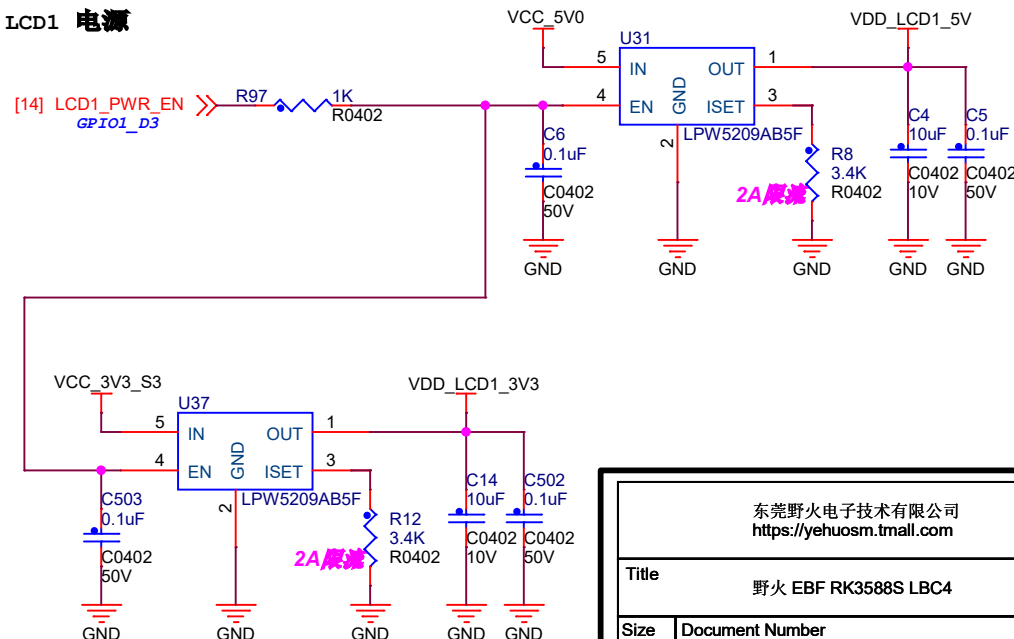
MIPI DSI1 LCD接口



LCD0 电源



LCD1 电源



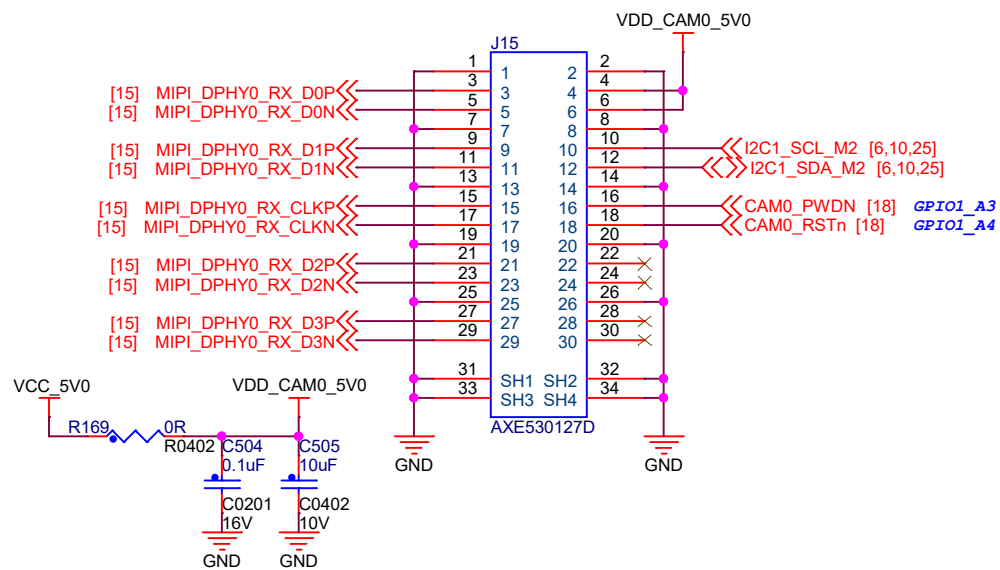
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Title 野火 EBF RK3588S LBC4

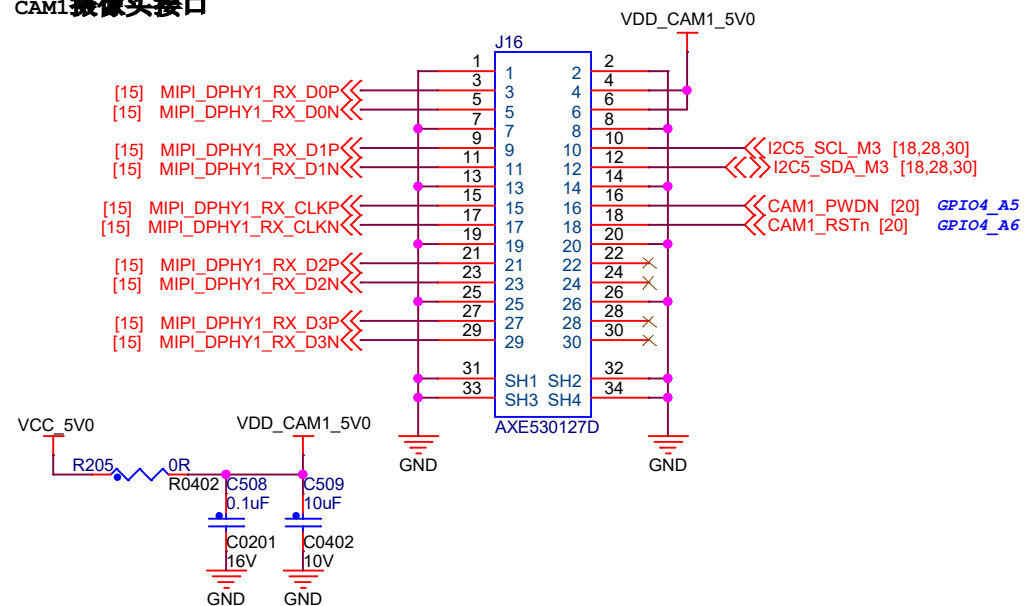
Size A4 Document Number MIPI DSI/MIPI CSI接口 Rev V1.0

Date: Friday, June 14, 2024 Sheet 30 of 31

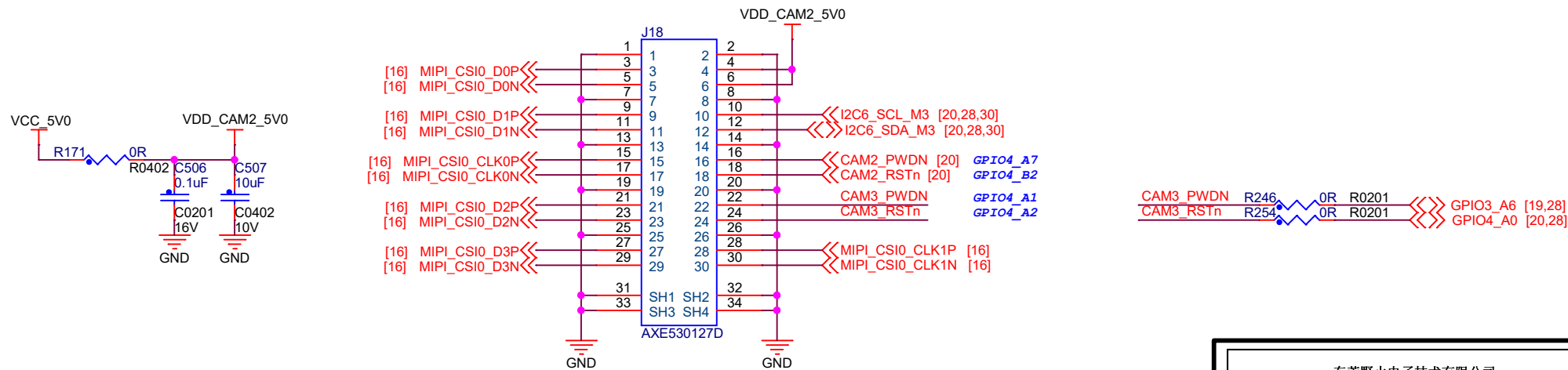
CAM0摄像头接口



CAM1摄像头接口



CAM2摄像头接口



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| Size A4 | Document Number MIPI DSI/MIPI CSI接口 | Rev V1.0 |
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|-----------------------------|----------------|
| Date: Friday, June 14, 2024 | Sheet 31 of 31 |
|-----------------------------|----------------|