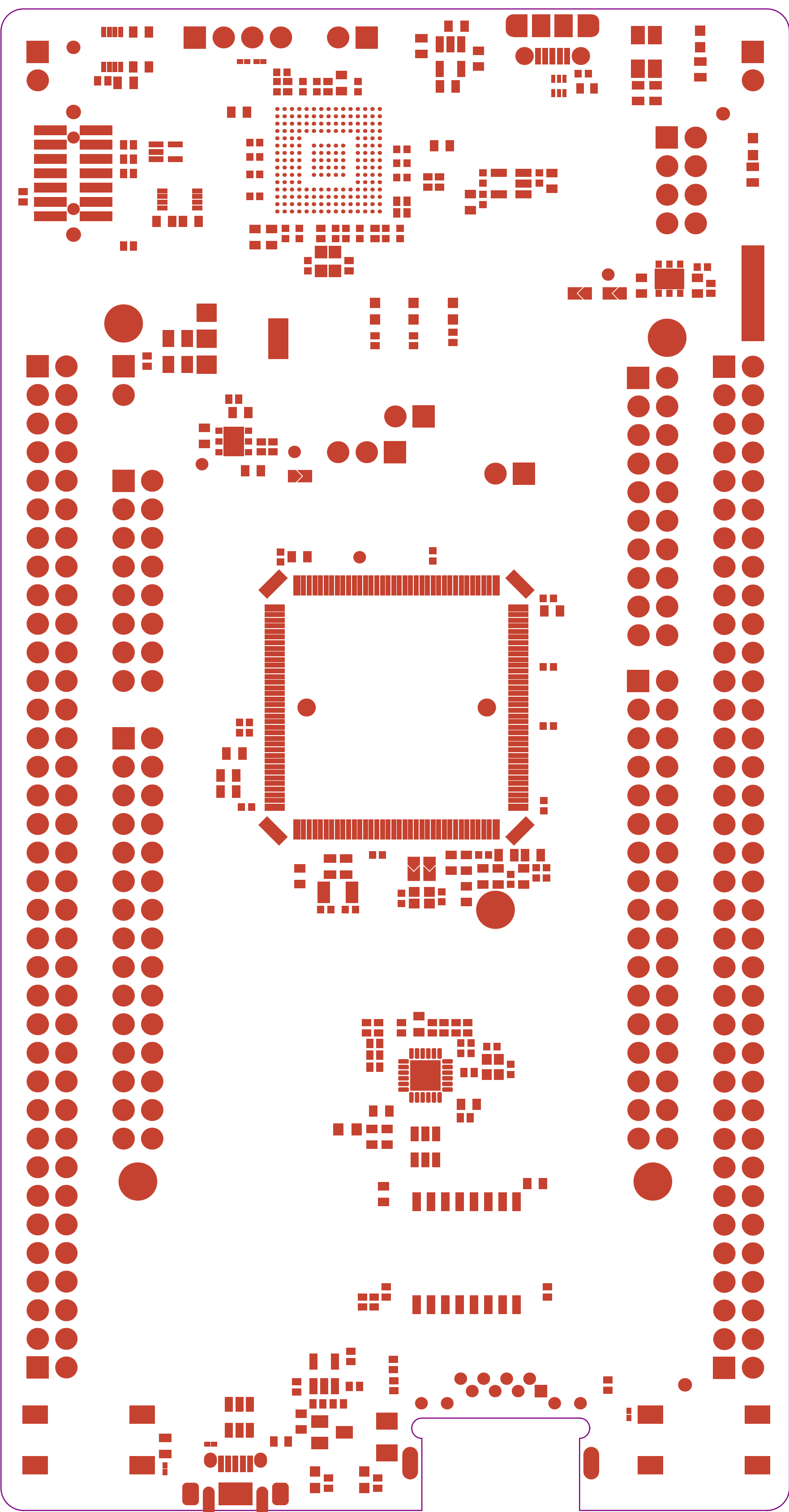


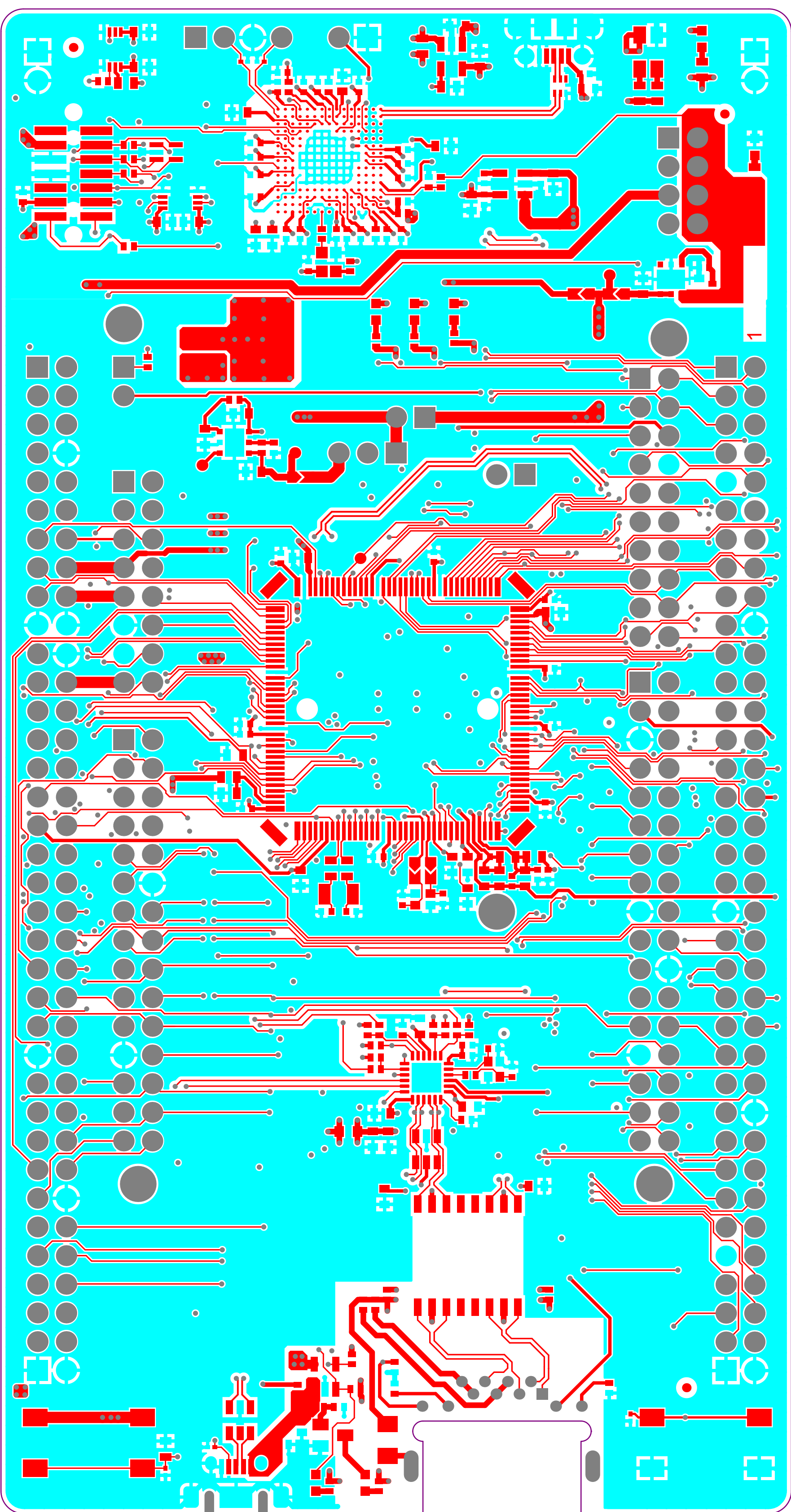
Top Overlay

.GTO





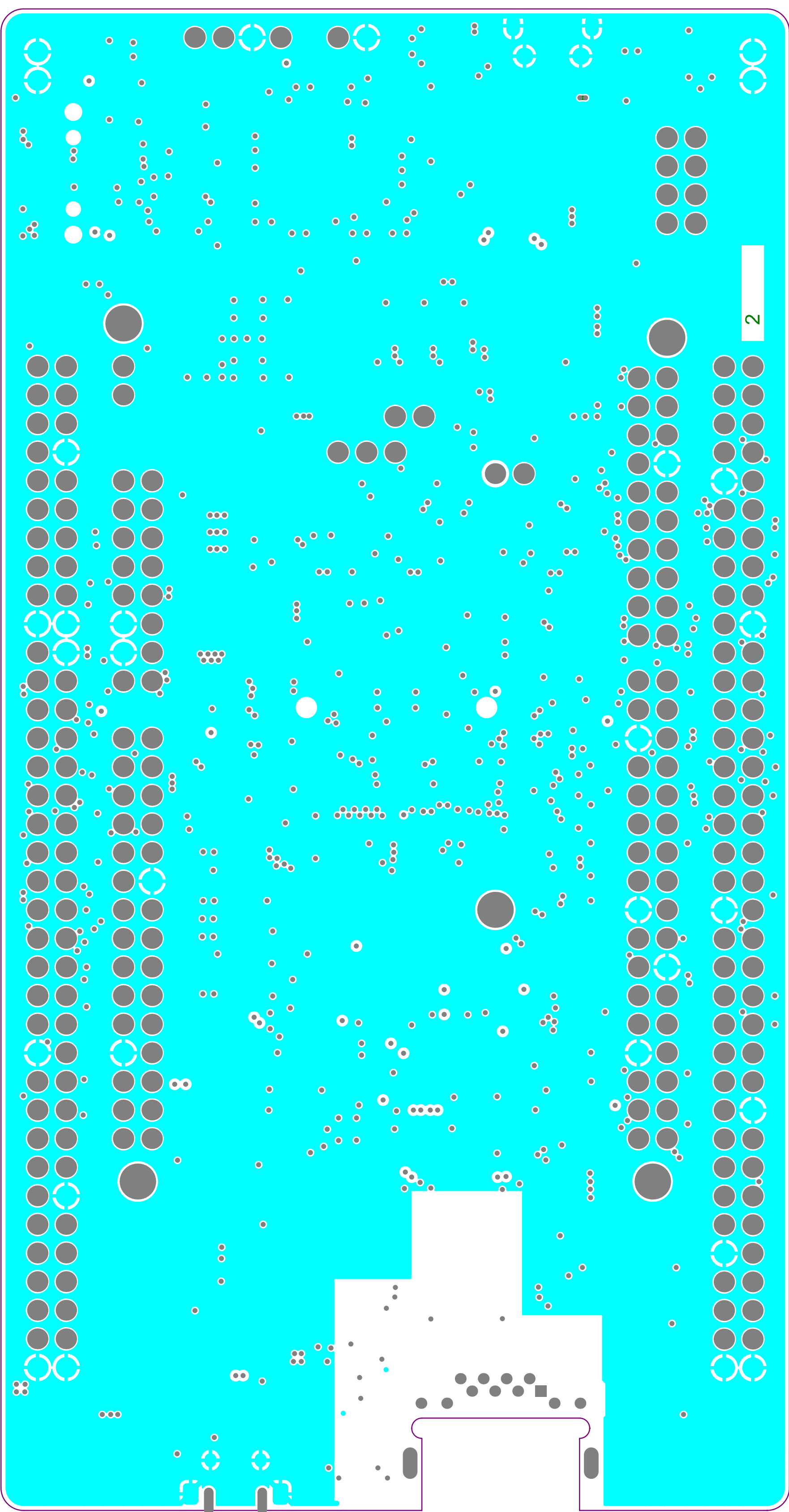




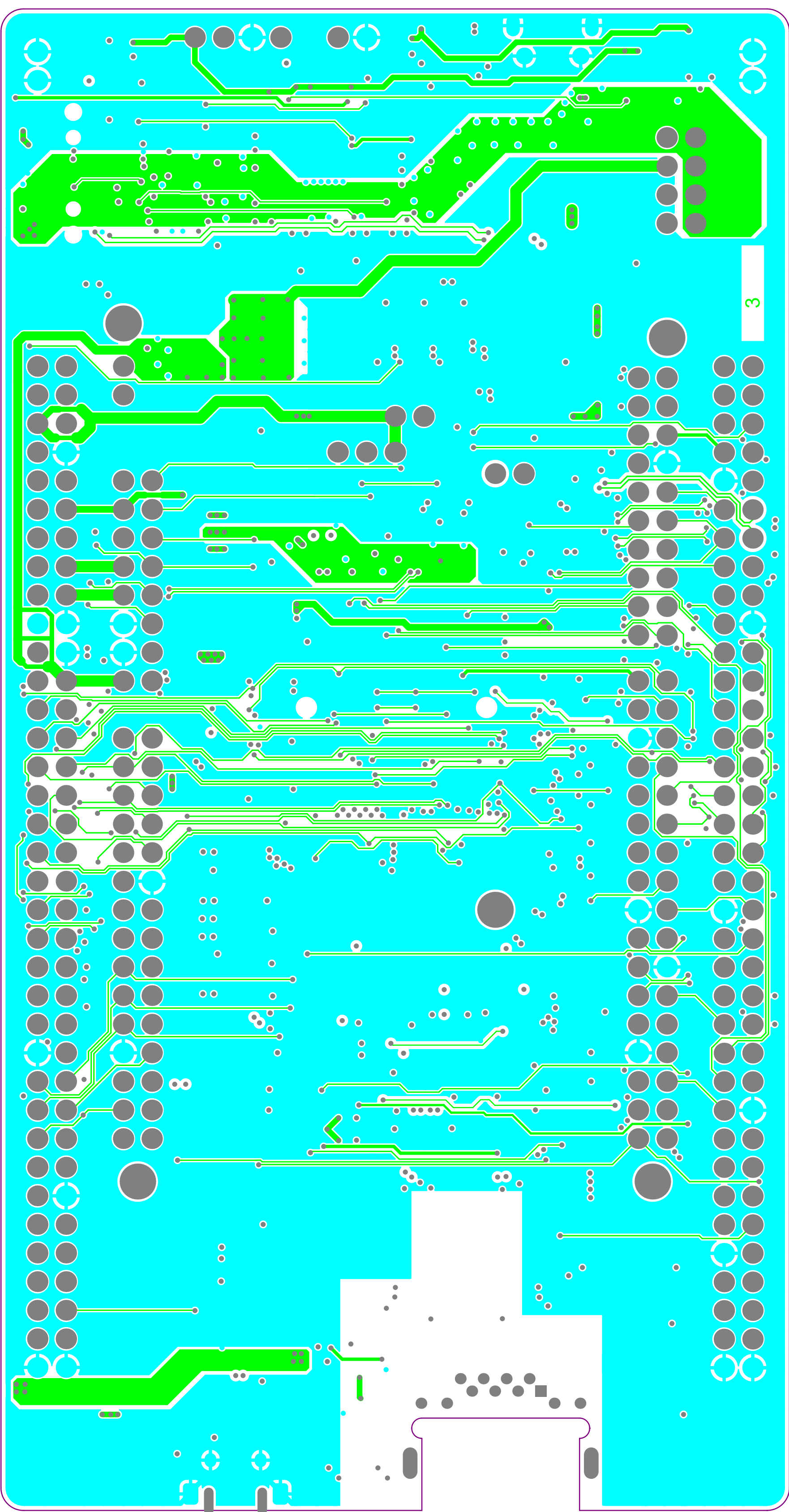
Top Layer

.GTL

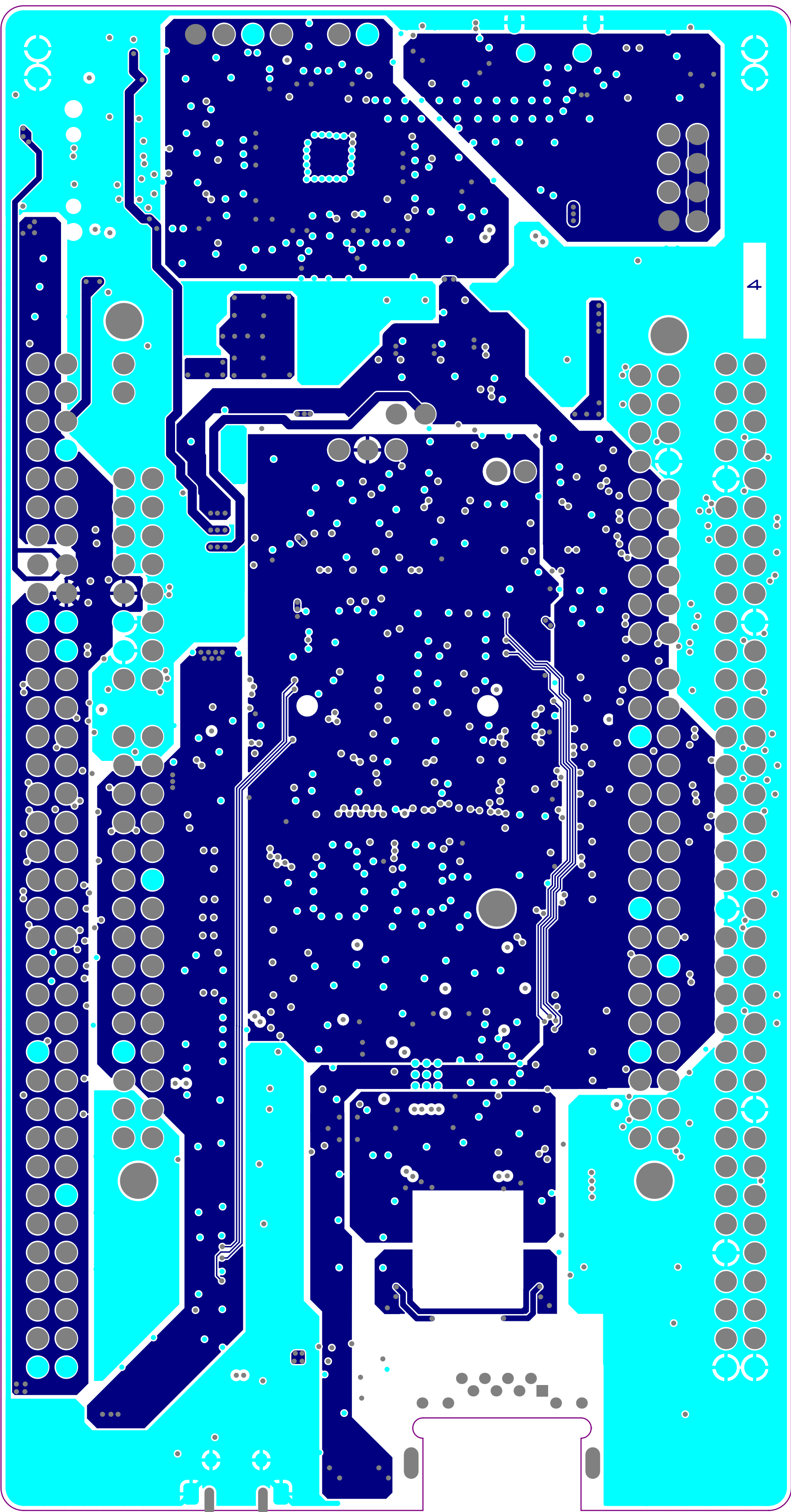




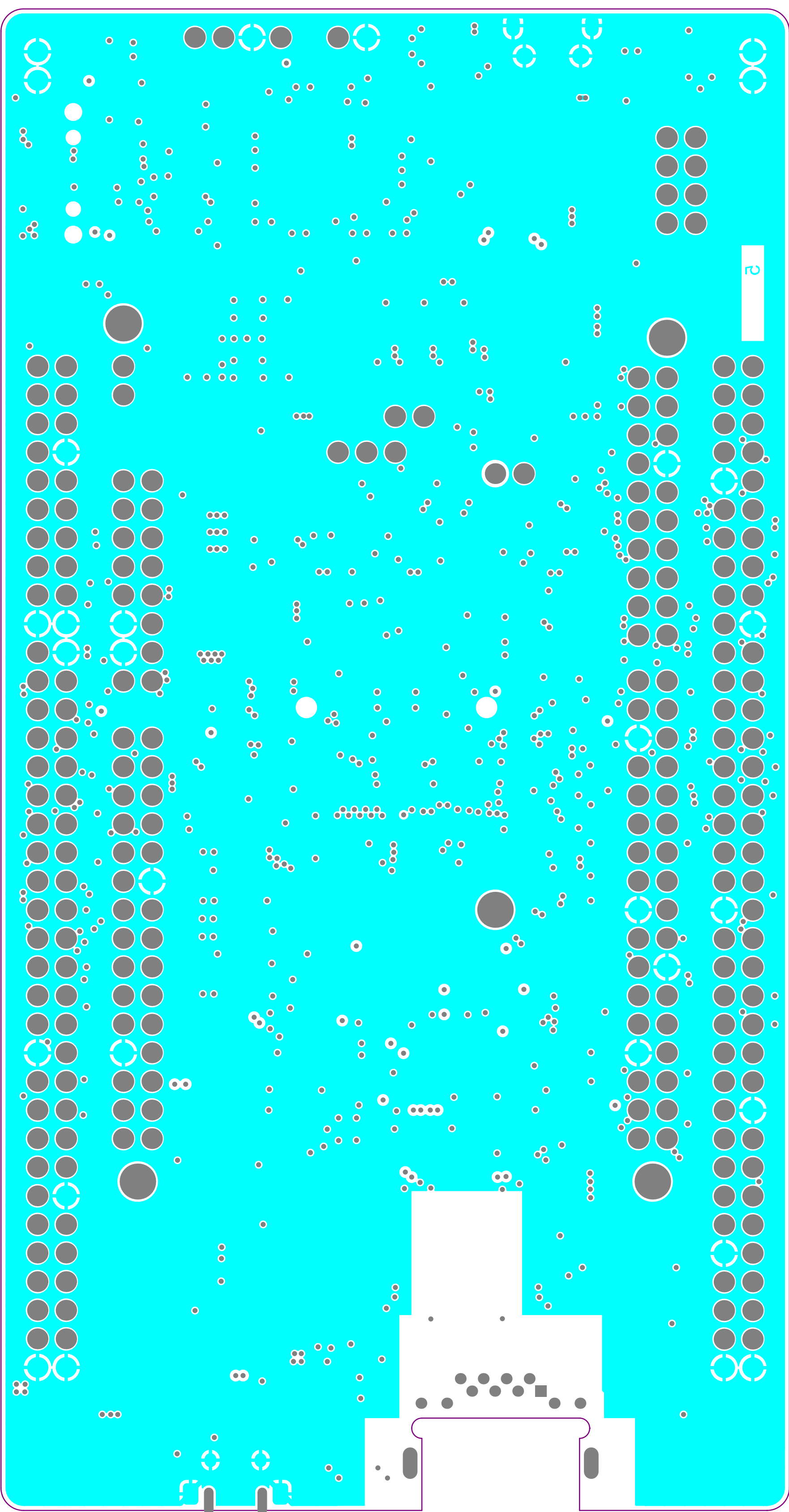




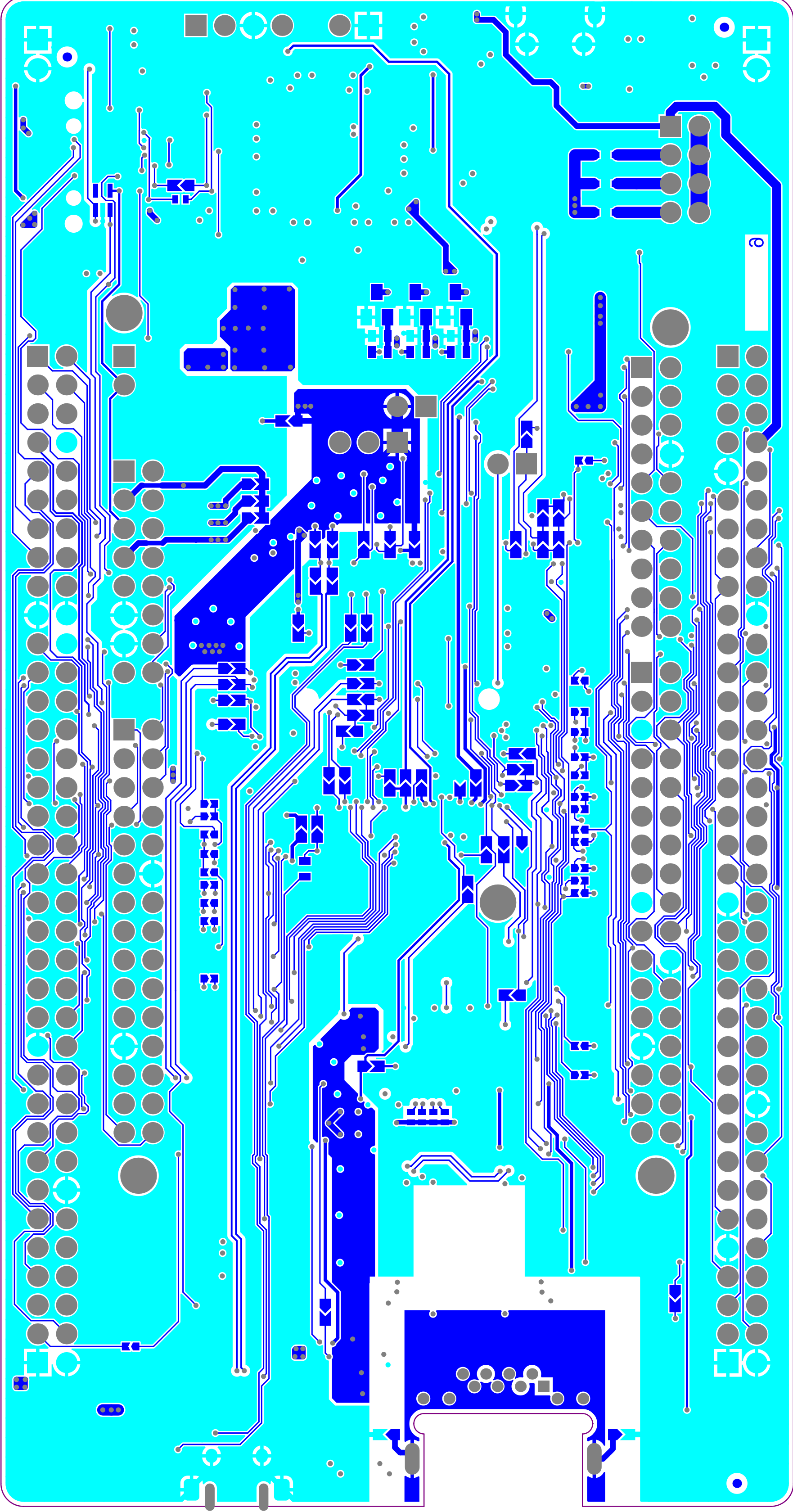








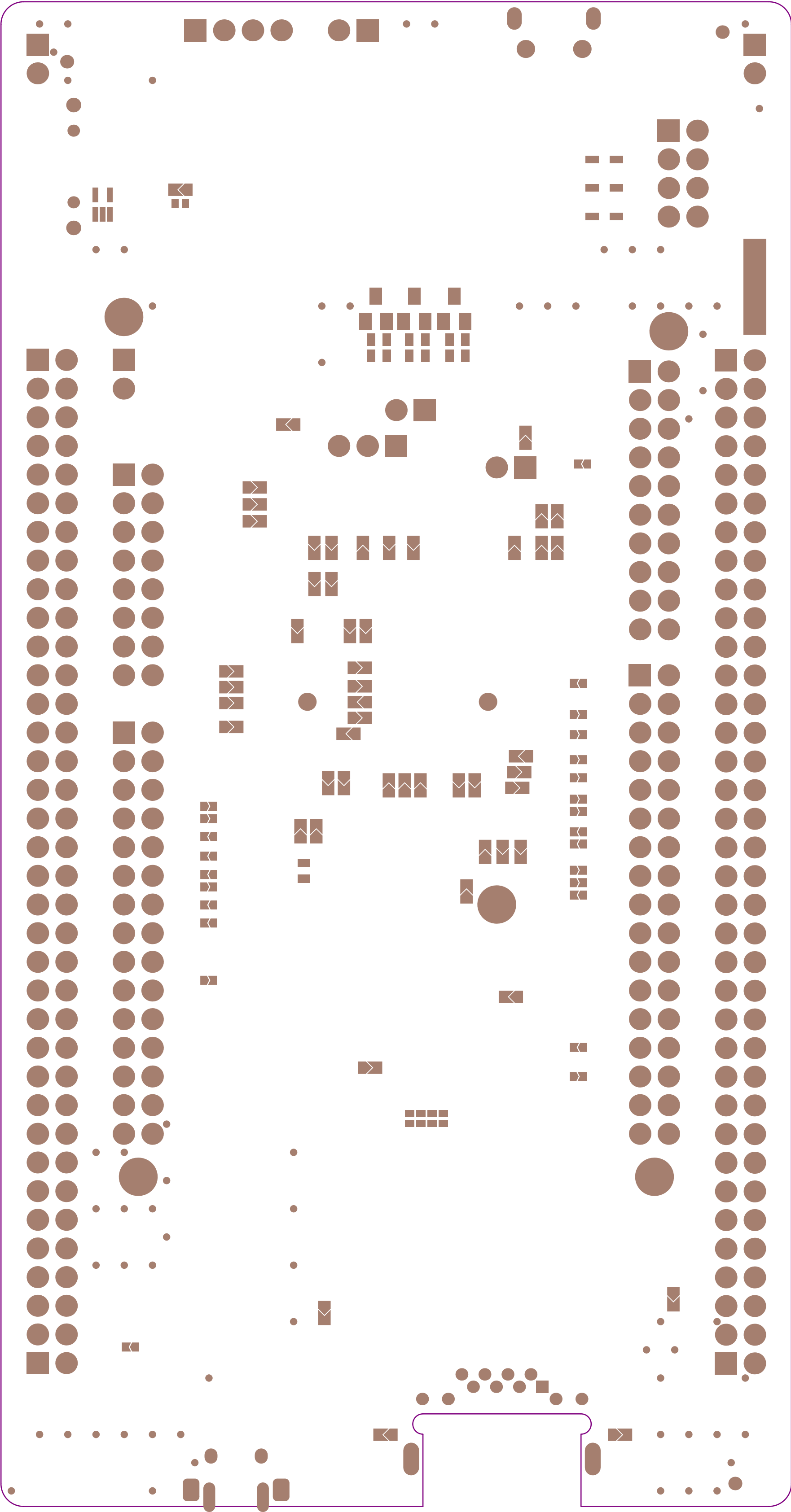




GBL

Bottom Layer

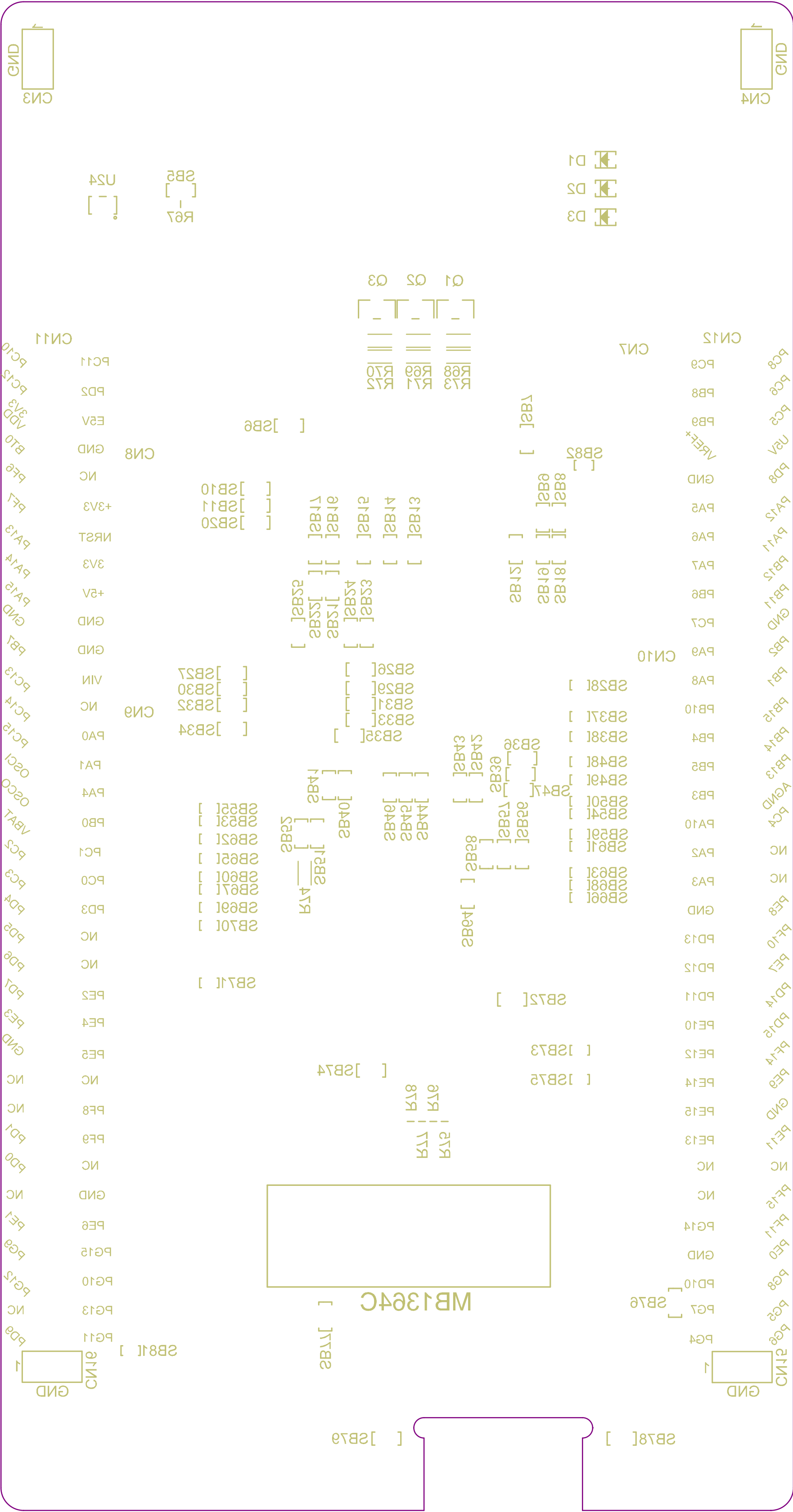




.GBS

Bottom Solder







THE COMPONENTS WITH PLATED THROUGH HOLE (PTH) MAY BE WELDED (CABLED) IN "PIN-IN-PASTE" MODE (IF NECESSARY)

PCB SPECIFICATIONS :

A. MATERIAL :

B. MATERIAL FAMILY :

C. SOLDERMASK COLOR :

D. SILKSCREEN COLOR :

E. SURFACE FINISH :

F. IMPEDANCE CONTROL :

G. THROUGH VIA :

H. STACK-UP :

FR-4

☐ TG-170

☒ TG-150

☐ TG-140

N/A

☐ GREEN

☒ WHITE

☐ RED

☐ BLACK

☐ WHITE

☐ YELLOW

☐ BLACK

☒ Blue ink PANTONE 2955

☒ ENIG

☐ IMMERSION SILVER

☐ IMMERSION TIN

☐ HASL

☐ HASL (PB-FREE)

☐ GOLDEN FINGER

☐ NO

☒ YES (SEE IMPEDANCE TABLE FOR DETAIL INFORMATION)

PLUG THE VIAS WHICH ARE COVERED WITH SOLDERMASK ONE OR TWO SIDE.

PLUG MATERIAL : ☒ SOLDERMASK ☐ NON-CONDUCTIVE EPOXY.

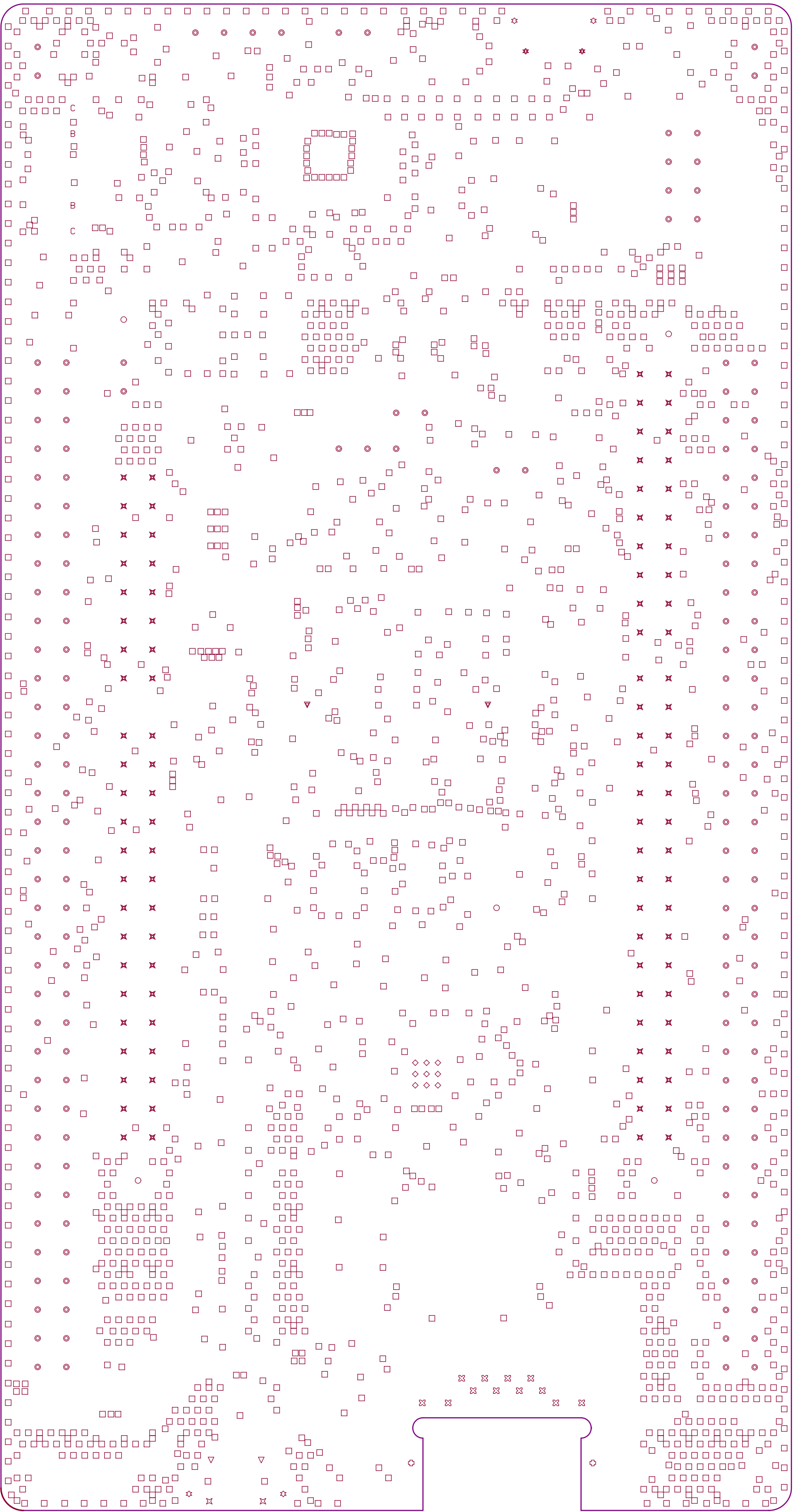
SEE LAYER STACK-UP SEQUENCE FOR OVERALL THICKNESS.

PCB : TYPE 3

ASPECT-RATIO, AXE Z :  
6:1 to 8:1  
LEVEL "B"

MINIMUM PARAMETERS

DEFAULT  
TRACKS : 0.120mm  
GAPS : 0.120mm



| Layer | Name           | Material      | Thickness | Constant | Board Layer Stack |
|-------|----------------|---------------|-----------|----------|-------------------|
| 1     | Top Overlay    |               |           |          |                   |
| 2     | Top Solder     | Solder Resist | 0,015mm   | 3,5      |                   |
| 3     | Top Layer      | Copper        | 0,042mm   |          |                   |
| 4     | Dielectric 1   | FR-4          | 0,099mm   | 4,2      |                   |
| 5     | Signal Layer 1 | Copper        | 0,035mm   |          |                   |
| 6     | Dielectric 2   |               | 0,102mm   | 4,2      |                   |
| 7     | Signal Layer 2 | Copper        | 0,035mm   |          |                   |
| 8     | Dielectric 3   |               | 0,946mm   | 4,2      |                   |
| 9     | Signal Layer 3 | Copper        | 0,035mm   |          |                   |
| 10    | Dielectric 4   |               | 0,102mm   | 4,2      |                   |
| 11    | Signal Layer 4 | Copper        | 0,035mm   |          |                   |
| 12    | Dielectric 5   |               | 0,099mm   | 4,2      |                   |
| 13    | Bottom Layer   | Copper        | 0,042mm   |          |                   |
| 14    | Bottom Solder  | Solder Resist | 0,015mm   | 3,5      |                   |
| 15    | Bottom Overlay |               |           |          |                   |

| IMPEDANCE TABLE    RMII |            |              |                          |                          |         |
|-------------------------|------------|--------------|--------------------------|--------------------------|---------|
| LAYER                   | TRACE (mm) | SPACING (mm) | IMPEDANCE (Single ended) | IMPEDANCE (Differential) | TOL.    |
| TOP/BOTTOM              | 0.127      | n/a          | 50 ohm                   | n/a                      | +/- 15% |
| LAYER 3                 | 0.102      | n/a          | 50 ohm                   | n/a                      | +/- 15% |

| IMPEDANCE TABLE    RD / RX / TD / TX |            |              |                          |                          |         |
|--------------------------------------|------------|--------------|--------------------------|--------------------------|---------|
| LAYER                                | TRACE (mm) | SPACING (mm) | IMPEDANCE (Single ended) | IMPEDANCE (Differential) | TOL.    |
| TOP/BOTTOM                           | 0.130      | 0.251        | n/a                      | 100 ohm                  | +/- 15% |
| LAYER 3                              | 0.104      | 0.277        | n/a                      | 100 ohm                  | +/- 15% |

| IMPEDANCE TABLE    USB FS, USB HS USER, USB HS STLINK |            |              |                          |                          |         |
|---|------------|--------------|--------------------------|--------------------------|---------|
| LAYER   | TRACE (mm) | SPACING (mm) | IMPEDANCE (Single ended) | IMPEDANCE (Differential) | TOL.    |
| TOP/BOTTOM  | 0.155      | 0.226        | n/a                      | 90 ohm                   | +/- 15% |
| LAYER 3   | 0.130      | 0.251        | n/a                      | 90 ohm                   | +/- 15% |

| Symbol | Count      | Hole Size           | Plated | Hole Type | Drill Layer Pair         | Hole Length        | Routed Path Length |
|--------|------------|---------------------|--------|-----------|--------------------------|--------------------|--------------------|
|        | 2042       | 0,200mm (7,87mil)   | PTH    | Round     | Top Layer - Bottom Layer | -                  | -                  |
|        | 9          | 0,300mm (11,81mil)  | PTH    | Round     | Top Layer - Bottom Layer | -                  | -                  |
|        | 4          | 0,600mm (23,62mil)  | PTH    | Slot      | Top Layer - Bottom Layer | 1,300mm (51,18mil) | 0,700mm (27,56mil) |
|        | 2          | 0,650mm (25,59mil)  | PTH    | Slot      | Top Layer - Bottom Layer | 0,850mm (33,47mil) | 0,200mm (7,88mil)  |
|        | 12         | 0,700mm (27,56mil)  | PTH    | Round     | Top Layer - Bottom Layer | -                  | -                  |
|        | 2          | 0,700mm (27,56mil)  | PTH    | Slot      | Top Layer - Bottom Layer | 2,200mm (86,61mil) | 1,500mm (59,06mil) |
|        | 2          | 0,850mm (33,47mil)  | NPTH   | Slot      | Top Layer - Bottom Layer | 2,425mm (95,47mil) | 1,575mm (62,01mil) |
|        | 2          | 0,900mm (35,43mil)  | PTH    | Round     | Top Layer - Bottom Layer | -                  | -                  |
|        | 2          | 0,970mm (38,19mil)  | NPTH   | Round     | Top Layer - Bottom Layer | -                  | -                  |
|        | 171        | 1,000mm (39,37mil)  | PTH    | Round     | Top Layer - Bottom Layer | -                  | -                  |
|        | 100        | 1,100mm (43,31mil)  | PTH    | Round     | Top Layer - Bottom Layer | -                  | -                  |
|        | 2          | 1,190mm (46,85mil)  | NPTH   | Round     | Top Layer - Bottom Layer | -                  | -                  |
|        | 2          | 1,500mm (59,06mil)  | NPTH   | Round     | Top Layer - Bottom Layer | -                  | -                  |
|        | 5          | 3,200mm (125,98mil) | NPTH   | Round     | Top Layer - Bottom Layer | -                  | -                  |
|        | 2357 Total |                     |        |           |                          |                    |                    |

Slot definitions : Routed Path Length = Calculated from tool start centre position to tool end centre position.  
Hole Length = Routed Path Length + Tool Size = Slot length as defined in the PCB layout