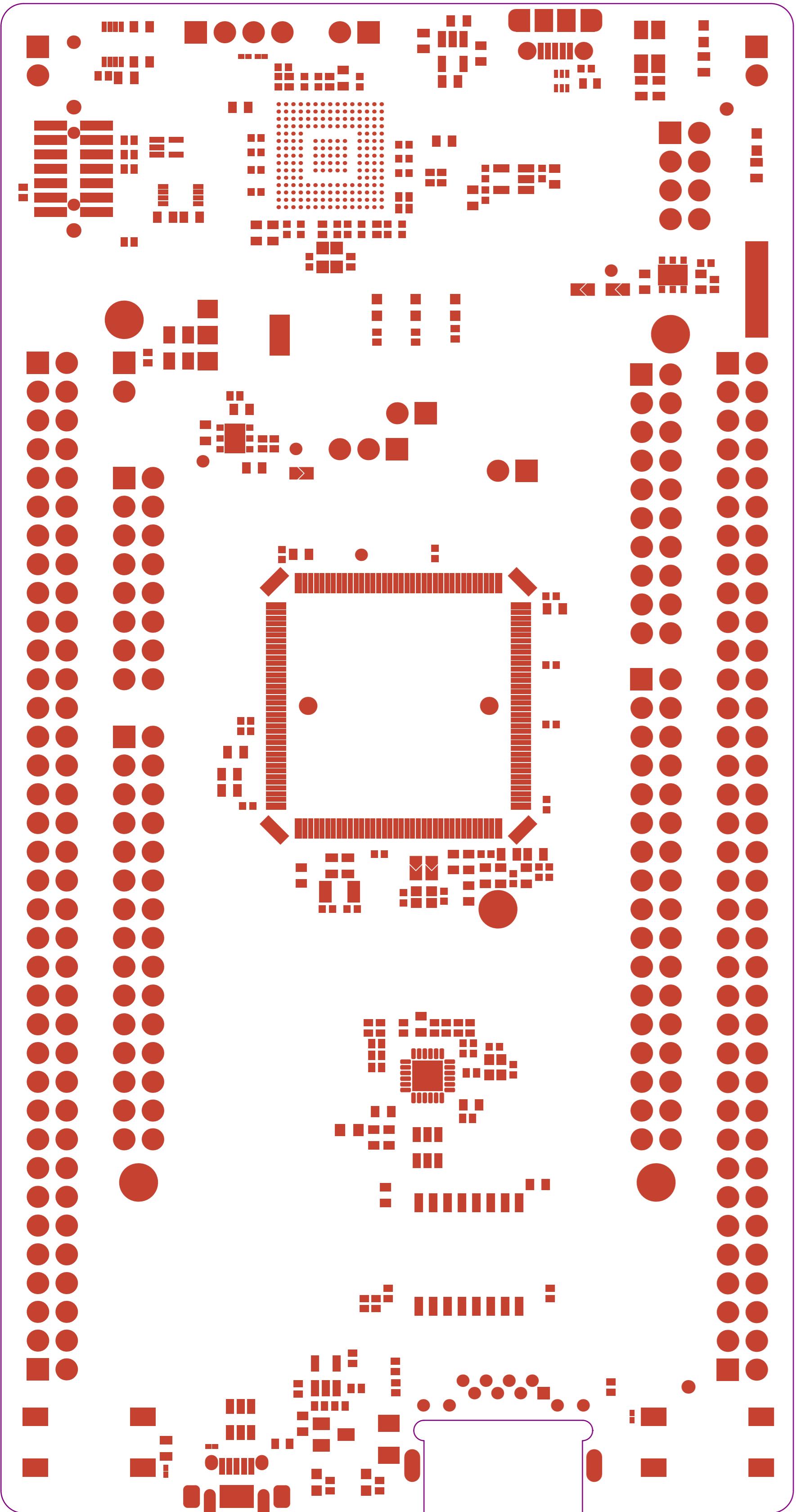


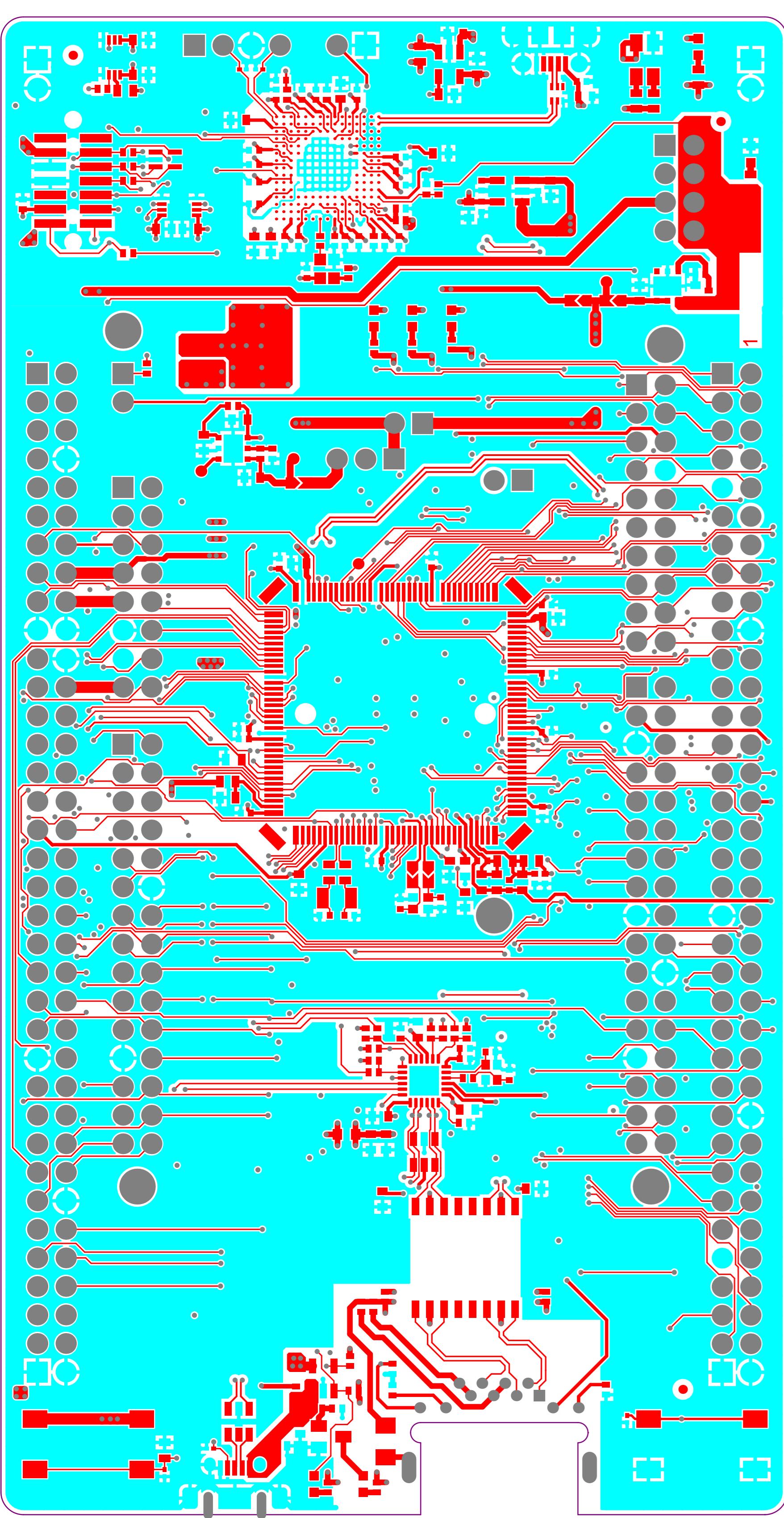
.GTO

Top Overlay



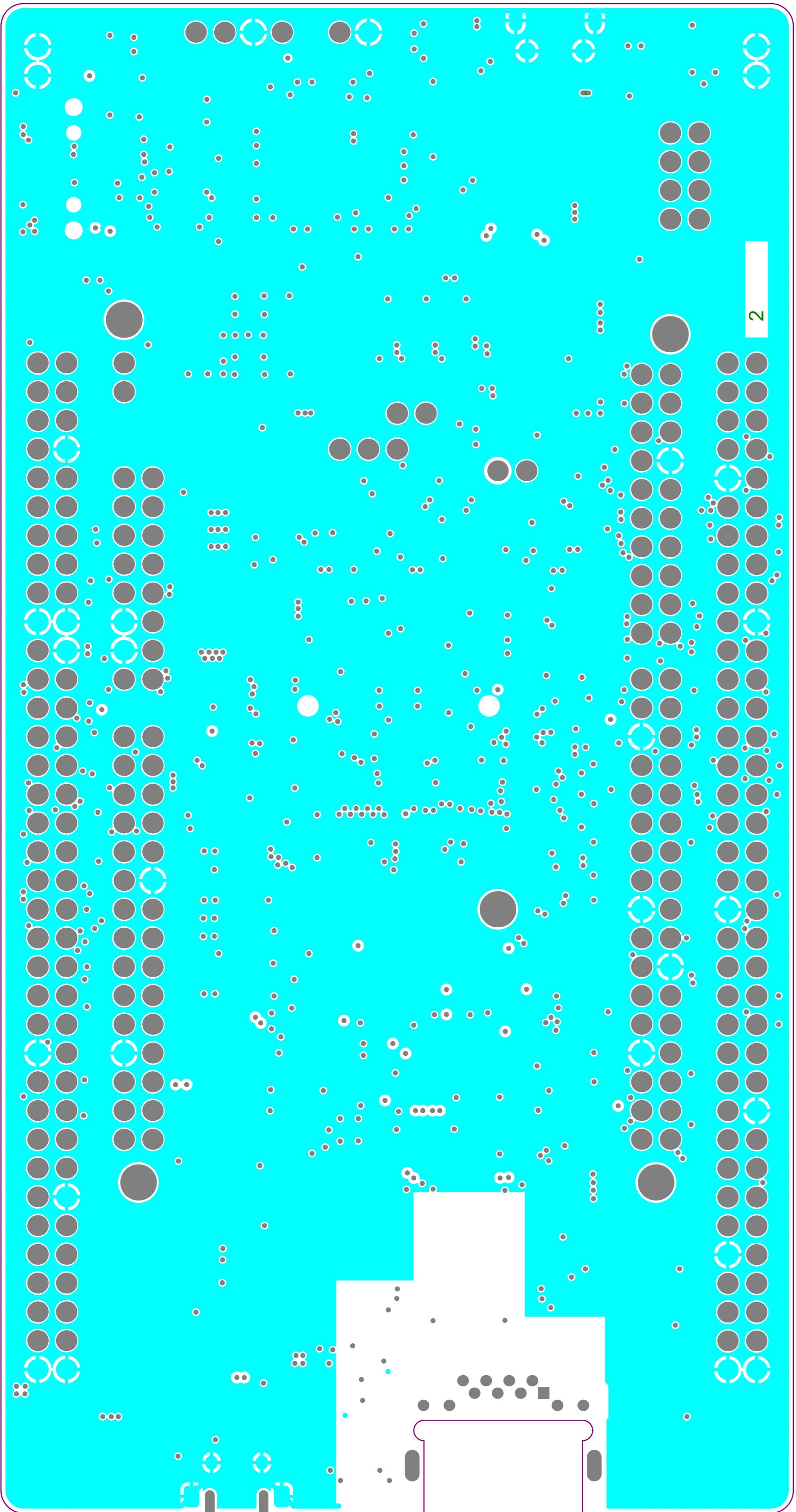
Top Solder

.GTS



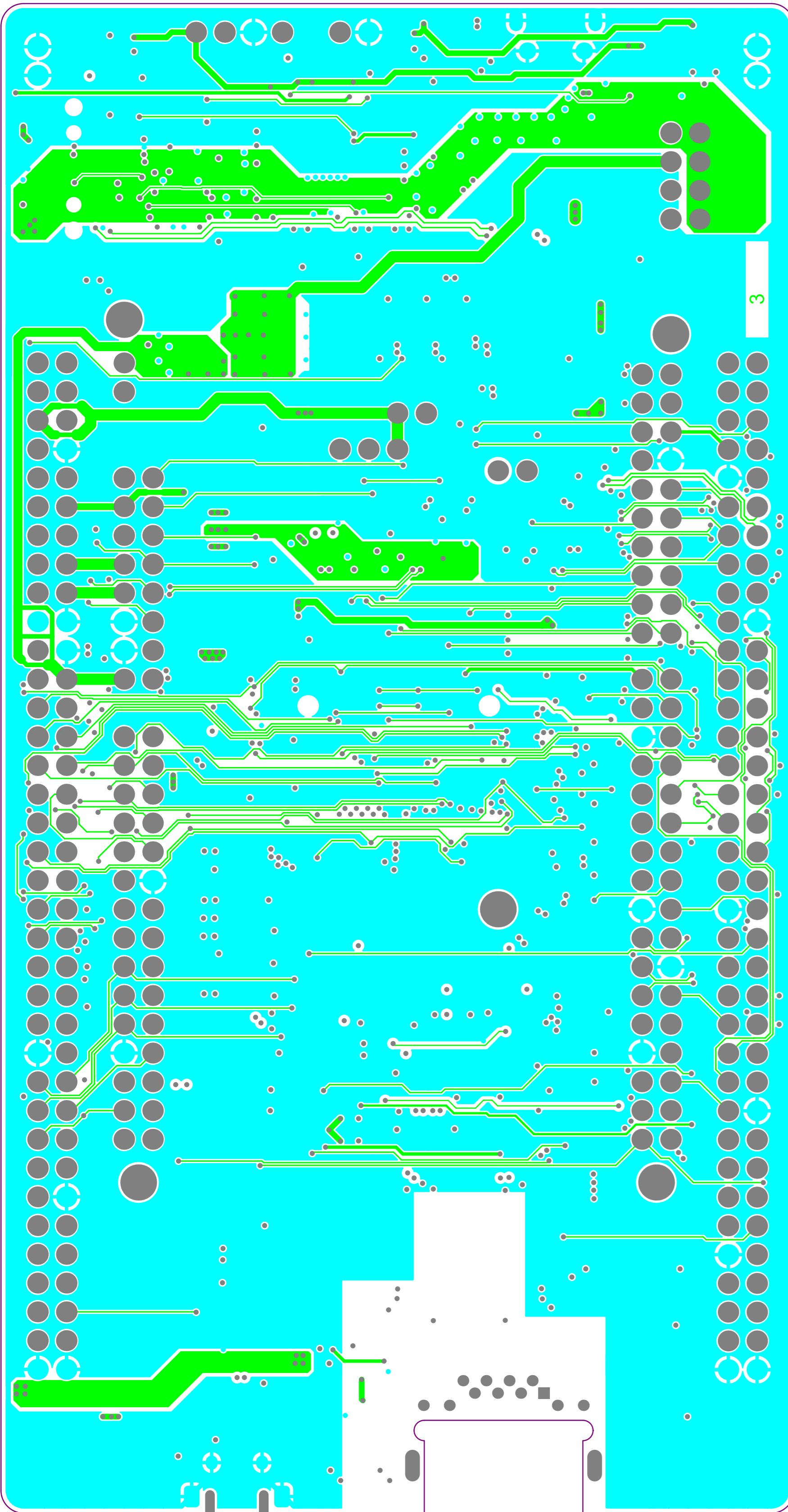
Top Layer

.GTL



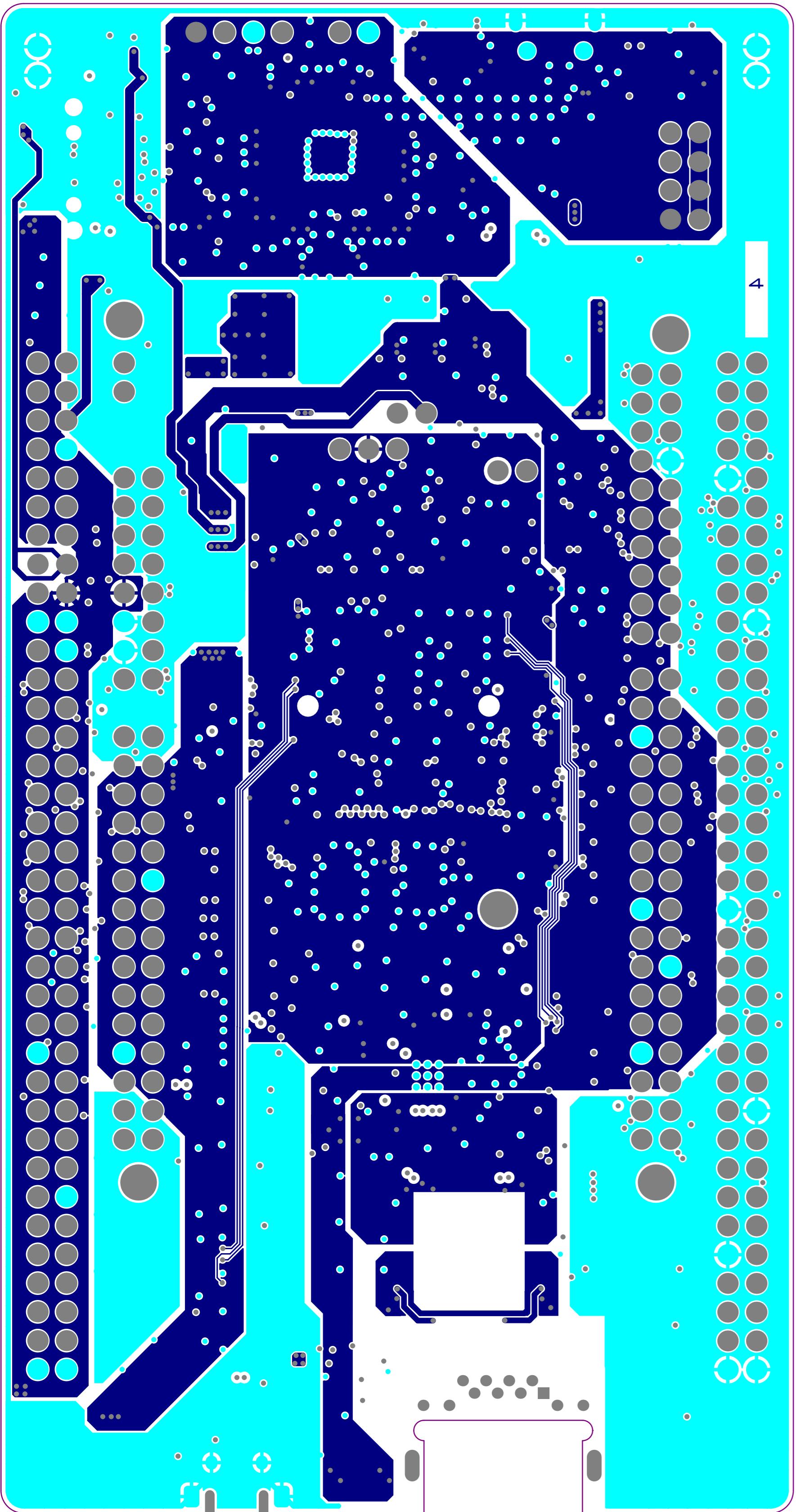
Signal Layer 1

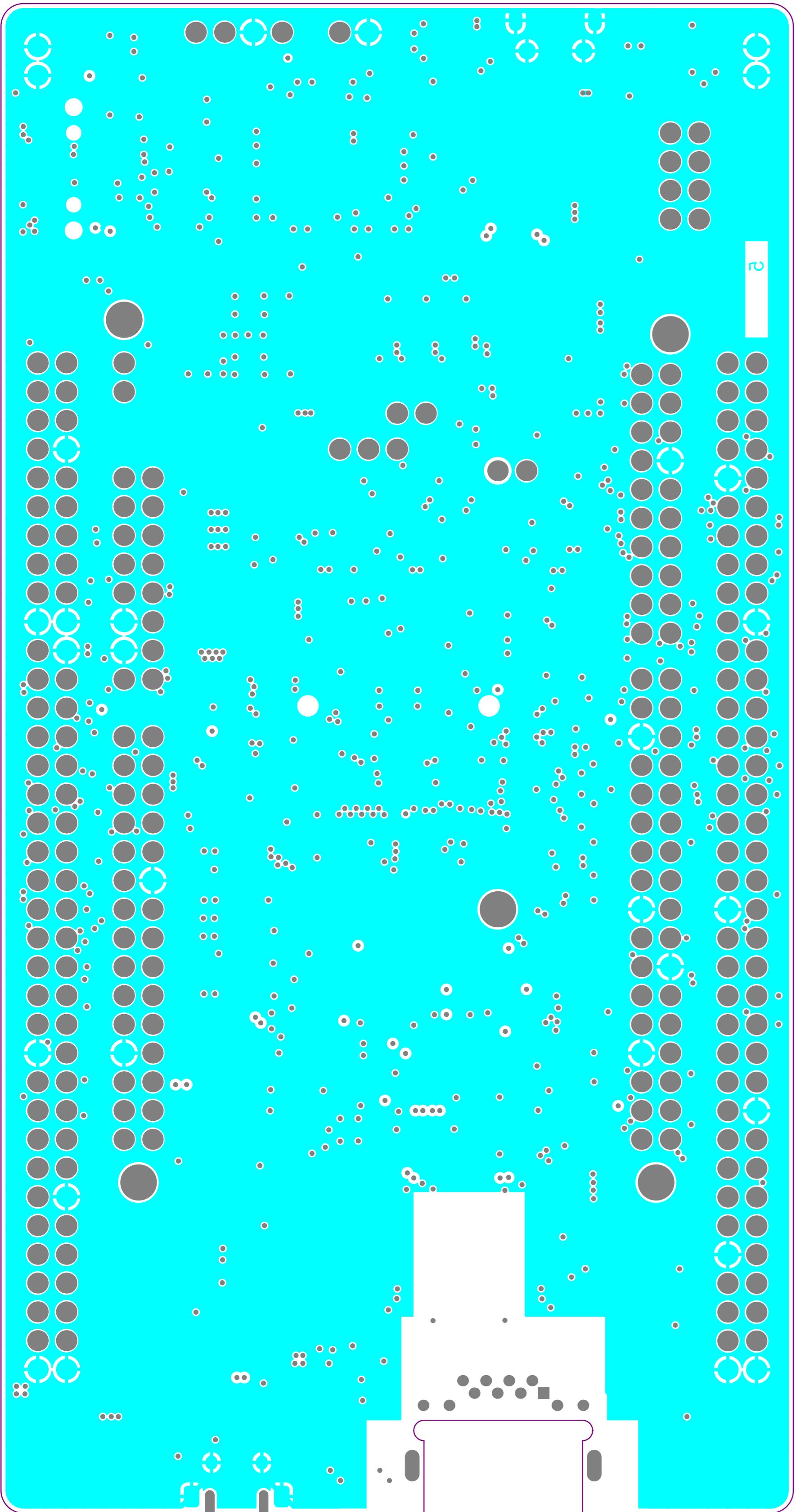
.G1

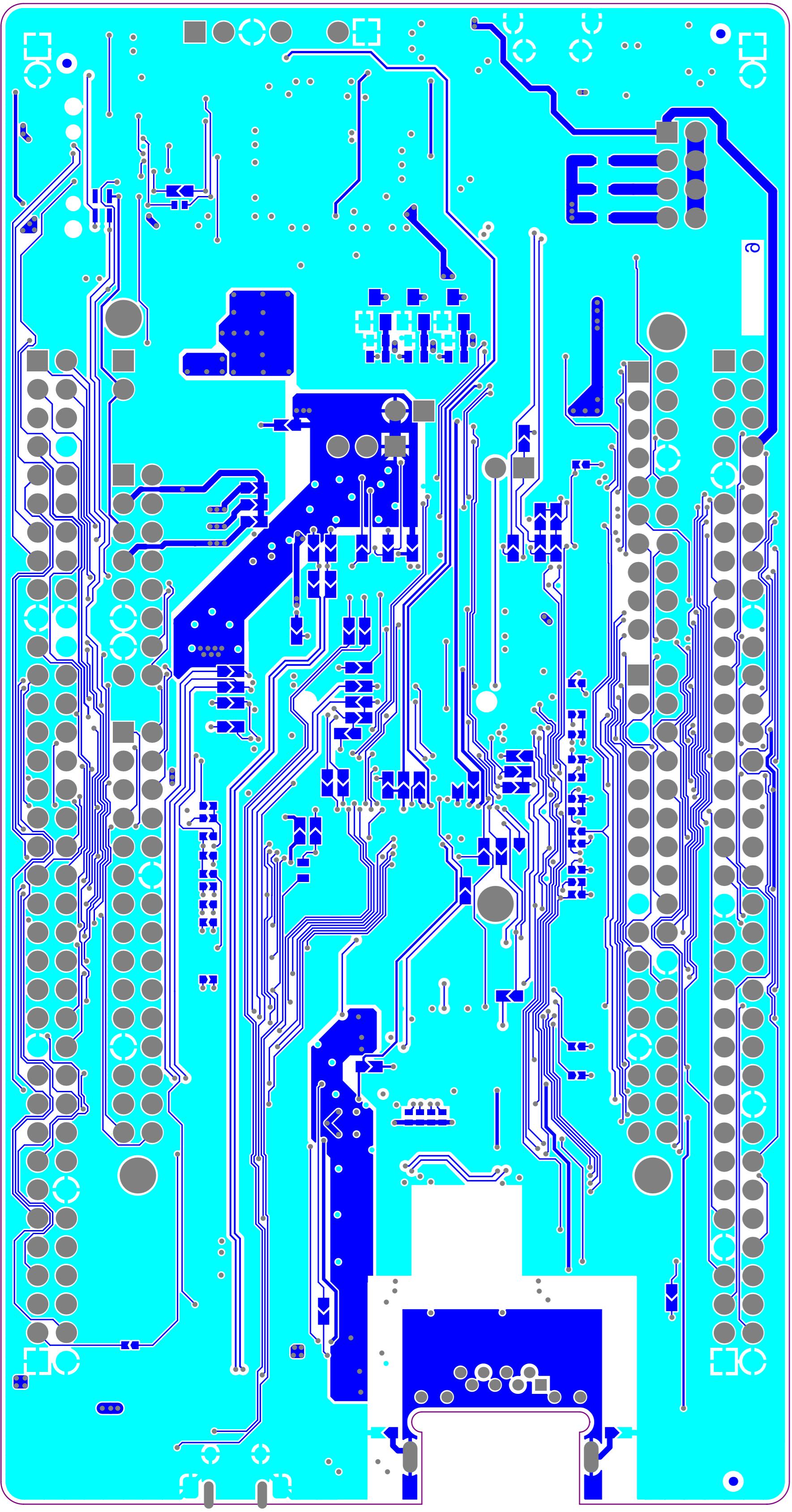


Signal Layer 2

.G2

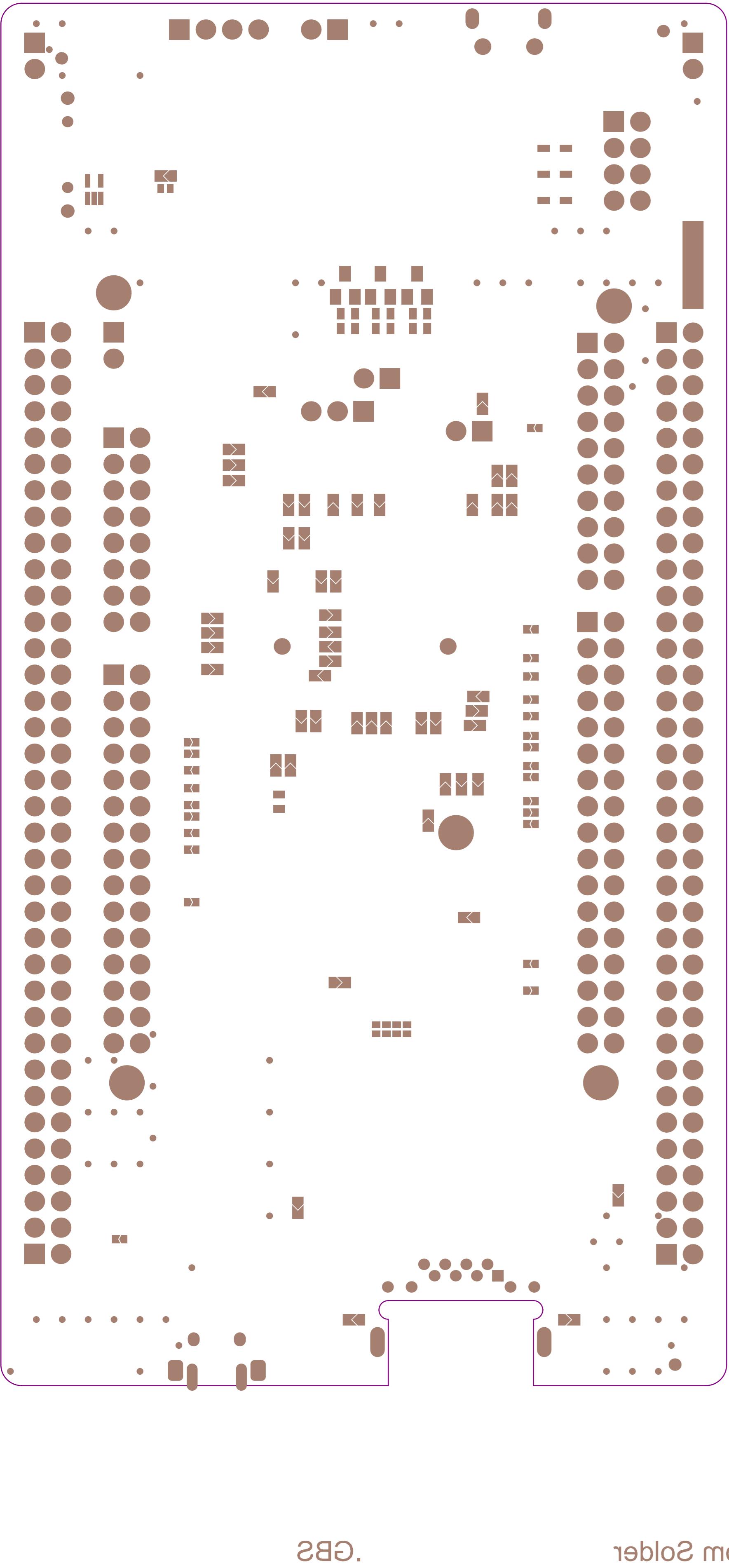


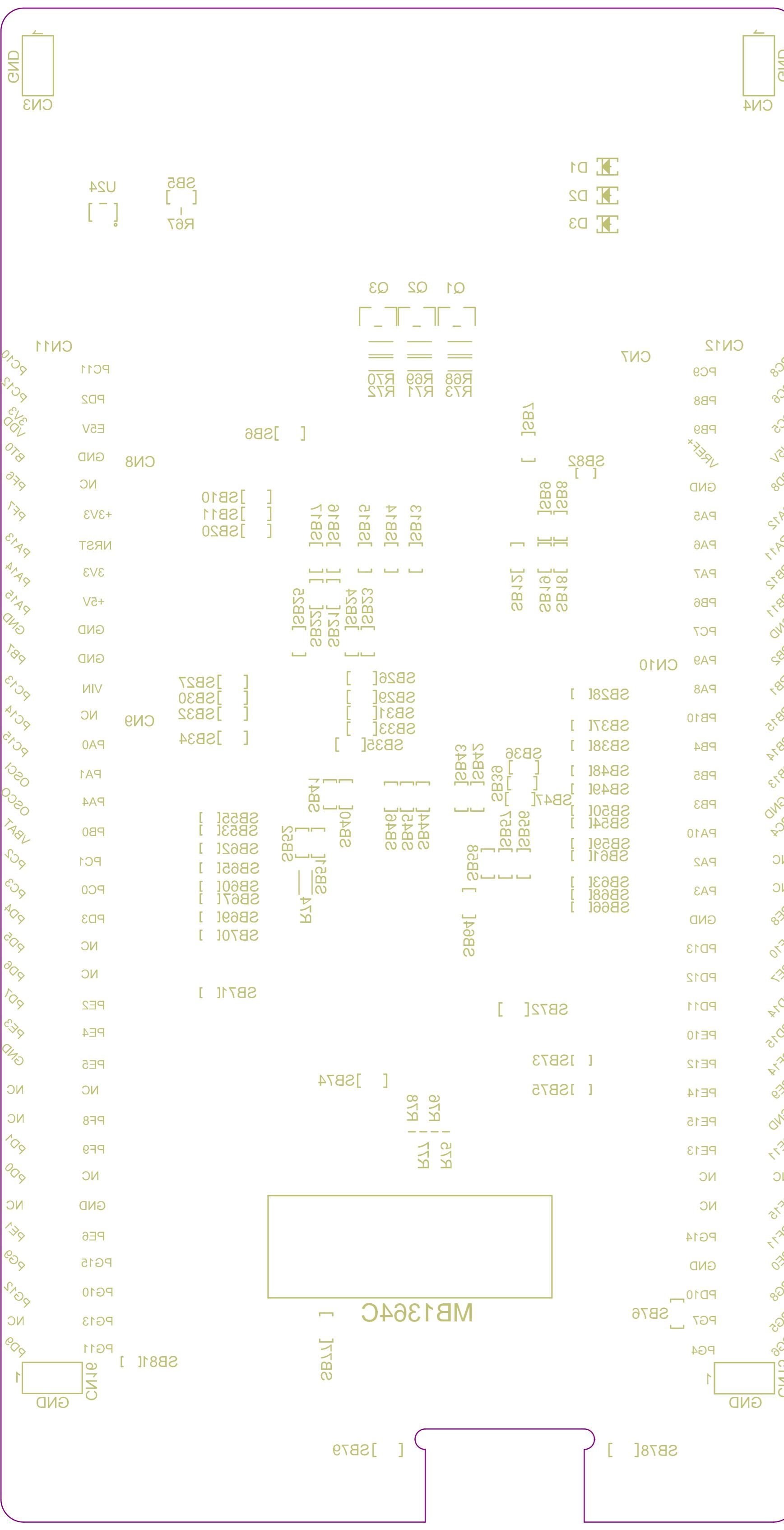




.GBC

Bottow Layer



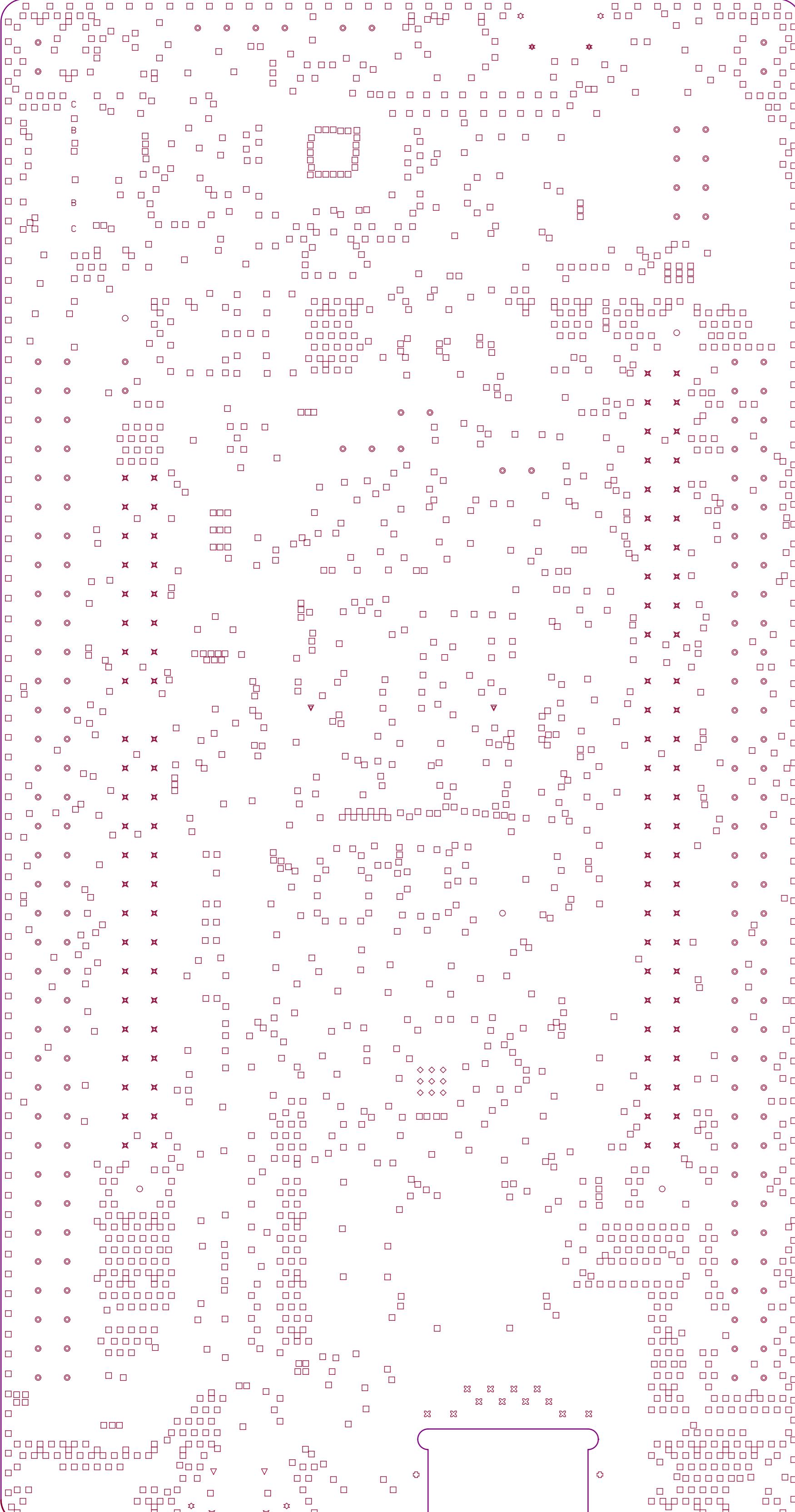


**Bottow Overhally** .GBO

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

## PCB SPECIFICATIONS :

- A. MATERIAL : FR-4  TG-170  TG-150  TG-140  
 B. MATERIAL FAMILY : N/A  
 C. SOLDERMASK COLOR :  GREEN  WHITE  RED  BLACK  
 D. SILKSCREEN COLOR :  WHITE  YELLOW  BLACK  Blue ink PANTONE 2955  
 E. SURFACE FINISH :  ENIG  IMMERSION SILVER  IMMERSION TIN  
 HASL  HASL (PB-FREE)  GOLDEN FINGER  
 F. IMPEDANCE CONTROL :  NO  YES (SEE IMPEDANCE TABLE FOR DETAIL INFORMATION)  
 G. THROUGH VIA : PLUG THE VIAS WHICH ARE COVERED WITH SOLDERMASK ONE OR TWO SIDE.  
 PLUG MATERIAL :  SOLDERMASK  NON-CONDUCTIVE EPOXY.  
 H. STACK-UP : 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
<input type="checkbox"/>	2042	0,200mm (7,87mil)	PTH	Round	Top Layer - Bottom Layer	-	-
<input type="diamond"/>	9	0,300mm (11,81mil)	PTH	Round	Top Layer - Bottom Layer	-	-
<input type="star"/>	4	0,600mm (23,62mil)	PTH	Slot	Top Layer - Bottom Layer	1,300mm (51,18mil)	0,700mm (27,56mil)
<input type="tri-down"/>	2	0,650mm (25,59mil)	PTH	Slot	Top Layer - Bottom Layer	0,850mm (33,47mil)	0,200mm (7,88mil)
<input type="x"/>	12	0,700mm (27,56mil)	PTH	Round	Top Layer - Bottom Layer	-	-
<input type="plus"/>	2	0,700mm (27,56mil)	PTH	Slot	Top Layer - Bottom Layer	2,200mm (86,61mil)	1,500mm (59,06mil)
<input type="asterisk"/>	2	0,850mm (33,47mil)	NPTH	Slot	Top Layer - Bottom Layer	2,425mm (95,47mil)	1,575mm (62,01mil)
<input type="star"/>	2	0,900mm (35,43mil)	PTH	Round	Top Layer - Bottom Layer	-	-
<input type="B"/>	2	0,970mm (38,19mil)	NPTH	Round	Top Layer - Bottom Layer	-	-
<input type="circle"/>	171	1,000mm (39,37mil)	PTH	Round	Top Layer - Bottom Layer	-	-
<input type="x"/>	100	1,100mm (43,31mil)	PTH	Round	Top Layer - Bottom Layer	-	-
<input type="C"/>	2	1,190mm (46,85mil)	NPTH	Round	Top Layer - Bottom Layer	-	-
<input type="tri-down"/>	2	1,500mm (59,06mil)	NPTH	Round	Top Layer - Bottom Layer	-	-
<input type="O"/>	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