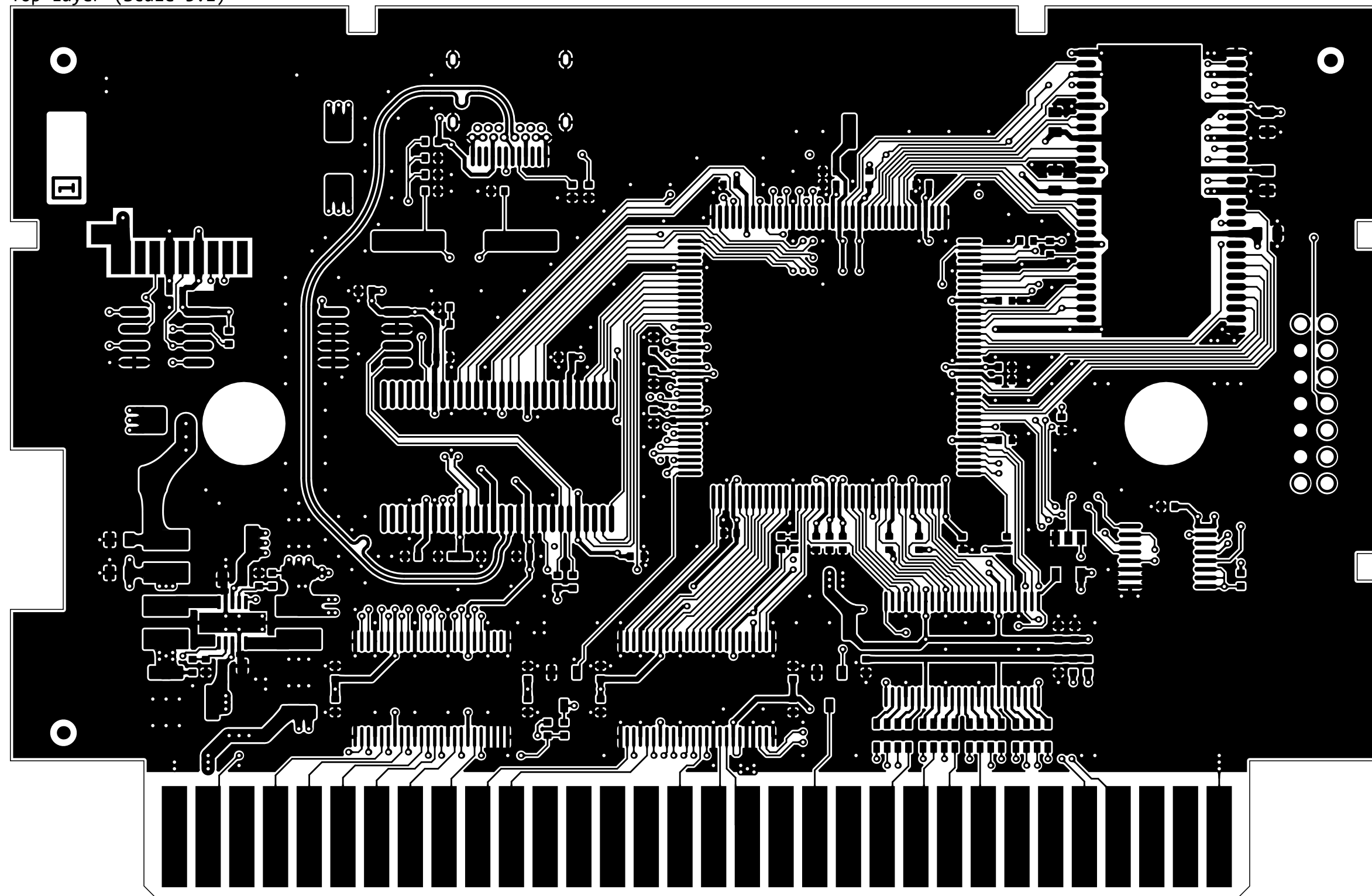
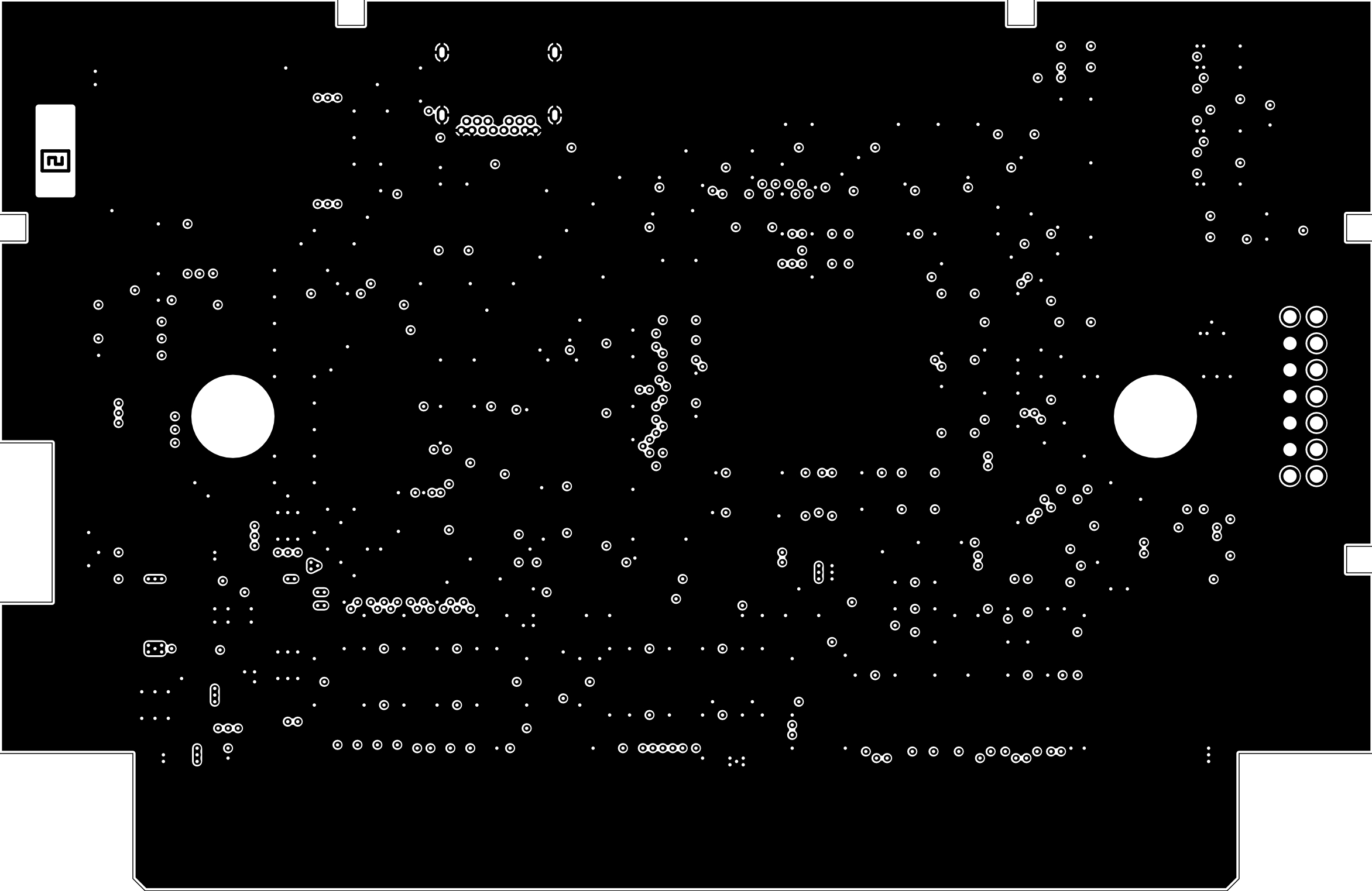


Layout Views

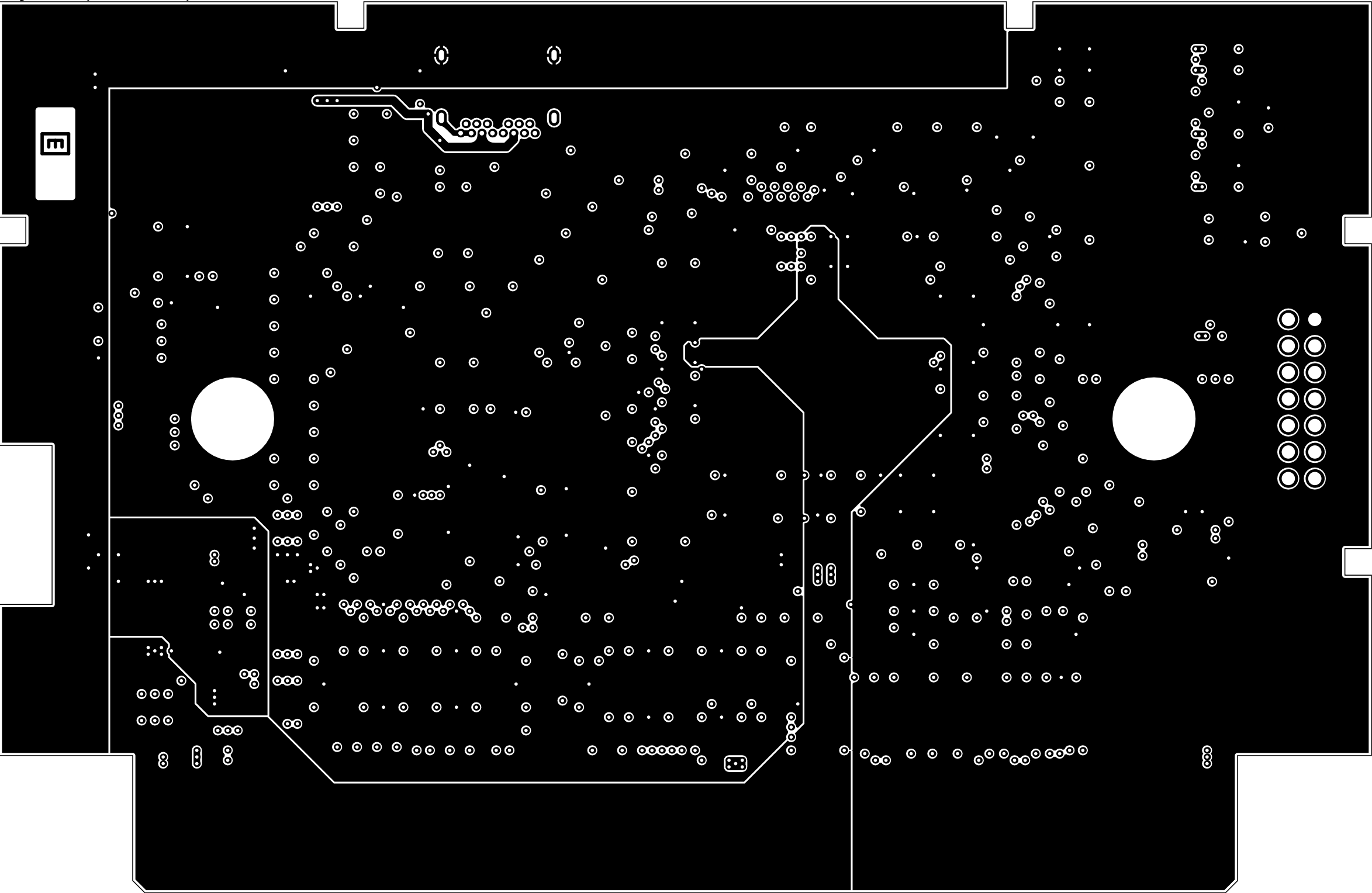
Top Layer (Scale 3:1)



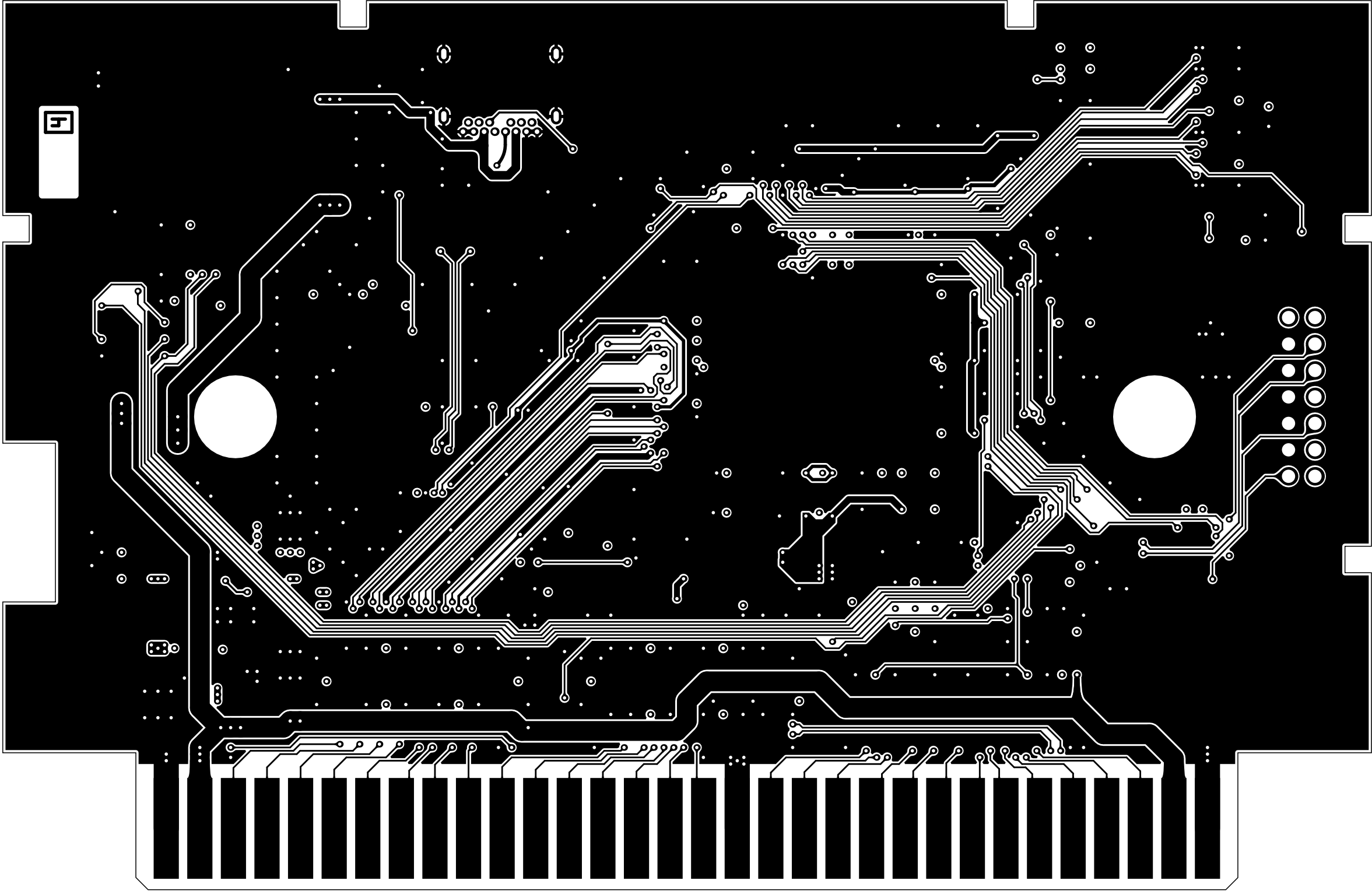
Layer 1 (Scale 3:1)



Layer 2 (Scale 3:1)

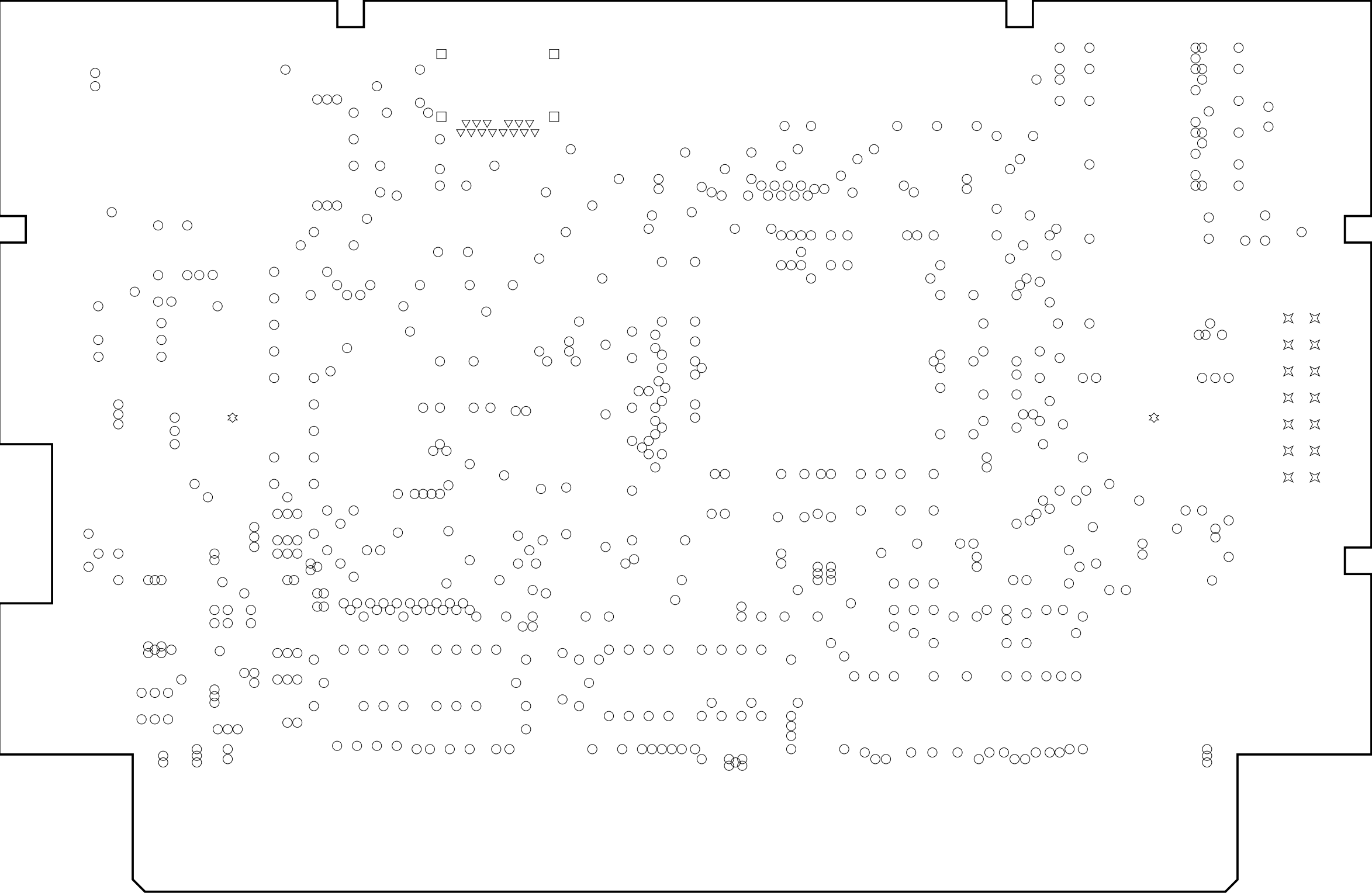


Bottom Layer (Scale 3:1)



Drill Positions and sizes

Drill Drawing View (Scale 3:1)



Drill Table

| Symbol | Count | Hole Size | Plated | Hole Type | Drill Layer Pair | Via / Pad |
|-----------|-------|-----------|------------|-----------|--------------------------|-----------|
| ○ | 637 | 0.25mm | Plated | Round | Top Layer - Bottom Layer | Via |
| ▽ | 14 | 0.35mm | Plated | Round | Top Layer - Bottom Layer | Pad |
| □ | 4 | 0.40mm | Plated | Slot | Top Layer - Bottom Layer | Pad |
| ✕ | 14 | 1.00mm | Plated | Round | Top Layer - Bottom Layer | Pad |
| ☆ | 2 | 6.00mm | Non-Plated | Round | Top Layer - Bottom Layer | Pad |
| 671 Total | | | | | | |

PCB Spec and stackup

PCB specifications

| | |
|----------------------------------|------------------------------|
| Base material | FR-4 TG-135 |
| Dimensions | 103.5 x 67.2 sq. mm |
| Thickness | ~1.56mm |
| Number of layers | 4 |
| Outer layer copper weight | 35um / 1oz |
| Inner layer copper weight | 18um / 0.5oz |
| Surface finish | ENIG |
| Smallest Track width / clearance | 0.125mm |
| Smallest Drill | 0.25mm |
| Solder mask | Green |
| Silkscreen | White, only on the top layer |
| Panelization | Single PCBs |

Layer Stack Legend

| Material | Layer | Thickness | Dielectric | Material Type | Gerber |
|--------------------------|----------------|-----------|---------------|---------------|--------|
| | Top Overlay | | | Legend | GTO |
| Surface Material | Top Solder | 0.010mm | Solder Resist | Solder Mask | GTS |
| Copper | Top Layer | 0.035mm | | Signal | GTL |
| Prepreg | | 0.200mm | PP-006 | Dielectric | |
| Copper | Layer 1 | 0.035mm | | Signal | G1 |
| Core | | 1.000mm | FR-4 | Dielectric | |
| Copper | Layer 2 | 0.035mm | | Signal | G2 |
| Prepreg | | 0.200mm | PP-006 | Dielectric | |
| Copper | Bottom Layer | 0.035mm | | Signal | GBL |
| Surface Material | Bottom Solder | 0.010mm | Solder Resist | Solder Mask | GBS |
| | Bottom Overlay | | | Legend | GBO |
| Total thickness: 1.560mm | | | | | |

Total thickness: 1.560mm

BOM Table

Bill Of Materials

| Line # | Designator | Manufacturer | Manufacturer Part Number | Description | Footprint | Value | Comment |
|--------|------------|--------------|--------------------------|---------------|-----------|-------|---------|
| 1 | C1 | Kemet | C1210C107M9PAC7800 | SMD Capacitor | C-1210 | 100uF | 100uF |
| 2 | C2 | Kemet | C1210C107M9PAC7800 | SMD Capacitor | C-1210 | 100uF | 100uF |
| 3 | C3 | Kemet | C0603C475K9PAC7867 | SMD Capacitor | C-0603 | 4.7uF | 4.7uF |
| 4 | C4 | Kemet | C1210C107M9PAC7800 | SMD Capacitor | C-1210 | 100uF | 100uF |
| 5 | C5 | Kemet | C0603C475K9PAC7867 | SMD Capacitor | C-0603 | 4.7uF | 4.7uF |
| 6 | C6 | Kemet | C1210C107M9PAC7800 | SMD Capacitor | C-1210 | 100uF | 100uF |
| 7 | C7 | Kemet | C0603C475K9PAC7867 | SMD Capacitor | C-0603 | 4.7uF | 4.7uF |
| 8 | C8 | Kemet | C0603C475K9PAC7867 | SMD Capacitor | C-0603 | 4.7uF | 4.7uF |
| 9 | C9 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 10 | C11 | Kemet | C1210C107M9PAC7800 | SMD Capacitor | C-1210 | 100uF | 100uF |
| 11 | C13 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 12 | C14 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 13 | C15 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 14 | C16 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 15 | C17 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 16 | C18 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 17 | C19 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 18 | C20 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 19 | C21 | Kemet | C0402C220J5GACTU | SMD Capacitor | C-0402 | 22pF | 22pF |
| 20 | C22 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 21 | C23 | Kemet | C0402C220J5GACTU | SMD Capacitor | C-0402 | 22pF | 22pF |
| 22 | C24 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 23 | C25 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 24 | C26 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 25 | C27 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 26 | C28 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 27 | C29 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 28 | C30 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 29 | C31 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 30 | C32 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 31 | C33 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 32 | C34 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 33 | C35 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 34 | C36 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 35 | C37 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 36 | C38 | Kemet | C1210C107M9PAC7800 | SMD Capacitor | C-1210 | 100uF | 100uF |
| 37 | C39 | Kemet | C1210C107M9PAC7800 | SMD Capacitor | C-1210 | 100uF | 100uF |
| 38 | C40 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 39 | C41 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 40 | C42 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 41 | C43 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 42 | C44 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 43 | C45 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 44 | C46 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 45 | C47 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 46 | C48 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 47 | C49 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 48 | C50 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 49 | C51 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 50 | C52 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 51 | C53 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 52 | C54 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 53 | C55 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 54 | C56 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |

Bill Of Materials

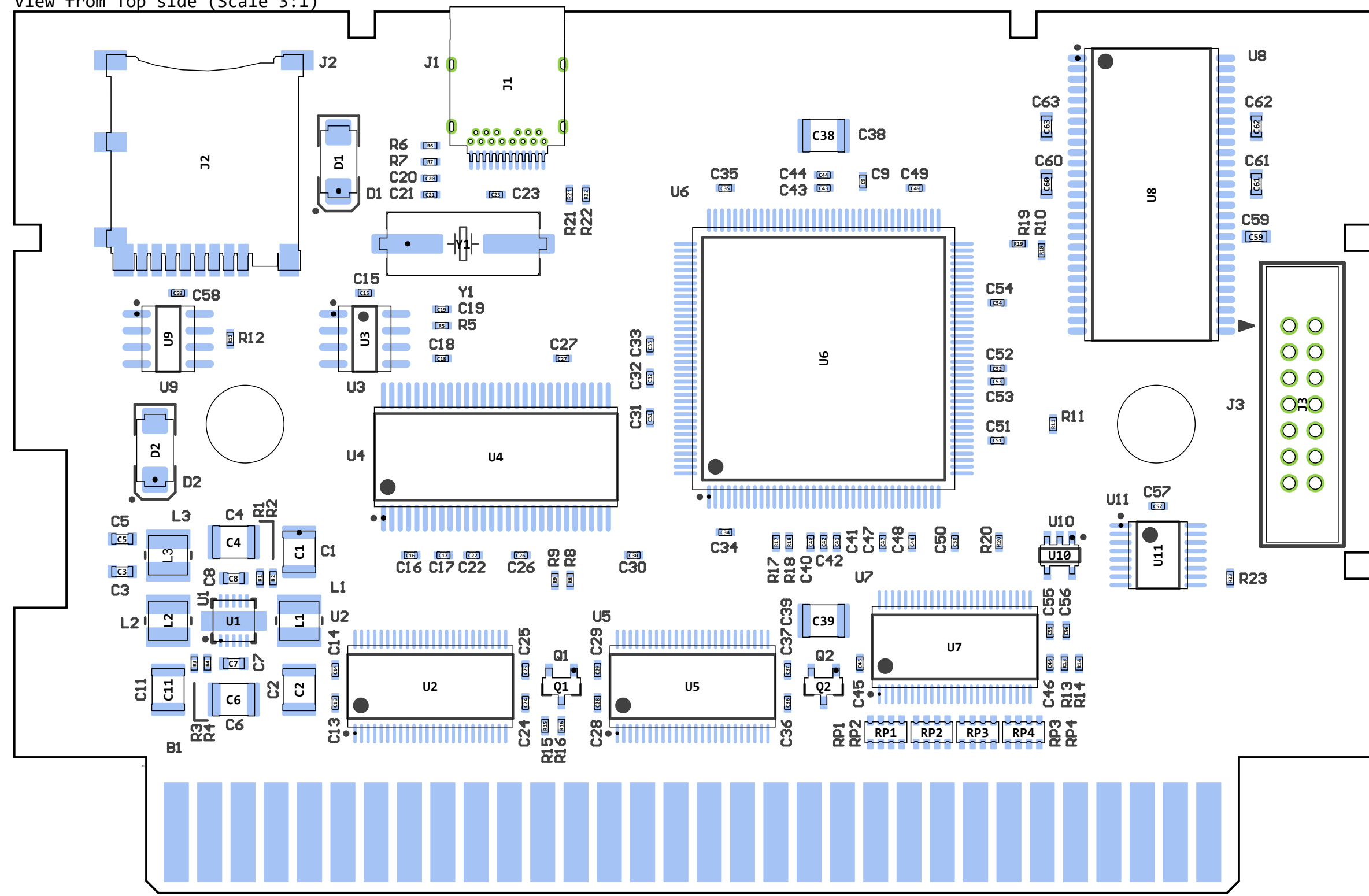
| Line # | Designator | Manufacturer | Manufacturer Part Number | Description | Footprint | Value | Comment |
|--------|------------|---------------------|--------------------------|--|--------------|-------|--------------------|
| 55 | C57 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 56 | C58 | Kemet | C0402C105K9PAC7867 | SMD Capacitor | C-0402 | 1uF | 1uF |
| 57 | C59 | Kemet | C0603C475K9PAC7867 | SMD Capacitor | C-0603 | 4.7uF | 4.7uF |
| 58 | C60 | Kemet | C0603C475K9PAC7867 | SMD Capacitor | C-0603 | 4.7uF | 4.7uF |
| 59 | C61 | Kemet | C0603C475K9PAC7867 | SMD Capacitor | C-0603 | 4.7uF | 4.7uF |
| 60 | C62 | Kemet | C0603C475K9PAC7867 | SMD Capacitor | C-0603 | 4.7uF | 4.7uF |
| 61 | C63 | Kemet | C0603C475K9PAC7867 | SMD Capacitor | C-0603 | 4.7uF | 4.7uF |
| 62 | D1 | ST Microelectronics | STPS2L30A | Schottky Diode | D-SMA | | B230A-13-F |
| 63 | D2 | ST Microelectronics | STPS2L30A | Schottky Diode | D-SMA | | B230A-13-F |
| 64 | J1 | Wuerth Elektronik | 632723300011 | 632723300011 | 632723300011 | | 632723300011 |
| 65 | J2 | Molex | 5027740891 | Micro SDCard Slot Push Push | 5027740891 | | 5027740891 |
| 66 | L1 | Wuerth Elektronik | 74438336033 | SMD Inductor | I-1212 | 3.3uH | 3.3uH |
| 67 | L2 | Wuerth Elektronik | 74438336033 | SMD Inductor | I-1212 | 3.3uH | 3.3uH |
| 68 | L3 | Wuerth Elektronik | 74438336033 | SMD Inductor | I-1212 | 3.3uH | 3.3uH |
| 69 | Q1 | Nexperia | 2N7002,215 | N-Channel Mosfet | T-SOT23 | | 2N7002 |
| 70 | Q2 | Nexperia | 2N7002,215 | N-Channel Mosfet | T-SOT23 | | 2N7002 |
| 71 | R1 | Vishay | CRCW04021K50FKEDC | SMD Resistor | R-0402 | 1.5k | 1.5k |
| 72 | R2 | Vishay | CRCW04026K80FKEDC | SMD Resistor | R-0402 | 6.8k | 6.8k |
| 73 | R3 | Vishay | CRCW04023K30FKEDC | SMD Resistor | R-0402 | 3.3k | 3.3k |
| 74 | R4 | Vishay | CRCW04023K30FKEDC | SMD Resistor | R-0402 | 3.3k | 3.3k |
| 75 | R5 | Vishay | CRCW04021K50FKEDC | SMD Resistor | R-0402 | 1.5k | 1.5k |
| 76 | R6 | Vishay | CRCW04023K30FKEDC | SMD Resistor | R-0402 | 3.3k | 3.3k |
| 77 | R7 | Vishay | CRCW04026K80FKEDC | SMD Resistor | R-0402 | 6.8k | 6.8k |
| 78 | R8 | Vishay | CRCW04023K30FKEDC | SMD Resistor | R-0402 | 3.3k | 3.3k |
| 79 | R9 | Vishay | CRCW04023K30FKEDC | SMD Resistor | R-0402 | 3.3k | 3.3k |
| 80 | R10 | Vishay | CRCW04023K30FKEDC | SMD Resistor | R-0402 | 3.3k | 3.3k |
| 81 | R11 | Vishay | CRCW04023K30FKEDC | SMD Resistor | R-0402 | 3.3k | 3.3k |
| 82 | R12 | Vishay | CRCW04023K30FKEDC | SMD Resistor | R-0402 | 3.3k | 3.3k |
| 83 | R13 | Vishay | CRCW04021R00FKEDC | SMD Resistor | R-0402 | 1R | 1R |
| 84 | R16 | Vishay | CRCW0402220RFKEDC | SMD Resistor | R-0402 | 220R | 220R |
| 85 | R17 | Vishay | CRCW04021R00FKEDC | SMD Resistor | R-0402 | 1R | 1R |
| 86 | R19 | Vishay | CRCW04023K30FKEDC | SMD Resistor | R-0402 | 3.3k | 3.3k |
| 87 | R20 | Vishay | CRCW04023K30FKEDC | SMD Resistor | R-0402 | 3.3k | 3.3k |
| 88 | R21 | Vishay | CRCW04025K10FKEDC | SMD Resistor | R-0402 | 5.1k | 5.1k |
| 89 | R22 | Vishay | CRCW04025K10FKEDC | SMD Resistor | R-0402 | 5.1k | 5.1k |
| 90 | R23 | Vishay | CRCW04025K10FKEDC | SMD Resistor | R-0402 | 5.1k | 5.1k |
| 91 | RP1 | Bourns | CAT16-271J4LF | SMD Resistor Pack of 4 | RP4-1206 | 270R | 270R |
| 92 | RP2 | Bourns | CAT16-271J4LF | SMD Resistor Pack of 4 | RP4-1206 | 270R | 270R |
| 93 | RP3 | Bourns | CAT16-271J4LF | SMD Resistor Pack of 4 | RP4-1206 | 270R | 270R |
| 94 | RP4 | Bourns | CAT16-271J4LF | SMD Resistor Pack of 4 | RP4-1206 | 270R | 270R |
| 95 | U1 | Richtek USA Inc. | RT8035GQW | DCDC Synchronous buck converter | 10SON | | RT8035 |
| 96 | U2 | Nexperia | 74LVC16245ADGG,118 | Low-Voltage 16-Bit 3-State Non-Inverting Transceiver with 5V-Tolerant Inputs and Outputs | 1201-01_L | | 74LVC16245ADGG,118 |
| 97 | U3 | Microchip | 24LC128-E/SN | 128Kbit, 400kHz, 2.5V, I2C Serial EEPROM, 8-Pin SOIC 150mil, Extended Temperature | SOIC-SN8_N | | 24LC128-E/SN |
| 98 | U4 | Cypress | CY7C68014A-56PVXC | EZ-USB FX2LP USB Microcontroller Ideal for Battery Powered Applications,16K RAM, 24 I/Os, 56-Pin SSOP, Pb-Free, Commercial Grade | 056_N | | CY7C68014A-56PVXC |
| 99 | U5 | Nexperia | 74LVC16245ADGG,118 | Low-Voltage 16-Bit 3-State Non-Inverting Transceiver with 5V-Tolerant Inputs and Outputs | 1201-01_L | | 74LVC16245ADGG,118 |

Bill Of Materials

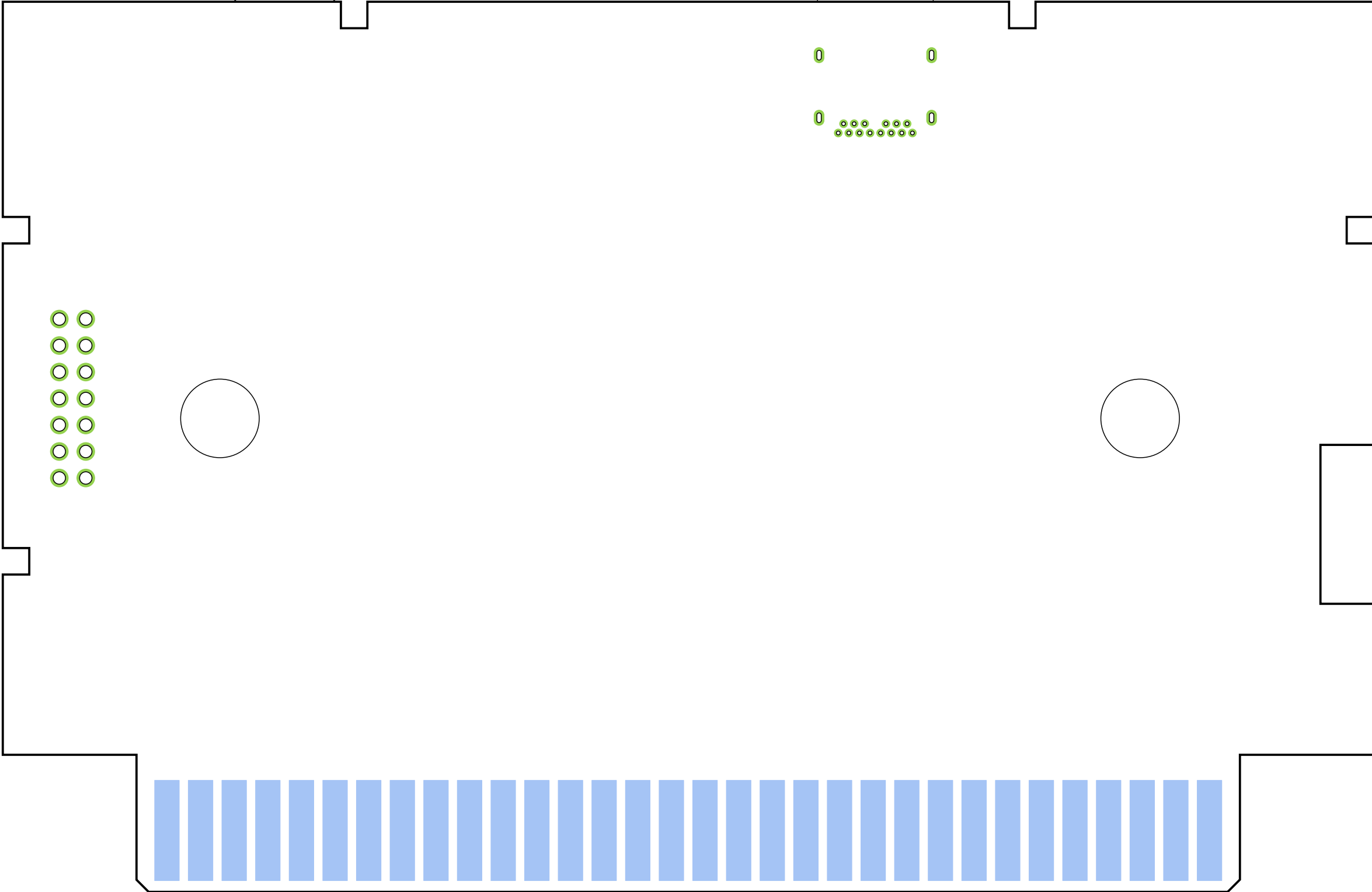
[illegible]

Assembly Drawing

View from Top side (Scale 3:1)

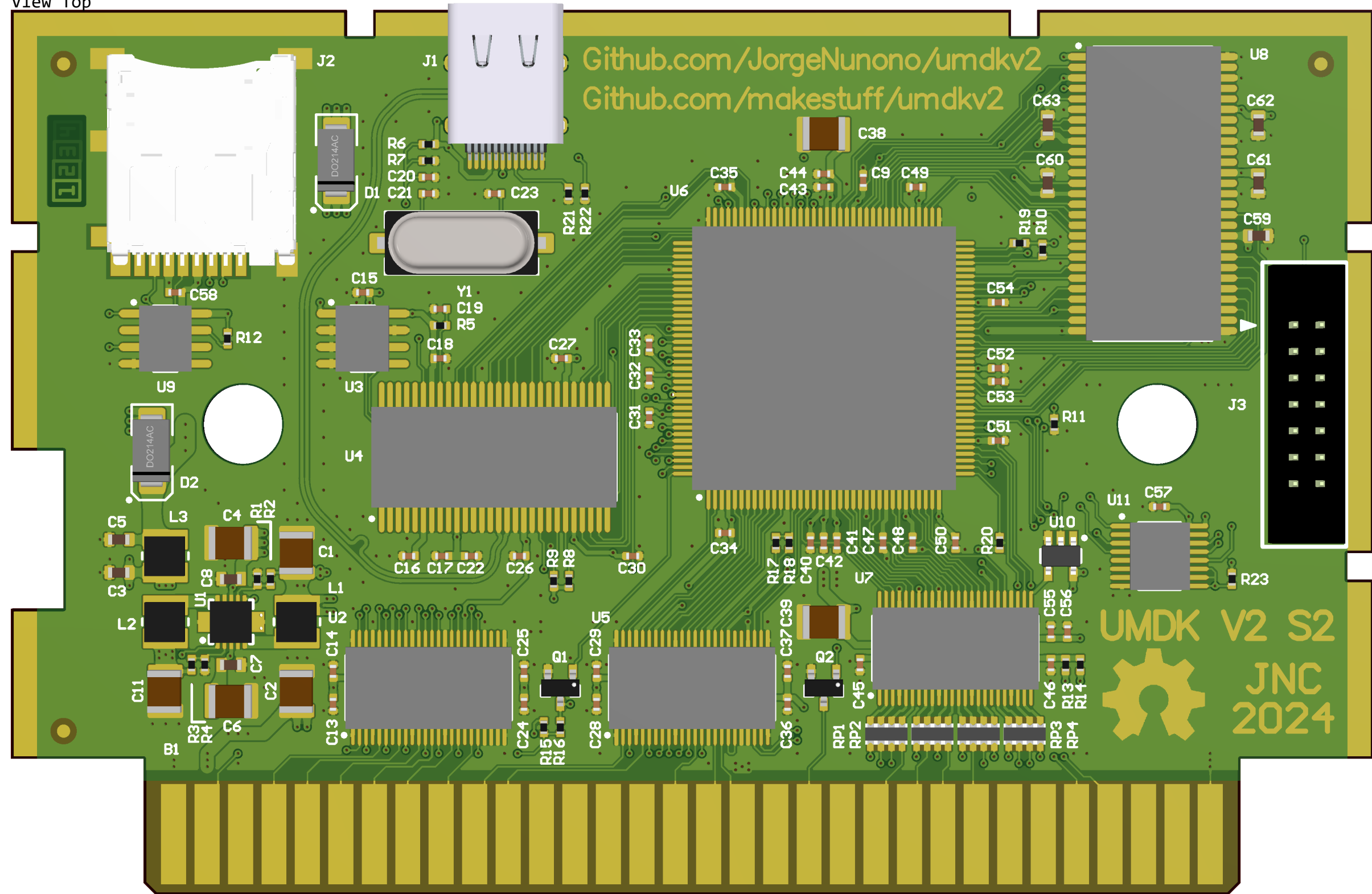


View from Bottom side (Scale 3:1)

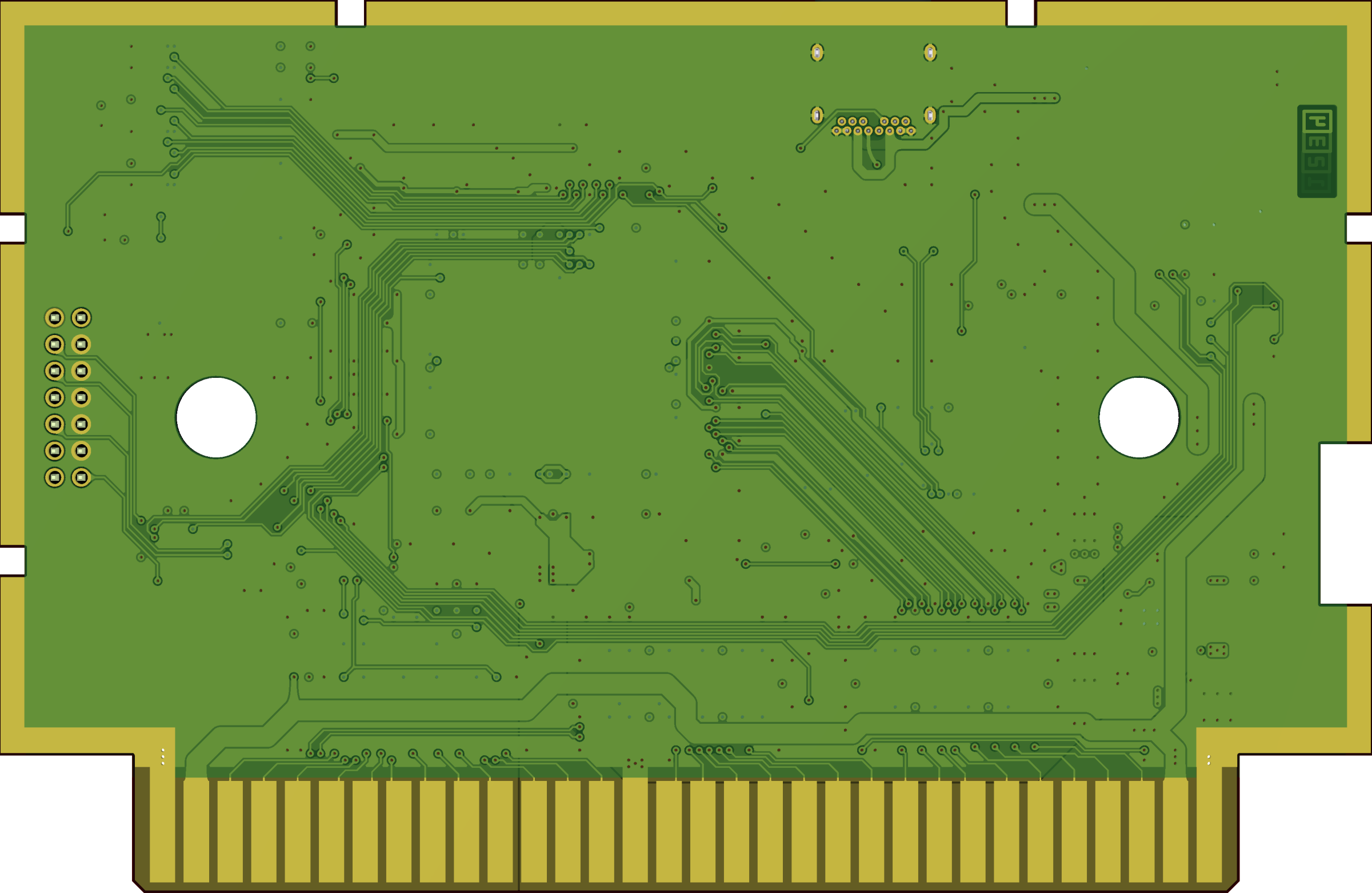


Realistic View

[View Top](#)



View Bottom



Solder Paste

View from Top side (Scale 3:1)

