Offset
Offset.SchDoc

balancingBridge
balancingBridge.SchDoc

Bridge_Other   V_bridge_fil

Instrumentation amplifier
Instrumentation amplifier.SchDoc

V_bridge_In   Vout_Amplifier

V_Bridge_other

Amplifier
Amplifier.SchDoc

IA_Input

output

MicroController
microController.SchDoc

Amplifier Input

Power
Power.SchDoc

Title	Torque Sensor	
Size	Number	Revision
A4	1	
Date:	12/12/2024	Sheet 1 of 7
File:	C:\Users\..\Main PCB.SchDoc	Drawn By: Mavishan and Nilupulee

J1

1   1
2   2
3   3
4   4

Bridge_Other

VCC

C1
0.1uF
GND

VCC

R1
10k
1   2

R3
10K

GND

GND

VCC

U1
AD5171BRJZ100-R2

2   VDD   SCL   4
8   A   SDA   5
7   B   W   1
6   AD0   GND   3

GND

GND

J2

2
1

R2
4.7k
1   2

V_bridge_fil

C2
0.22uF

GND

VCC

C3
0.1uF
2
1

GND

R4
4.7k
1   2

V_Bridge_other

C4
0.22uF
2
1

GND

C5
470nF
2
1

V_bridge_In

U2
AD8293G160ARJZ-R7

Pin	Name		Name	Pin
7	+VS		ADC OUT	4
8	+IN		OUT	6
1	-IN			
5	FILT			
3	REF		GND	2

Vout_Amplifier

C6
0.33uF
2
1

GND

REF

C7
0.1uF
2
1

GND

GND

C8
4.7pF
2   1

GND

Title	Instrumentation Amplifier	
Size	Number	Revision
A4	3	
Date:	12/12/2024	Sheet 3 of 7
File:	C:\Users\..\Instrumentation amplifier.SchDoc	Drawn By: Mavishan and Nilupulee

A

VCC

C9
0.1uF
2
1

GND

U3
AD5171BRJZ100-R2

2 VDD   SCL 4
8 A   SDA 5
7 B   W   1
6 AD0   GND 3

J3
2
1

GND

R5
1K
2
1

GND

C10
0.33uF
2
1

GND

GND

R6
10k
1   2

GND

C11
0.1uF
2   1

B

IC1
OPA336NA_3K

1 OUT   -IN 4
2 V-   V+   5
3 +IN

output

GND

VCC

C12
0.1uF
2
1

GND

IA_Input

C13
0.33uF
2
1

GND

C
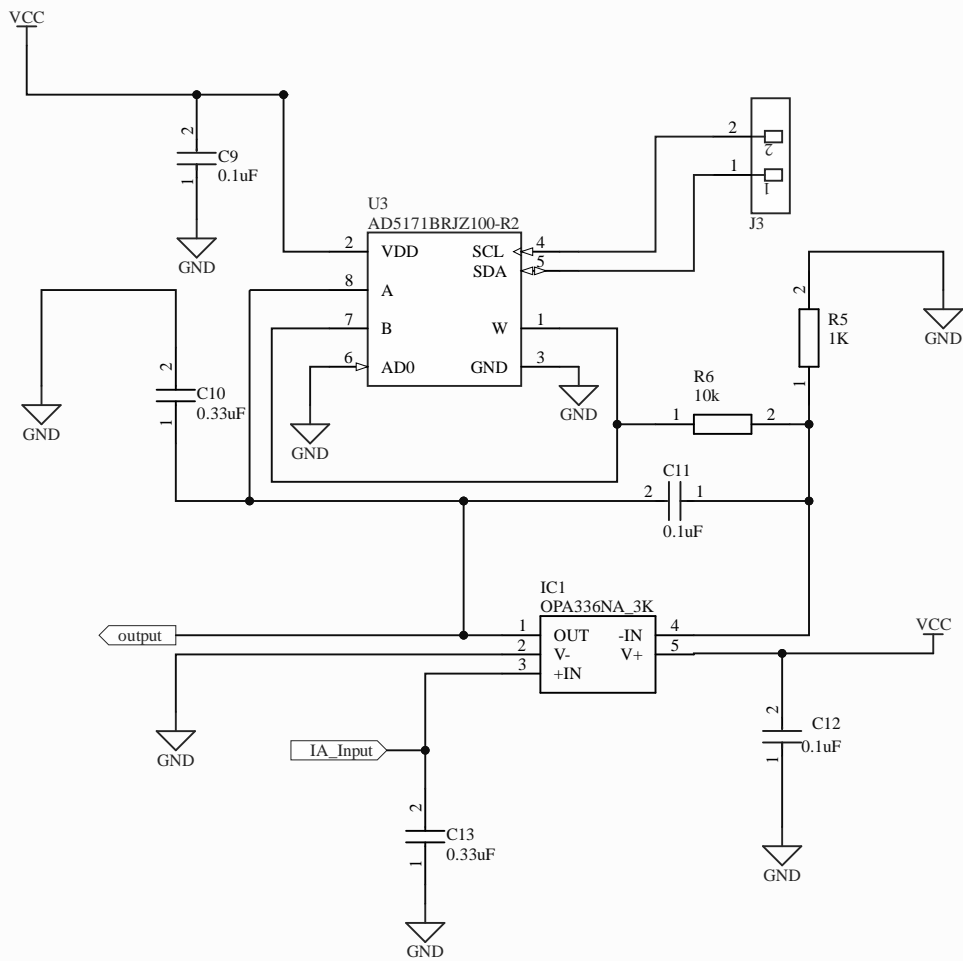
Title	Amplifier		
Size	Number		Revision
A4	4		
Date:	12/12/2024	Sheet 4 of 7	
File:	C:\Users\..\Amplifier.SchDoc	Drawn By: Mavishan and Nilupulee	

D

J4

J5

MISO	1		2	MOSI
SCK	3		4	RESET
VCC	5		6	

GND

VCC

VCC

R7
10k

U4
ATmega328P-AU

VCC	6			
VCC	4		ADC6	19
			ADC7	22
AVCC	18		PC0 (ADC0/PCINT8)	23
			PC1 (ADC1/PCINT9)	24
AREF	20		PC2 (ADC2/PCINT10)	25
			PC3 (ADC3/PCINT11)	26
			PC4 (ADC4/SDA/PCINT12)	27
			PC5 (ADC5/SCL/PCINT13)	28
			PC6 (RESET/PCINT14)	29

S1

| | A1 | COM_1   COM_2 | B1 | |
| | C1 | NO_1   NO_2 | D1 | |

C15
0.1uF

Amplifier Input

RESET

GND

VCC

C14
10uF

VCC

C16
10uF

C17
0.1uF

GND

GND

PD0 (RXD/PCINT16)	30
PD1 (TXD/PCINT17)	31
PD2 (INT0/PCINT18)	32
PD3 (PCINT19/OC2B/INT1)	1
PD4 (PCINT20/XCK/T0)	2
PD5 (PCINT21/OC0B/T1)	9
PD6 (PCINT22/OC0A/AIN0)	10
PD7 (PCINT23/AIN1)	11
PB0 (PCINT0/CLKO/ICP1)	12
PB1 (PCINT1/OC1A)	13
PB2 (PCINT2/SS/OC1B)	14
PB3 (PCINT3/OC2A/MOSI)	15
PB4 (PCINT4/MISO)	16
PB5 (SCK/PCINT5)	17

MOSI
MISO
SCK

GND	3	PB6 (PCINT6/XTAL1/TOSC1)	7
GND	5	PB7 (PCINT7/XTAL2/TOSC2)	8
GND	21		

GND

Y1

| | 4 | GND_2   HOT_2 | 3 | |
| | 1 | HOT_1   GND_1 | 2 | |

C19
22pF

C18
22pF

GND

GND

Title	Microcontroller	
Size	Number	Revision
A4	5	
Date:	12/12/2024	Sheet 5 of 7
File:	C:\Users\..\microController.SchDoc	Drawn By: Mavishan and Nilupulee

A

B

J6

power nets

VCC1   (i)

IC2

| 1 | VCC | FIN_(NC) | 3 |
| 2 | VOUT | | |

VCC

C20
1uF

C21
22uF

(i)
power nets

GND

C

D

Title	Power		
Size	Number		Revision
A4	6		
Date:	12/12/2024	Sheet 6 of 7	
File:	C:\Users\..\Power.SchDoc	Drawn By: Mavishan and Nilupulee	

VCC

C22
0.1uF

GND

J7

IC3
MCP4728-E_UN

1 VDD   VSS 10
2 SCL   VOUT_D 9
3 SDA   VOUT_C 8
4 LDAC VOUT_B 7
5 RDY/BSY VOUT_A 6

GND

R8
2.7k

1   2

REF

R9
10k

GND
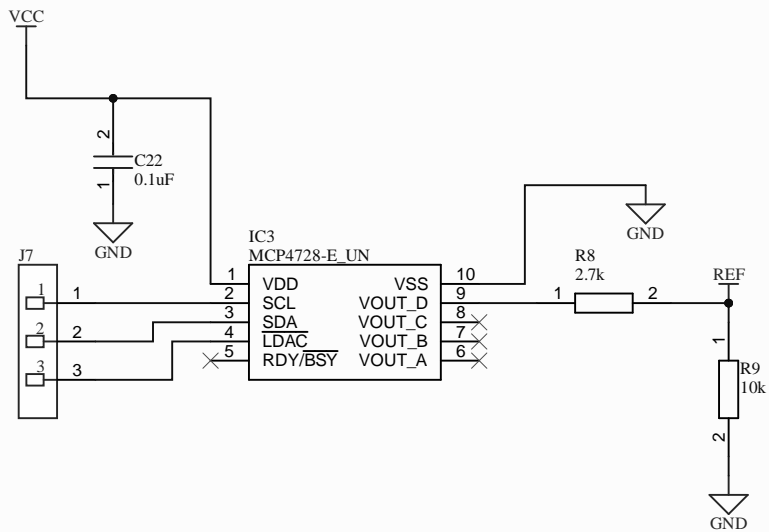
Title	Offset		
Size	Number		Revision
A4	6		
Date:	12/12/2024	Sheet 7 of 7	
File:	C:\Users\..\Offset.SchDoc	Drawn By: Mavishan and Nilupulee	

J1

J2

J7

C22

R1

R3

C3

R4

C8

IC3

C4

U1

C6

U2

C5

C7

C1

R8

R2

C2

IC2

C10

IC1

C12

R5

C11

C13

R6

C9

U3

C20

C21

J3

R7

S1

J6

J5

C19

U4

Y1

C16

C18

C17

C14

C17

C15

J4

S1
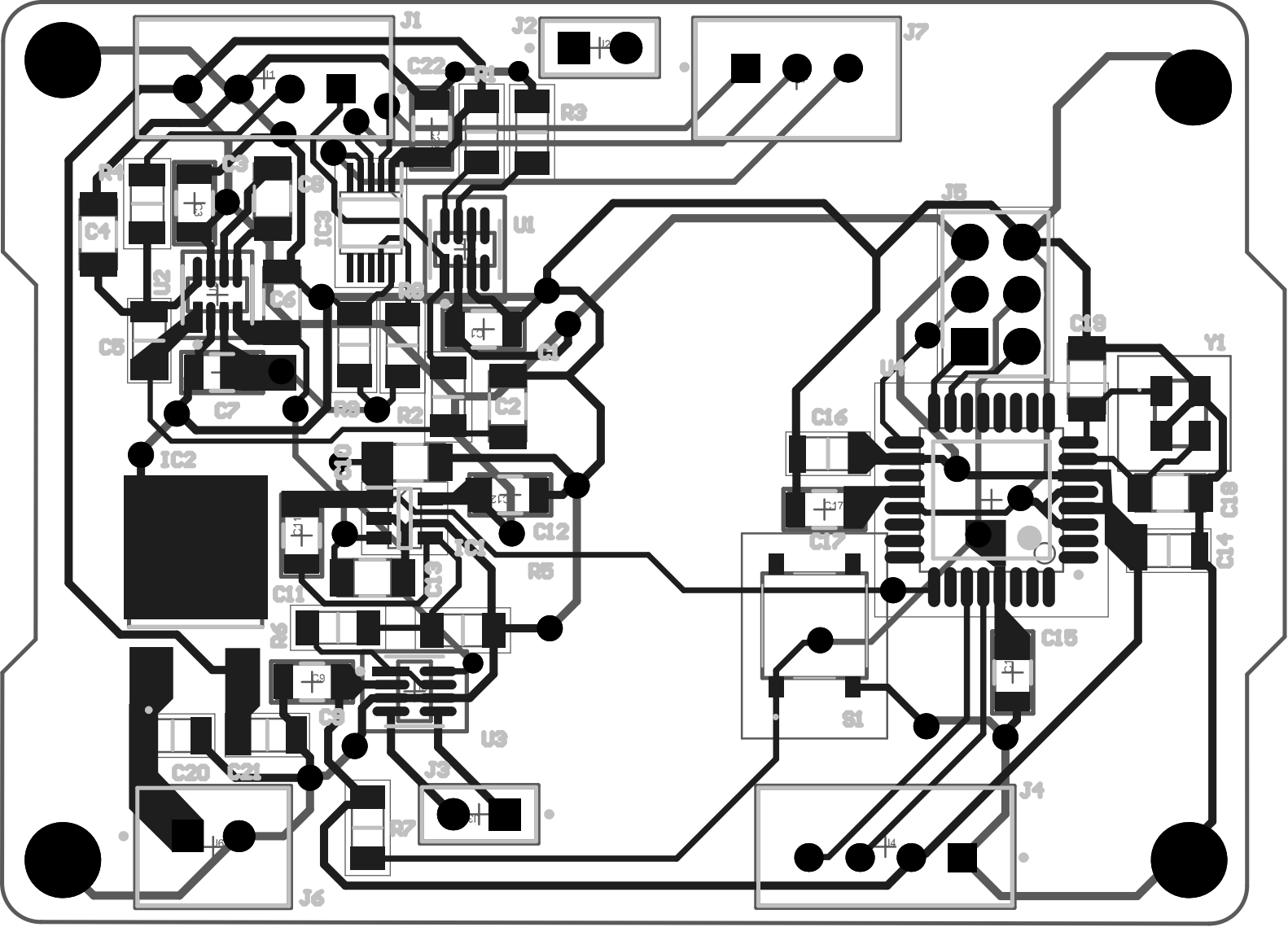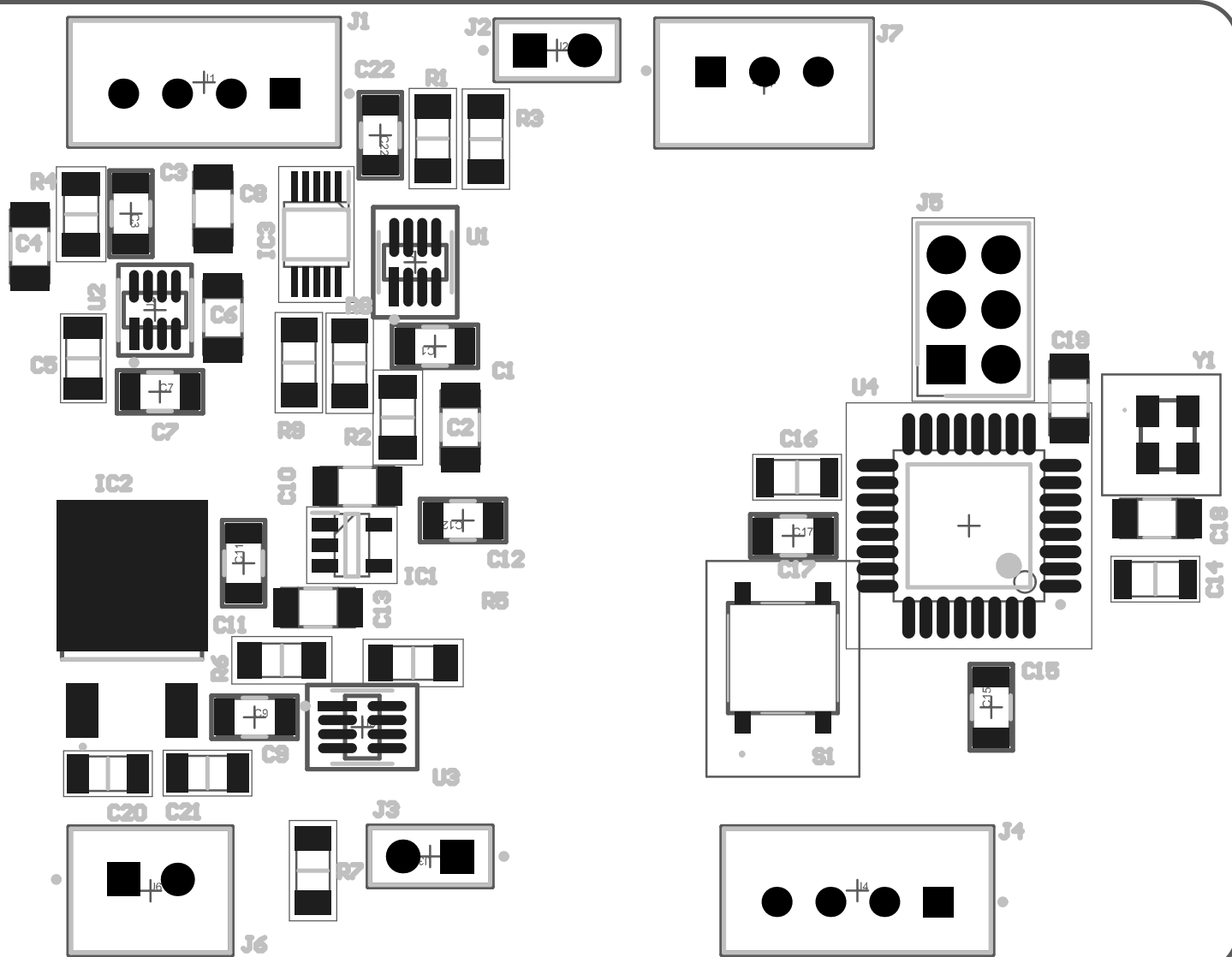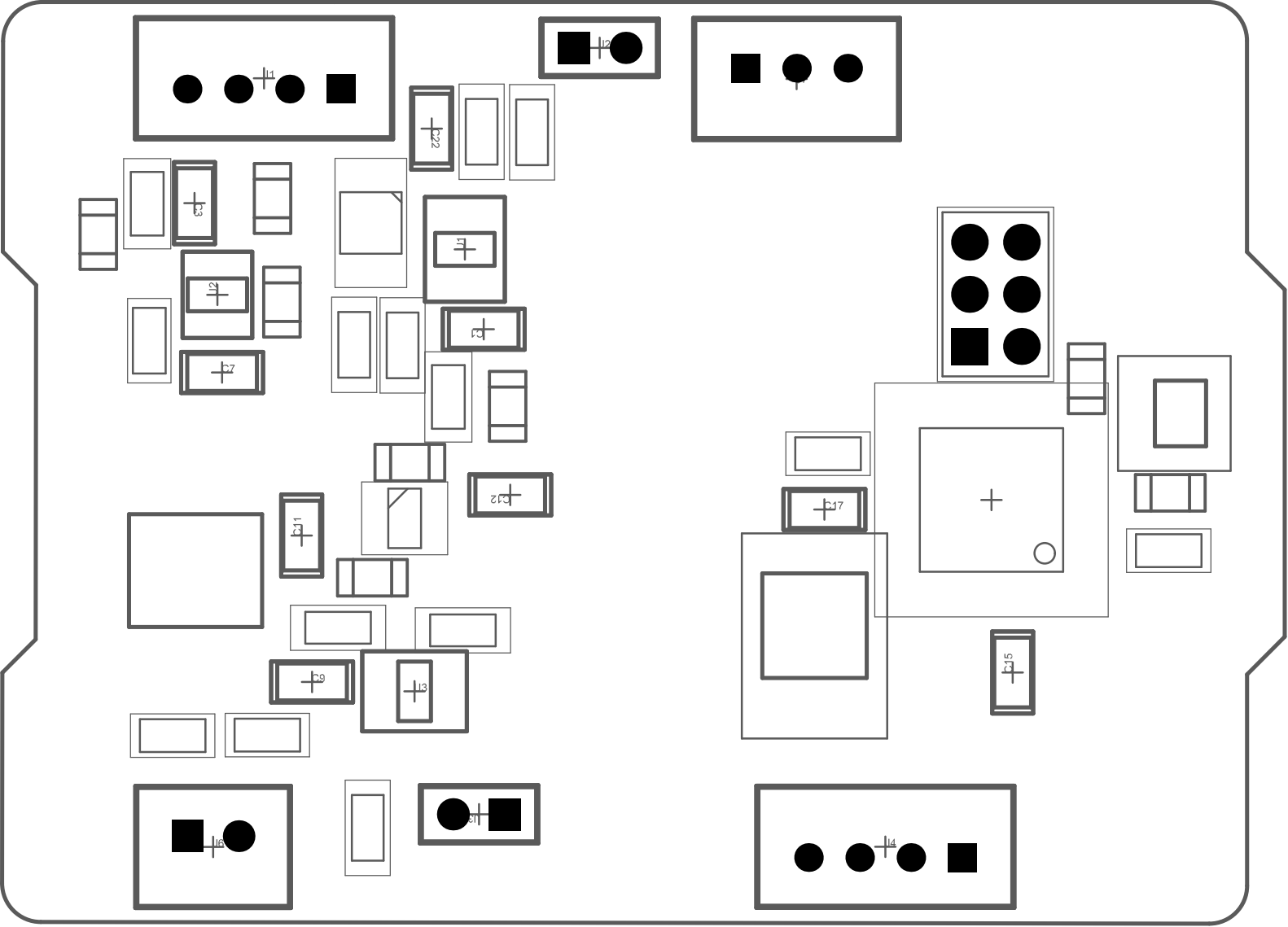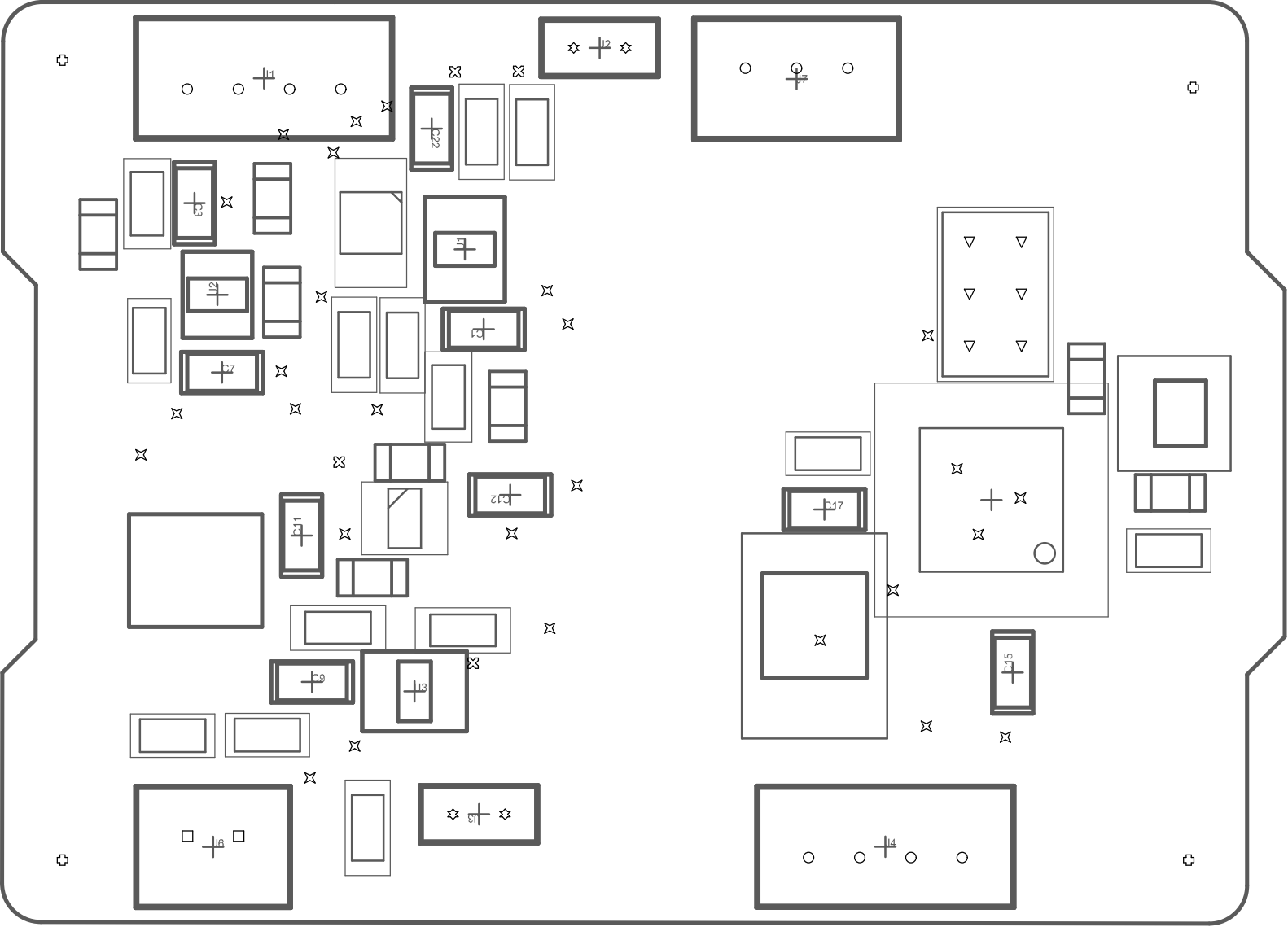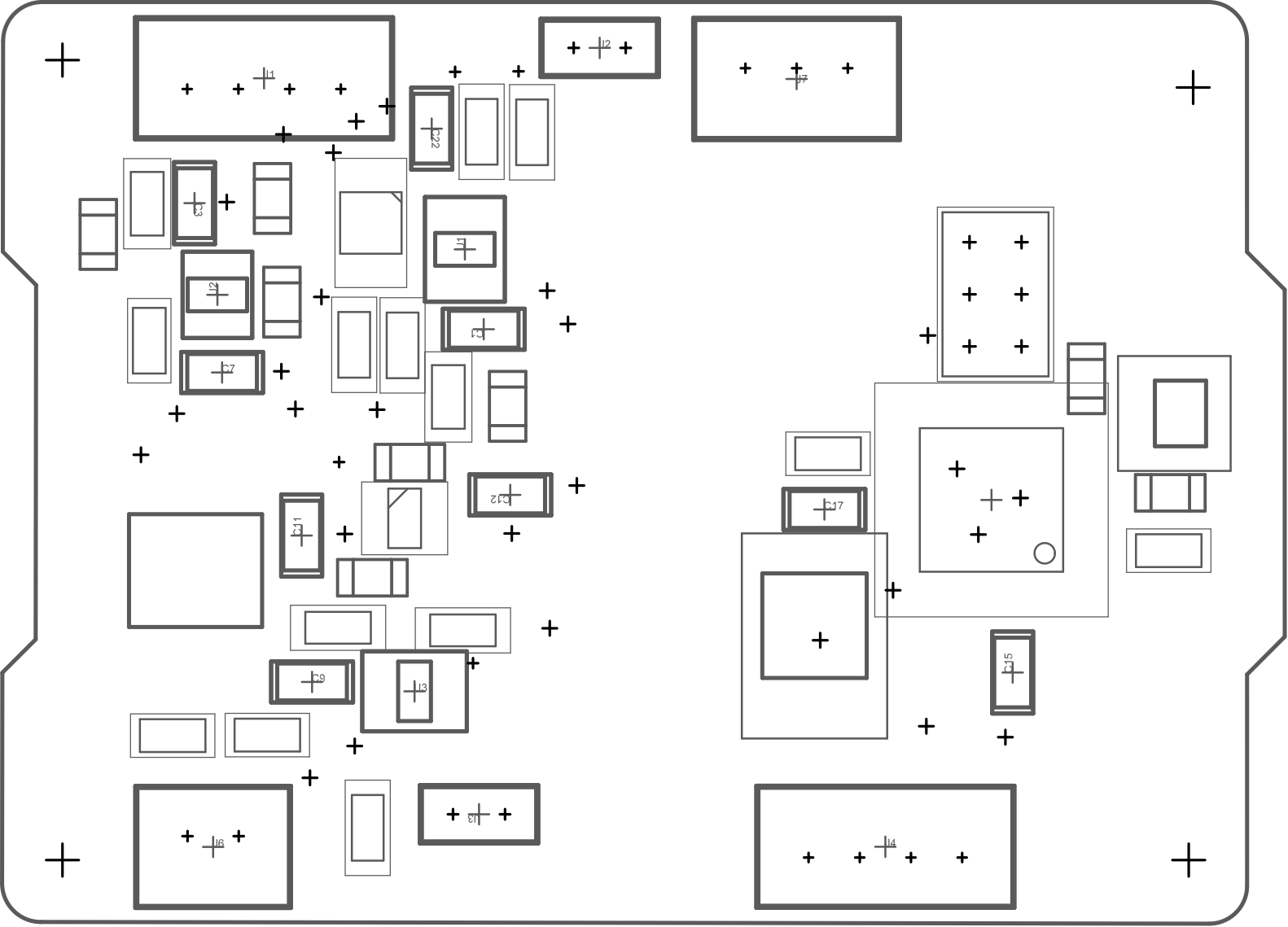
Comment	Description	Designator	Footprint	LibRef	Quantity
0.1uF	CAP CER 0.1UF 25V C0G/NP0 1206	C1, C3, C7, C9, C11, C12, C15, C17, C22	FP-C1206C-EB-MFG	CMP-1037-04186-2	9
12063C224JAT2A	Capacitor	C2, C4	CAPC3216X94N	12063C224JAT2A	2
12065C474JAT2A	Capacitor	C5	CAPC3216X152N	12065C474JAT2A	1
12063C334MAT2A	Capacitor	C6, C10, C13	CAPC3216X127N	12063C334MAT2A	3
12063A4R7DAT2A	Capacitor	C8	CAPC3216X94N	12063A4R7DAT2A	1
CGA5L1X7R1C106K16 0AC	Capacitor	C14, C16	CAPC3216X190N	CGA5L1X7R1C106K16 0AC	2
12063A220JAT2A	Capacitor	C18, C19	CAPC3216X94N	12063A220JAT2A	2
12063C105MAT2A	Capacitor	C20	CAPC3216X178N	12063C105MAT2A	1
12063D226MAT2A	Capacitor	C21	CAPC3216X229N	12063D226MAT2A	1
OPA336NA_3K	Integrated Circuit	IC1	SOT95P280X145-5N	OPA336NA_3K	1
BD450M5FP-CE2	Integrated Circuit	IC2	ROHM_TO-252-3	BD450M5FP-CE2	1
MCP4728-E_UN	Integrated Circuit	IC3	SOP50P490X110-10N	MCP4728-E_UN	1
B4B-XH-A(LF)(SN)	CONN HEADER VERT 4POS 2.5MM	J1, J4	FP-B4B-XH-A_LF_SN-MFG	CMP-17439-000250-1	2
M20-9990246	CONN HEADER VERT 2POS 2.54MM	J2, J3	FP-M20-9990246-MFG	CMP-15831-000009-1	2
87914-0606	Connector	J5	HDRV6W69P254_2X3_762X498X859P	87914-0606	1
B2B-XH-A(LF)(SN)	CONN HEADER VERT 2POS 2.5MM	J6	FP-B2B-XH-A_LF_SN-MFG	CMP-2000-05888-3	1
B3B-XH-A(LF)(SN)	CONN HEADER VERT 3POS 2.5MM	J7	FP-B3B-XH-A_LF_SN-MFG	CMP-17439-000014-3	1
ERA-8AEB103V	Resistor	R1, R3, R6, R7, R9	RESC3216X70N	ERA-8AEB103V	5
CHP1206AFX-4701ELF	Resistor	R2, R4	RESC3116X65N	CHP1206AFX-4701ELF	2
ERA8AEB102V	Resistor	R5	RESC3216X70N	ERA8AEB102V	1
ERA-8AEB272V	Resistor	R8	RESC3216X70N	ERA-8AEB272V	1
TS-1187A-B-A-B	Switch	S1	TS1187ABAB	TS-1187A-B-A-B	1
AD5171BRJZ100-R2	AD5171BRJZ100-R2 Digital Potentiometer 64POS 100kOhm Single Automotive 8-Pin SOT-23 T/R	U1, U3	FP-RJ-8-IPC_A	CMP-00026-00446399-1	2
AD8293G160ARJZ-R7	IC INST AMP 1 CIRCUIT SOT23-8	U2	FP-RJ-8-IPC_B	CMP-09116-000116-1	1
ATmega328P-AU	8-bit AVR Microcontroller, 32KB Flash, 1KB EEPROM, 2KB SRAM, 32-pin TQFP, Industrial Grade (-40°C to 85°C)	U4	32A_M	CMP-0095-00269-2	1
CX3225SA40000D0PT WCC	Crystal or Oscillator	Y1	CX3225SA40000D0PT WCC	CX3225SA40000D0PT WCC	1

Electrical Rules Check Report

Class	Document	Message
Warning	balancingBridge.SchDoc	Component C1 0.1uF at 96.52mm,132.08mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Instrumentation amplifier.SchDoc	Component C3 0.1uF at 103mm,155.42mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Instrumentation amplifier.SchDoc	Component C7 0.1uF at 109.22mm,93.98mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Amplifier.SchDoc	Component C9 0.1uF at 81.5mm,149.5mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Amplifier.SchDoc	Component C11 0.1uF at 147.32mm,106.68mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Amplifier.SchDoc	Component C12 0.1uF at 159mm,72.92mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	microController.SchDoc	Component C15 0.1uF at 195.58mm,139.7mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	microController.SchDoc	Component C17 0.1uF at 83.82mm,127mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Offset.SchDoc	Component C22 0.1uF at 76mm,135.5mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	balancingBridge.SchDoc	Component J1 B4B-XH-A(LF)(SN) at 33.02mm,137.16mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	balancingBridge.SchDoc	Component J2 M20-9990246 at 160.02mm,116.84mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Amplifier.SchDoc	Component J3 M20-9990246 at 149.86mm,149.86mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	microController.SchDoc	Component J4 B4B-XH-A(LF)(SN) at 177.8mm,177.8mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Power.SchDoc	Component J6 B2B-XH-A(LF)(SN) at 78.74mm,109.22mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Offset.SchDoc	Component J7 B3B-XH-A(LF)(SN) at 73.66mm,119.38mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	balancingBridge.SchDoc	Component U1 AD5171BRJZ100-R2 at 114.3mm,119.38mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Instrumentation amplifier.SchDoc	Component U2 AD8293G160ARJZ-R7 at 119.38mm,124.46mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Amplifier.SchDoc	Component U3 AD5171BRJZ100-R2 at 99.06mm,139.7mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	microController.SchDoc	Component U4 AT mega328P-AU at 93.98mm,154.94mm: Can't perform revision status validation: Please log in to your Altium account to connect to this server..
Warning	Instrumentation amplifier.SchDoc	Net NetC4_2 has no driving source (Pin C4-2, Pin C5-2, Pin R4-2, Pin U2-8)
Warning	Instrumentation amplifier.SchDoc	Net NetC8_2 has no driving source (Pin C8-2, Pin U2-5)
Warning	balancingBridge.SchDoc	Net NetJ2_2 has no driving source (Pin J2-2, Pin U1-4)
Warning	Amplifier.SchDoc	Net NetJ3_2 has no driving source (Pin J3-2, Pin U3-4)
Warning	Main PCB.SchDoc	Net V_bridge_fil has no driving source (Pin C2-2, Pin C5-1, Pin R2-2, Pin U2-1)
Warning	Main PCB.SchDoc	Nets Wire Bridge_Other has multiple names (Port Bridge_Other, Port V_Bridge_other, Sheet Entry balancingBridge-Bridge_Other(Output), Sheet Entry Instrumentation amplifier-V_Bridge_other(Input))
Warning	Main PCB.SchDoc	Nets Wire IA_Input has multiple names (Port IA_Input, Port Vout_Amplifier, Sheet Entry Amplifier-IA_Input(Input), Sheet Entry Instrumentation amplifier-Vout_Amplifier(Output))
Warning	Main PCB.SchDoc	Nets Wire V_bridge_fil has multiple names (Port V_bridge_fil, Port V_bridge_In, Sheet Entry balancingBridge-V_bridge_fil(Output), Sheet Entry Instrumentation amplifier-V_bridge_In(Input))
Warning	Instrumentation amplifier.SchDoc	Off grid C3 at 103mm,155.42mm
Warning	Instrumentation amplifier.SchDoc	Off grid C4 at 66.04mm,114.3mm
Warning	Instrumentation amplifier.SchDoc	Off grid C5 at 96.52mm,116.84mm
Warning	Instrumentation amplifier.SchDoc	Off grid C7 at 109.22mm,93.98mm
Warning	Instrumentation amplifier.SchDoc	Off grid C8 at 147.32mm,76.2mm
Warning	Amplifier.SchDoc	Off grid C10 at 78.74mm,114.3mm
Warning	Amplifier.SchDoc	Off grid C11 at 147.32mm,106.68mm
Warning	Amplifier.SchDoc	Off grid C12 at 159mm,72.92mm
Warning	Amplifier.SchDoc	Off grid C13 at 111.76mm,55.88mm
Warning	microController.SchDoc	Off grid C14 at 58.42mm,137.16mm

Class	Document	Message
Warning	microController.SchDoc	Off grid C15 at 195.58mm,139.7mm
Warning	microController.SchDoc	Off grid C16 at 71.12mm,132.08mm
Warning	microController.SchDoc	Off grid C17 at 83.82mm,127mm
Warning	microController.SchDoc	Off grid C18 at 193.04mm,58.42mm
Warning	microController.SchDoc	Off grid C19 at 134.62mm,55.88mm
Warning	Power.SchDoc	Off grid C20 at 109.22mm,91.44mm
Warning	Power.SchDoc	Off grid C21 at 172.72mm,83.82mm
Warning	Amplifier.SchDoc	Off grid IC1 at 121.92mm,88.9mm
Warning	Power.SchDoc	Off grid IC2 at 127mm,109.22mm
Warning	Offset.SchDoc	Off grid IC3 at 88.9mm,121.92mm
Warning	Amplifier.SchDoc	Off grid J3 at 149.86mm,149.86mm
Warning	microController.SchDoc	Off grid J4 at 177.8mm,177.8mm
Warning	microController.SchDoc	Off grid J5 at 223.52mm,172.72mm
Warning	Power.SchDoc	Off grid J6 at 78.74mm,109.22mm
Warning	Offset.SchDoc	Off grid J7 at 73.66mm,119.38mm
Warning	microController.SchDoc	Off grid Net Label MISO at 147.32mm,91.44mm
Warning	microController.SchDoc	Off grid Net Label MISO at 218.44mm,172.72mm
Warning	microController.SchDoc	Off grid Net Label MOSI at 147.32mm,93.98mm
Warning	microController.SchDoc	Off grid Net Label MOSI at 248.92mm,172.72mm
Warning	microController.SchDoc	Off grid Net Label RESET at 186.08mm,129.5mm
Warning	microController.SchDoc	Off grid Net Label RESET at 248.92mm,170.18mm
Warning	microController.SchDoc	Off grid Net Label SCK at 147.32mm,88.9mm
Warning	microController.SchDoc	Off grid Net Label SCK at 218.44mm,170.18mm
Warning	Power.SchDoc	Off grid NetParameter at 113.5mm,109.22mm
Warning	Power.SchDoc	Off grid NetParameter at 121mm,81.28mm
Warning	Offset.SchDoc	Off grid No ERC at 88.9mm,111.76mm
Warning	Offset.SchDoc	Off grid No ERC at 124.46mm,111.76mm
Warning	Offset.SchDoc	Off grid No ERC at 124.46mm,114.3mm
Warning	Offset.SchDoc	Off grid No ERC at 124.46mm,116.84mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,96.52mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,99.06mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,101.6mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,106.68mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,109.22mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,111.76mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,114.3mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,116.84mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,119.38mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,121.92mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,124.46mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,137.16mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,139.7mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,142.24mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,144.78mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,149.86mm
Warning	microController.SchDoc	Off grid No ERC at 139.7mm,152.4mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin C3-1 at 103mm,155.42mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin C4-1 at 66.04mm,114.3mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin C5-1 at 96.52mm,116.84mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin C6-2 at 167.5mm,116.7mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin C7-1 at 109.22mm,93.98mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin C7-2 at 109.22mm,99.06mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin C8-1 at 147.32mm,76.2mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin C8-2 at 134.62mm,76.2mm
Warning	Amplifier.SchDoc	Off grid Pin C9-2 at 81.5mm,154.58mm
Warning	Amplifier.SchDoc	Off grid Pin C10-1 at 78.74mm,114.3mm
Warning	Amplifier.SchDoc	Off grid Pin C10-2 at 78.74mm,127mm
Warning	Amplifier.SchDoc	Off grid Pin C11-1 at 147.32mm,106.68mm
Warning	Amplifier.SchDoc	Off grid Pin C11-2 at 142.24mm,106.68mm
Warning	Amplifier.SchDoc	Off grid Pin C12-1 at 159mm,72.92mm
Warning	Amplifier.SchDoc	Off grid Pin C13-1 at 111.76mm,55.88mm
Warning	Amplifier.SchDoc	Off grid Pin C13-2 at 111.76mm,68.58mm
Warning	microController.SchDoc	Off grid Pin C14-1 at 58.42mm,137.16mm

Class	Document	Message
Warning	microController.SchDoc	Off grid Pin C14-2 at 58.42mm,149.86mm
Warning	microController.SchDoc	Off grid Pin C15-1 at 195.58mm,139.7mm
Warning	microController.SchDoc	Off grid Pin C15-2 at 195.58mm,144.78mm
Warning	microController.SchDoc	Off grid Pin C16-1 at 71.12mm,132.08mm
Warning	microController.SchDoc	Off grid Pin C16-2 at 71.12mm,144.78mm
Warning	microController.SchDoc	Off grid Pin C17-1 at 83.82mm,127mm
Warning	microController.SchDoc	Off grid Pin C17-2 at 83.82mm,132.08mm
Warning	microController.SchDoc	Off grid Pin C18-1 at 193.04mm,58.42mm
Warning	microController.SchDoc	Off grid Pin C18-2 at 193.04mm,71.12mm
Warning	microController.SchDoc	Off grid Pin C19-1 at 134.62mm,55.88mm
Warning	microController.SchDoc	Off grid Pin C19-2 at 134.62mm,68.58mm
Warning	Power.SchDoc	Off grid Pin C20-1 at 109.22mm,91.44mm
Warning	Power.SchDoc	Off grid Pin C20-2 at 109.22mm,104.14mm
Warning	Power.SchDoc	Off grid Pin C21-1 at 172.72mm,83.82mm
Warning	Power.SchDoc	Off grid Pin C21-2 at 172.72mm,96.52mm
Warning	Offset.SchDoc	Off grid Pin C22-2 at 76mm,140.58mm
Warning	Amplifier.SchDoc	Off grid Pin IC1-1 at 121.92mm,88.9mm
Warning	Amplifier.SchDoc	Off grid Pin IC1-2 at 121.92mm,86.36mm
Warning	Amplifier.SchDoc	Off grid Pin IC1-3 at 121.92mm,83.82mm
Warning	Amplifier.SchDoc	Off grid Pin IC1-4 at 147.32mm,88.9mm
Warning	Amplifier.SchDoc	Off grid Pin IC1-5 at 147.32mm,86.36mm
Warning	Power.SchDoc	Off grid Pin IC2-1 at 127mm,109.22mm
Warning	Power.SchDoc	Off grid Pin IC2-2 at 127mm,106.68mm
Warning	Power.SchDoc	Off grid Pin IC2-3 at 160.02mm,109.22mm
Warning	Offset.SchDoc	Off grid Pin IC3-1 at 88.9mm,121.92mm
Warning	Offset.SchDoc	Off grid Pin IC3-2 at 88.9mm,119.38mm
Warning	Offset.SchDoc	Off grid Pin IC3-3 at 88.9mm,116.84mm
Warning	Offset.SchDoc	Off grid Pin IC3-4 at 88.9mm,114.3mm
Warning	Offset.SchDoc	Off grid Pin IC3-9 at 124.46mm,119.38mm
Warning	Offset.SchDoc	Off grid Pin IC3-10 at 124.46mm,121.92mm
Warning	Amplifier.SchDoc	Off grid Pin J3-1 at 149.86mm,149.86mm
Warning	Amplifier.SchDoc	Off grid Pin J3-2 at 149.86mm,154.94mm
Warning	microController.SchDoc	Off grid Pin J4-1 at 177.8mm,177.8mm
Warning	microController.SchDoc	Off grid Pin J4-2 at 177.8mm,172.72mm
Warning	microController.SchDoc	Off grid Pin J4-3 at 177.8mm,167.64mm
Warning	microController.SchDoc	Off grid Pin J4-4 at 177.8mm,162.56mm
Warning	microController.SchDoc	Off grid Pin J5-1 at 223.52mm,172.72mm
Warning	microController.SchDoc	Off grid Pin J5-2 at 243.84mm,172.72mm
Warning	microController.SchDoc	Off grid Pin J5-3 at 223.52mm,170.18mm
Warning	microController.SchDoc	Off grid Pin J5-4 at 243.84mm,170.18mm
Warning	microController.SchDoc	Off grid Pin J5-5 at 223.52mm,167.64mm
Warning	microController.SchDoc	Off grid Pin J5-6 at 243.84mm,167.64mm
Warning	Power.SchDoc	Off grid Pin J6-1 at 78.74mm,109.22mm
Warning	Power.SchDoc	Off grid Pin J6-2 at 78.74mm,104.14mm
Warning	Offset.SchDoc	Off grid Pin J7-1 at 73.66mm,119.38mm
Warning	Offset.SchDoc	Off grid Pin J7-2 at 73.66mm,114.3mm
Warning	Offset.SchDoc	Off grid Pin J7-3 at 73.66mm,109.22mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin R4-1 at 45.72mm,129.54mm
Warning	Amplifier.SchDoc	Off grid Pin R5-1 at 162.56mm,119.38mm
Warning	Amplifier.SchDoc	Off grid Pin R5-2 at 162.56mm,137.16mm
Warning	Amplifier.SchDoc	Off grid Pin R6-1 at 142.24mm,116.84mm
Warning	Amplifier.SchDoc	Off grid Pin R6-2 at 160.02mm,116.84mm
Warning	microController.SchDoc	Off grid Pin R7-1 at 195.58mm,149.86mm
Warning	microController.SchDoc	Off grid Pin R7-2 at 195.58mm,167.64mm
Warning	Offset.SchDoc	Off grid Pin R8-1 at 132.08mm,119.38mm
Warning	Offset.SchDoc	Off grid Pin R8-2 at 149.86mm,119.38mm
Warning	Offset.SchDoc	Off grid Pin R9-1 at 157.48mm,116.84mm
Warning	Offset.SchDoc	Off grid Pin R9-2 at 157.48mm,99.06mm
Warning	microController.SchDoc	Off grid Pin S1-A1 at 208.28mm,144.78mm
Warning	microController.SchDoc	Off grid Pin S1-B1 at 238.76mm,144.78mm
Warning	microController.SchDoc	Off grid Pin S1-C1 at 208.28mm,142.24mm
Warning	microController.SchDoc	Off grid Pin S1-D1 at 238.76mm,142.24mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin U2-1 at 119.38mm,116.84mm

Class	Document	Message
Warning	Instrumentation amplifier.SchDoc	Off grid Pin U2-2 at 154.94mm,106.68mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin U2-3 at 119.38mm,106.68mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin U2-4 at 154.94mm,124.46mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin U2-5 at 119.38mm,111.76mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin U2-6 at 154.94mm,119.38mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin U2-7 at 119.38mm,124.46mm
Warning	Instrumentation amplifier.SchDoc	Off grid Pin U2-8 at 119.38mm,119.38mm
Warning	Amplifier.SchDoc	Off grid Pin U3-2 at 99.06mm,139.7mm
Warning	Amplifier.SchDoc	Off grid Pin U3-4 at 129.54mm,139.7mm
Warning	Amplifier.SchDoc	Off grid Pin U3-5 at 129.54mm,137.16mm
Warning	Amplifier.SchDoc	Off grid Pin U3-6 at 99.06mm,124.46mm
Warning	Amplifier.SchDoc	Off grid Pin U3-7 at 99.06mm,129.54mm
Warning	Amplifier.SchDoc	Off grid Pin U3-8 at 99.06mm,134.62mm
Warning	microController.SchDoc	Off grid Pin U4-3 at 88.9mm,88.9mm
Warning	microController.SchDoc	Off grid Pin U4-4 at 88.9mm,149.86mm
Warning	microController.SchDoc	Off grid Pin U4-5 at 88.9mm,86.36mm
Warning	microController.SchDoc	Off grid Pin U4-6 at 88.9mm,152.4mm
Warning	microController.SchDoc	Off grid Pin U4-7 at 139.7mm,86.36mm
Warning	microController.SchDoc	Off grid Pin U4-8 at 139.7mm,83.82mm
Warning	microController.SchDoc	Off grid Pin U4-15 at 139.7mm,93.98mm
Warning	microController.SchDoc	Off grid Pin U4-16 at 139.7mm,91.44mm
Warning	microController.SchDoc	Off grid Pin U4-17 at 139.7mm,88.9mm
Warning	microController.SchDoc	Off grid Pin U4-18 at 88.9mm,144.78mm
Warning	microController.SchDoc	Off grid Pin U4-20 at 88.9mm,139.7mm
Warning	microController.SchDoc	Off grid Pin U4-21 at 88.9mm,83.82mm
Warning	microController.SchDoc	Off grid Pin U4-27 at 139.7mm,134.62mm
Warning	microController.SchDoc	Off grid Pin U4-28 at 139.7mm,132.08mm
Warning	microController.SchDoc	Off grid Pin U4-29 at 139.7mm,129.54mm
Warning	microController.SchDoc	Off grid Pin Y1-1 at 149.86mm,71.12mm
Warning	microController.SchDoc	Off grid Pin Y1-2 at 180.34mm,71.12mm
Warning	microController.SchDoc	Off grid Pin Y1-3 at 180.34mm,73.66mm
Warning	microController.SchDoc	Off grid Pin Y1-4 at 149.86mm,73.66mm
Warning	Amplifier.SchDoc	Off grid Port IA_Input at 93.98mm,73.66mm
Warning	Amplifier.SchDoc	Off grid Port output at 68.58mm,88.9mm
Warning	Instrumentation amplifier.SchDoc	Off grid Port V_bridge_In at 73.66mm,116.84mm
Warning	Instrumentation amplifier.SchDoc	Off grid Port V_Bridge_other at 25.4mm,129.54mm
Warning	Instrumentation amplifier.SchDoc	Off grid Port Vout_Amplifier at 172.72mm,124.46mm
Warning	balancingBridge.SchDoc	Off grid Power Object GND at 56.5mm,93.62mm
Warning	Amplifier.SchDoc	Off grid Power Object GND at 60.96mm,121.92mm
Warning	Instrumentation amplifier.SchDoc	Off grid Power Object GND at 66.04mm,104.14mm
Warning	microController.SchDoc	Off grid Power Object GND at 71.12mm,121.92mm
Warning	Amplifier.SchDoc	Off grid Power Object GND at 78.74mm,78.74mm
Warning	microController.SchDoc	Off grid Power Object GND at 83.82mm,119.38mm
Warning	microController.SchDoc	Off grid Power Object GND at 88.9mm,78.74mm
Warning	Amplifier.SchDoc	Off grid Power Object GND at 96.52mm,119.38mm
Warning	Instrumentation amplifier.SchDoc	Off grid Power Object GND at 103mm,148.44mm
Warning	Instrumentation amplifier.SchDoc	Off grid Power Object GND at 109.22mm,88.9mm
Warning	Amplifier.SchDoc	Off grid Power Object GND at 111.76mm,53.34mm
Warning	Amplifier.SchDoc	Off grid Power Object GND at 132.08mm,124.46mm
Warning	microController.SchDoc	Off grid Power Object GND at 134.62mm,53.34mm
Warning	Power.SchDoc	Off grid Power Object GND at 137.16mm,81.28mm
Warning	microController.SchDoc	Off grid Power Object GND at 154.94mm,157.48mm
Warning	Instrumentation amplifier.SchDoc	Off grid Power Object GND at 157.48mm,99.06mm
Warning	Instrumentation amplifier.SchDoc	Off grid Power Object GND at 167.5mm,101.6mm
Warning	Amplifier.SchDoc	Off grid Power Object GND at 180.34mm,134.62mm
Warning	microController.SchDoc	Off grid Power Object GND at 193.04mm,53.34mm
Warning	microController.SchDoc	Off grid Power Object GND at 251.46mm,165.1mm
Warning	Instrumentation amplifier.SchDoc	Off grid Power Object REF at 109.22mm,106.68mm
Warning	Offset.SchDoc	Off grid Power Object REF at 157.48mm,119.38mm
Warning	Power.SchDoc	Off grid Power Object VCC1 at 104.14mm,109.22mm
Warning	balancingBridge.SchDoc	Off grid Power Object VCC at 46.34mm,73.3mm
Warning	microController.SchDoc	Off grid Power Object VCC at 58.42mm,154.94mm
Warning	microController.SchDoc	Off grid Power Object VCC at 71.12mm,144.78mm

Class	Document	Message
Warning	Instrumentation amplifier.SchDoc	Off grid Power Object VCC at 103mm,167.64mm
Warning	Power.SchDoc	Off grid Power Object VCC at 172.72mm,101.6mm
Warning	microController.SchDoc	Off grid Power Object VCC at 195.58mm,167.64mm
Warning	Instrumentation amplifier.SchDoc	Off grid R4 at 45.72mm,129.54mm
Warning	Amplifier.SchDoc	Off grid R5 at 162.56mm,119.38mm
Warning	Amplifier.SchDoc	Off grid R6 at 142.24mm,116.84mm
Warning	microController.SchDoc	Off grid R7 at 195.58mm,149.86mm
Warning	Offset.SchDoc	Off grid R8 at 132.08mm,119.38mm
Warning	Offset.SchDoc	Off grid R9 at 157.48mm,116.84mm
Warning	microController.SchDoc	Off grid S1 at 208.28mm,144.78mm
Warning	Main PCB.SchDoc	Off grid Sheet Entry Amplifier-IA_Input(Input) at 161.6mm,136.2mm
Warning	Main PCB.SchDoc	Off grid Sheet Entry Amplifier-output(Output) at 212.4mm,133.66mm
Warning	Main PCB.SchDoc	Off grid Sheet Entry balancingBridge-Bridge_Other(Output) at 21.9mm,134.5mm
Warning	Main PCB.SchDoc	Off grid Sheet Entry balancingBridge-V_bridge_fil(Output) at 70.16mm,136.2mm
Warning	Main PCB.SchDoc	Off grid Sheet Entry Instrumentation amplifier-V_bridge_In(Input) at 90.48mm,136.2mm
Warning	Main PCB.SchDoc	Off grid Sheet Entry Instrumentation amplifier-V_Bridge_other(Input) at 90.48mm,131.12mm
Warning	Main PCB.SchDoc	Off grid Sheet Entry Instrumentation amplifier-Vout_Amplifier(Output) at 136.2mm,136.2mm
Warning	Main PCB.SchDoc	Off grid Sheet Symbol Amplifier at 161.6mm,148.9mm
Warning	Main PCB.SchDoc	Off grid Sheet Symbol balancingBridge at 21.9mm,148.9mm
Warning	Main PCB.SchDoc	Off grid Sheet Symbol Instrumentation amplifier at 90.48mm,148.9mm
Warning	Main PCB.SchDoc	Off grid Sheet Symbol MicroController at 230.4mm,154.74mm
Warning	Main PCB.SchDoc	Off grid Sheet Symbol Offset at 37.4mm,179.12mm
Warning	Main PCB.SchDoc	Off grid Sheet Symbol Power at 67.08mm,91.74mm
Warning	Instrumentation amplifier.SchDoc	Off grid U2 at 119.38mm,124.46mm
Warning	Amplifier.SchDoc	Off grid U3 at 99.06mm,139.7mm
Warning	microController.SchDoc	Off grid U4 at 93.98mm,154.94mm
Warning	microController.SchDoc	Off grid Y1 at 149.86mm,73.66mm

Design Rules Verification Report

Filename : C:\Users\pasir\Desktop\Github\TorqueSensor\TorqueSensor\PCB\PCB2.PcbDoc

Warnings	
Total	0

Rule Violations	
Clearance Constraint (Gap=0.203mm) (OnLayer('Top Layer')),(All)	0
Clearance Constraint (Gap=0.2mm) (All),(All)	0
Clearance Constraint (Gap=0.203mm) (OnLayer('Bottom Layer')),(All)	0
Clearance Constraint (Gap=15mm) (All),(InNet('GND'))	0
Short-Circuit Constraint (Allowed=No) (All),(All)	0
Un-Routed Net Constraint ((All))	2
Modified Polygon (Allow modified: No), (Allow shelved: No)	0
Width Constraint (Min=0.25mm) (Max=0.4mm) (Preferred=0.35mm) (InNetClass('PowerNets'))	0
Width Constraint (Min=0.089mm) (Max=2.54mm) (Preferred=0.381mm) (All)	0
Power Plane Connect Rule(Relief Connect)(Expansion=0.508mm) (Conductor Width=0.254mm) (Air Gap=0.254mm)	0
Minimum Annular Ring (Minimum=0.076mm) (All)	0
Hole Size Constraint (Min=0.2mm) (Max=6.3mm) (All)	0
Hole To Hole Clearance (Gap=0.254mm) (All),(All)	0
Minimum Solder Mask Sliver (Gap=0.1mm) (All),(All)	0
Silk To Solder Mask (Clearance=0.1mm) (IsPad),(All)	0
Silk to Silk (Clearance=0.1mm) (All),(All)	0
Net Antennae (Tolerance=0mm) (All)	0
Board Clearance Constraint (Gap=0mm) (All)	0
Height Constraint (Min=0mm) (Max=25.4mm) (Prefered=12.7mm) (All)	0
Total	2

Un-Routed Net Constraint ((All))
Un-Routed Net Constraint: Net NetJ2_1 Between Pad U1-5(23.627mm,33.924mm) on Top Layer And Pad J2-1(27.965mm,42.596mm) on Multi-Layer
Un-Routed Net Constraint: Net NetJ2_2 Between Pad U1-4(23.627mm,31.623mm) on Top Layer And Pad J2-2(30.505mm,42.596mm) on Multi-Layer