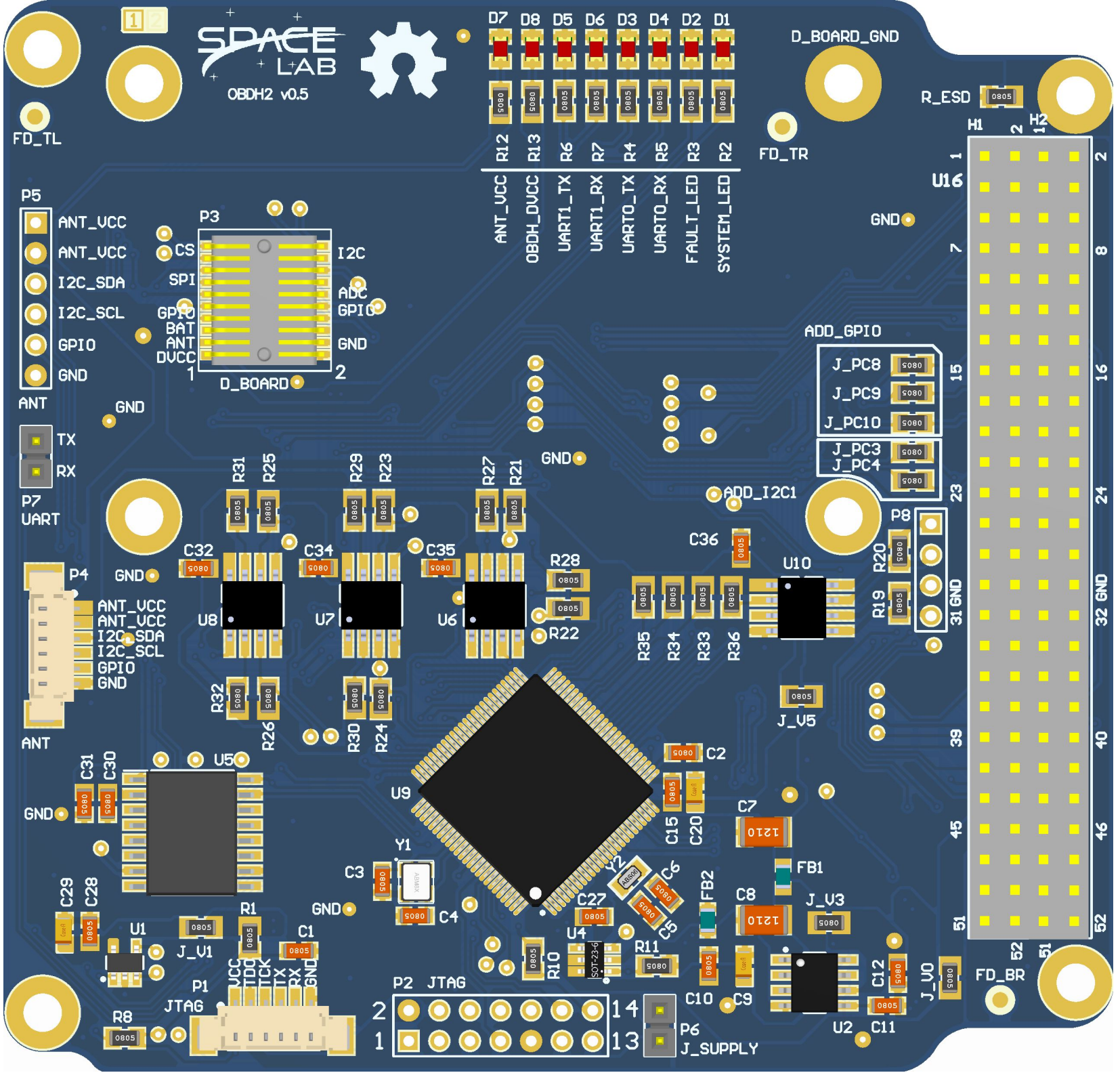
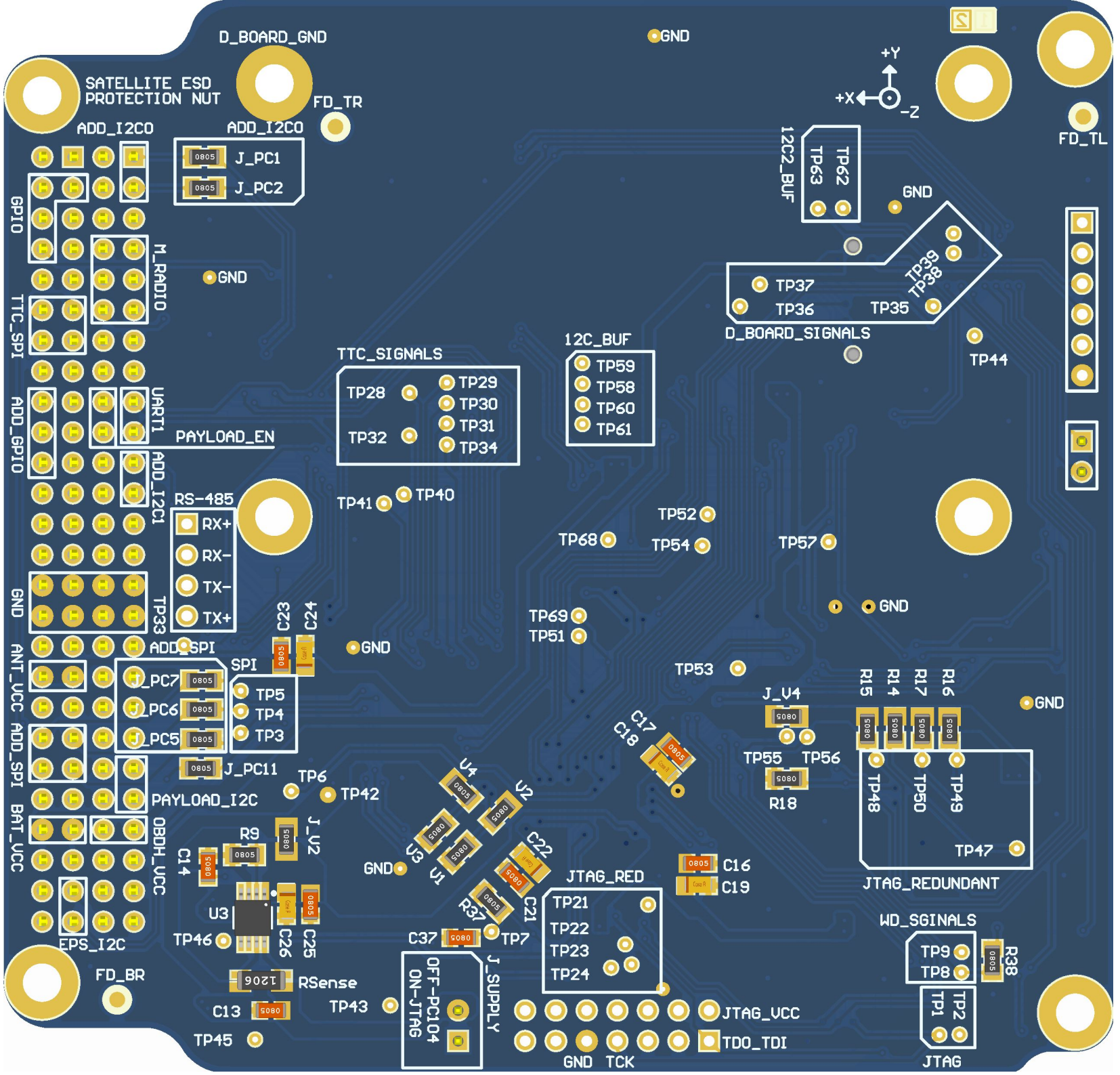
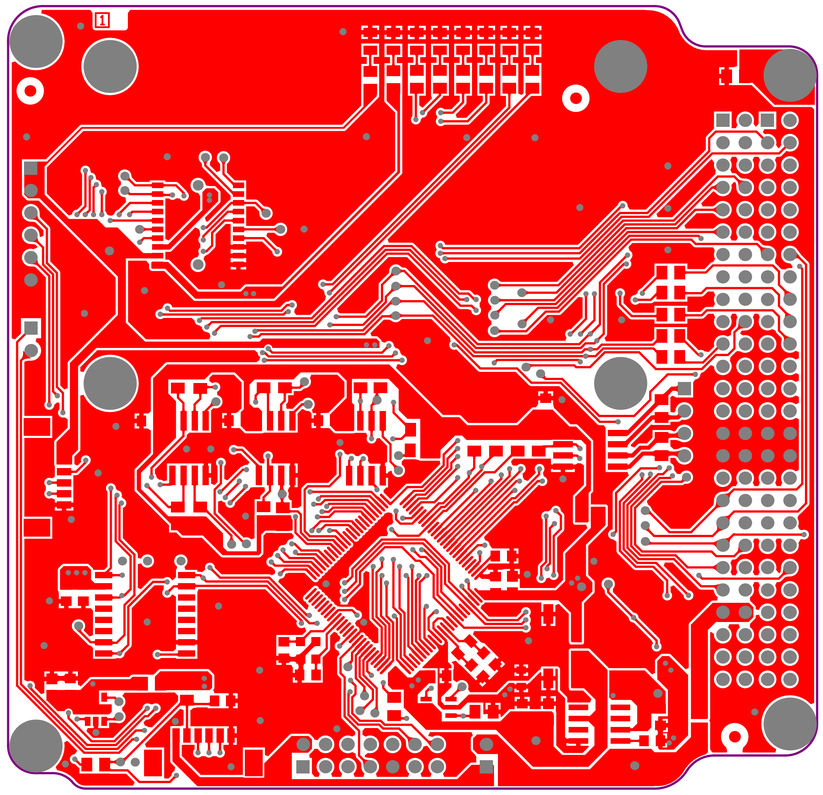

SPACE LAB
OBDH2 v0.5
D_BOARD_GND
FD_TL
FD_TR
FD_BR
R_ESD
D7 D8 D5 D6 D3 D4 D2 D1
R12 R13 R6 R7 R4 R5 R3 R2
ANT_VCC
OBDH_DVCC
UART1_TX
UART1_RX
UART0_TX
UART0_RX
FAULT_LED
SYSTEM_LED
H1
H2
U16
GND
P5
ANT_VCC
ANT_VCC
I2C_SDA
I2C_SCL
GPIO
GND
ANT
P3
CS
SPI
GPIO
BAT
ANT
DVCC
I2C
ADC
GPIO
GND
D_BOARD
P7
UART
TX
RX
ADD_GPIO
J_PC8
J_PC9
J_PC10
J_PC3
J_PC4
ADD_I2C1
P8
P4
ANT
R31 R25 R29 R23 R27 R21
C32 C34 C35
U8 U7 U6
R28 R22
C36
U10
R35 R34 R33 R36
R20 R19
R32 R26 R30 R24
J_V5
U5
C31 C30
U9
C2 C15 C20
C7
Y1 C3 C4
Y2 C6 C5
FB1 FB2
C8
J_V3
C27
U4
R10 R11
C29 C28
U1
J_V1
R1
C1
P1
JTAG
VCC TDO TCK TX RX GND
R8
P2 JTAG
P6
J_SUPPLY
C10 C9
U2
C12 C11
J_V0


D_BOARD_GND
GND
SATELLITE ESD PROTECTION NUT
FD_TR
+Y
+X
-Z
FD_TL
ADD_I2C0
ADD_I2C0
J_PC1
J_PC2
12C2_BUF
TP63
TP62
GND
GPIO
M_RADIO
GND
TP39
TP38
TP37
TP36
TP35
D_BOARD_SIGNALS
TP44
TTC_SPI
TTC_SIGNALS
12C_BUF
TP28
TP29
TP30
TP31
TP34
TP32
TP59
TP58
TP60
TP61
ADD_GPIO
UART1
PAYLOAD_EN
ADD_I2C1
TP41
TP40
RS-485
RX+
RX-
TX-
TX+
TP68
TP52
TP54
TP57
GND
TP33
ADD_SPI
C23
C24
GND
TP69
TP51
GND
ANT_VCC
ADD_SPI
SPI
J_PC7
J_PC6
J_PC5
J_PC11
TP5
TP4
TP3
TP53
J_V4
R15
R14
R17
R16
GND
C17
C18
TP55
TP56
R18
TP48
TP50
TP49
TP47
JTAG_REDUNDANT
TP6
TP42
PAYLOAD_I2C
BAT_VCC
OBDH_VCC
R9
J_V2
C14
U4
U2
U3
U1
GND
C22
C21
R37
JTAG_RED
TP21
TP22
TP23
TP24
C16
C19
U3
TP46
C26
C25
C37
TP7
WD_SGINALS
TP9
TP8
R38
EPS_I2C
FD_BR
1206
RSense
C13
TP43
OFF-PC104
ON-JTAG
J_SUPPLY
TP45
JTAG_VCC
TDO_TDI
GND
TCK
TP1
TP2
JTAG



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

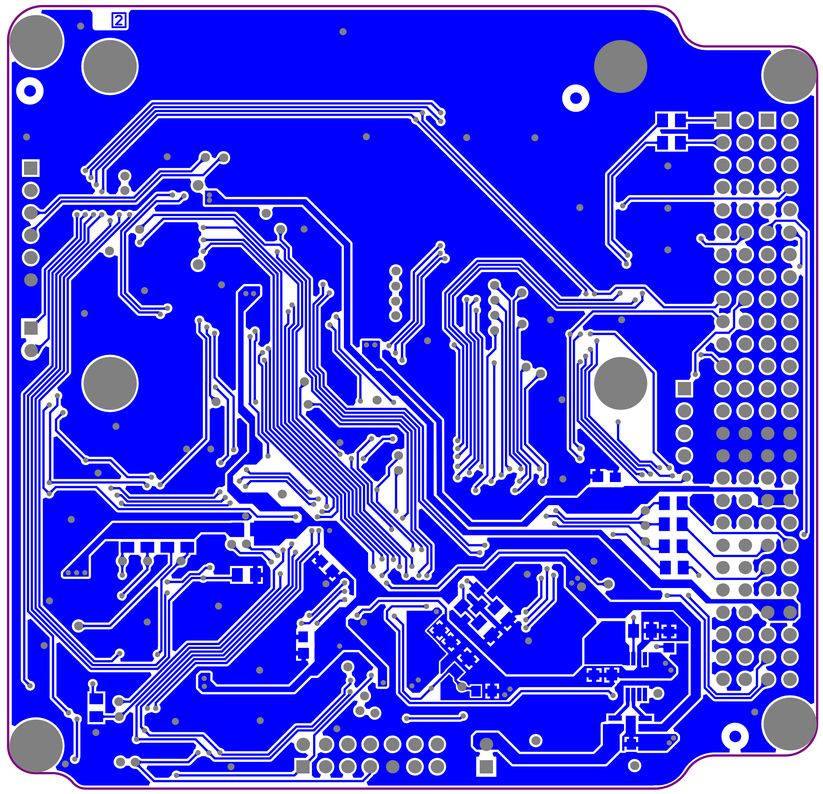
Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		SPACE LAB
Project: OBDH2		
Layer: Top Layer		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

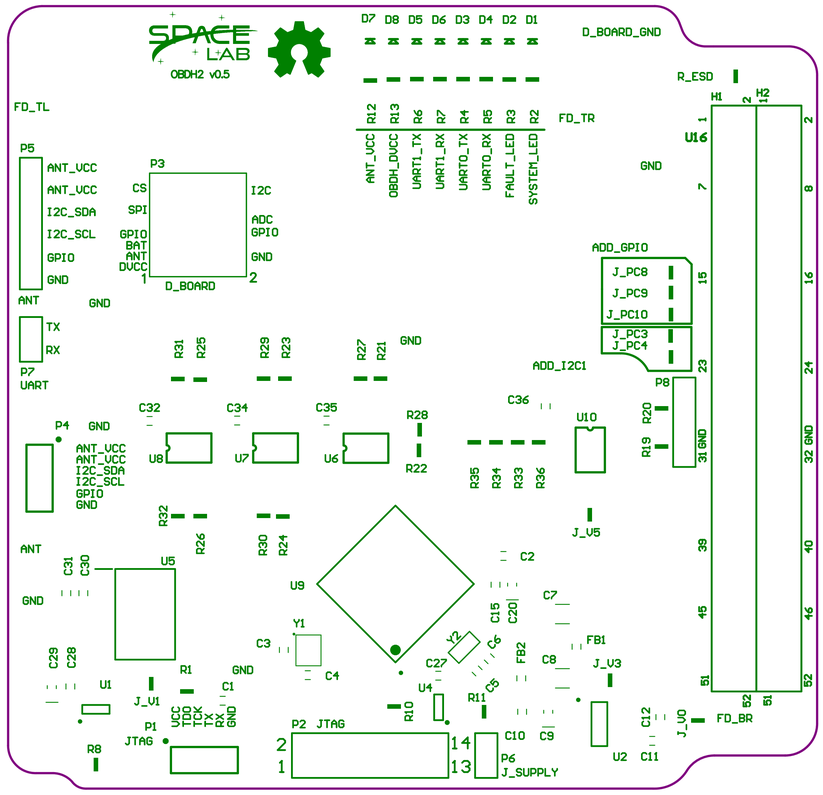
Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		SPACE LAB
Project: OBDH2		
Layer: Bottom Layer		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

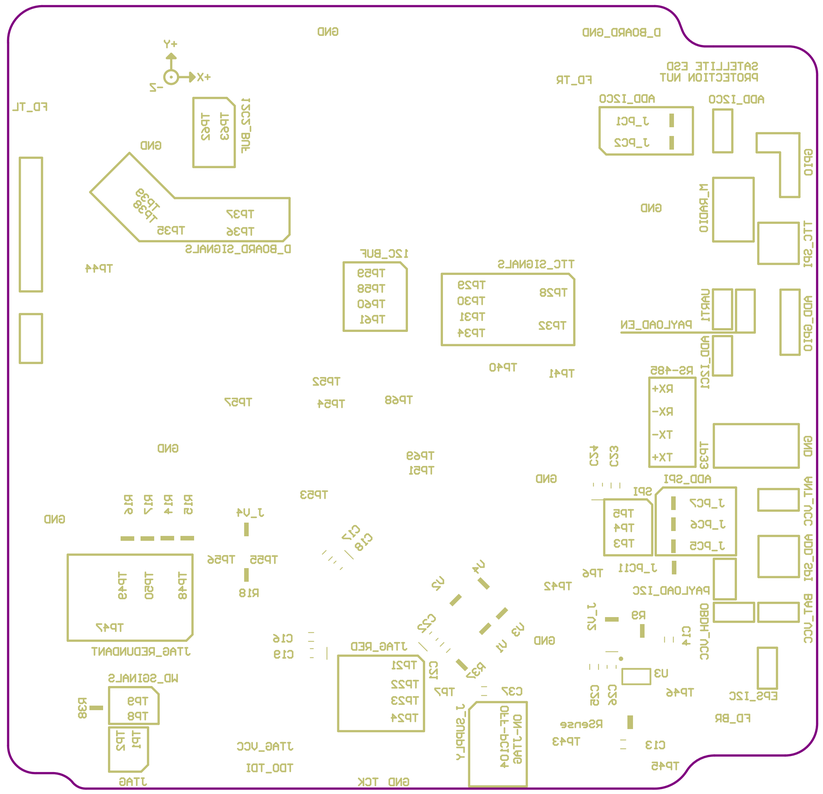
Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		
Project: OBDH2		
Layer: Top Overlay		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

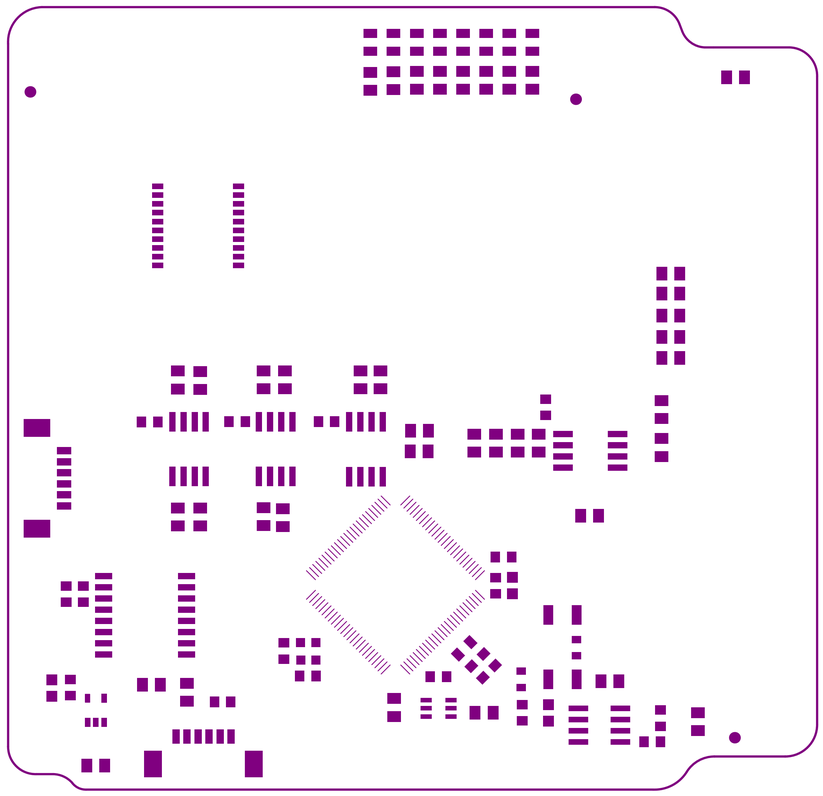
Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		SPACE LAB
Project: OBDH2		
Layer: Bottom Overlay		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

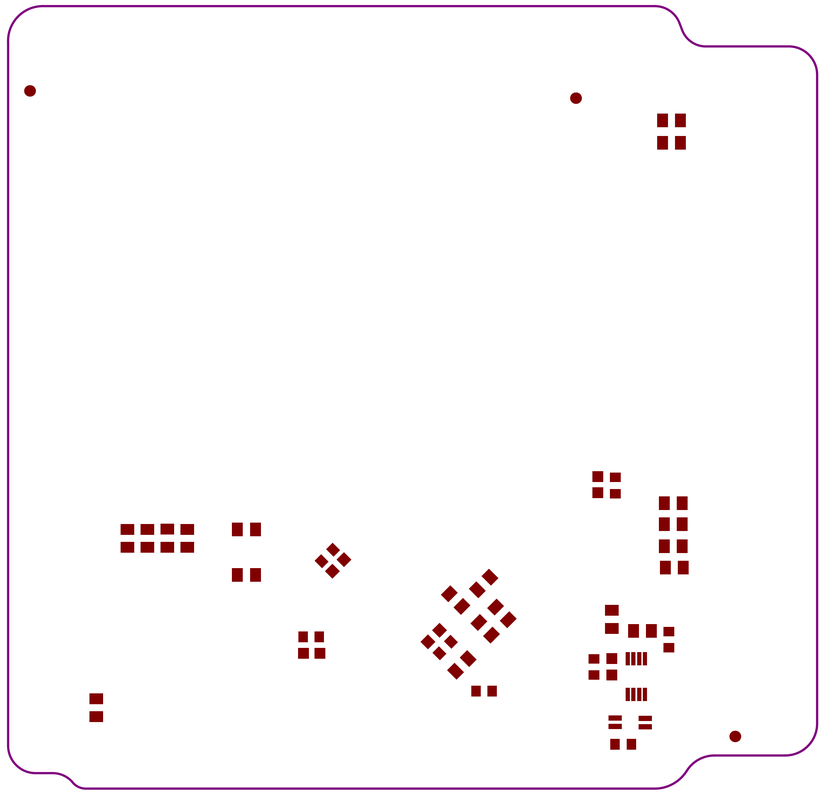
Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		SPACE LAB
Project: OBDH2		
Layer: Top Paste		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

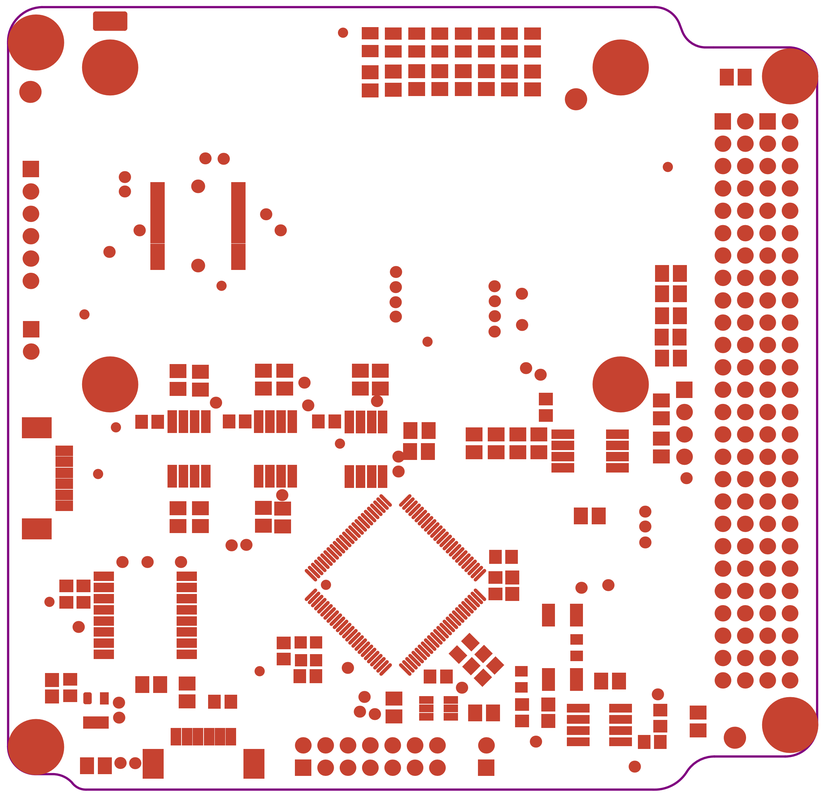
Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		SPACE LAB
Project: OBDH2		
Layer: Bottom Paste		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

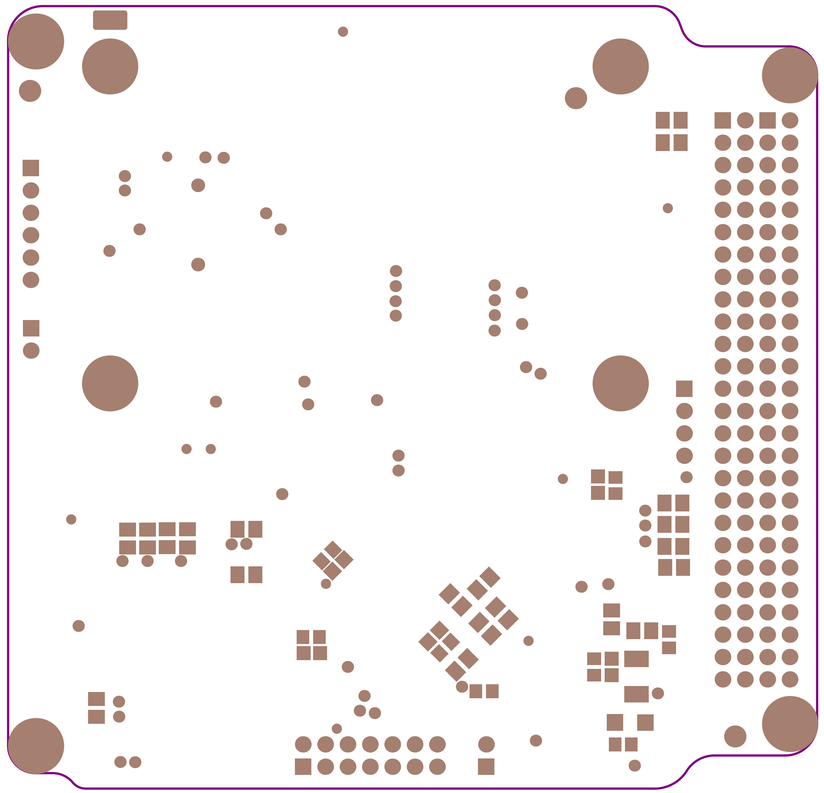
Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		SPACE LAB
Project: OBDH2		
Layer: Top Solder		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

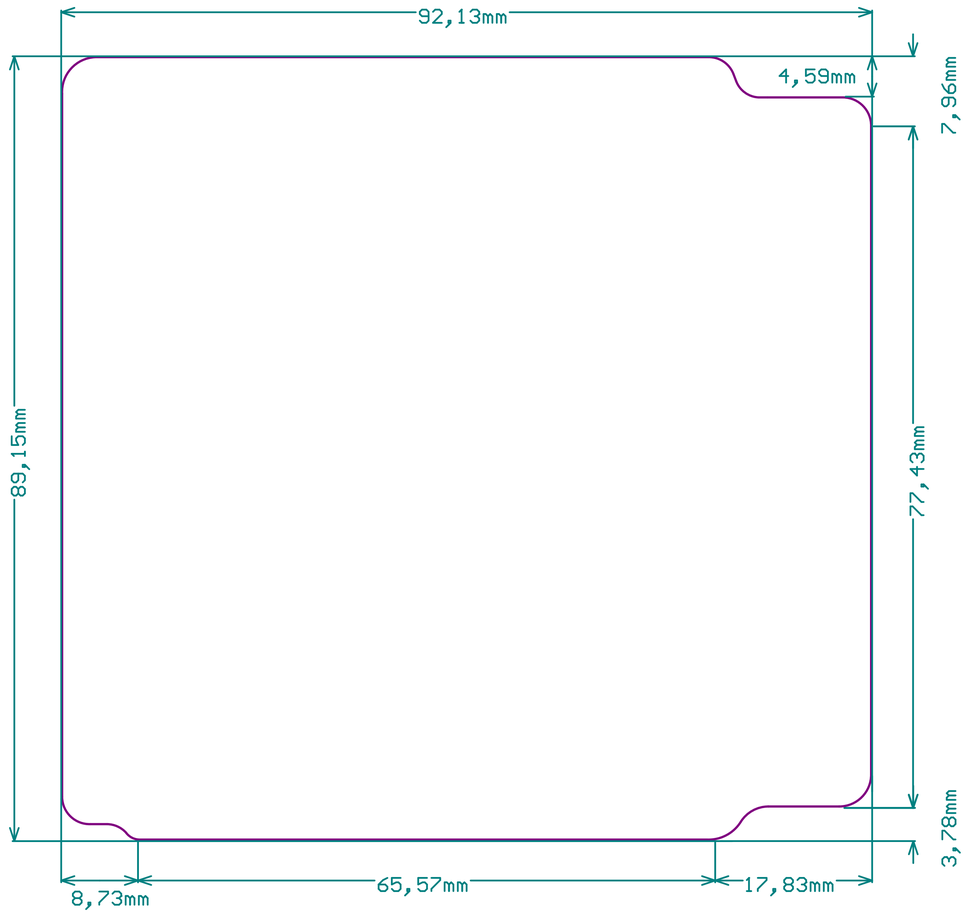
Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		SPACE LAB
Project: OBDH2		
Layer: Bottom Solder		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

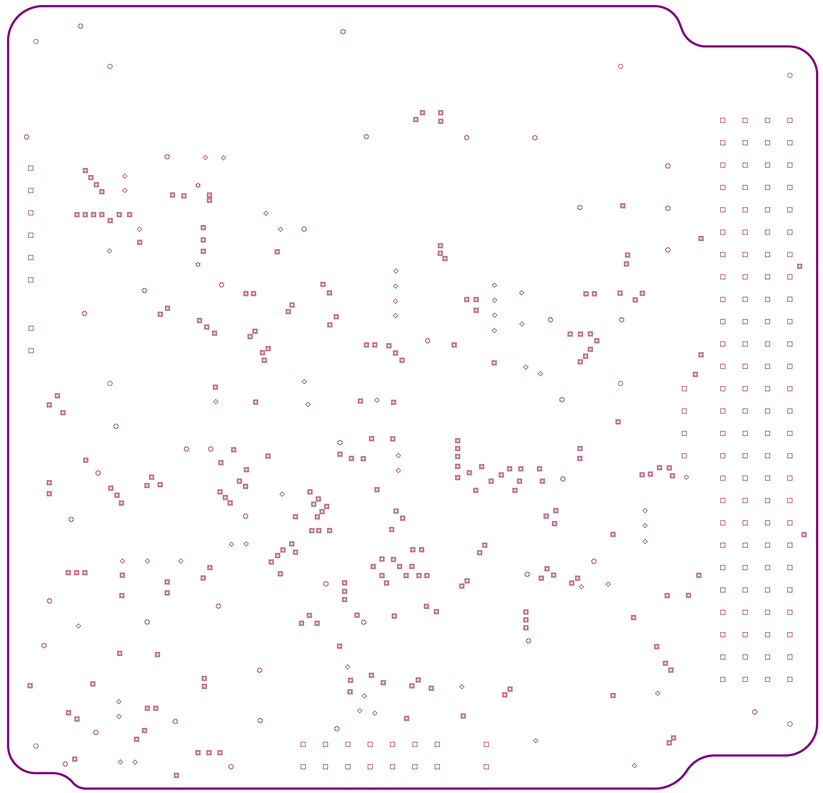
Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		SPACE LAB
Project: OBDH2		
Layer: Dimension		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

Symbol	Count	Hole Size	Plated	Hole Type	Drill Layer Pair	Via/Pad
◙	235	0,300mm (11,81mil)	PTH	Round	Top Layer - Bottom Layer	Via
✪	44	0,400mm (15,75mil)	PTH	Round	Top Layer - Bottom Layer	Via
◇	51	0,500mm (19,69mil)	PTH	Round	Top Layer - Bottom Layer	Pad
□	132	0,900mm (35,43mil)	PTH	Round	Top Layer - Bottom Layer	Pad
✡	2	1,190mm (46,85mil)	NPTH	Round	Top Layer - Bottom Layer	Pad
○	8	3,200mm (125,98mil)	PTH	Round	Top Layer - Bottom Layer	Pad
	472 Total					

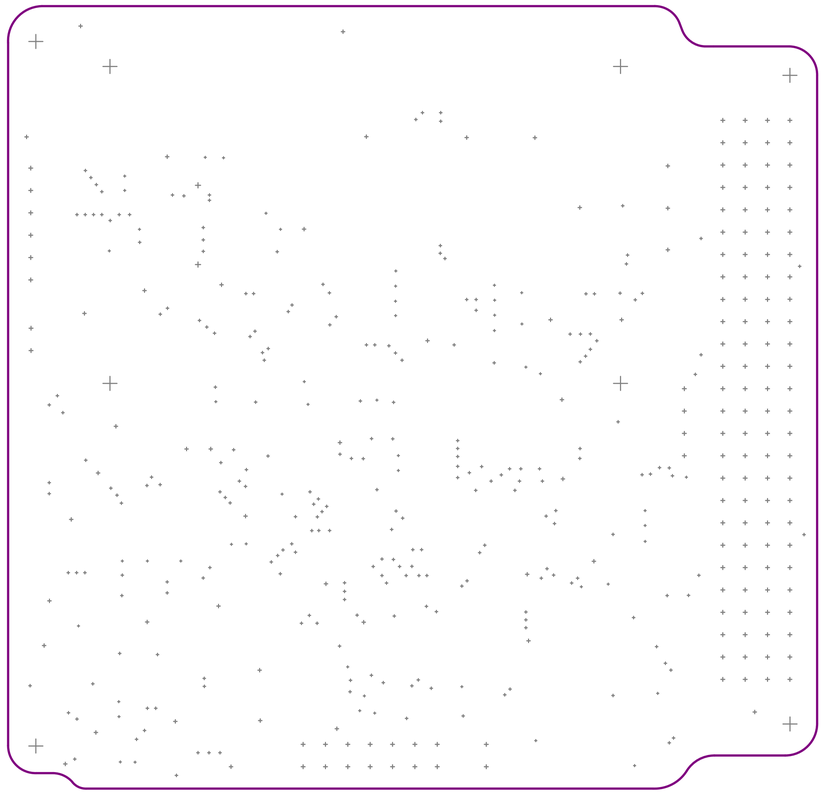
Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		SPACE LAB
Project: OBDH2		
Layer: Drill Drawing		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,39mil	3,5	
3	Top Layer	Copper	1,38mil		
4	Dielectric Core	FR-4	59,06mil	4,8	
5	Bottom Layer	Copper	1,38mil		
6	Bottom Solder	Solder Resist	0,39mil	3,5	
7	Bottom Overlay				

Fabrication specifications:

- Copper base 1OZ:
- PCB Material: Prepeg FR4–Standard
- PCB Tickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack–up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom avaliable
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina		SPACE LAB
Project: OBDH2		
Layer: Drill Guide		
Designed by: Andre M. P. Mattos		Project Code: OBDH2
Date: 26/08/2020	Version: v0.5	Size: A4