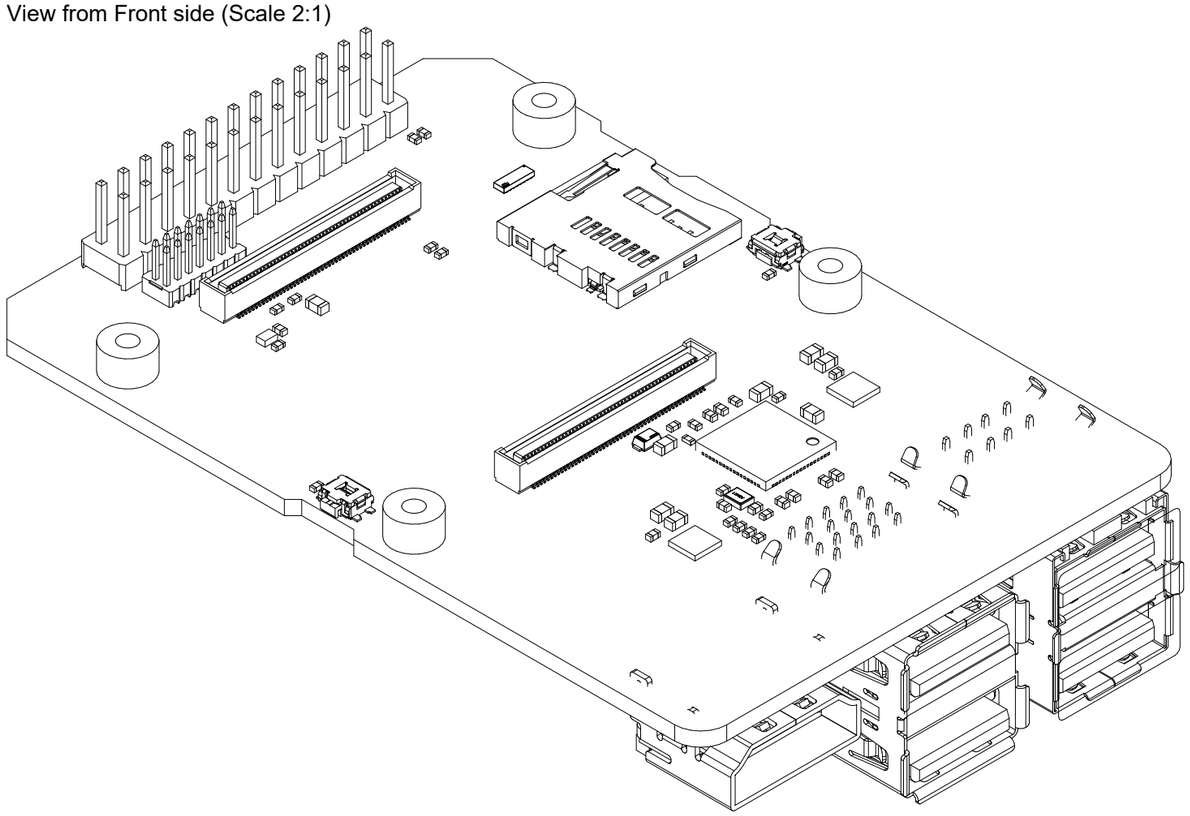
# PROJECT OVERVIEW

Name: PiOBD_CM4
Identifier: TopBoard
Version: V1.1
Revision: A
Variant: [All Variants]
Initial Date: 1.12.2021
Plot Date: 18.01.2022 - 12:13

View from Front side (Scale 2:1)

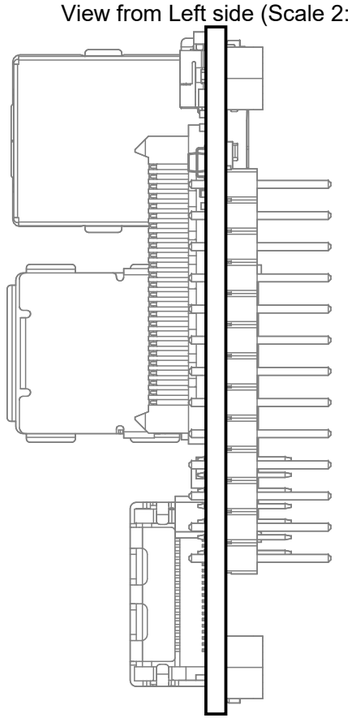


Bill Of Materials

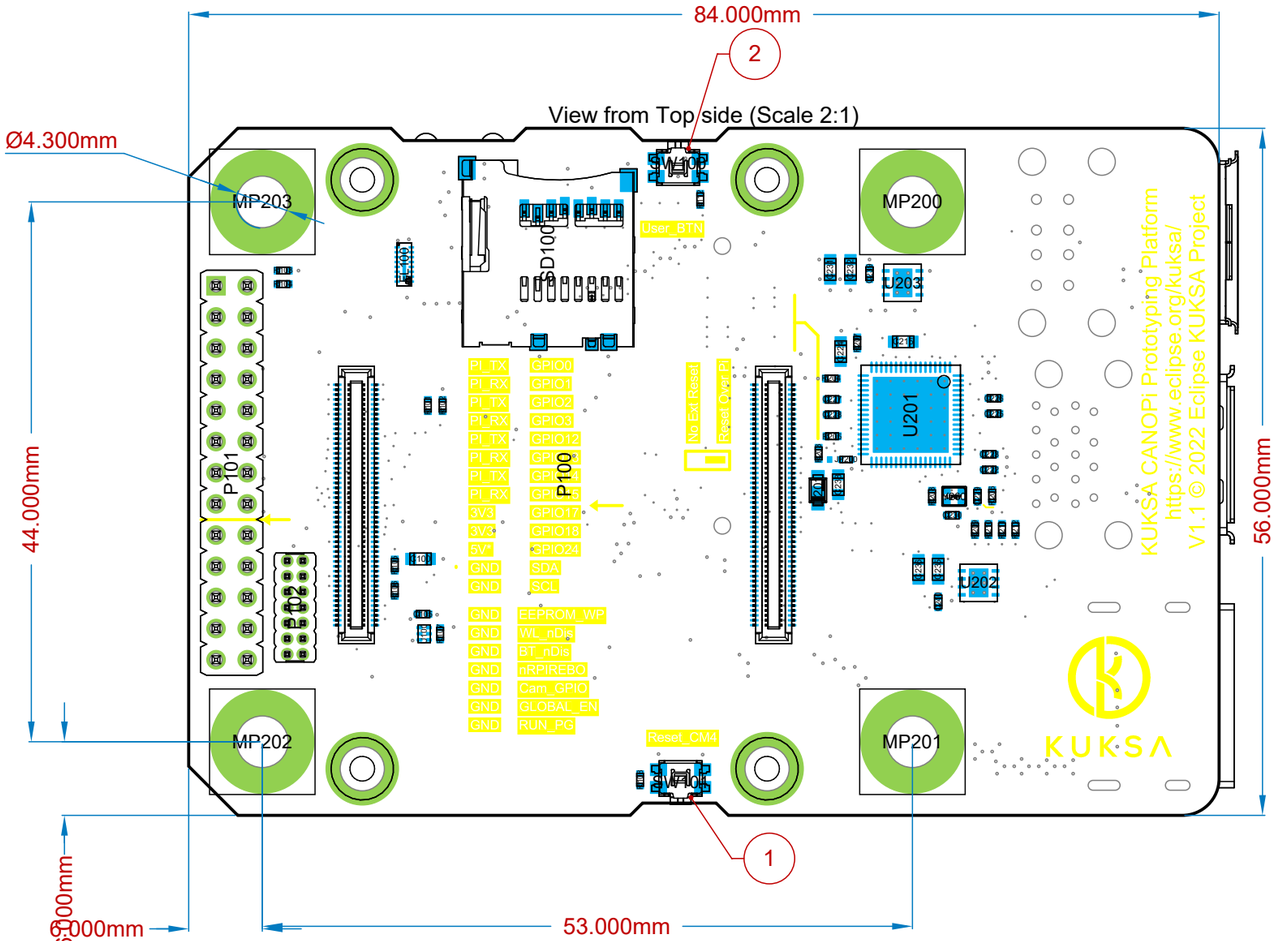
| Line # | Designator | Comment | Quantity |
|---|---|---|---|
| 1 | C100, C232, C236, C238 | CAP 0603 1u -10% +10% 10V X7R | 4 |
| 2 | C101, C102, C103, C104, C105, C106, C201, C202, C203, C204, C205, C206, C207, C208, C216, C217, C218, C219, C220, C221, C222, C223, C225, C226, C227, C228, C233, C237, C239, C240 | CAP 0402 100n -10% +10% 6.3V X7R | 30 |
| 3 | C200, C209, C210, C211, C212, C213, C214, C215, C224, C231, C235 | CAP 0603 10µF -20% +20% 6.3V X5R | 11 |
| 4 | C229, C230 | CAP 0402 15p -2% +2% 25V C0G | 2 |
| 5 | C234 | CAP 1210 100µF +/-20% 16V X5R | 1 |
| 6 | D100 | WUERTH ELEKTRONIK - 155124RS73200 | 1 |
| 7 | D101 | WUERTH ELEKTRONIK - 155124VS73200 | 1 |
| 8 | D200, D201 | RBE1VAM20ATR | 2 |
| 9 | FL100 | EMIF06-MSD02N16 | 1 |
| 10 | J100 | 685119134923 | 1 |
| 11 | J101 | HIROSE - FH12-22S-0.5SH55 | 1 |
| 12 | J200 | MOLEX - 484060003 | 1 |
| 13 | J201 | MOLEX - 672984090 | 1 |
| 14 | J202 | SAMTEC - ERM8-025-02.0-L-DV-TR | 1 |
| 15 | JP200 | Solder Jumper Triple 0402 with Assembly between 1 and 2 | 1 |
| 16 | L200 | VISHAY - IFSC1515AHER3R3M01 | 1 |
| 17 | P100 | RASPBERRY-PI - Compute Modul 4 | 1 |
| 18 | P101 | WUERTH ELEKTRONIK - 61302621121 | 1 |
| 19 | P102 | 62201421121 | 1 |
| 20 | R100, R101, R102, R107, R201, R209, R210, R211, R212, R213, R214, R215, R216 | RES 0402 100K 1% 0W0625 | 13 |
| 21 | R103, R104, R105, R106 | RES 0402 4K7 1% 0W0625 | 4 |
| 22 | R108 | RES 0402 220R 1% 0W0625 | 1 |
| 23 | R109, R112, R200, R203, R204, R205, R207 | RES 0402 10K 1% 0W0625 | 7 |
| 24 | R110, R111, R113, R114, R115 | RES 0402 1K 1% 0W0625 | 5 |
| 25 | R202 | RES 0402 13K3 1% 0W0625 | 1 |
| 26 | R206 | RES 0402 6K04 1% 0W0625 | 1 |
| 27 | R208 | RES 0402 100R 1% 63mW | 1 |
| 28 | SD100 | 473521001 | 1 |
| 29 | SW100, SW101 | EVQ-P7J01P | 2 |
| 30 | U100, U103 | SN74LVC1G07DRYR | 2 |
| 31 | U101, U102 | ON SEMICONDUCTOR - FPF2109 | 2 |
| 32 | U200 | LM2831XMF | 1 |
| 33 | U201 | VIA LABS - VL805 | 1 |
| 34 | U202, U203 | DIODES INCORPORATED - AP2182A | 2 |
| 35 | Y200 | ABRACON - ABM11-25.000MHZ-B7G-T | 1 |

# PCBA VIEW 1

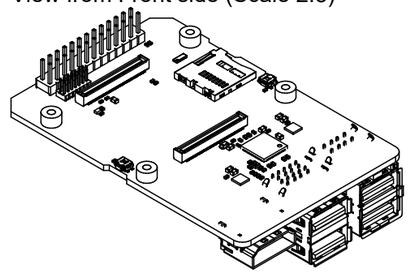
View from Left side (Scale 2:1)



View from Top side (Scale 2:1)



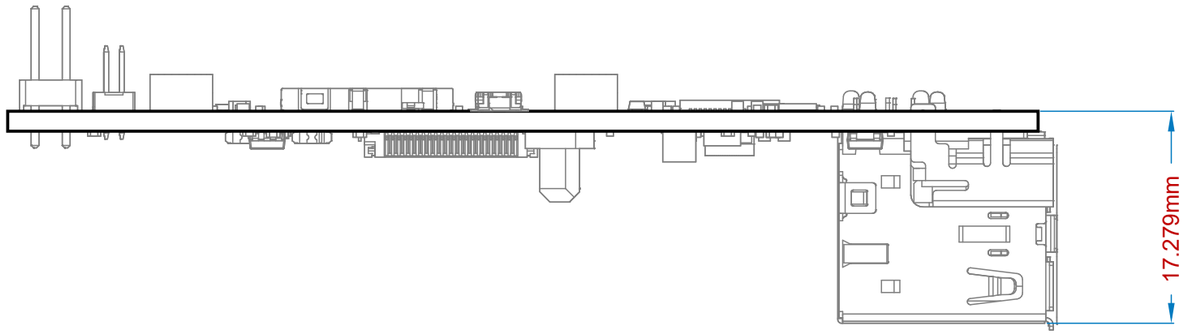

View from Front side (Scale 2:3)



Notes:

1. "Reset CM4" - Push button
2. User Button - Push button

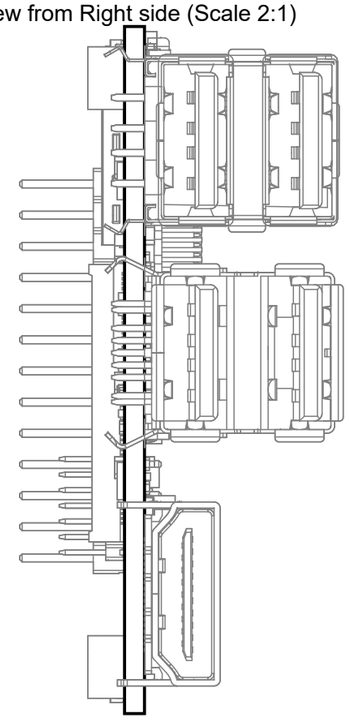
View from Front side (Scale 2:1)



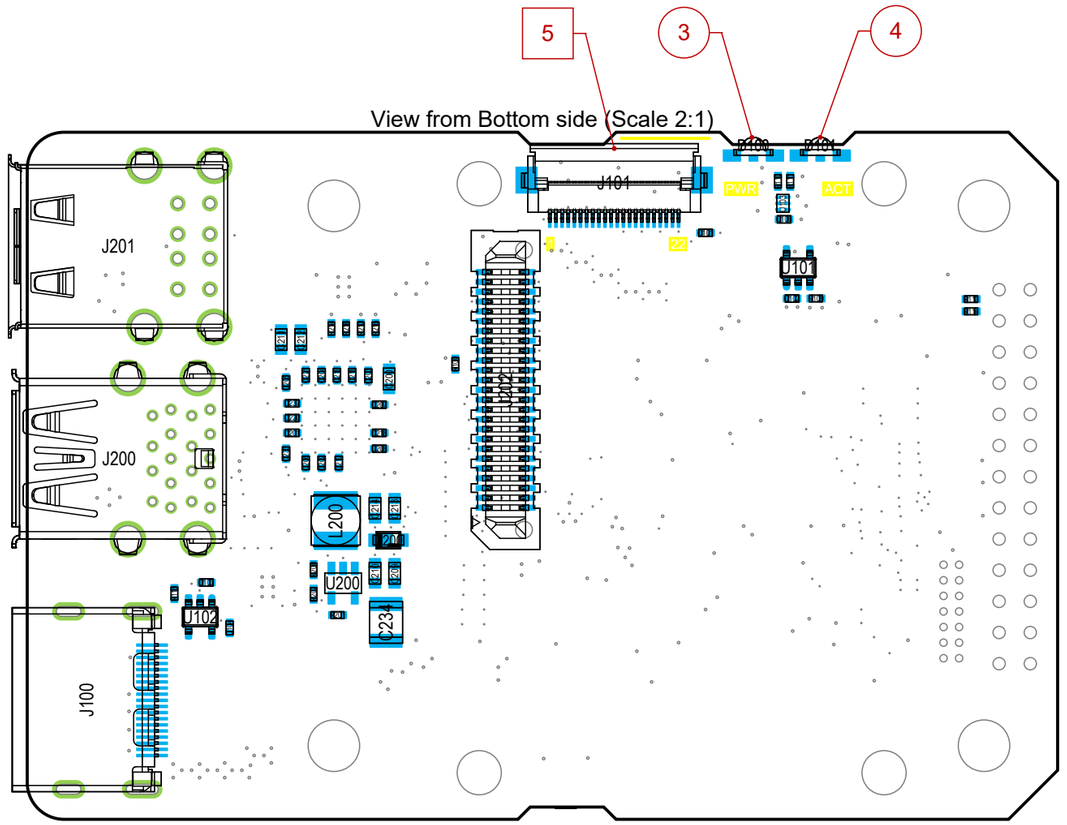

| | | | |
|---|---|---|---|
| Project: PiOBD_CM4<br>Identifier: TopBoard Version: V1.1 Revision: A Variant: [All Variants] | | | Sheet 2 of 7 |
| Document Size: A3<br>Unit: Millimeters | Generated: 18.01.2022 12:13<br>Initial Date: 1.12.2021 | Document Name: TopBoard.PCBDwf<br>PCB File Name: TopBoard.PcbDoc | Document SVN: Not in version control<br>PCB SVN: Not in version control |

# PCBA VIEW 2

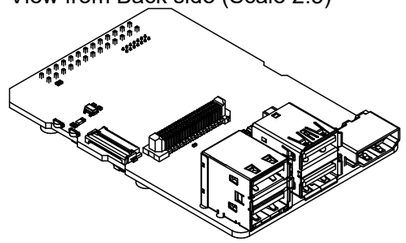
View from Right side (Scale 2:1)



View from Bottom side (Scale 2:1)




View from Back side (Scale 2:3)



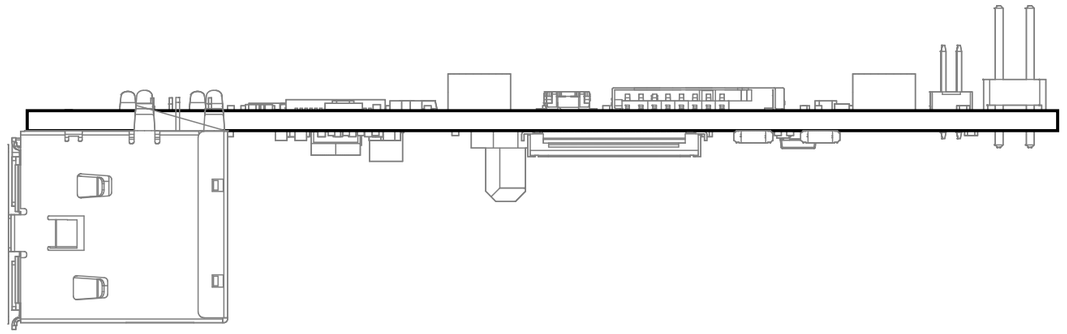
Notes:

(3) Power LED of Raspberry Pi (red)

(4) Activity Led of Raspberry Pi (green)

[5] Camera connector (22-pin)

View from Back side (Scale 2:1)



| | | | |
|---|---|---|---|
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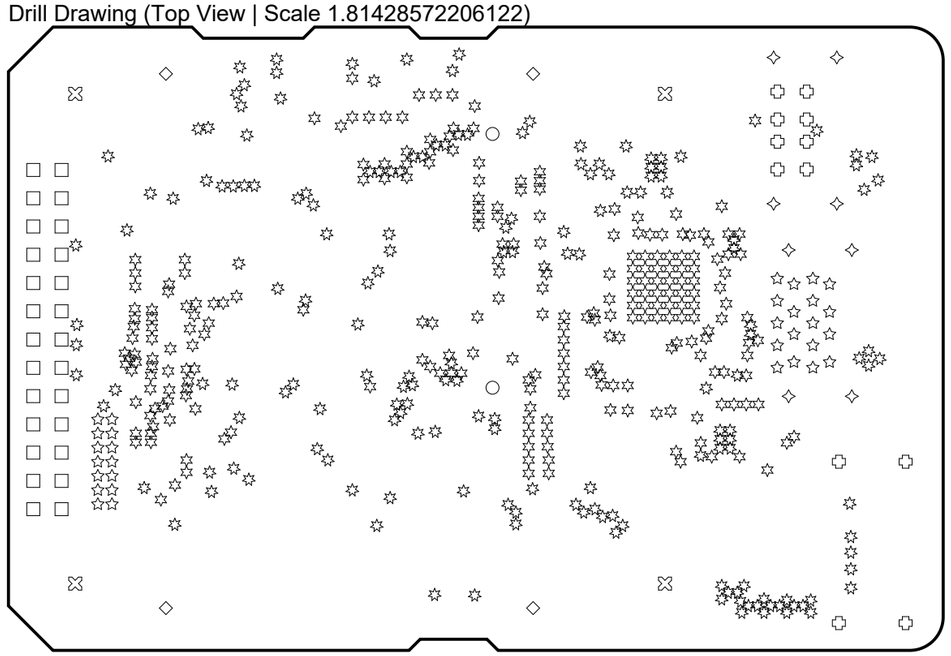
# DRILL INFORMATION

Drill Drawing (Top View | Scale 1.81428572206122)



Board Outline

| Technology | Selection |
|---|---|
| milling | x |
| v-scoring | |
| mixed (defined in Gerber file) | |
| mixed (defined in Draftsman drawing) | |
| **Separation PCB Manufacturer** | **Selection** |
| each PCB | |
| Assembly Panel | x |
| **Separation Assembly House** | **Selection** |
| each PCBA | x |
| Assembly Panel | |

Via - Plugging / Filling / Tenting

| IPC 4761 Type | Description | Selection |
|---|---|---|
| not used | All Vias without Plugging/Filling/Tenting | x |
| I(a) | Tented - Single Sided | |
| I(b) | Tented - Double Sided | |
| II(a) | Tented & Covered - Single Sided | |
| II(b) | Tented & Covered - Double Sided | |
| III(a) | Plugged - Single Sided | |
| III(b) | Plugged - Double Sided | |
| IV(a) | Plugged & Covered - Single Sided | |
| IV(b) | Plugged & Covered - Double Sided | |
| V | Filled (Fully Plugged) | |
| VI(a) | Filled & Covered (Fully Plugged) - Single Sided | |
| VI(b) | Filled & Covered (Fully Plugged) - Double Sided | |
| VII | Filled & Capped | |
| multiple used | Definded in Gerber file | |

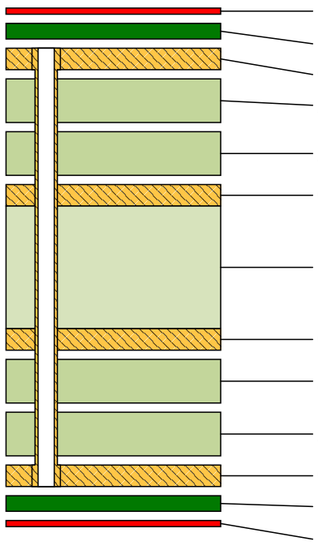
Drill Table

| Symbol | Via / Pad | Count | Hole Size | Hole Type | Drill Layer Pair | Plated | Hole Tolerance |
|---|---|---|---|---|---|---|---|
| ✡ | Via | 174 | 0.300mm | Round | Top Layer - Bottom Layer | Plated | None |
| ✡ | Via | 245 | 0.200mm | Round | Top Layer - Bottom Layer | Plated | None |
| ⛌ | Pad | 4 | 4.300mm | Round | Top Layer - Bottom Layer | Plated | None |
| ◇ | Pad | 4 | 3.700mm | Round | Top Layer - Bottom Layer | Plated | None |
| ✧ | Pad | 8 | 2.300mm | Round | Top Layer - Bottom Layer | Plated | None |
| ○ | Pad | 2 | 1.450mm | Round | Top Layer - Bottom Layer | Plated | None |
| □ | Pad | 26 | 1.100mm | Round | Top Layer - Bottom Layer | Plated | None |
| ⯐ | Pad | 12 | 0.900mm | (Mixed) | Top Layer - Bottom Layer | Plated | None |
| ☆ | Pad | 32 | 0.700mm | Round | Top Layer - Bottom Layer | Plated | None |
| | | 507 Total | | | | | |

6. Hole size is final dimension.

# LAYERSTACK INFORMATION

Layer Stack Legend 1



| | Material | Layer | Thickness | Dielectric Material | Type | Gerber |
|---|---|---|---|---|---|---|
| | | Top Overlay | | | Legend | GTO |
| | Surface Material | Top Solder | 0.0254mm | SM-001 | Solder Mask | GTS |
| | CF-004 | Top Layer | 0.0350mm | | Signal | GTL |
| | *Prepreg* | | *0.0711mm* | *PP-006* | *Dielectric* | |
| | *Prepreg* | | *0.0711mm* | *PP-006* | *Dielectric* | |
| | CF-004 | Int2 (Sign) | 0.0350mm | | Signal | G1 |
| | *Core* | | *1.2000mm* | *Core-009* | *Dielectric* | |
| | CF-004 | Int3 (Sign) | 0.0350mm | | Signal | G2 |
| | *Prepreg* | | *0.0711mm* | *PP-006* | *Dielectric* | |
| | *Prepreg* | | *0.0711mm* | *PP-006* | *Dielectric* | |
| | CF-004 | Bottom Layer | 0.0350mm | | Signal | GBL |
| | Surface Material | Bottom Solder | 0.0254mm | SM-001 | Solder Mask | GBS |
| | | Bottom Overlay | | | Legend | GBO |

Total thickness: 1.6753mm

Surface Finish

| Material | Selection |
|---|---|
| ENIG (chem. Ni/Au) | x |
| Chemical Tin | |
| ENEPIG | |
| HASL - Lead free | |
| HASL + Pb | |
| Other: | |

Silkscreen

| Side | Color / Material | Selection |
|---|---|---|
| Top | white | x |
| Bottom | white | x |

Soldermask

| Side | Color / Material | Selection |
|---|---|---|
| Top | green | x |
| Bottom | green | x |

7. Layer stack thickness is final dimension

| | | | |
|---|---|---|---|
| Project: PiOBD_CM4<br>Identifier: TopBoard Version: V1.1 Revision: A Variant: [All Variants] | | | Sheet 5 of 7 |
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# ADDITIONAL INFORMATION

| ID | Process / Requirement | Selection / Definition |
|---|---|---|
| 1 | Halogen free (low Hal) | - |
| 2 | Warp & Weft direction | - |
| 3 | Temper PCB for better planarity | - |
| 4 | X-Ray | - |
| 5 | Serial Number | - |
| 6 | Electrical Tests | 100% of PCBs |
| 7 | RoHS | yes |
| 8 | UL94 | - |
| 9 | Datecode (PCB manufacturing) | yes (calender week / year) |
| 10 | Manufacturer Marking | - |
| 11 | Sideplating / Metallized Edges | - |
| 12 | Controlled Impedance | - |
| 13 | Soldering process | - |
| 14 | ... | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |

Project: PiOBD_CM4
Identifier: TopBoard Version: V1.1 Revision: A Variant: [All Variants]

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Document Size: A3
Unit: Millimeters

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Initial Date: 1.12.2021

Document Name: TopBoard.PCBDwf
PCB File Name: TopBoard.PcbDoc

Document SVN: Not in version control
PCB SVN: Not in version control

# CHANGELOG

Name: PiOBD_CM4
Identifier: TopBoard
Version: V1.1
Revision: A
Variant: [All Variants]
Initial Date: 1.12.2021
Plot Date: 18.01.2022 - 12:13

| **Version** | **Revision** | Date (dd.MM.yyyy) | **Variant Name** | **Changes / Comment** | Responsible (Account Name) |
|---|---|---|---|---|---|
| 1 | 0 | | | | |
| 1 | 1 | 12.01.2022 | | Rounded corners, RUN_PG signal on pin header, revised polygon pour, revised soldermask to avoid tombstoning | Ko |
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Project: PiOBD_CM4
Identifier: TopBoard Version: V1.1 Revision: A Variant: [All Variants]

Sheet 7 of 7

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