



PCB Manufacturing Notes

General Info

Board dimensions – 145mm x 70mm
Number of layers – 4
Smallest hole – 0.3mm
Number of holes – Approx 710
Minimum Track & Gap – 0.15mm
RoHS/Lead Free – Yes
Material – FR4

Stackup

Stackup is to be as follows:

| Layer | Copper Weight (Pre-Plating) |
|---------------|-----------------------------|
| Top Copper | 0.5oz |
| Inner 1 | 1oz |
| Inner 2 | 1oz |
| Bottom Copper | 0.5oz |

Finished board thickness to be 1.6mm, tolerance 0.1mm

Impedance Control

None required

Copper Thieving/Balancing

The supplier may add copper thieving/balancing if required.

Finish

A.) Conductive finish

Plating to be immersion gold.

B.) Soldermask

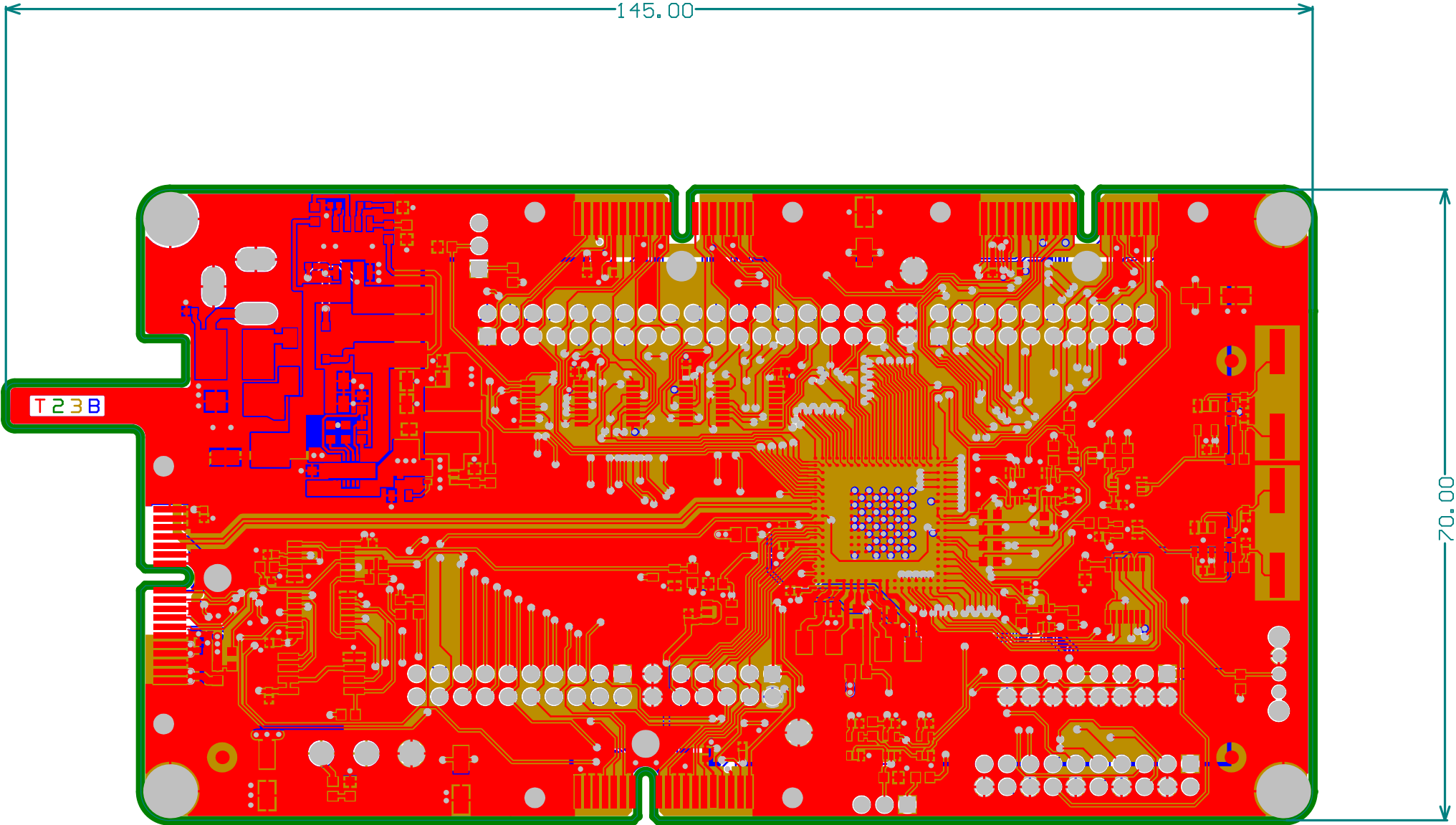
Liquid photo imageable soldermask (GREEN). Pads have not been oversized.
Supplier should oversize soldermask on pads to suit process.

C.) Silkscreen

Colour white. Supplier should remove any silkscreen which overhangs pads.

Drill Data

Drill data is in Excellon format, metric (0000.000), no zero suppression, absolute coordinates.
Hole size is finished size.



XMOS LTD = XP-SKC-U16 = 1V2 B =21 OCTOBER 2013
FABRICATION INSTRUCTIONS
TOP COPPER LAYER
BOTTOM COPPER LAYER
INNER 1 COPPER LAYER
INNER 2 COPPER LAYER

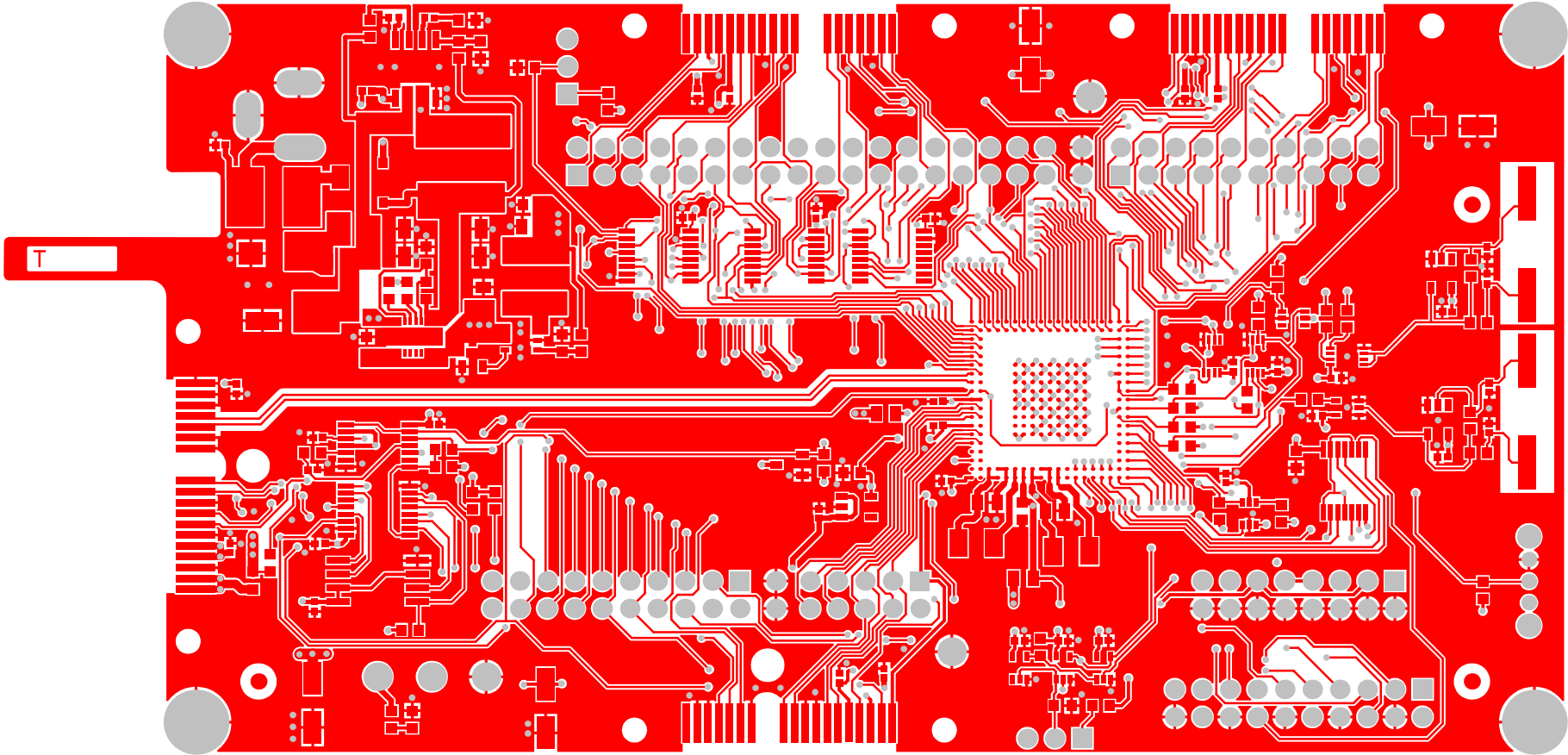


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XP-SKC-U16

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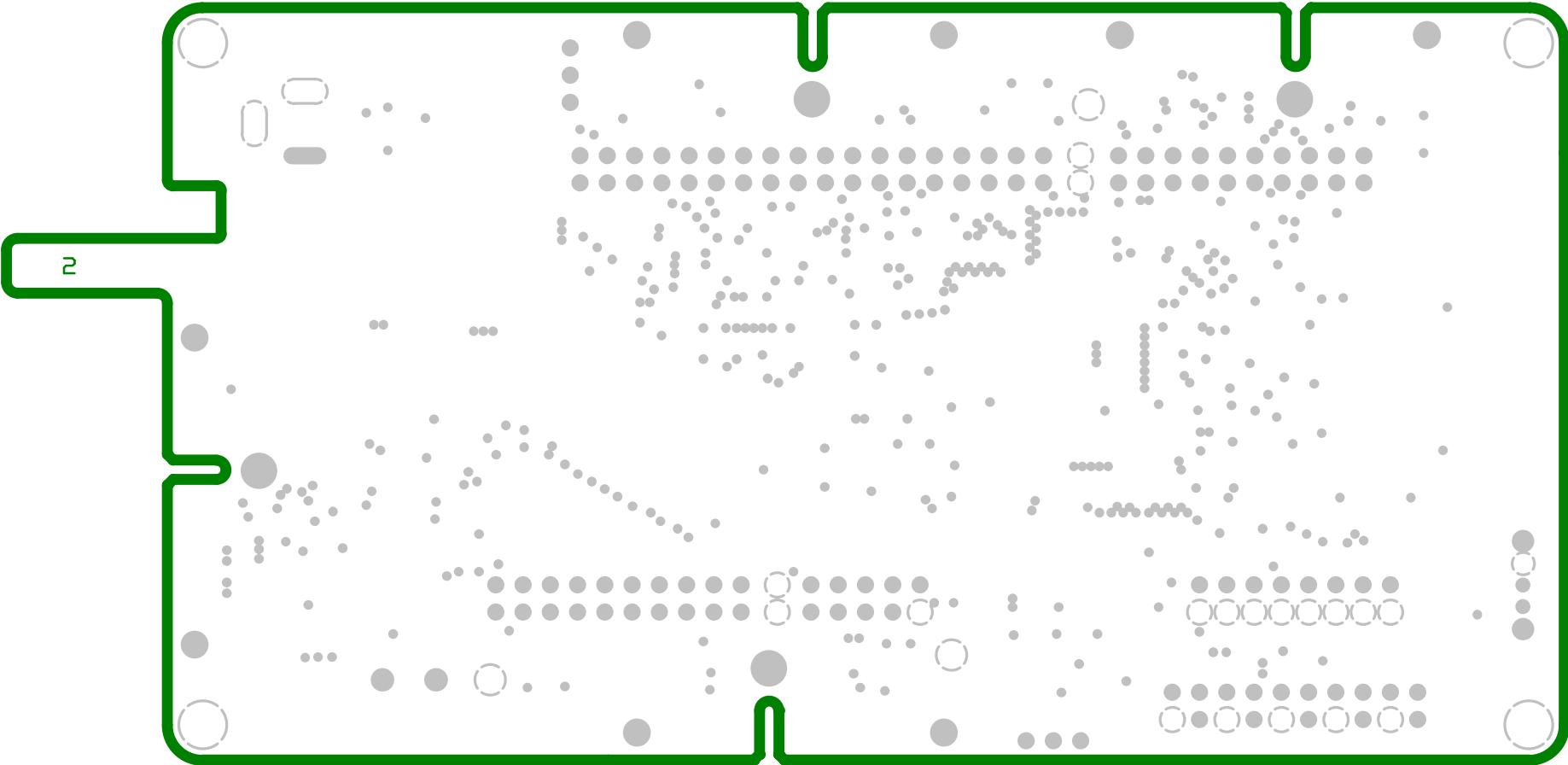
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Top Copper



TOP COPPER LAYER

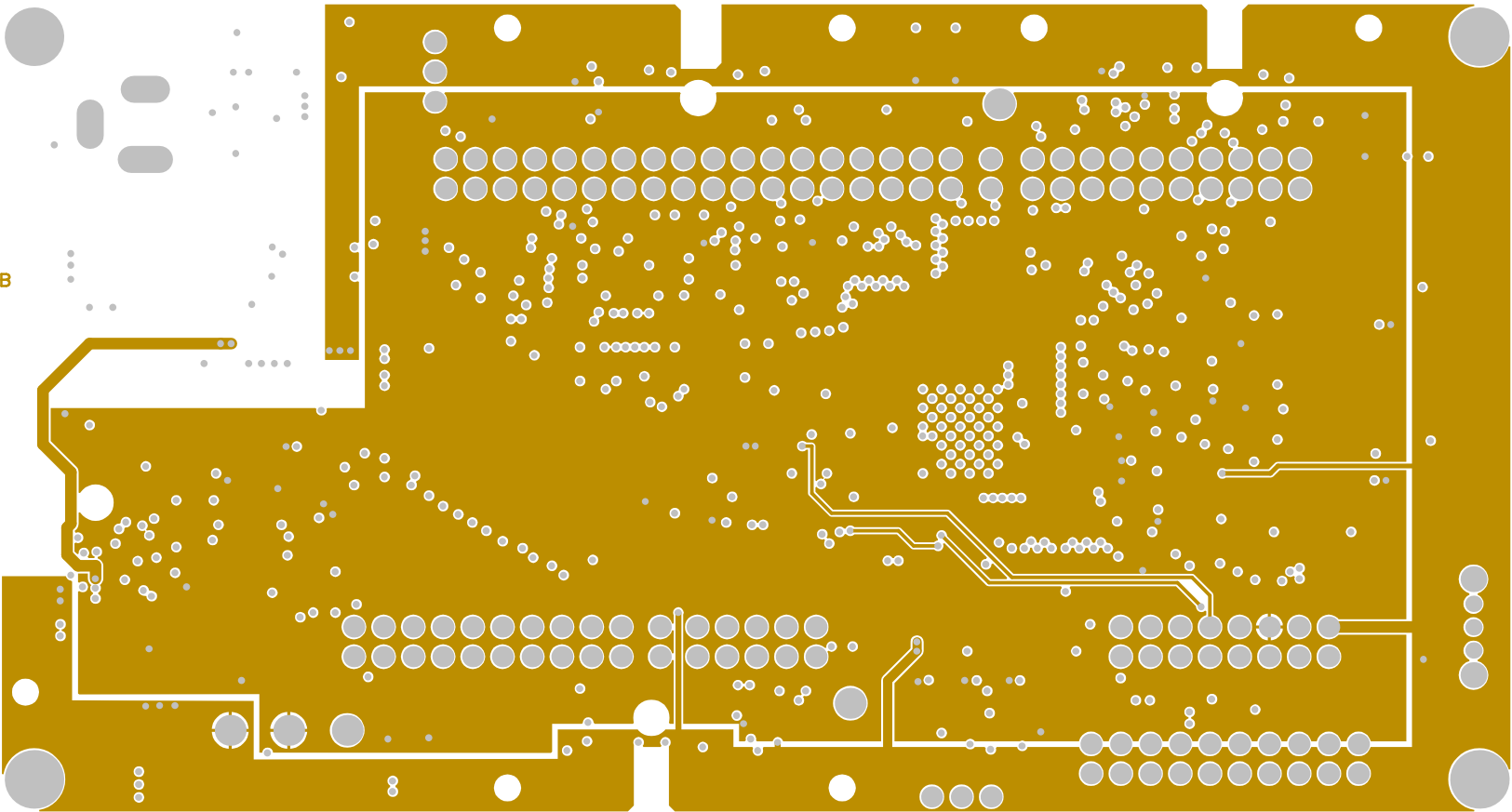
Inner 1



INNER 1 COPPER LAYER

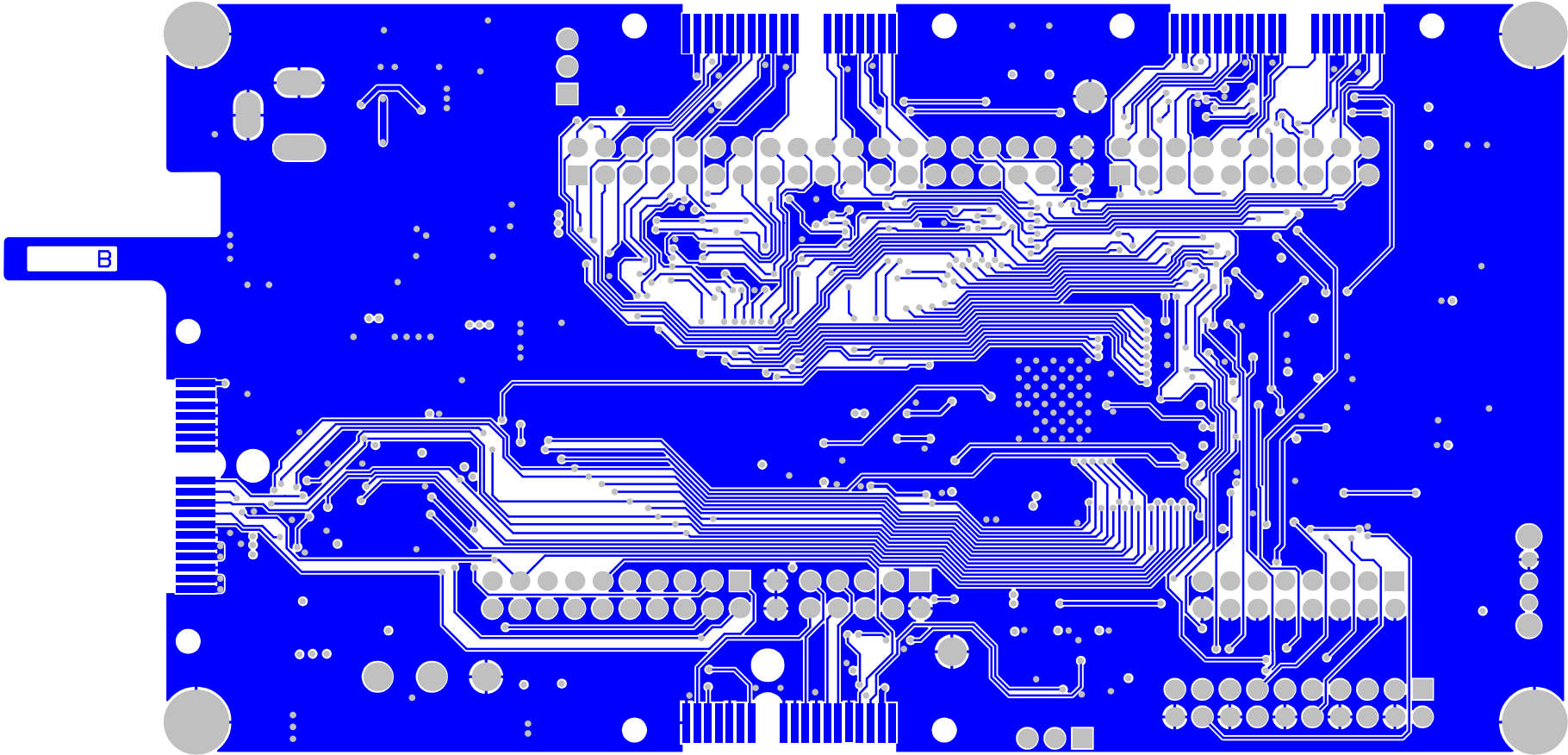
Inner 2

3 1V1B

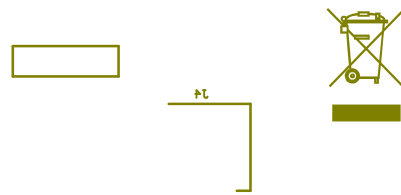


INNER 2 COPPER LAYER

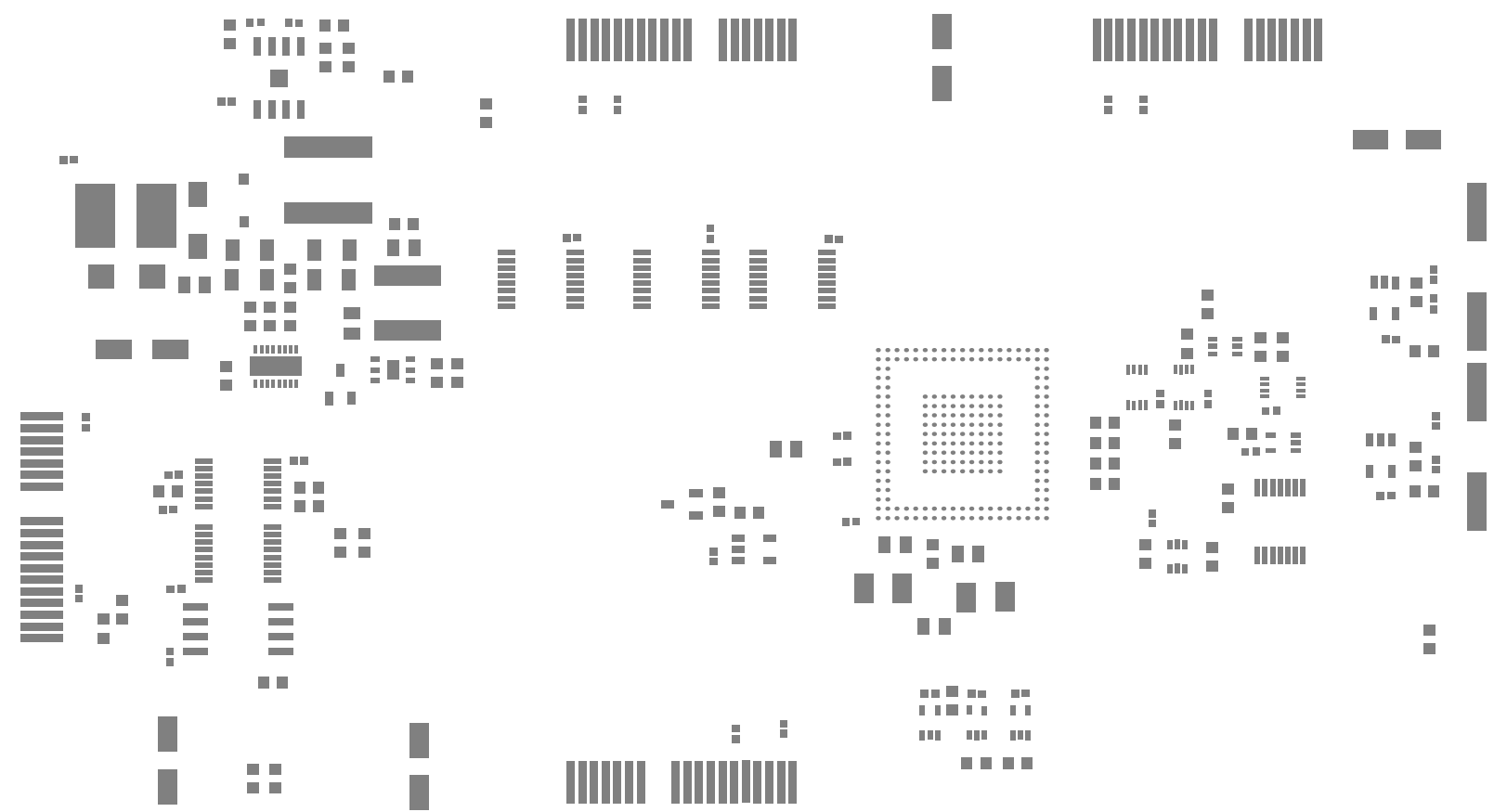
Bottom Copper



BOTTOM COPPER LAYER



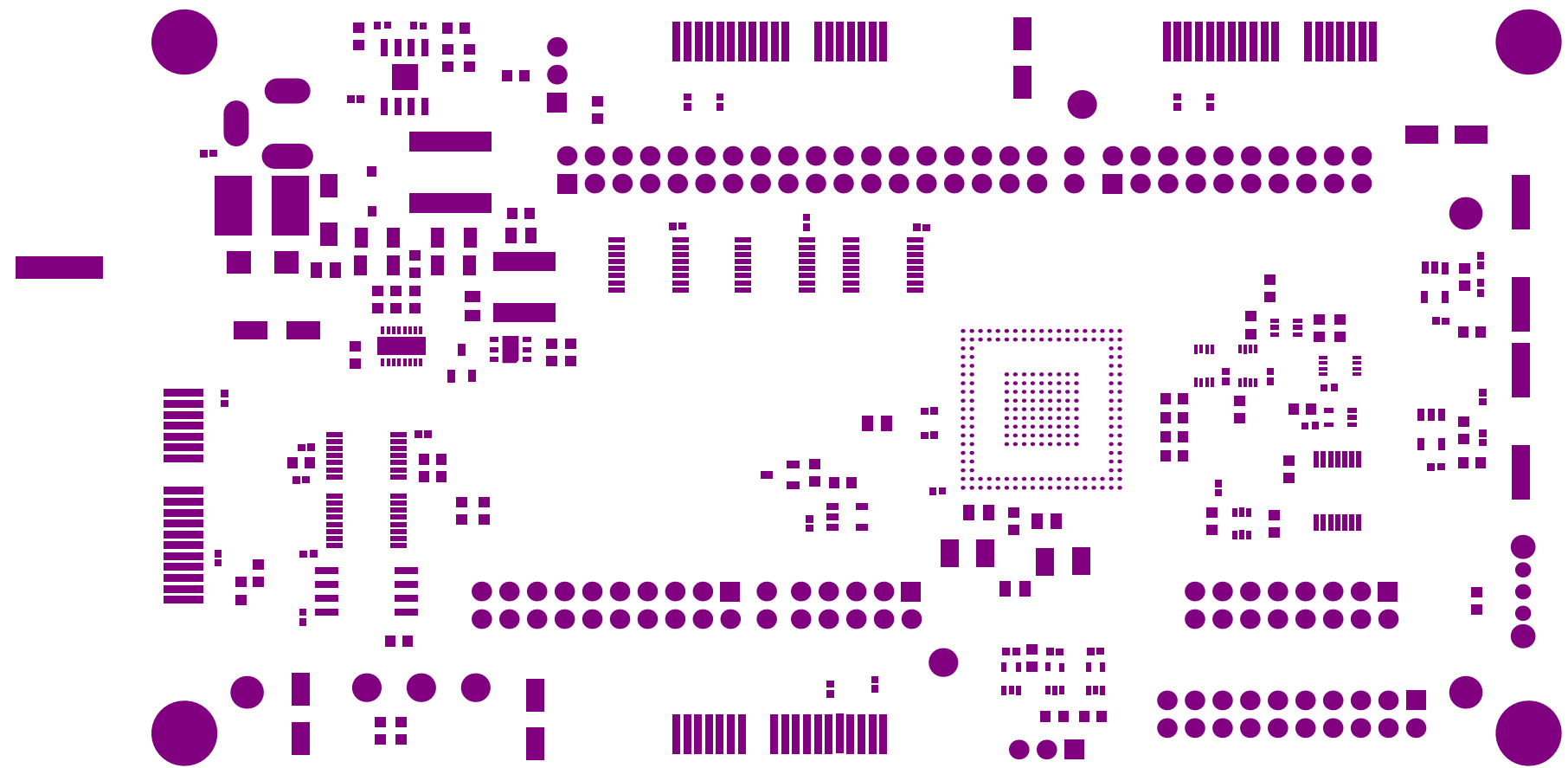
BOTTOM SILKSCREEN LAYER



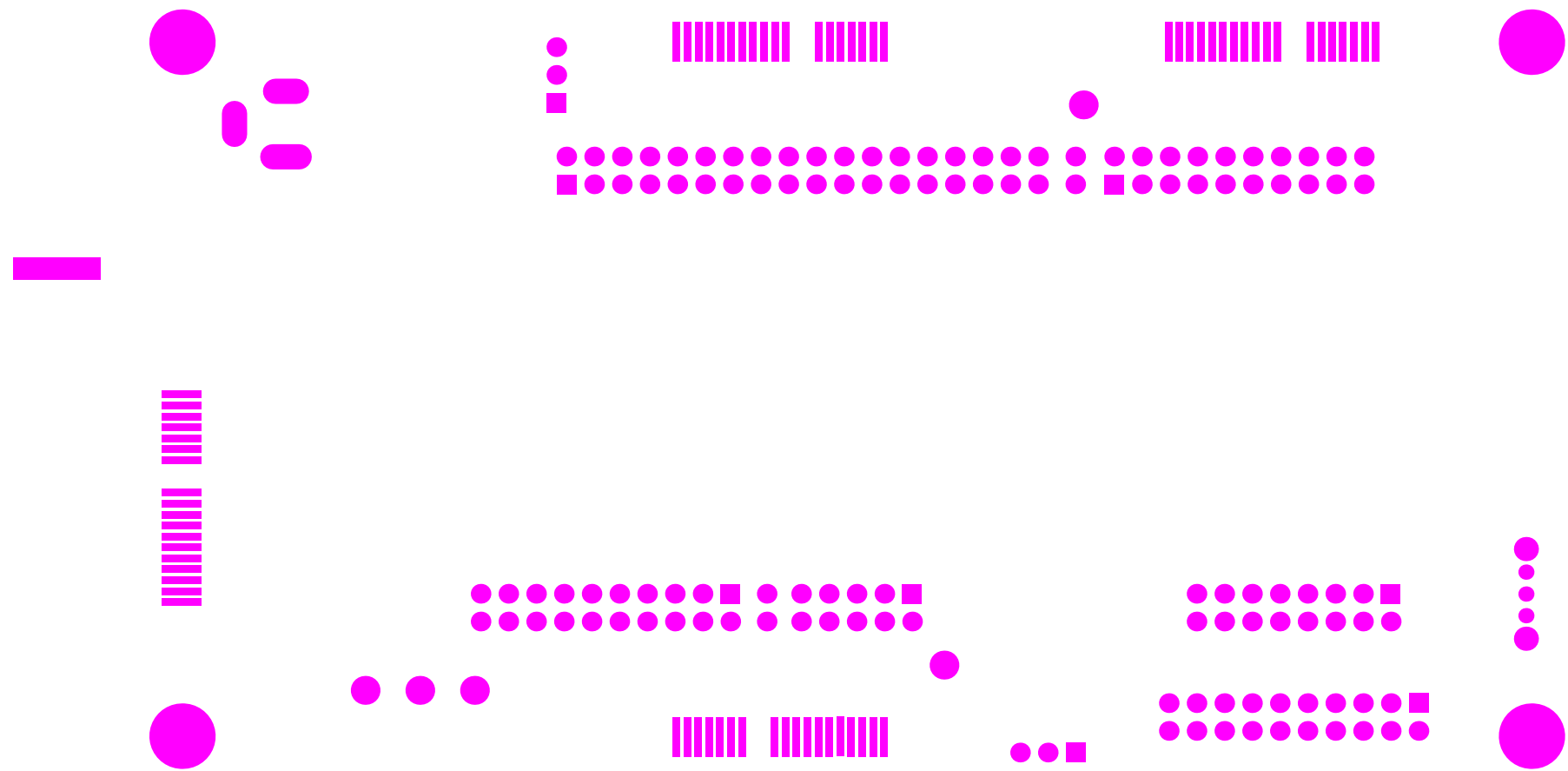
TOP PASTE LAYER



BOTTOM PASTE LAYER



TOP SOLDER MASK LAYER



BOTTOM SOLDER MASK LAYER

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Stackup is to be as follows:

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| | 0.5oz |
| | 1oz |
| | 1oz |
| | 0.5oz |

Finished board thickness to be 1.6mm, tolerance 0.1mm

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None required

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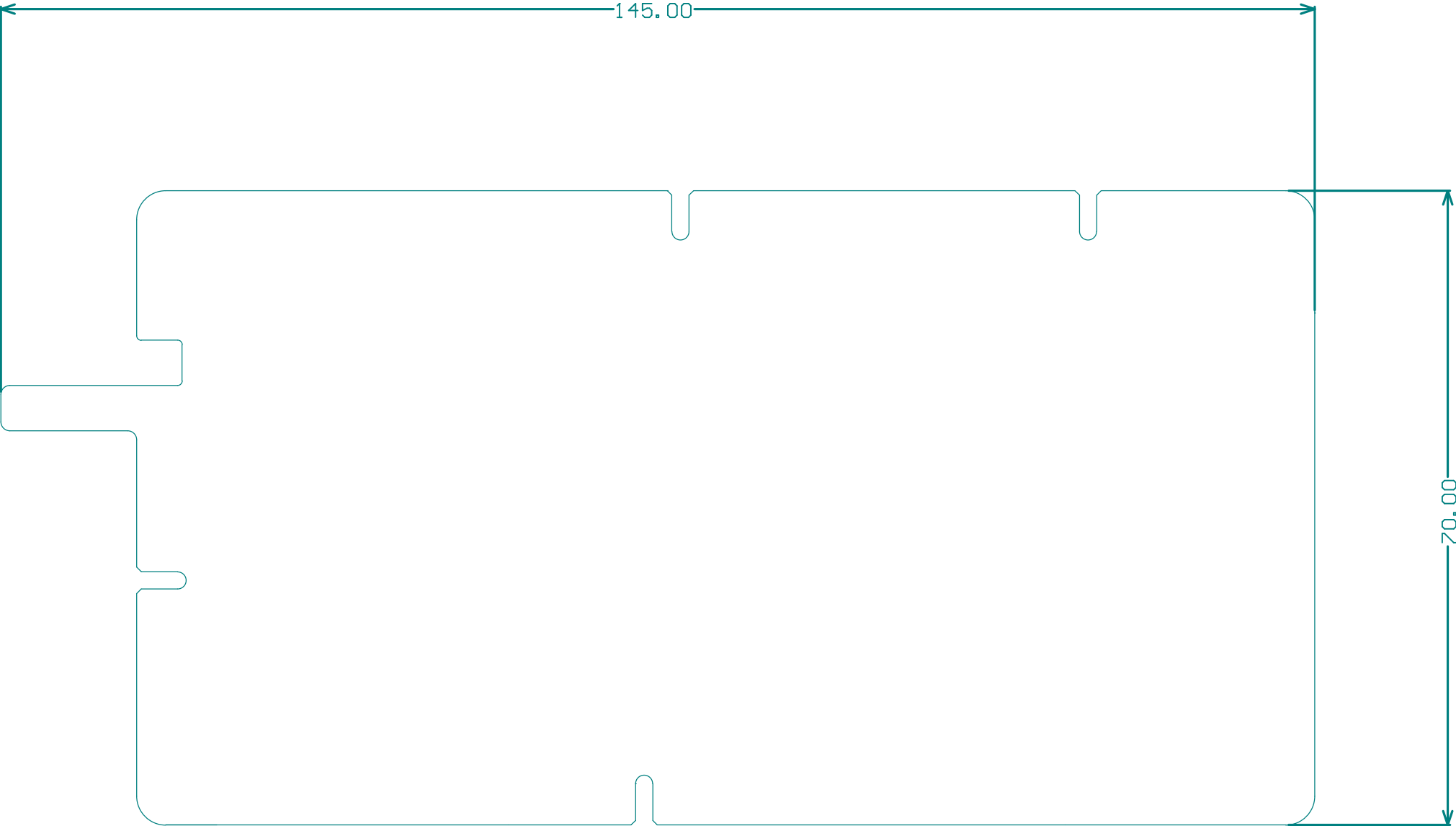
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| 1 | 0.5oz |
| 2 | 1oz |
| 3 | 1oz |
| 4 | 0.5oz |

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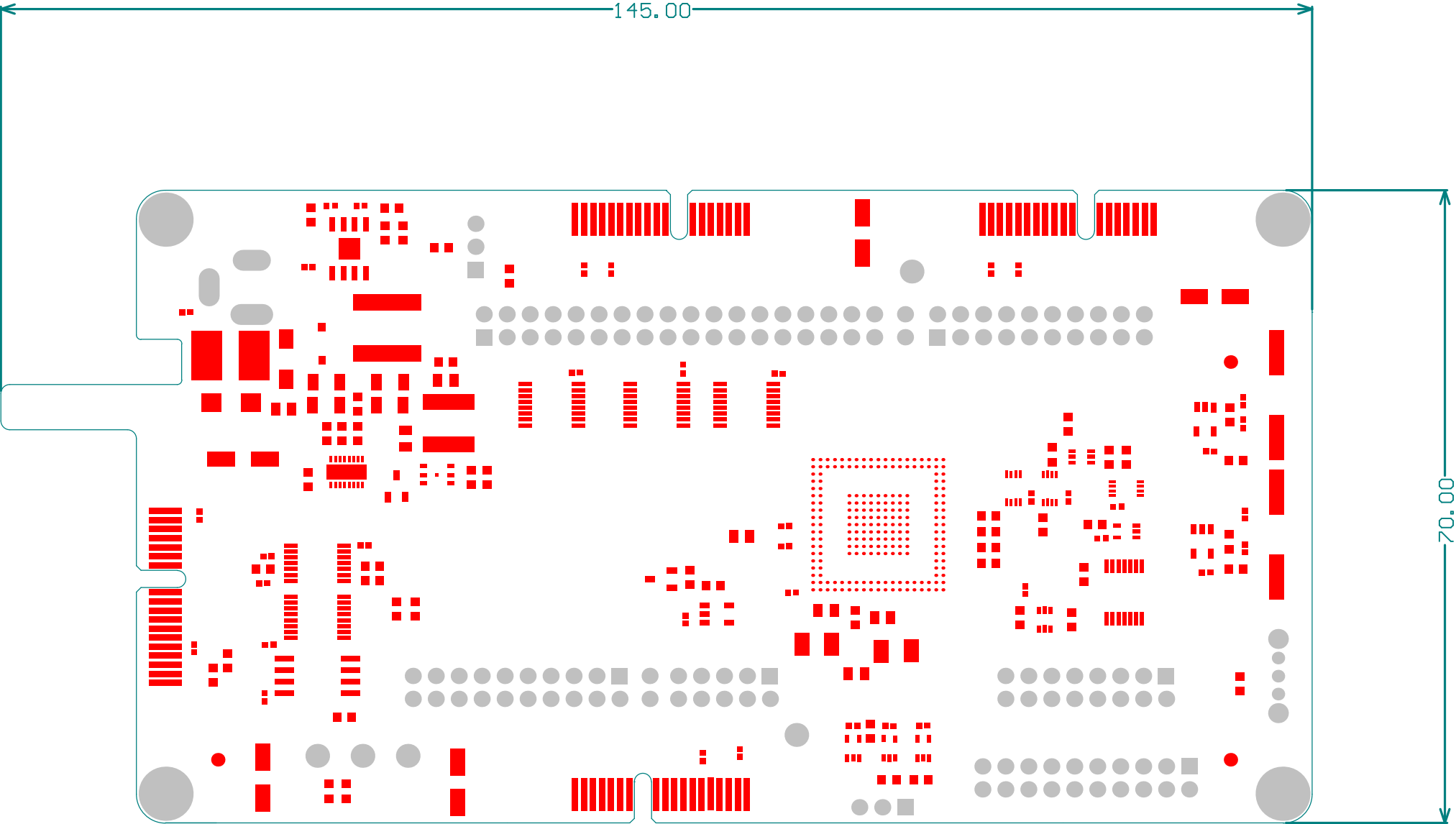
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FABRICATION INSTRUCTIONS

| | | |
|---|-------------------|-------------------|
|  | | |
| Project Name XP-SKC-U16 | | |
| Sheet A4 | Date JUNE 2013 | Revision 1V2 B |
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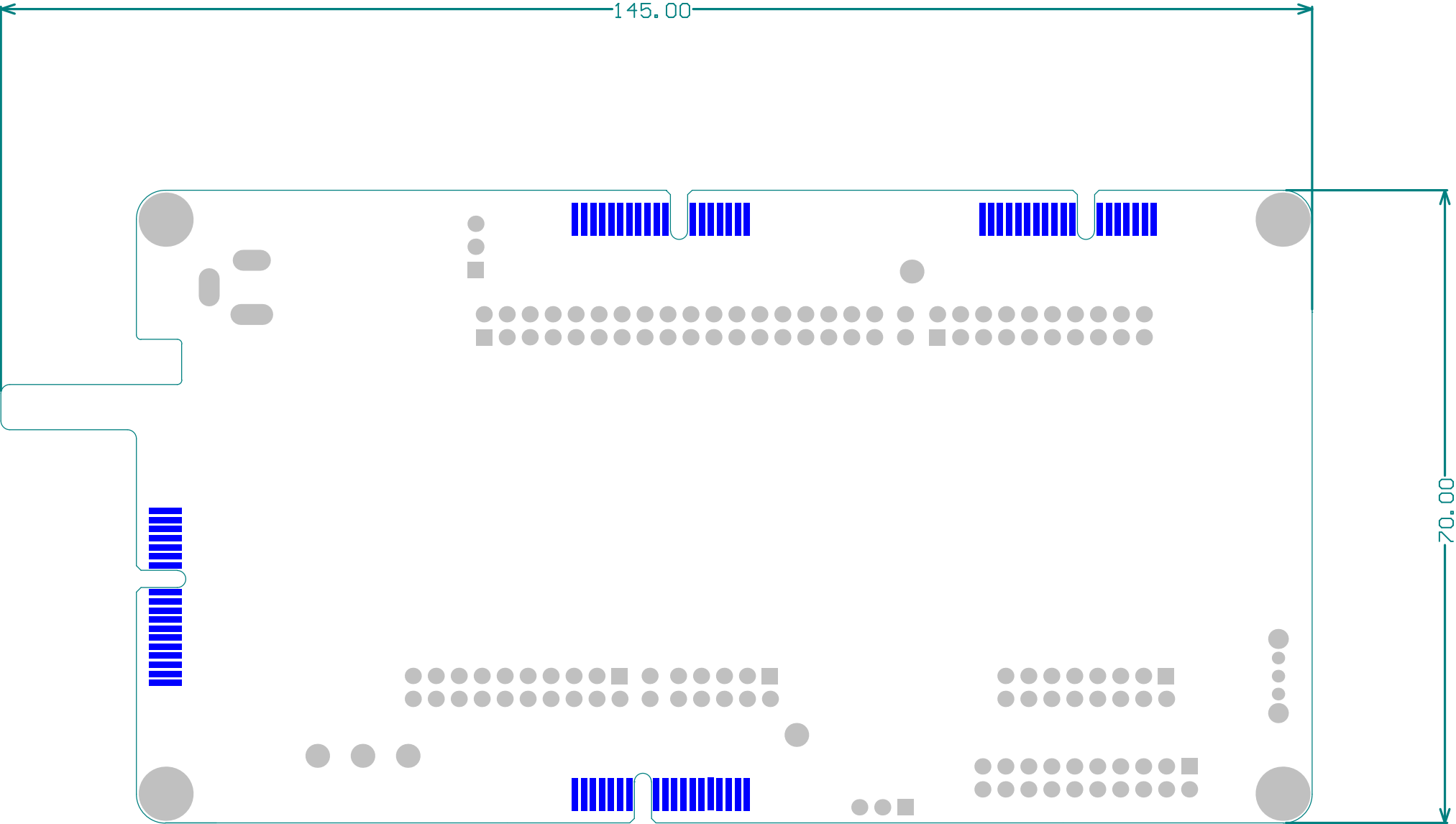
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Project Name
XP-SKC-U16

Sheet

A4

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Revision

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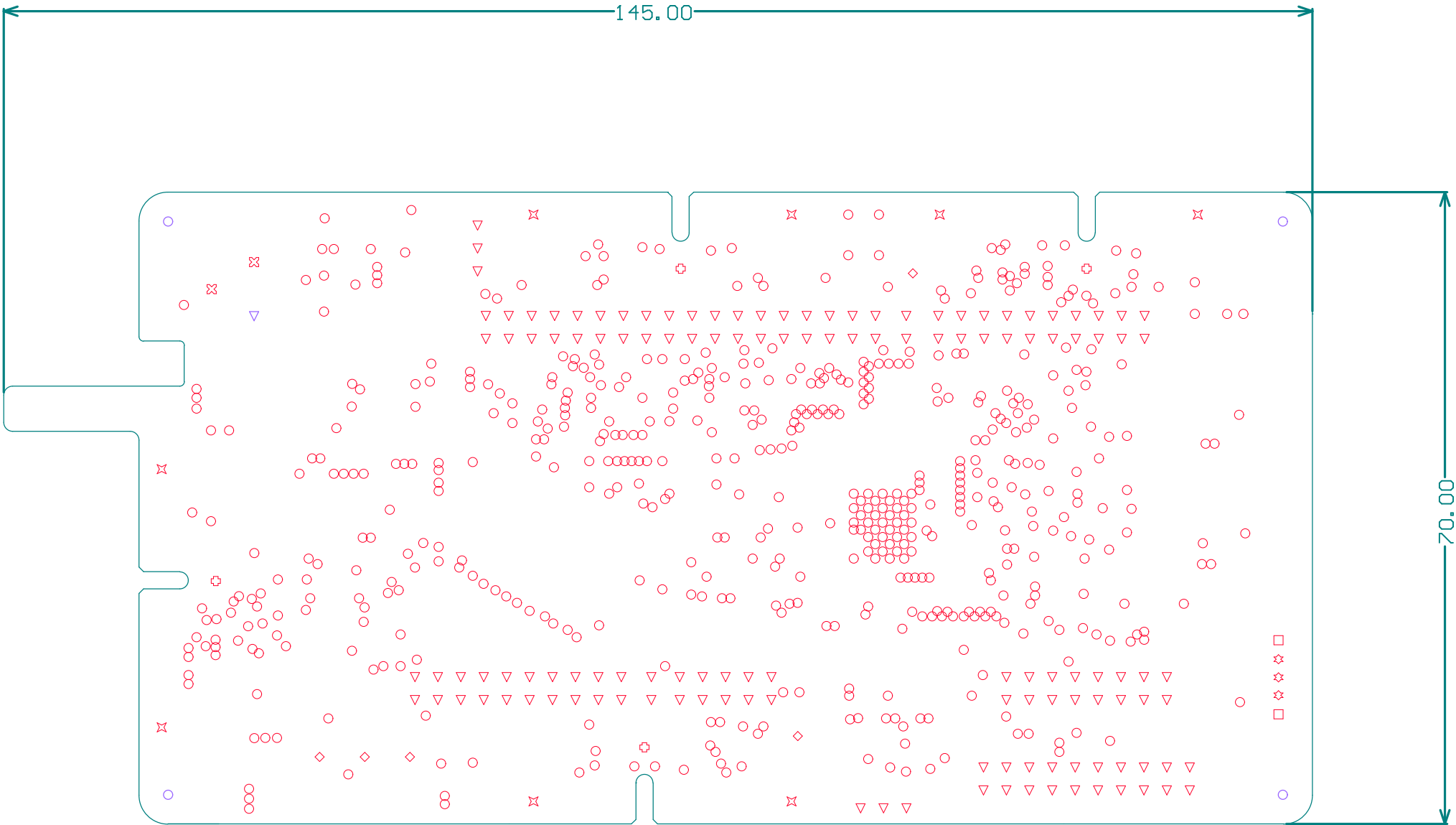
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FABRICATION INSTRUCTIONS DRILL DRAWING

| Symbol | Hit Count | Tool Size | Physical Length | Rout Path Length | Plated | Hole Type |
|--------|-----------|--------------------|--------------------|-------------------|--------|-----------|
| o | 562 | 0.3mm (11.811mil) | | | PTH | Round |
| * | 3 | 0.8mm (31.496mil) | | | PTH | Round |
| v | 132 | 1mm (39.37mil) | | | PTH | Round |
| □ | 2 | 1.5mm (59.055mil) | | | PTH | Round |
| ◇ | 5 | 1.6mm (62.992mil) | | | PTH | Round |
| ⊠ | 8 | 2mm (78.74mil) | | | NPTH | Round |
| ⬢ | 4 | 2.8mm (110.236mil) | | | NPTH | Round |
| ○ | 4 | 3.2mm (125.984mil) | | | PTH | Round |
| ⊞ | 2 | 1mm (39.37mil) | 2.9mm (114.173mil) | 1.9mm (74.803mil) | PTH | Slot |
| ▽ | 1 | 1mm (39.37mil) | 3.4mm (133.858mil) | 2.4mm (94.488mil) | PTH | Slot |
| | 723 | Total | | | | |

Slot definitions : Rout Path Length = Calculated from tool start centre position to tool end centre position.
Physical Length = Rout Path Length + Tool Size = Slot length as defined in the PCB layout
Drill Drawing.

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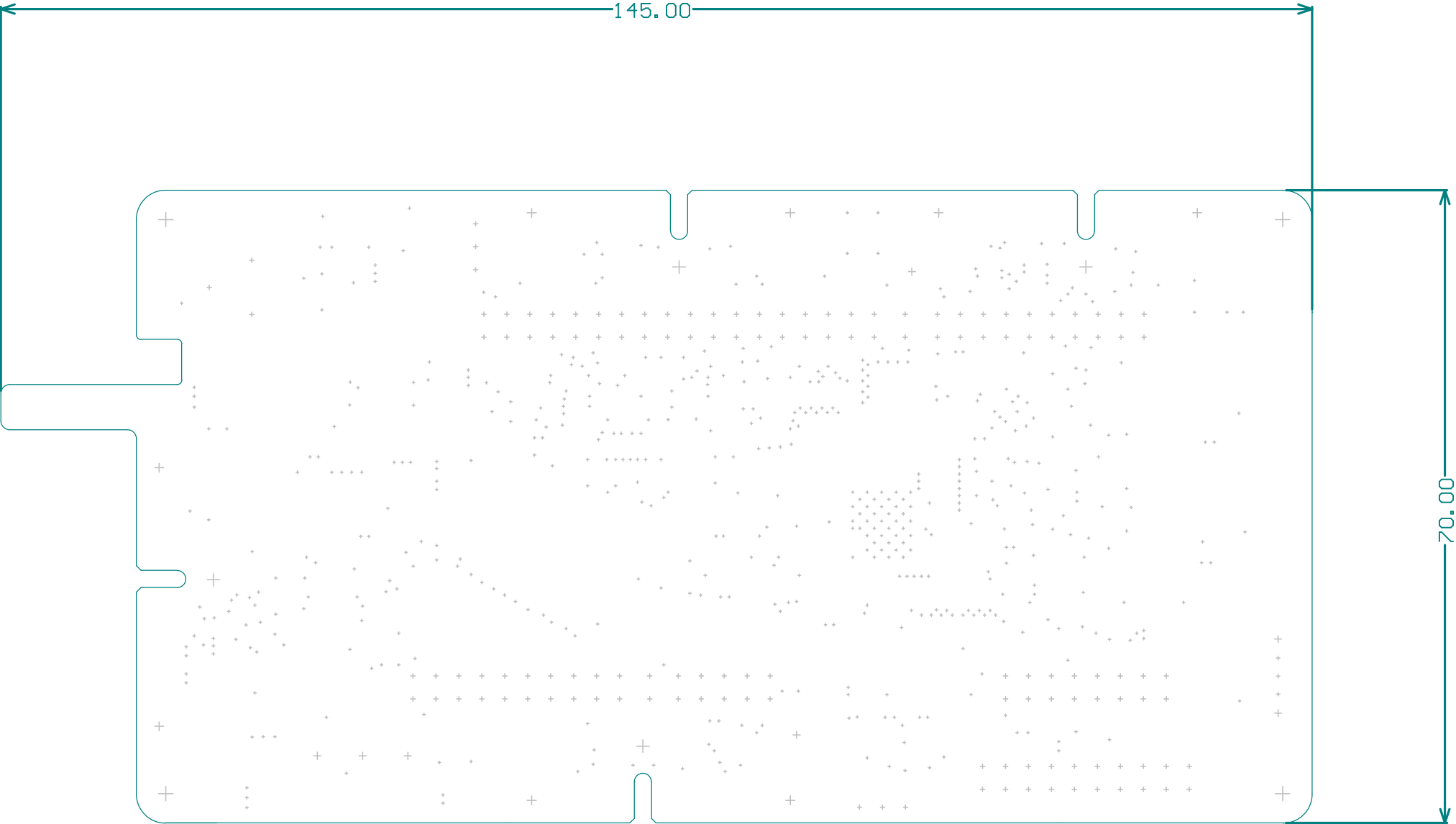
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FABRICATION INSTRUCTIONS

DRILL GUIDE



Project Name
XP–SKC–U16

| | | |
|-------|-----------|----------|
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BOM

U16 Core Board Top Level

Source Data From:

XPCB-073-U16 CORE BOARD.PrjPcb

Project:

XPCB-073-U16 CORE BOARD.PrjPcb

Variant:

1V2 A

Report Date: 21/10/2013
Print Date: 21-Oct-1314:57:09
2:57:31 PM

| # | LibRef | Designator | Description | Footprint | Manufacturer | Manufacturer Part Number | Quantity |
|----|-----------|--|--|----------------------------------|---------------------|--------------------------|----------|
| 1 | E-01-0001 | R20, R32, R37, R39 | RES 1k 0603 1% | 0603_R | ROHM | MCR03EZFX1001 | 4 |
| 2 | E-01-0002 | R1, R9, R10, R11, R12, R13, R14, R26, R27, R38, R40, R43 | RES 10k 0603 1% | 0603_R | ROHM | MCR03EZFX1002 | 12 |
| 3 | E-01-0008 | R4, R5, R6, R15, R16, R17 | RES 33R 0603 1% | 0603_R | ROHM | MCR03EZFX33R0 | 6 |
| 4 | E-01-0012 | R30 | RES 0R 0603 1% | 0603_R | ROHM | MCR03EZP000 | 1 |
| 5 | E-01-0017 | R25 | RES 5.6k 0603 1% | 0603_R | ROHM | MCR03EZFX5601 | 1 |
| 6 | E-01-0021 | R44, R45 | RES 4.7k 0603 1% | 0603_R | ROHM | MCR03EZFX4701 | 2 |
| 7 | E-01-0022 | R8, R42 | RES 470R 0603 1% | 0603_R | ROHM | MCR03EZFX4700 | 2 |
| 8 | E-01-0027 | R24 | RES 2.2k 0603 1% | 0603_R | ROHM | MCR03EZFX2201 | 1 |
| 9 | E-01-0032 | R18, R33 | RES 100k 0603 1% | 0603_R | ROHM | MCR03EZFX1003 | 2 |
| 10 | E-01-0035 | R7, R41 | RES 2.2M 0603 5% | 0603_R | ROHM | MCR03EZP225 | 2 |
| 11 | E-01-0050 | R23, R29 | RES 18k 0603 1% | 0603_R | ROHM | MCR03EZFX1802 | 2 |
| 12 | E-01-0083 | R34, R35 | RES 160R 0603 1% | 0603_R | ROHM | MCR03EZFX1600 | 2 |
| 13 | E-01-0118 | R36 | RES 22k 0603 1% | 0603_R | ROHM | MCR03EZFX2202 | 1 |
| 14 | E-01-0122 | R21 | RES 33k 0603 1% | 0603_R | ROHM | MCR03EZFX3302 | 1 |
| 15 | E-01-0128 | R19 | RES 62k 0603 1% | 0603_R | ROHM | MCR03EZFX6202 | 1 |
| 16 | E-01-0220 | R31 | RES 100k 0402 1% | 0402_C | ROHM | MCR01M2FX1003 | 1 |
| 17 | E-01-0270 | R22 | RES 11.8k 0603 1% | 0603_R | ROHM | MCR03EZFX1182 | 1 |
| 18 | E-01-0275 | R2, R3 | RES 0R1 0805 5% | 0805_R | TE Connectivity | 1622825-1 | 2 |
| 19 | E-02-0002 | C1, C2, C3, C8, C9, C12, C13, C14, C15, C19, C23, C26, C28, C29, C30, C31, C34, C35, C37, C38, C39, C41, C42, C44, C45, C46, C47, C48, C49, C51, C52 | MLCC 100nF 0402 X7R 16V | 0402_C | Murata | GRM155R71C104K88 | 31 |
| 20 | E-02-0003 | C32 | MLCC 10nF 0402 X7R 50V | 0402_C | Murata | GRM155R71H103KA88 | 1 |
| 21 | E-02-0004 | C6, C7, C25 | MLCC 22uF 0805 X5R 6.3V | 0805_C | Murata | GRM218R60J226ME39 | 3 |
| 22 | E-02-0005 | C4, C50 | MLCC 4.7uF 0603 X5R 6.3V | 0603_C | Murata | GRM188R60J479KE19 | 2 |
| 23 | E-02-0008 | C10, C11, C53, C54 | MLCC 33pF 0402 COG 50V | 0402_C | Murata | GRM1555C1H30JZ01 | 4 |
| 24 | E-02-0011 | C20 | MLCC 2.2nF 0402 X7R 50V | 0402_C | Murata | GRM155R71H222KA01 | 1 |
| 25 | E-02-0015 | C16 | Al Elec 100uF 16V CaseD SMD | AL_ELEC_SMD_D | Panasonic | EEEFK1C101P | 1 |
| 26 | E-02-0017 | C5 | MLCC 100nF 0603 X7R 16V | 0603_C | Murata | GRM188R71C104KA01 | 1 |
| 27 | E-02-0019 | C27 | MLCC 2.2uF 0603 X5R 10V | 0603_C | Murata | GRM188R61A225ME34 | 1 |
| 28 | E-02-0021 | C24 | MLCC 4.7uF 0805 X5R 10V | 0805_C | Murata | GRM218R61A479KE34 | 1 |
| 29 | E-02-0031 | C33, C36, C40, C43 | Al Elec 47uF 16V CaseC SMD | AL_ELEC_SMD_C | Panasonic | EEEFK1C470UR | 4 |
| 30 | E-02-0037 | C21, C22 | MLCC 22uF 1206 X5R 16V | CAPC3216X160N | Murata | GRM321CR61C226ME15 | 2 |
| 31 | E-02-0039 | C17, C18 | MLCC 10uF 1206 X5R 25V | CAPC3216X160N | Murata | GRM321CR61E106MA12L | 2 |
| 32 | E-03-0021 | U13 | Memory, Flash, SPI, 16Mb (8Kx256), SOIC-8W | SOIC8W | Micron | M25P16-VMW6 | 1 |
| 33 | E-04-0022 | J2 | DC Boxed Header, Right Angle, PCB Mount, Polarsied, 20 Way, 2x10, 0.1" Pitch | DC_HEADER_RA_20PIN | Sullins | SBH11-RBPC-D10-RA-BK | 1 |
| 34 | E-04-0059 | J3 | DC Power Jack, 5.5mm x 2.1mm, 2.5A, Through Hole | PWR_JACK_TH_55 | DUI | PJ1-002A | 1 |
| 35 | E-04-0067 | J4, J5, J11, J12 | Pole End Free Socket, x1, 36 Pin, SMD | PCE_END_FREE_SOCKET_X1_36PIN_SMD | Sullins | NWC160HRD2-T941 | 1 |
| 36 | E-04-0080 | U1 | Male Header, Shrouded, 16 Way, 2x8, 0.1" pitch | HEADER_2x8PIN_BOX | Sullins | SBH11-RBPC-D08-ST-BK | 4 |
| 37 | E-04-0090 | J14, J15 | Male Header, Unshrouded, 3 Way, 1x3, 0.1" pitch | JUMPER_HEADER_3PIN | PCI | 68000-103HLF | 2 |
| 38 | E-05-0005 | U10 | Voltage regulator, LDO, Fixed, 3.3V, 150mA | SO23_5 | ON Semiconductor | NCP699S031T1G | 1 |
| 39 | E-05-0028 | U9 | DC-DC Buck Converter, 1.5A, 1.5MHz, DFN6 | DFN6_ST1506 | ST Microelectronics | ST1506PLR | 1 |
| 40 | E-05-0031 | U8 | DC-DC Buck Converter, Adjustable, 1.2MHz, 3A, SOIC8 | SOIC127R600X175-9AN | Richtek | RT829BHGSP | 1 |
| 41 | E-05-0033 | U21 | Dual Diode Current Limiting OR DFN16P | DFN17-EP | Linear Technology | LTC4415EDC0RFBF | 1 |
| 42 | E-07-0019 | X2 | Crystal, 25MHz, HC49US SMD, Fundamental, 18pF, Tol. ±30ppm, Stab. ±50ppm | XTAL_HC49US_SMD | Abracon | ABLS-25.000MHz-B4-F-T | 1 |
| 43 | E-07-0030 | X1 | Crystal, 24MHz, HC49US SMD, Fundamental, 18pF, Tol. ±30ppm, Stab. ±50ppm | XTAL_HC49US_SMD | Abracon | ABLS-24.000MHz-64 | 1 |
| 44 | E-08-0002 | FB2 | Ferrite Bead, 330R AT 100MHz, 0603, 1.7A | 0603 | Murata | BLM18KG331SN1 | 1 |
| 45 | E-08-0006 | FB1 | Ferrite Bead, 120R AT 100MHz, 0605, 3A | 0805 | Murata | BLM21PG121SN1 | 1 |
| 46 | E-09-0005 | L4 | Power Inductor, 2.2uH, 2.7A, 44mR DCR | TAIYO_NR6020 | Taiyo Yuden | NR602012R2N | 1 |
| 47 | E-09-0018 | L3 | Power Inductor, 6.8uH, 4A, 33mR DCR | TAIYO_NR8040 | Taiyo Yuden | NR804016R8N | 1 |
| 48 | E-09-0020 | L1, L2 | Power Inductor, 4.7uH, 2.9A, 67mR DCR | MP4040 | Cooper Bussmann | MP4040R4-4R7-R | 2 |
| 49 | E-10-0013 | D2 | Diode, 100V, 0.3A, SOD123 | SOD123 | Diodes Inc | 1N4148W-7-F | 1 |
| 50 | E-10-0021 | D1 | Schottky Diode, 40V, 2A, SMA | DIOM5326X250N | Diodes Inc | B240A-13-F | 1 |
| 51 | E-10-0022 | D3 | Unidirectional Transient Protection Diode, 22V Stand-Off: 600V, SMB | SMB | STMicroelectronics | SM6J22A | 1 |
| 52 | E-11-0016 | U2 | XMOS XS1-U16A Processor, 217BGA, 500MHz | BGA217C80P19X19_1600X1600X136 | XMOS | XS1-U16A-128-FB217-C10 | 1 |
| 53 | E-12-0001 | D4 | LED, GREEN, 0603 | 0603_LED | Kingbright | APT1608C3CK | 1 |
| 54 | E-13-0006 | U20 | Logic Buffer, Tri-State, UHS Series, SC70 | SC70_5 | Fairchild | NC7SZ125P5X | 1 |
| 55 | E-13-0009 | U6 | 2-Input Multiplexer, UHS Series, SC70 | SC70_6 | Fairchild | NC7SZ157P6X | 1 |
| 56 | E-13-0014 | U3 | Triple Logic Buffer, UHS Series, US8 | US8 | Fairchild | NC7VZ34K8X | 1 |
| 57 | E-13-0021 | U4, U24 | Unbuffered Inverter, UHS Series, SOT-23-5 | SOT23_5 | Fairchild | NC7SZU04M6X | 2 |
| 58 | E-13-0026 | U25 | Dual Logic Buffer, Open Drain Output, UHS Series, SC70 | SC70_6 | Fairchild | NC7WZ07P6X | 1 |
| 59 | E-13-0099 | U12, U15, U16, U17 | Quad 1-of-2 Multiplexer/Demultiplexer, Bus Sw itch, CBTLY Series, TSSOP16 | SOCP5R640X110-16N | NXP Semiconductor | 74CBTLV3257PW | 4 |
| 60 | E-13-0101 | U1 | Quad Bus Sw itch, CBT Series, TSSOP14 | SOCP6R640X110-14N | NXP Semiconductor | CBT3125PW | 1 |
| 61 | E-13-0103 | U5, U7 | Triple Logic Buffer, Schmitt Trigger, UHS Series, US8 | US8 | Fairchild | NC7VZ17K8X | 2 |
| 62 | E-13-0106 | U11 | Microprocessor Reset Circuit, 2.9V, Active Low, Open Drain, SOT23 | SOT23 | Diodes Inc | APX803-29SAG | 1 |
| 63 | E-13-0108 | U14 | Dual D-type Flip-Flop with set and reset, p.e. trig, TSSOP14 | TSSOP14 | NXP Semiconductor | 74LV74PW | 1 |
| 64 | E-13-0111 | U23 | Buffered Inverter, SC70 | SC70_5 | Texas Instruments | SN74LVCT1G06DCKT | 1 |
| 65 | E-13-0132 | U18, U22 | Single FET Bus Switch, SC70-5 | SC70_5 | Texas Instruments | SN74CBT1G125DCK | 2 |
| 66 | E-13-0142 | U19 | Microprocessor Reset Circuit, 4.4V, Active Low, Push Pull, SOT23 | SOT23 | Diodes Inc | APX809-44SAG | 1 |
| 67 | E-15-0032 | TP5, TP6 | Through Hole Testpoint, Compact, 1.8mm Loop, Red | TESTPOINT_1.8MM_THF | Keystone | 5005 | 2 |
| 68 | E-15-0033 | TP1, TP5, TP4 | Through Hole Testpoint, Compact, 1.8mm Loop, Black | TESTPOINT_1.8MM_THF | Keystone | 5006 | 3 |
| 69 | E-16-0006 | SW1 | Miniature Slide Sw itch, SPDT, Vertical, THF | SW_OS_VERT_SPDT | C&K | OS102011MS2QN1 | 1 |
| 70 | E-17-0025 | F1 | Polyswitch Resettable Fuse, 2920, 3A, 15V | 2920_FUSE_CONC | Littlefuse | 2920L300V15DR | 1 |
| 71 | P-01-0011 | PROD1, PROD2, PROD3, PROD4 | Feet, Nylon, M3, 6mm Standoff | | Toby Electronics | DCB-6 | 4 |
| 72 | P-01-0034 | PROD5, PROD6 | Jumper, 2 Position, 2.54mm x 13.5mm, Black, Handled | | Toby Electronics | TSL-260-R-H | 2 |

Approved

Notes

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