

DATASHEET

# WIZARD

## The Magnificent Seven

## CONTENTS

Contents . . . . .	2
Revisions . . . . .	2
Introduction . . . . .	2
Ordering Information . . . . .	2
Wizard-V1.0 . . . . .	2
Block Diagram . . . . .	3
Technical Datasheet . . . . .	3
Bill of Material . . . . .	4
Schematics . . . . .	5
Connectors . . . . .	5
VCC1 – 0.9 V @ 5 A . . . . .	5
VCC2 – 1.5 V @ 6 A . . . . .	5
VCC3 – 3.0 V @ 1.2 A and VCC4 – 2.5 V @ 0.9 A . . . . .	6
VCC5 – 1.2 V @ 0.25 A, VCC6 – 1.1 V @ 0.6 A and VCC7 – 1.8 V @ 0.4 A . . . . .	6
Board Top View . . . . .	7
Board Bottom View . . . . .	7

## REVISIONS

Revision	Remark	Date
1.00	Initial Version	21.10.2010

## INTRODUCTION

The Wizard provides seven power supplies on one module, suitable for mid-range to high-end FPGAs, high-end microcontrollers, high performance Ethernet switches and many other applications.

The Wizard uses a common input voltage of 5 V to generate all the respective voltages used in system applications.

To increase the flexibility the output, voltages can be adjusted by digitally controlled potentiometers for various core and I/O voltages. An I<sup>2</sup>C interface is routed to one connector. The potentiometers are programmed to the respective voltages during production and can be changed in system, or the module can be produced with custom-defined voltages.

## ORDERING INFORMATION

### Wizard-V1.0

- 5 V input
- 7 output voltages
- I<sup>2</sup>C interface

# BLOCK DIAGRAM

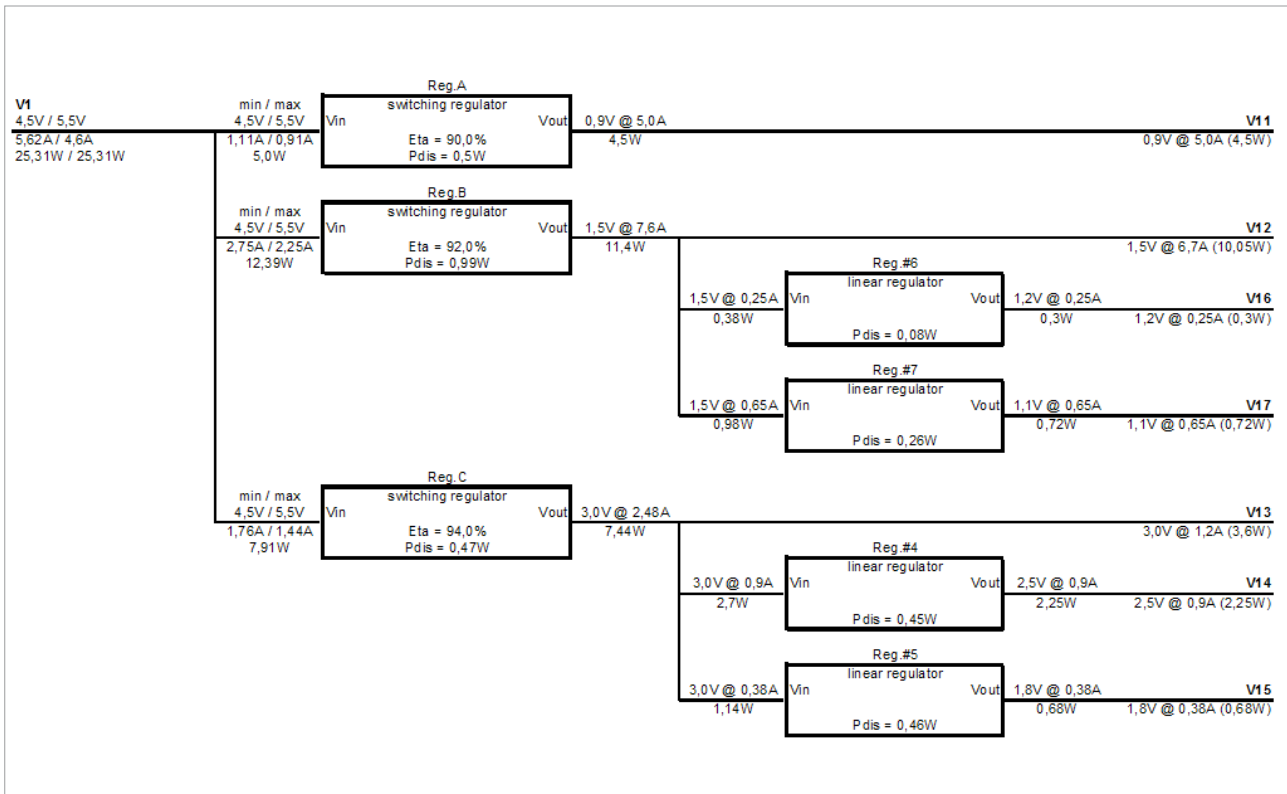


Figure 1: Block Diagram

# TECHNICAL DATASHEET

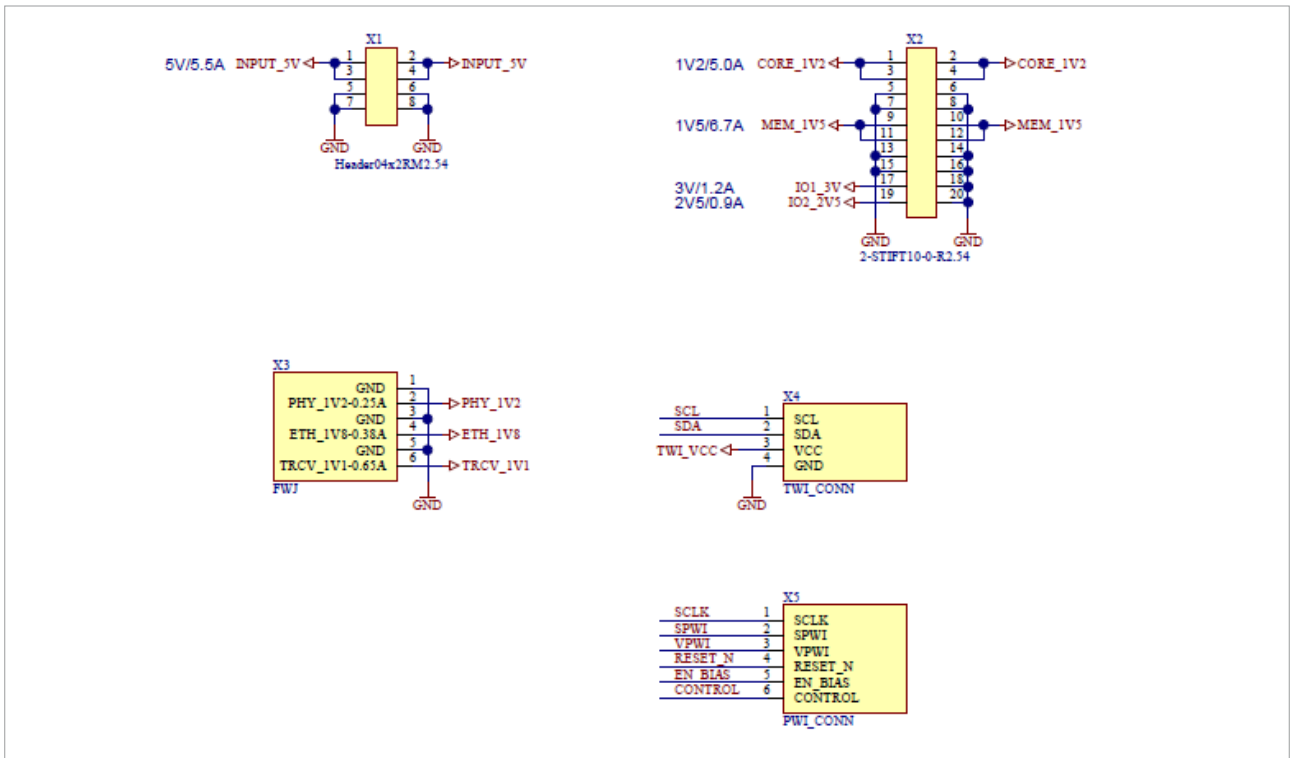
- Dimension 59 x 57 mm
- Operating Temperature -40 ... +85°C
- Input Voltage 5 V  $\pm$ 10%
- Connector 2.54 mm pin header. Connector not included on the module
- Heatsink tbd
- Seven Output Voltages
  - Core Voltage 0.9 V @ 5 A
  - IO1 Voltage 1.5 V @ 6 A
    - IO1a Voltage 1.2 V @ 0.25 A
    - IO1b Voltage 1.1 V @ 0.6 A
  - IO2 Voltage 3.0 V @ 1.2 A
    - IO2a Voltage 2.5 V @ 0.9 A
    - IO2b Voltage 1.8 V @ 0.4 A

# BILL OF MATERIAL

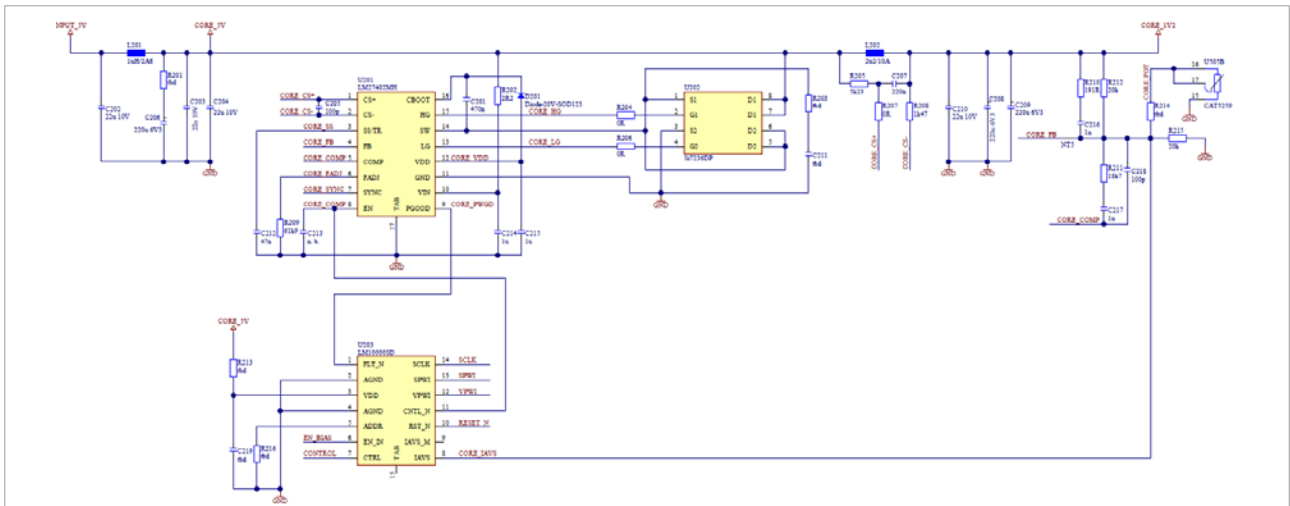
Designator	Quantity	Type	Value	Description	Manufacturer	Part	Package
C202, C203, C204, C210, C302, C303, C304, C310	8	Capacitor	22 uF	Ceramic, X7R, 10 V	Kemet	C1210C226K8RAC	1210
C206, C208, C209, C306, C308, C309	6	Capacitor	220 uF	Tantalum, 6.3 V, R015	Kemet	T520C227M006A(1)E015	6032-28
C402, C403, C407, C410, C411, C415, C503, C504, C505, C506, C512, C513	12	Capacitor	1 0uF	Ceramic, X7R, 10 V	Kemet	C1206C106K8RAC	1206
C404, C405, C412, C413	4	Capacitor	100 uF	Tantalum, 6.3 V, R015	Kemet	T520B107M006A(1)E015	3528-20
D201, D301	2	Diode	20 V	Vbd, If, Vf	Vishay	PN	SOD-123
D401, D402	2	Diode	20 V	20 V, 2 A, 0.5 V	Vishay	SS22S	SMA
L201, L301	2	Magnetic	1.0 uH	Shielded, 2.6 A, R035	Bourns	SRR4018-1R0Y	SRR4018
L202, L302	2	Magnetic	2.2 uH	Shielded, 10 A, R020	Bourns	SRP7030-2R2M	SRP7030
L401, L402	2	Magnetic	6.2 uH	Shielded, 1.8 A, R045	Bourns	SRR5028-6R2Y	SRR5028
R203, R303, R403, R410	4	Resistor	Res	Tech, Tol, Power	Manu	PN	1206
U201, U301	2	IC	Value	High Performance Synchronous Buck Controller	National	LM27402MH	eTSSOP-16
U202, U302	2	IC	20 V	20V, R005, 31nC, Dual	Vishay	SI7236DP	PPSO-8
U203	1	IC	Value	AVS System Controller	National	LM10000SD	LLP-14
U401, U402	2	IC	Value	2A SIMPLE SWITCHER®	National	LM22680MR-ADJ	PSOP-8
U501, U502, U504	3	IC	Value	High-Accuracy Adjustable LDO	National	LP38851MR-ADJ	PSOP-8
U503, U505	2	IC	Value	Quad Digitally Programmable Potentiometers	ON Semi	CAT5259	TSSOP-24

Table 1

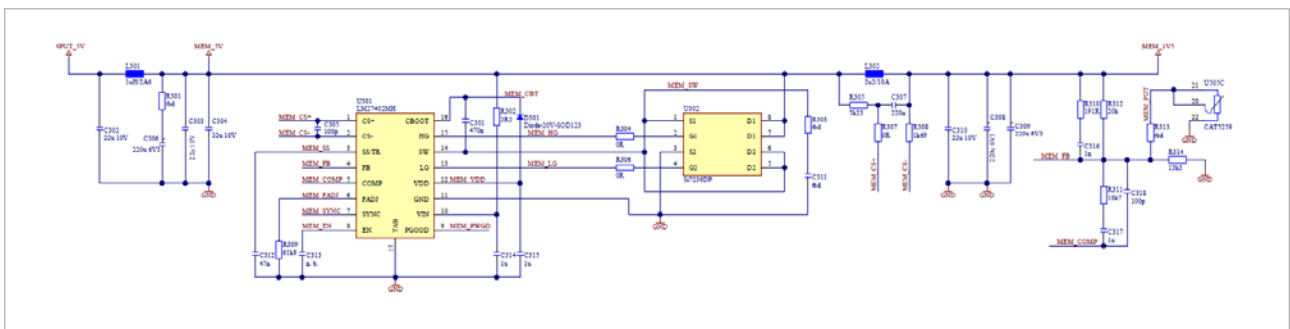
# SCHEMATICS



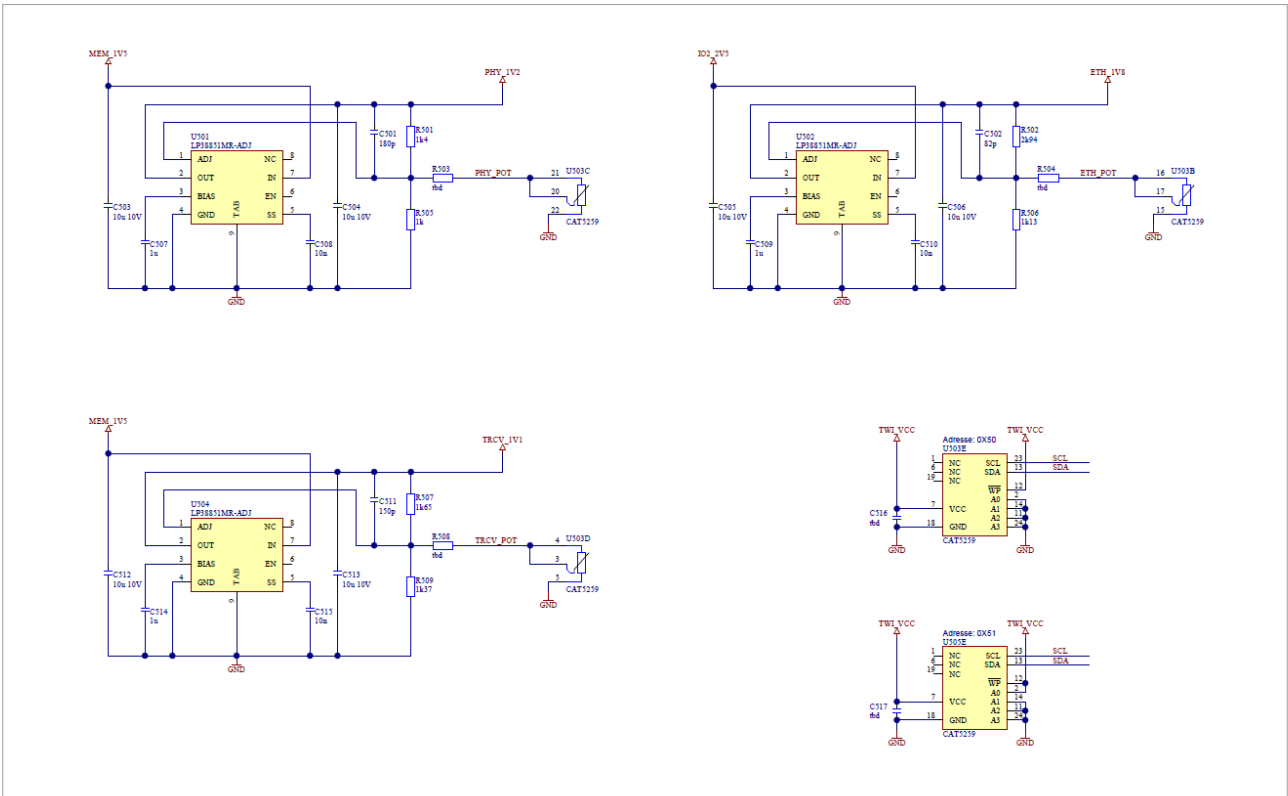
Connectors



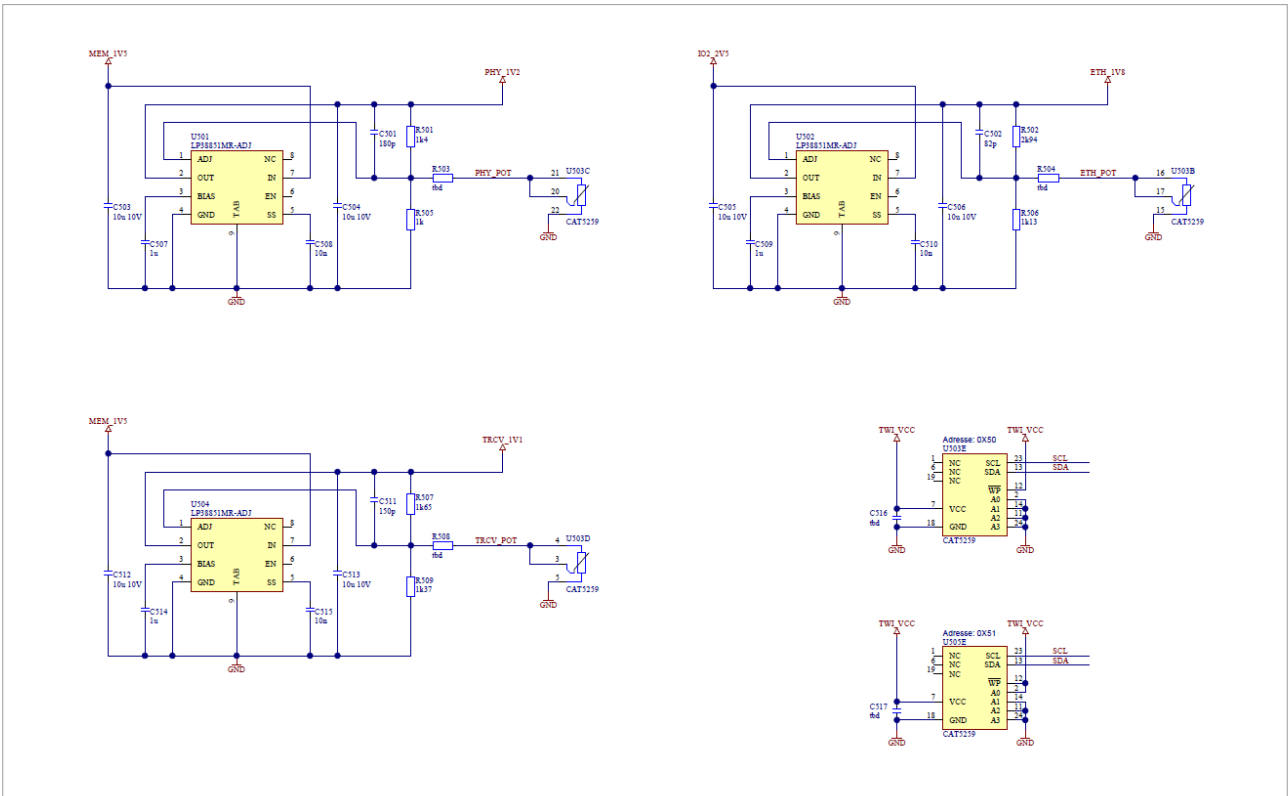
VCC1 - 0.9V @ 5A



VCC2 - 1.5V @ 6A



VCC3 – 3.0 V @ 1.2 A and VCC4 – 2.5 V @ 0.9 A



VCC5 – 1.2 V @ 0.25 A, VCC6 – 1.1 V @ 0.6 A and VCC7 – 1.8 V @ 0.4 A

## BOARD TOP VIEW

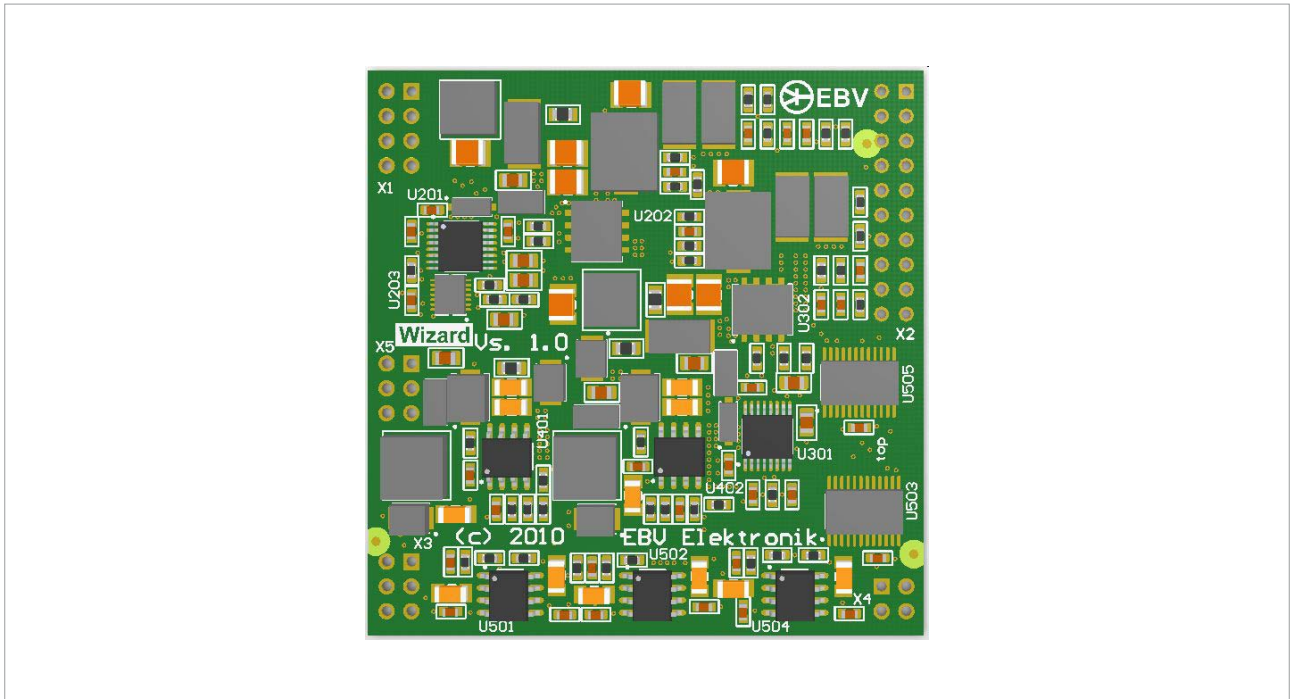


Figure 2

## BOARD BOTTOM VIEW

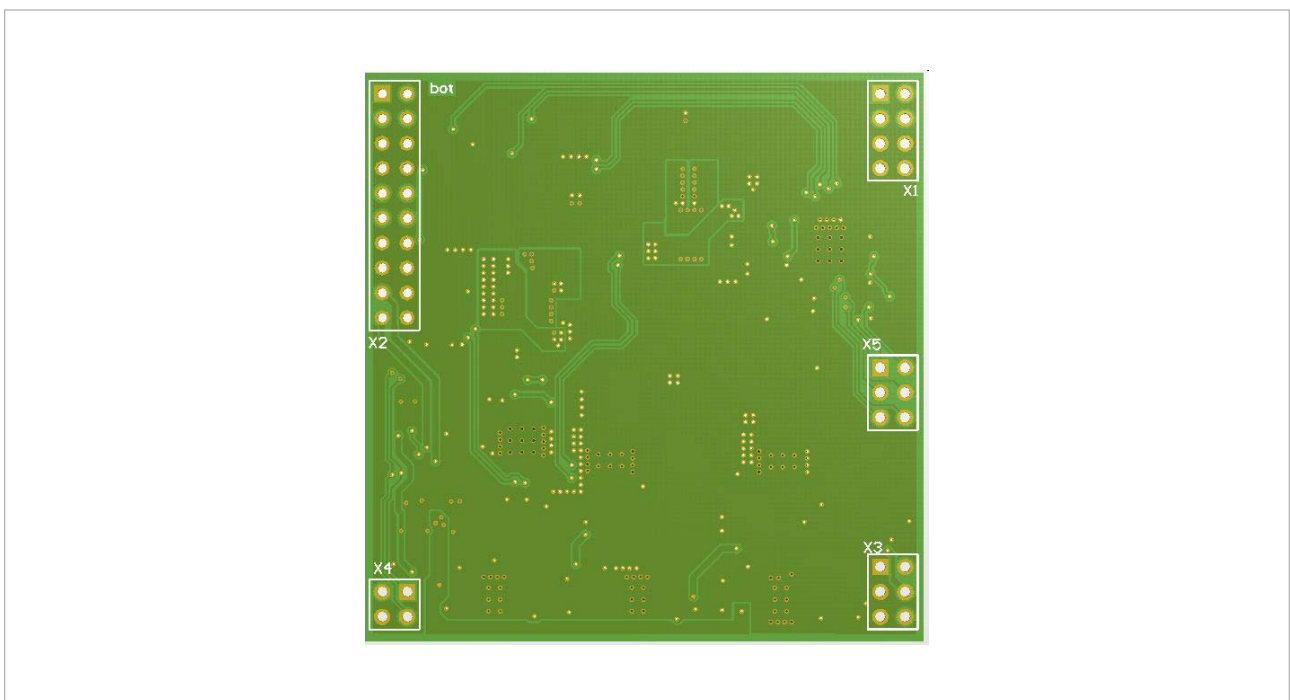


Figure 3

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