

WT32 EVALUATION KIT

DATA SHEET

Monday, 09 September 2013

Version 2.2



Copyright © 2000-2013 Bluegiga Technologies

All rights reserved.

Bluegiga Technologies assumes no responsibility for any errors which may appear in this manual. Furthermore, Bluegiga Technologies reserves the right to alter the hardware, software, and/or specifications detailed here at any time without notice and does not make any commitment to update the information contained here. Bluegiga's products are not authorized for use as critical components in life support devices or systems.

The WRAP, Bluegiga Access Server, Access Point and iWRAP are registered trademarks of Bluegiga Technologies.

The *Bluetooth* trademark is owned by the Bluetooth SIG Inc., USA and is licensed to Bluegiga Technologies. All other trademarks listed herein are owned by their respective owners.

VERSION HISTORY

Version	Comment
1.0	Pra
1.1	MSa
2.0	Pra
2.1	Msa
2.2	Minor changes

TABLE OF CONTENTS

WT32 Evaluation kit.....	1
Data Sheet.....	1
	1
1 Introduction.....	5
2 Physical outlook.....	6
3 Schematics	7
4 Assembly	13
5 Layout.....	14
6 Interfaces.....	18
6.1 Power Supply.....	18
6.2 Stereo Line Input and Output	18
6.3 Microphone Input	18
6.4 SPI interface	18
6.5 UART Interface	19
6.6 USB interface.....	19
7 WEEE Compliance	19
8 Contact Information	20

1 Introduction

FEATURES

- USB cable
- Plantronics Stereo Headset
- Evaluation kit for WT32 *Bluetooth* audio module containing
 - 290 mAh Li-Pol battery with USB battery charger and a LED indicator
 - RS-232 serial interface with DTR button
 - USB interface
 - SPI for upgrading the firmware and parameters
 - Reset and 4 software configurable buttons
 - 3 x 2,5mm audio jacks for line in, line out and microphone
 - 16 pin I/O interface (PIO0 – PIO10, AIO0 – AIO1, PCM, UART, RESET, GND, 3V3)
 - Switchs for disabling RS232 driver and to connect a LED for PIO7
- Configurable audio interface consisting
 - A mono electric microphone input
 - A fully differential audio input / output through a pin header
 - Differential audio input and output through stereo jack connectors
- iWRAP™ firmware

2 Physical outlook



Figure 1: WT32 evaluation kit, Onboard Installation Kit and headphones

3 Schematics

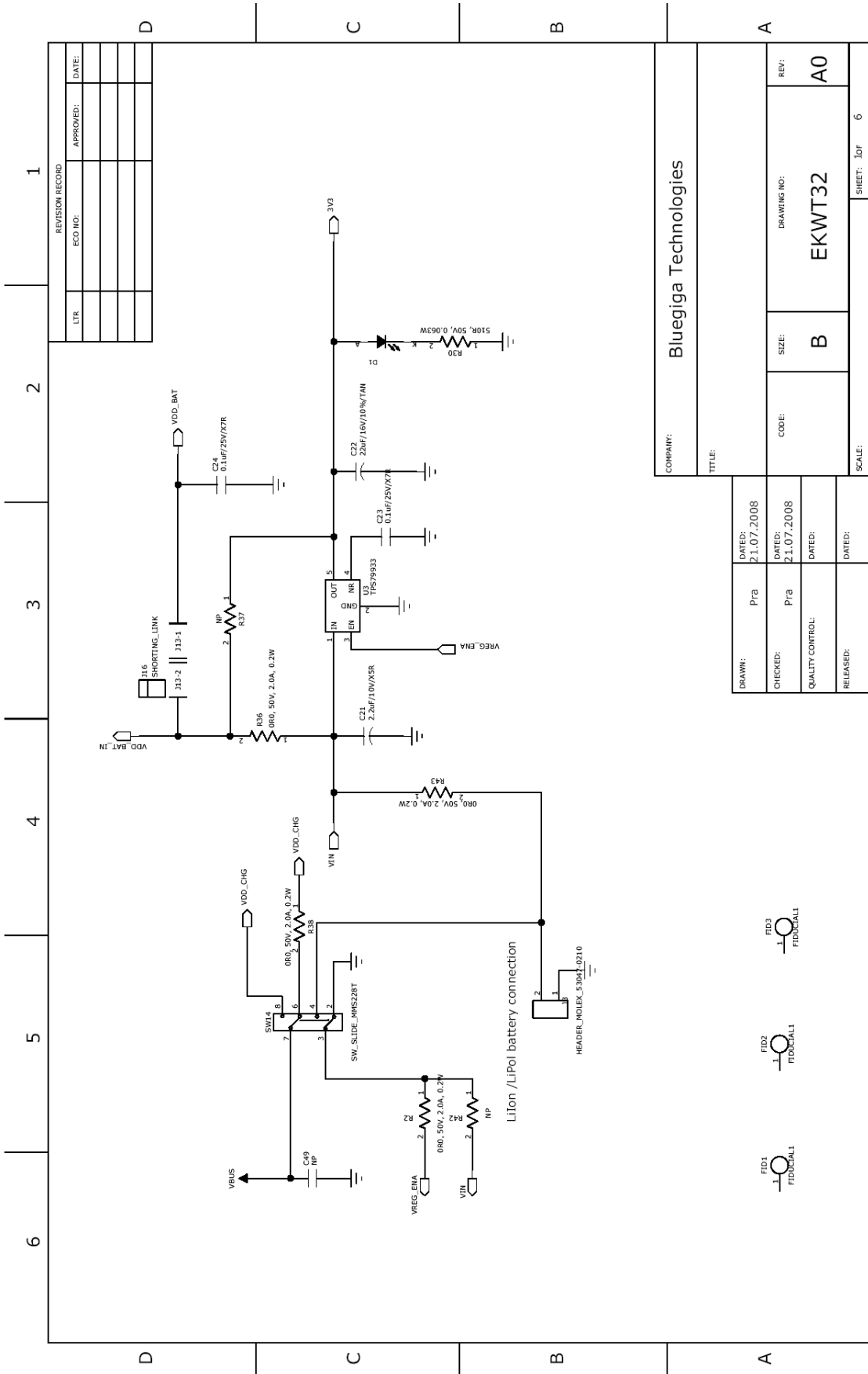


Figure 2: WT32 evaluation board schematic (1/6)

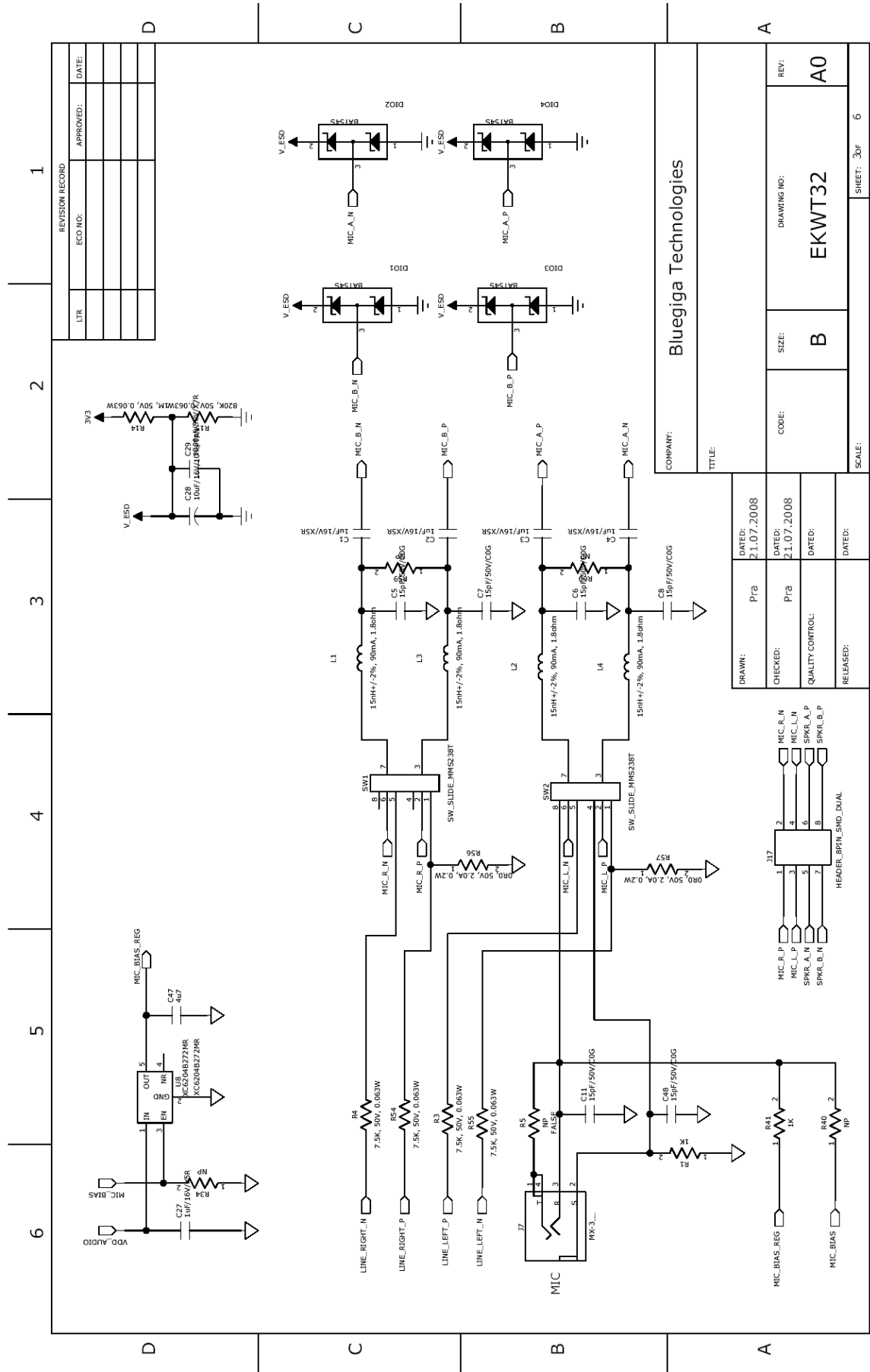


Figure 4: WT32 evaluation board schematic (3/6)

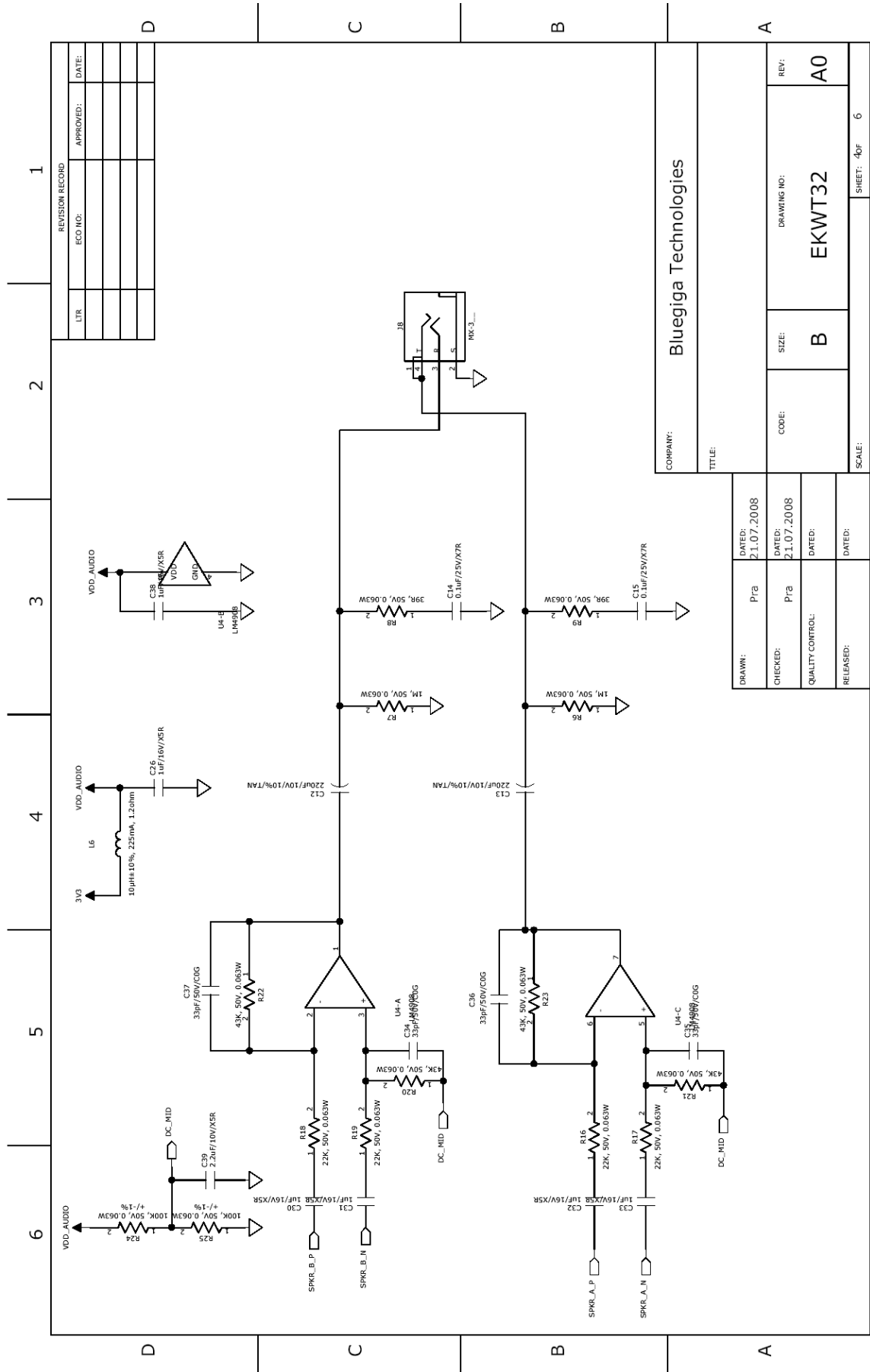


Figure 5: WT32 evaluation board schematic (4/6)

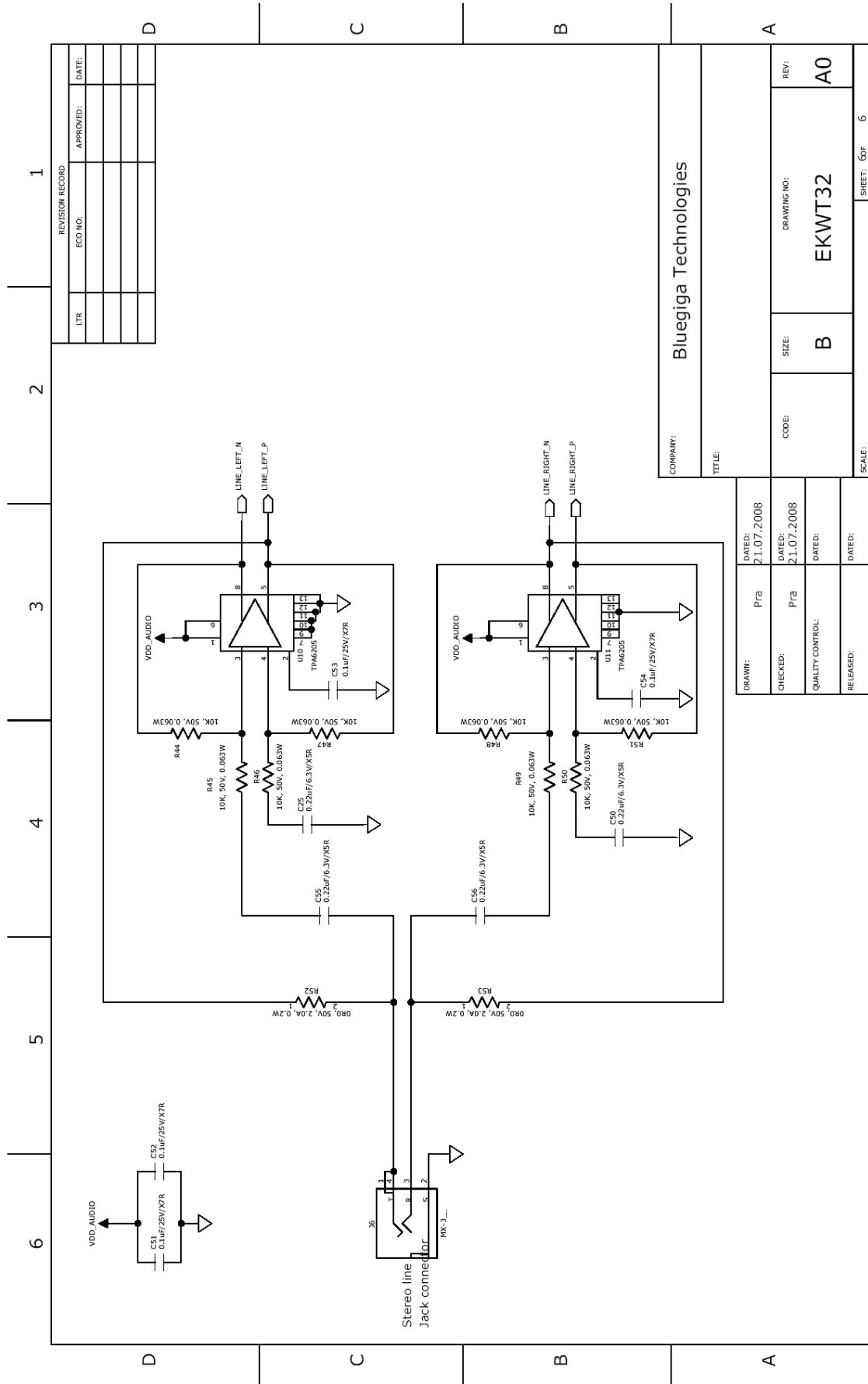


Figure 7: WT32 evaluation board schematic (6/6)

4 Assembly

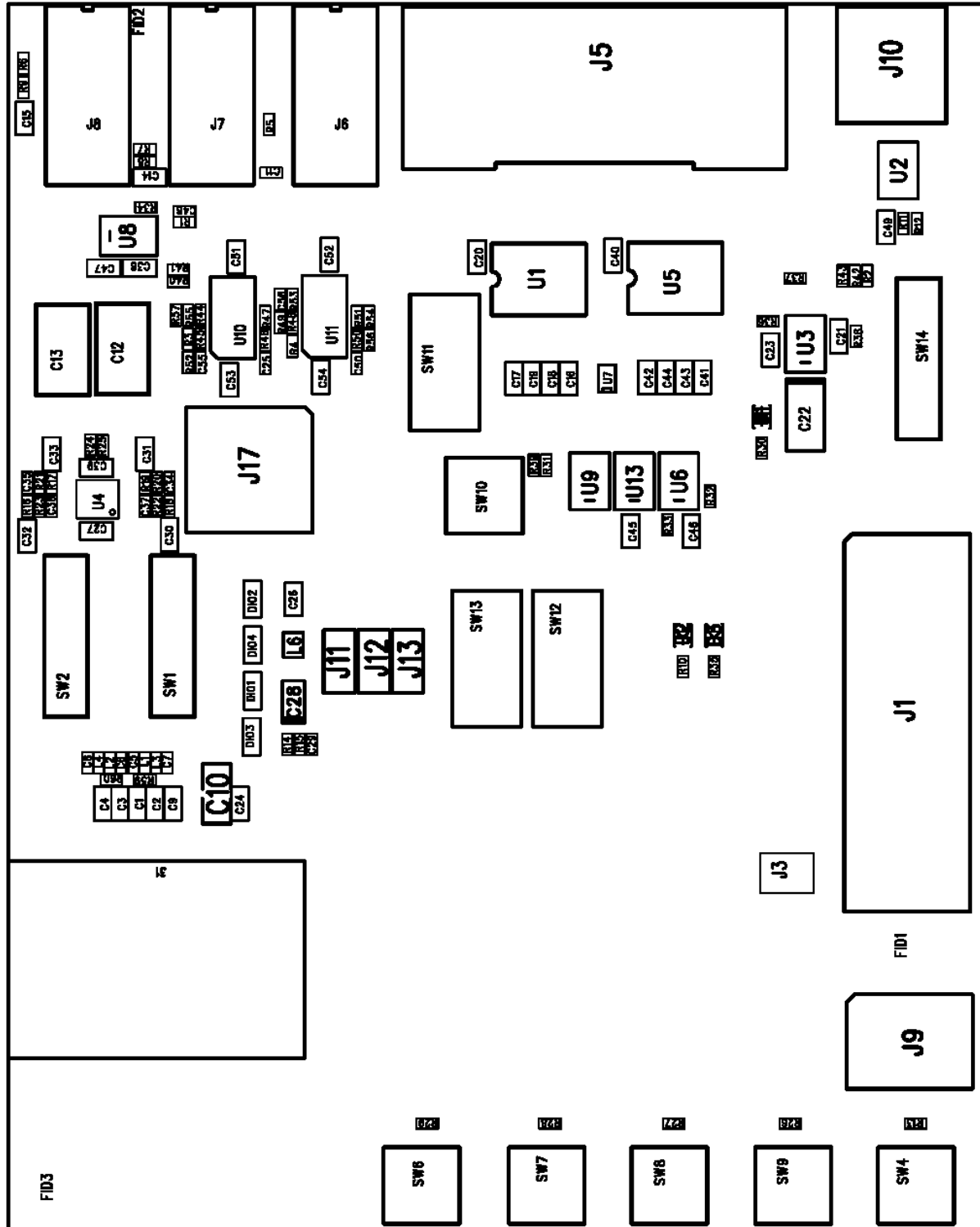


Figure 8: WT32 evaluation kit assembly

5 Layout

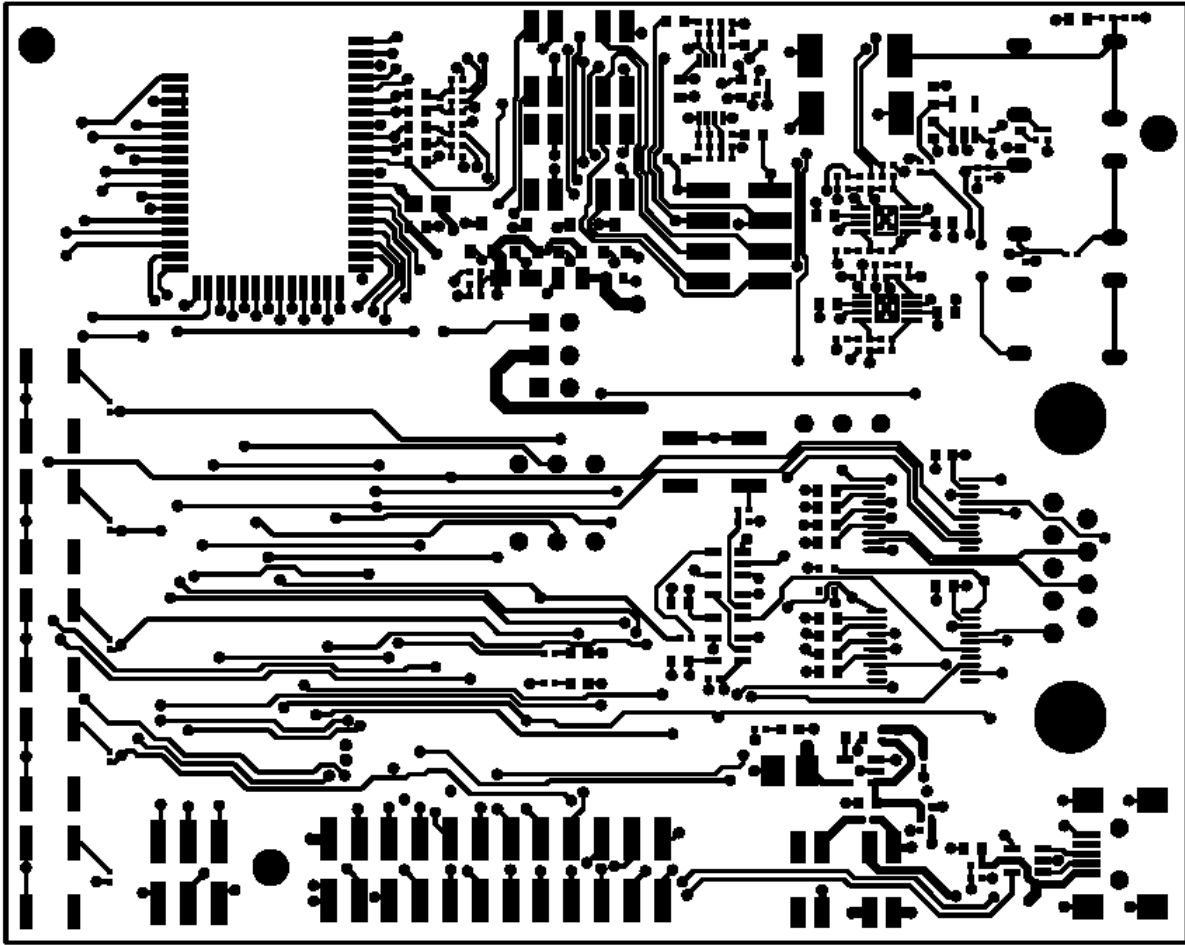


Figure 9: Layout top layer

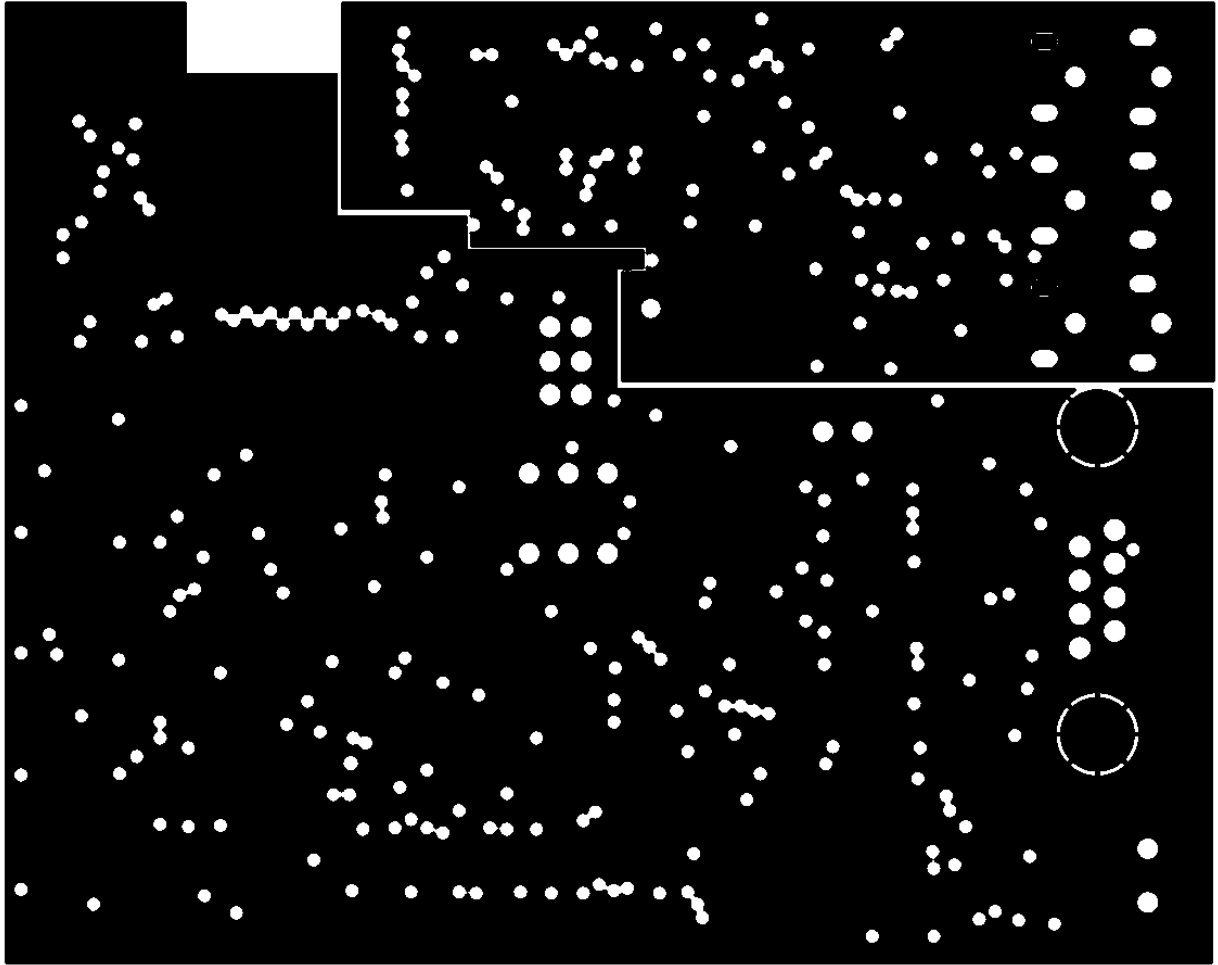


Figure 10: Layout second layer

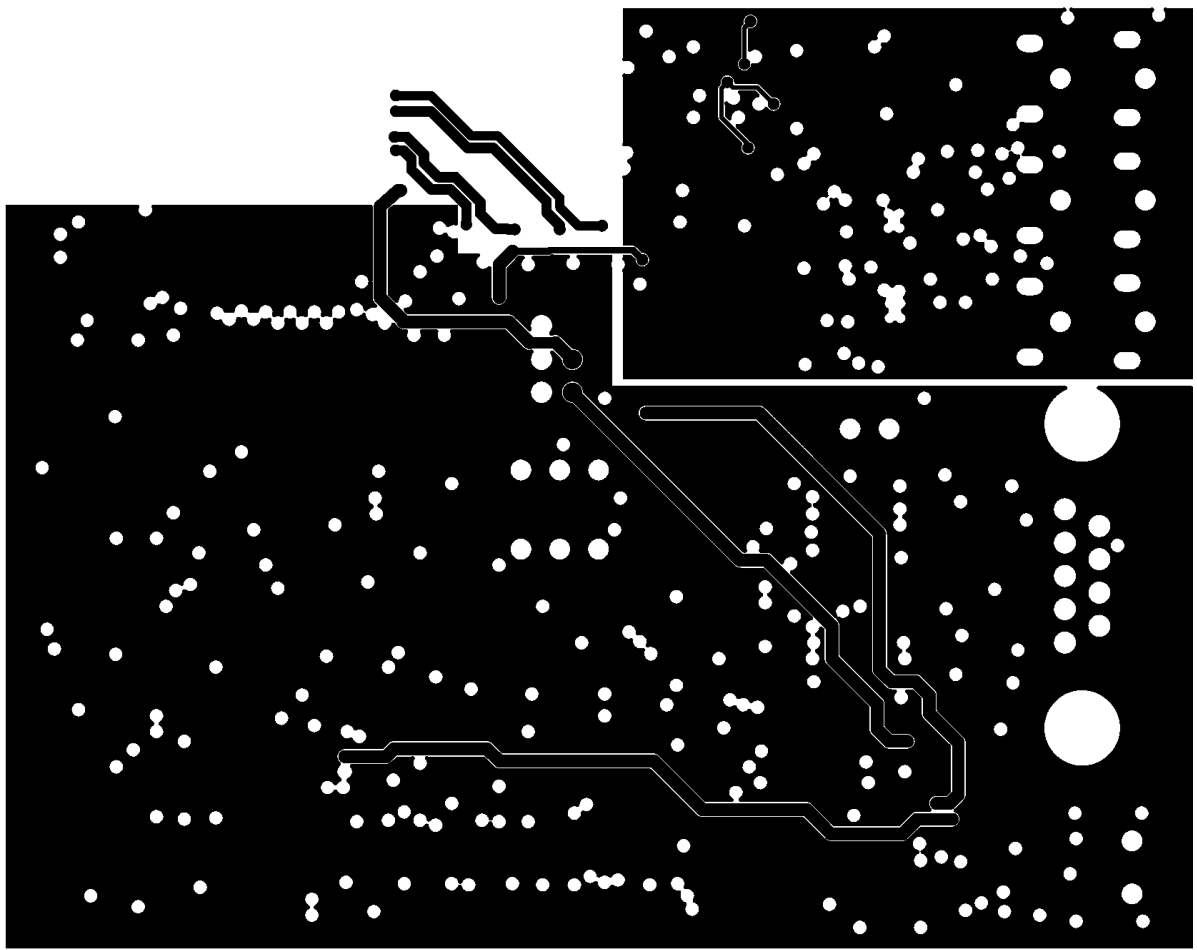


Figure 11: Layout third layer

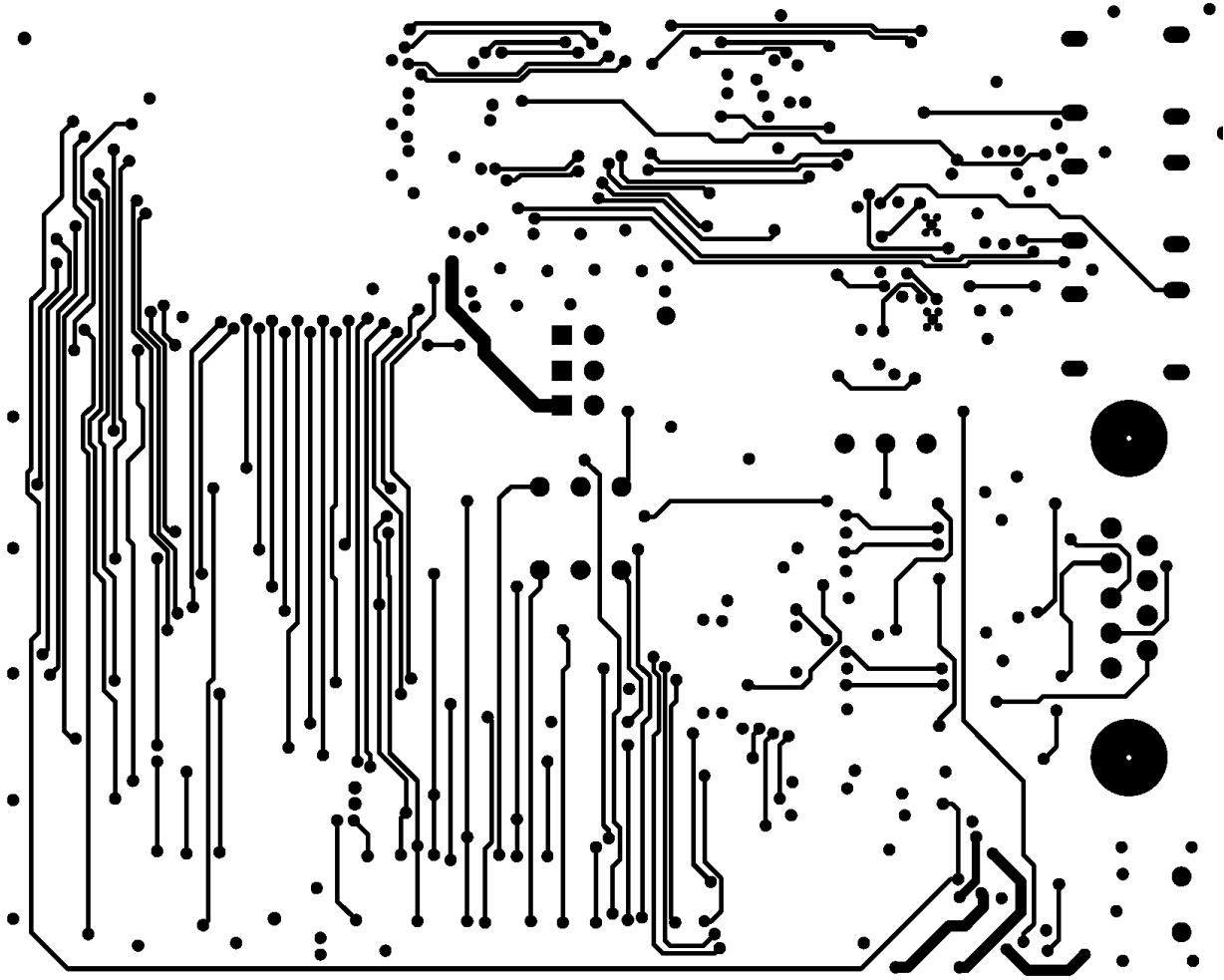


Figure 12: Layout bottom layer

6 Interfaces

6.1 Power Supply

The evaluation kit is powered from a 290 mAh lithium polymer battery. The battery can be charged through the USB interface. The charger starts when the 5 V is applied from the USB interface.

6.2 Stereo Line Input and Output

Stereo line input and output are available on 3.5 mm jack connectors. 1 MΩ resistors R6 and R7 remove any voltage charge on the connector and helps to prevent clicks and pops occurring when plugging the headphone for the first time.

R9 + C15 and R8 + C14 make a Zobel network. Its purpose is to tune out the inductance of the speaker coil and there by reduce cross over distortion. The value the components depend on the properties of the speaker coil and alternative values for the components may be required depending on the design.

U10 and U11 convert unbalanced stereo line input to fully differential. Fully differential line input for the module provides high common mode noise rejection improving RF immunity.

6.3 Microphone Input

Microphone takes the bias voltage from an external low noise regulator which is controlled by the mic_bias line of WT32. The microphone is connected differentially through SW2 to the left channel audio input of the module.

6.4 SPI interface

SPI interface pin configuration is show in Table 2. The physical interface is 2X3 pin header.

PIN name	No.	I/O	Description
MISO	1	O	MISO
3.3 V	2	POWER	3.3 V power supply input
CLK	3	I	CLK
MOSI	4	I	MOSI
CSB	5	I	CSB
GND	6	GND	GND

Table 1: SPI Interface PIN description

6.5 UART Interface

UART interface is connected to both I/O pin header and the RS232 driver. When using UART through I/O interface the RS232 driver can be set to high impedance using SW11.

DTR button is connected to PIO5 through the DTR logic circuitry and a buffer. DSR is connected to PIO4. SW11 sets the DTR buffer to high impedance and thus when disabling RS232 interface through SW11, PIO5 can be configured to any purpose and used through the I/O interface. When you want to use the DTR signal, please refer to the iWRAP manual.

6.6 USB interface

USB interface consists of the ESD protection circuit U2 and a voltage divider network R11 and R12 (refer to the datasheet of WT32). PIO8 is connected for the USB interface through SW13.

7 WEEE Compliance



The crossed-out wheeled bin means that within the European Union the product must be taken to separate collection at the product end-of-life. Do not dispose of these products as unsorted municipal waste.

8 Contact Information

Sales: sales@bluegiga.com

Technical support: support@bluegiga.com
<http://techforum.bluegiga.com>

Orders: orders@bluegiga.com

WWW: www.bluegiga.com
www.bluegiga.hk

Head Office / Finland:

Phone: +358-9-4355 060
Fax: +358-9-4355 0660
Sinikalliontie 5A
02630 ESPOO
FINLAND

Postal address / Finland:

P.O. BOX 120
02631 ESPOO
FINLAND

Sales Office / USA:

Phone: +1 770 291 2181
Fax: +1 770 291 2183
Bluegiga Technologies, Inc.
3235 Satellite Boulevard, Building 400, Suite 300
Duluth, GA, 30096, USA

Sales Office / Hong-Kong:

Phone: +852 3972 2186
Bluegiga Technologies Ltd.
Unit 10-18
32/F, Tower 1, Millennium City 1
388 Kwun Tong Road
Kwun Tong, Kowloon
Hong Kong