AzureWave Technologies, Inc.

FRDM-IW416-AW-AM510

Wi-Fi Expansion Board for NXP FRDM

User Guide

Rev. A

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Revision History

Version	Revision Date	Description	Initials	Approved
A	2024/9/13	● Initial Version	JM.Pang	N.C. Chen

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1. Introduction

AzureWave provides adapter board with Wi-Fi/BT module solutions for NXP FRDM Evaluation Kits. The adapter board supports AW-AM510 (w/ NXP IW416) Wi-Fi combo BT module solutions.

Main chip	AzureWave Module	Adaptor Board
NXP IW416	AW-AM510	FRDM-IW416-AW-AM510

1.1 Supported I/O to host

- Arduino/FRDM headers for Wi-Fi SDIO interface.
- Arduino/FRDM headers for Bluetooth through UART interface.
- Other debug and power interface.

1.2 Supported I/O signal level

I/O\voltage level	1.8V	3.3V
SDIO(3.0/2.0)	V	V
UART	V	V

1.3 Supported RF standards

Model \ Standards	Wi-Fi*	BT*
AW-AM510	1x1 Wi-Fi 5 (2.4/5GHz)	5.1

*Connecting with I-PEX gen 4 RF connector

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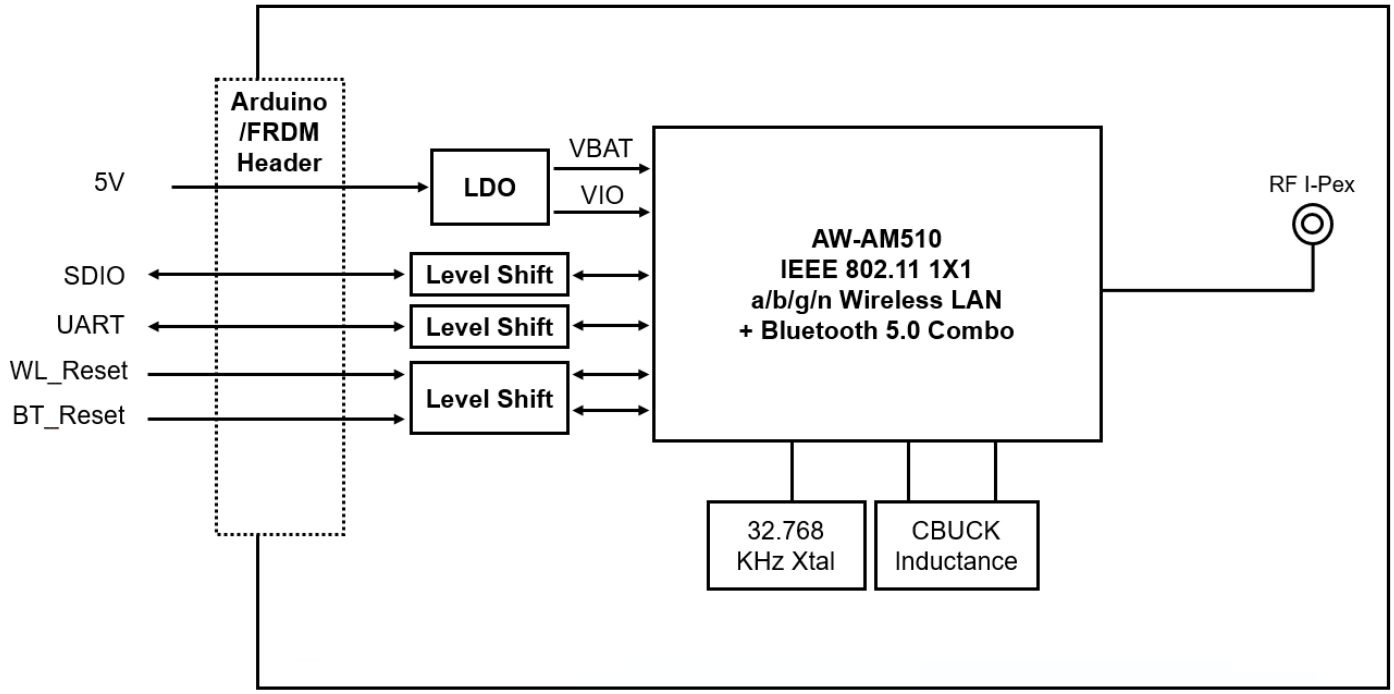
2. FRDM Adapter Board

2.1 Block Diagram

For AW-AM510



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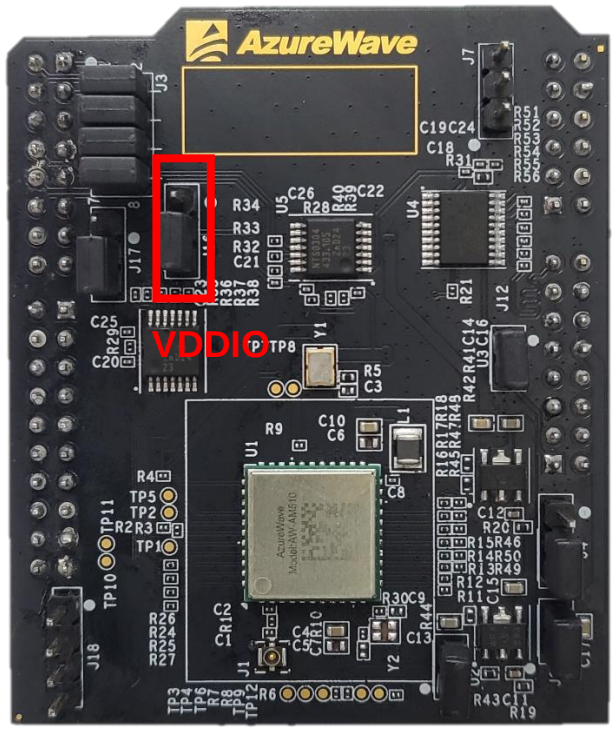
2.2 HW Description

2.2.1 VDDIO voltage level options

- For 3.3V supply, please connect J4 (2-3).
- For 1.8V supply, please connect J4 (1-2).

5V power source is configured from Arduino/FRDM headers as default.

Top	Bottom
	

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2.2.2 SDIO signal

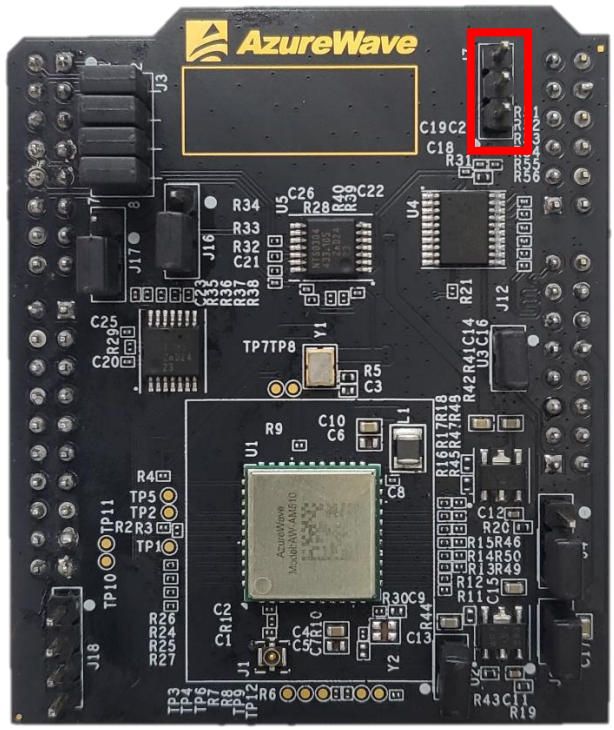
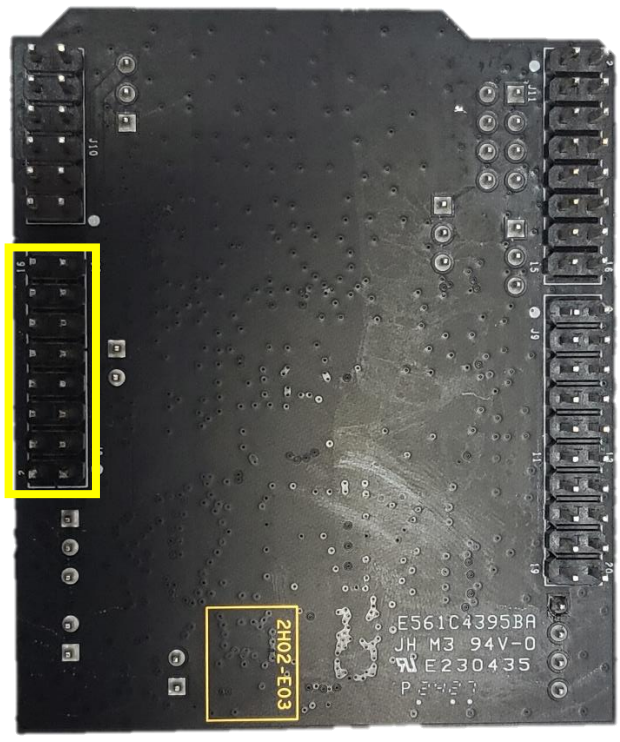
SDIO signal is configured from Bottom side J8 Arduino/FRDM headers.

SDIO voltage level options

- For 3.3V, please connect J7 (2-3).
- For 1.8V, please connect J7 (1-2).

By using headers for Bluetooth through UART interface

Signals	J8
SDIO_CLK	Pin 11
SDIO_CMD	Pin 9
SDIO_DATA0	Pin 5
SDIO_DATA1	Pin 7
SDIO_DATA2	Pin 13
SDIO_DATA3	Pin 15

Top	Bottom
	

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2.2.3 UART signal

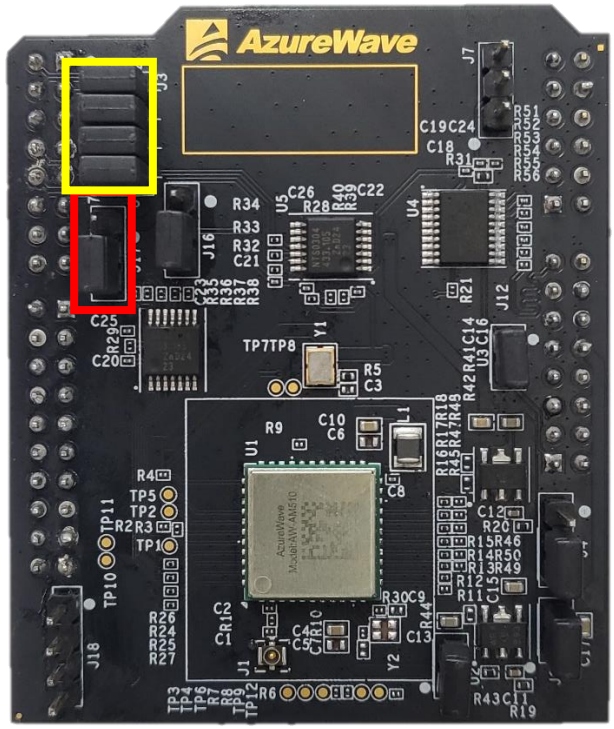
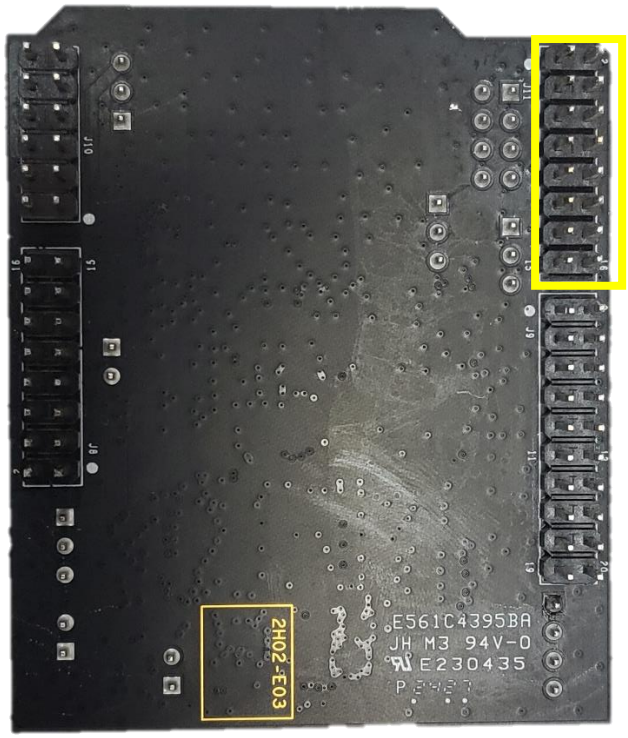
UART signal is configured from J3 connector at Top side and also connect to Bottom side J11 Arduino/FRDM headers.

UART voltage level options

- For 3.3V, please connect J17 (2-3).
- For 1.8V, please connect J17 (1-2).

By using headers for Bluetooth through UART interface

Signals	J3	J11
UART_RTS	Pin 8	Pin 1
UART_TXD	Pin 4	Pin 4
UART_CTS	Pin 6	Pin 3
UART_RXD	Pin 2	Pin 2

Top	Bottom
	

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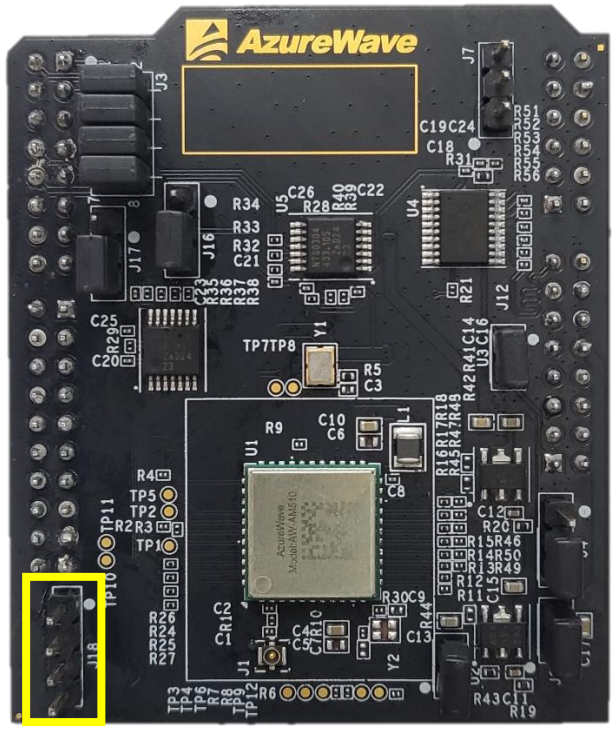
2.2.4 PCM signal

PCM signal is configured from J18 connector at Top side.

By using headers for PCM interface

Signals	J18
PCM_IN	Pin 2
PCM_OUT	Pin 4
PCM_SYNC	Pin 1
PCM_CLK	Pin 3

Top	Bottom
	

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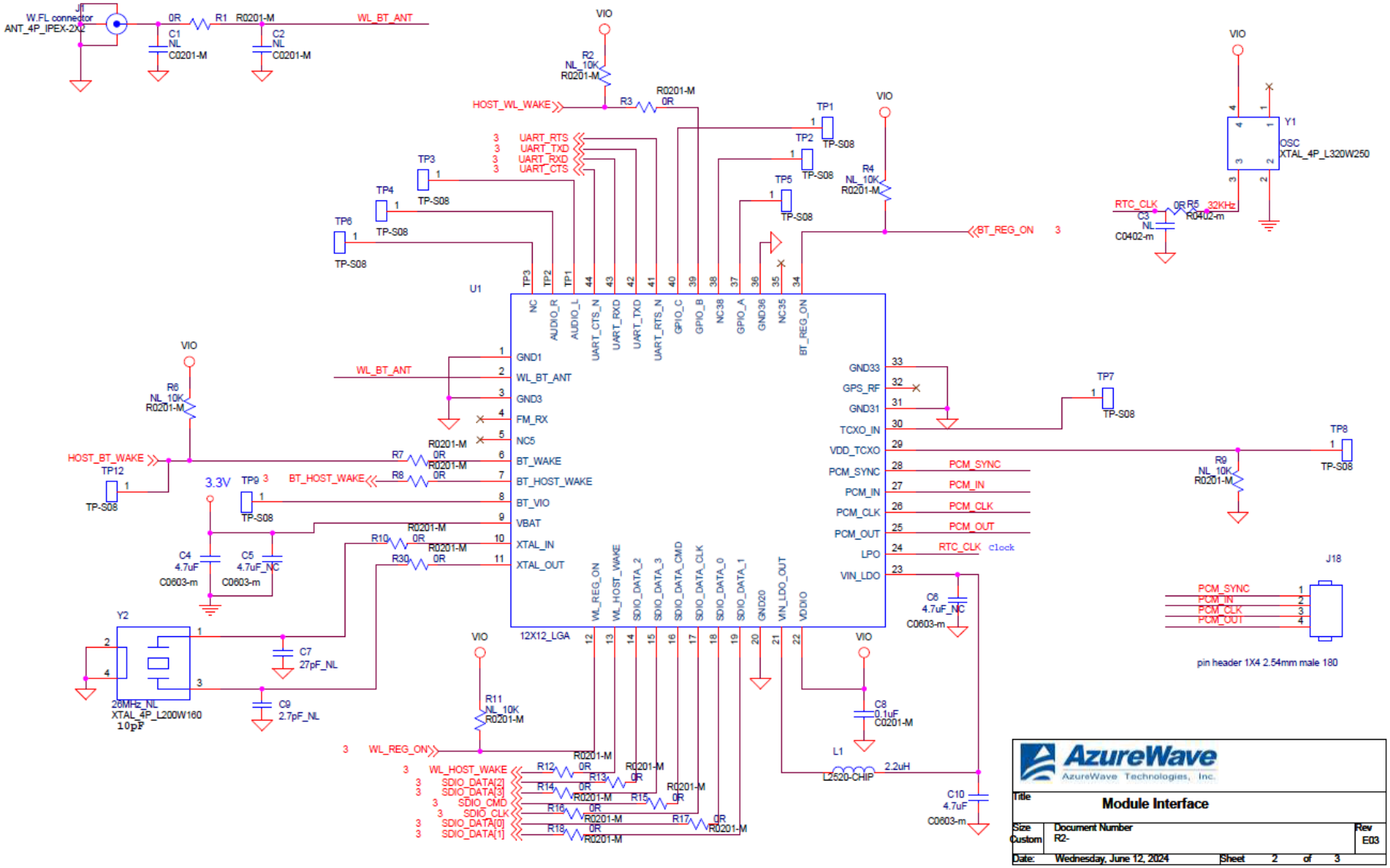
2.3 Schematics



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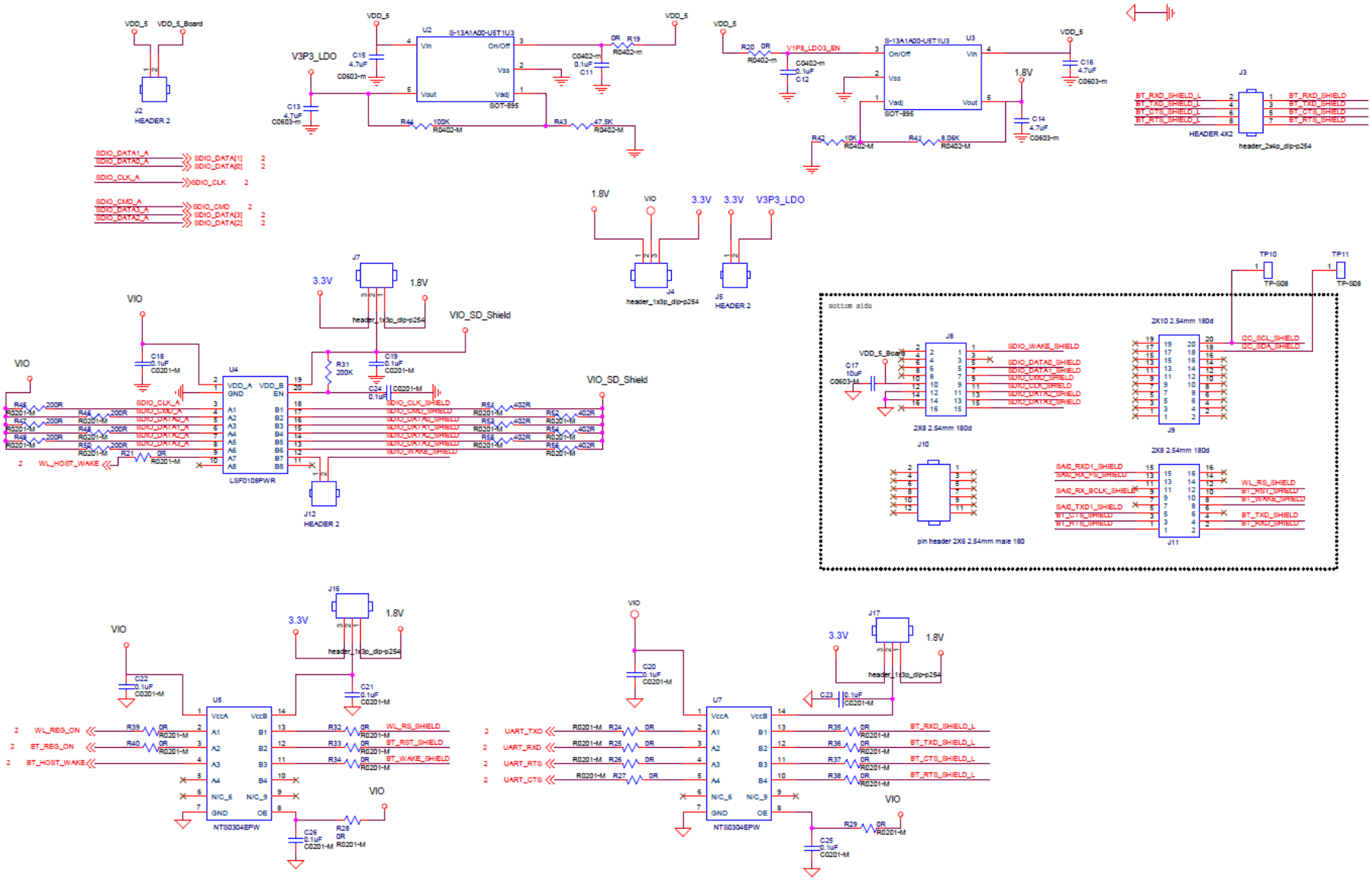

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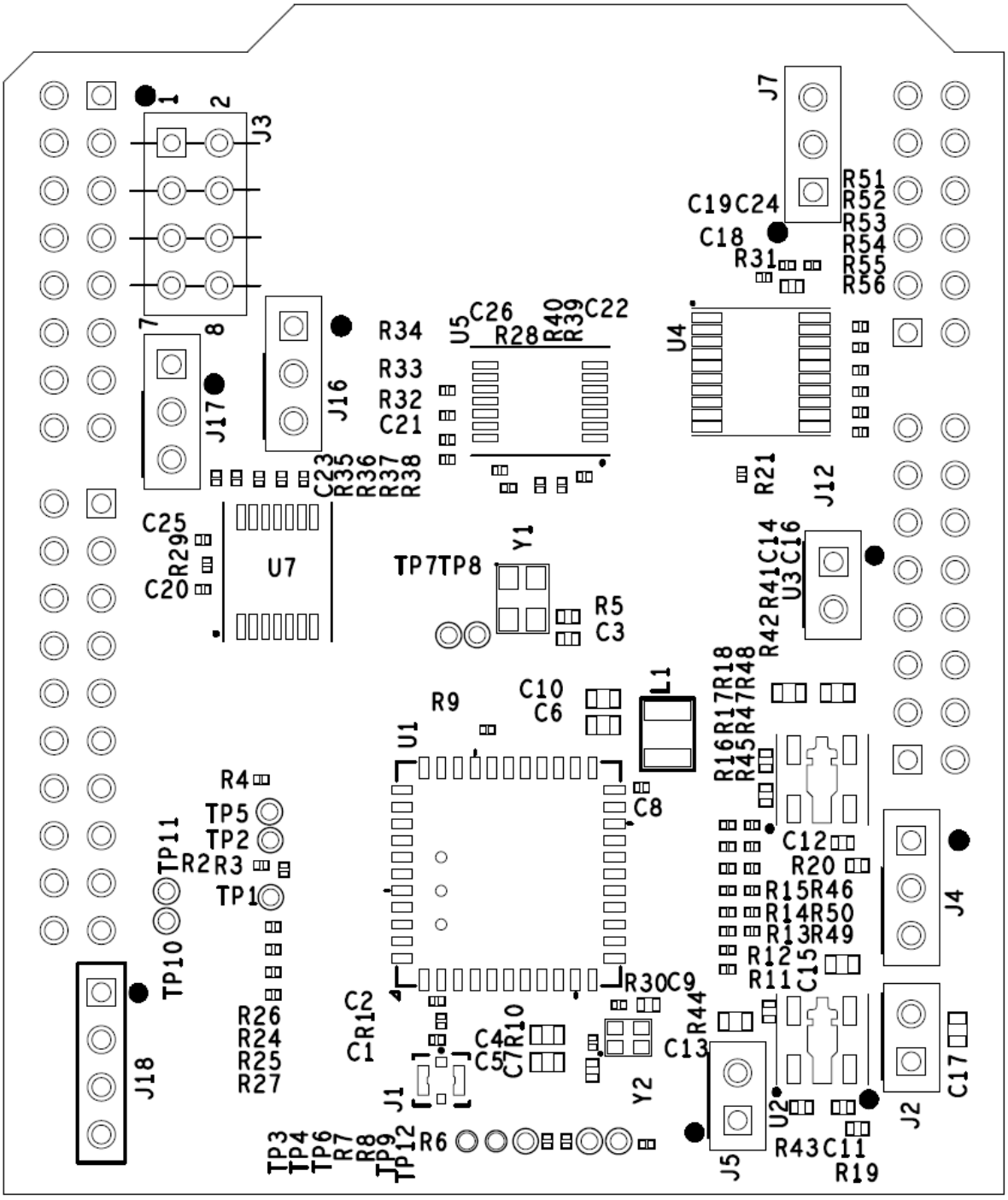
2.4 Placement



TOP View

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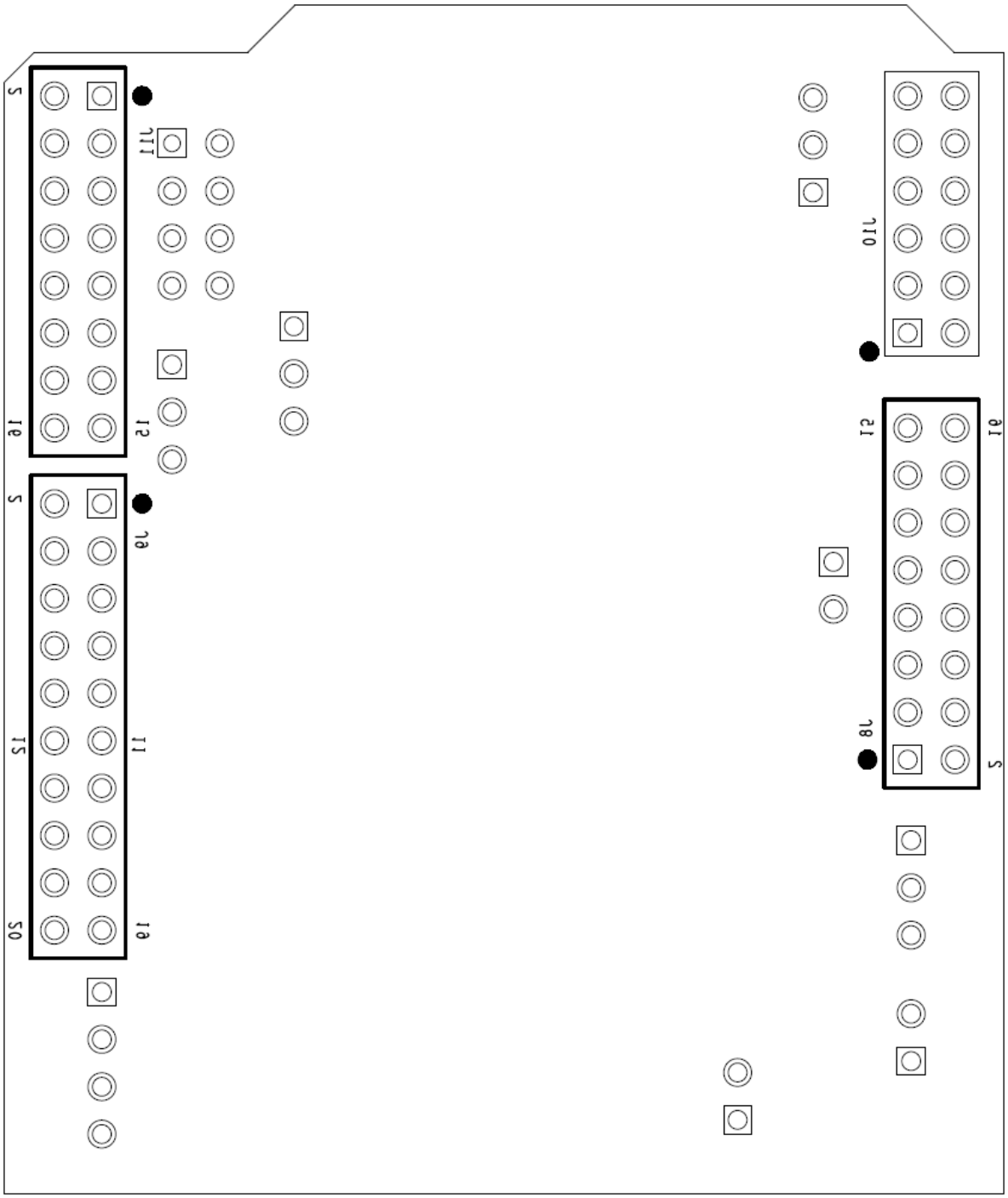

BOT View

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3. EVB Kits Contents

Content	Description
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