# UM11718

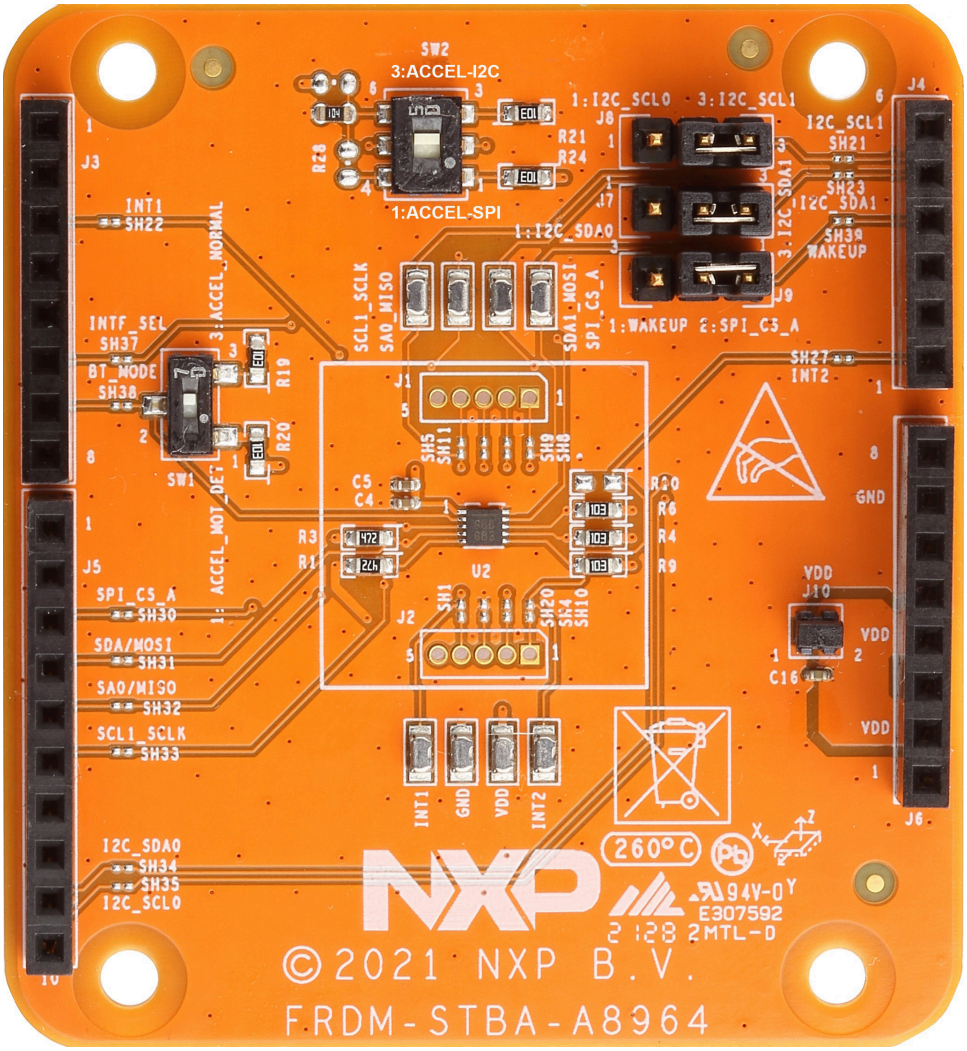
## Introduction to FRDM-STBA-A8964 sensor toolbox development board

Rev. 1 — 12 November 2021 User manual

**Document information**

| Information | Content |
|---|---|
| Keywords | FXLS8964AF, Sensor Tool Box, Sensor evaluation board, ISSDK, FreeMASTER Sensor Tool |
| Abstract | This user manual provides general information describing the FRDM-STBA-A8964 and where to get additional information. |

| Rev | Date | Description |
|---|---|---|
| v.1 | 20211112 | Initial version |



# 1 Introduction

## 1.1 Finding sensor tools resources and information on the NXP website

NXP Semiconductors provides online resources for this evaluation board and its supported devices on the Sensor evaluation board[1] page.

The information page for the FRDM-STBA-A8964 sensor toolbox development kit is available at http://www.nxp.com/FRDM-STBA-A8964. The information page provides overview information, documentation, software, tools, ordering information and a Getting Started tab. The Getting Started tab provides quick-reference information applicable to using the FRDM-STBA-A8964 development kit, including the downloadable assets referenced in this document.

## 1.2 Collaborate in the NXP Sensors Community

The NXP Sensors Community is for sharing ideas and tips, asking, and answering technical questions, and receiving input on just about any topics related to NXP sensors.

NXP Sensors Community is at https://community.nxp.com/t5/Sensors/bd-p/sensors

# 2 Getting started

## 2.1 Evaluation board contents

The **FRDM-STBA-A8964** evaluation board box includes:

- FRDM-STBA-A8964: FXLS8964AF sensor shield board
- USB cable
- Quick Start Guide

***Note:*** *The FRDM-K22F MCU board can be ordered from the NXP website and connected with the FRDM-STBA-A8964 shield board as a custom development kit.*

## 2.2 Developer resources

In addition to the sensor evaluation board, the following developer resources are recommended to jump-start your evaluation or development using FRDM-STBA-A8964 sensor shield board combined with FRDM-K22F as custom sensor kit:

- Get Started with IoT Sensing SDK
- Get Started with FreeMASTER-Sensor-Tool

# 3 Getting to know the hardware

## 3.1 General description

The FRDM-STBA-A8964 is a sensor add-on/companion shield board for FXLS8964AF 3-axis low-power motion wake accelerometer.

FRDM-STBA-A8964 sensor shield board can be kitted with a FRDM MCU (FRDM-K22F) board to enable quick customer evaluation of FXLS8964AF using sensor toolbox enablement SW and tools.

Refer to section 2.3 of the FRDM-STBA-A8964 *Getting Started* document to get more details on board components.

## 3.2 Features

- Sensor evaluation board for FXLS8964AF, also offered as custom sensor kit with FRDM-K22F.
- Enables quick sensor evaluation and helps accelerate quick prototyping and development using NXP sensors
- Compatible with Arduino and most NXP Freedom development boards
- Supports $I^2C$ and SPI communication interface with host MCU
- Supports hardware configurability to switch between accelerometer mode (normal vs. motion detect) and $I^2C$/SPI interface mode
- Has multiple test points on the board

## 3.3 Board functions

The FRDM-STBA-A8964 is designed to be fully Arduino I/O header compatible and optimized for the operating conditions. The FRDM-STBA-A8964 sensor shield board gets powered up by a FRDM-K22F MCU board by stacking the shield board on top of the MCU board using the Arduino I/O headers. See Figure 1. Plug the cable in the OpenSDA USB port on the board and the USB connector on the PC to power up the board.

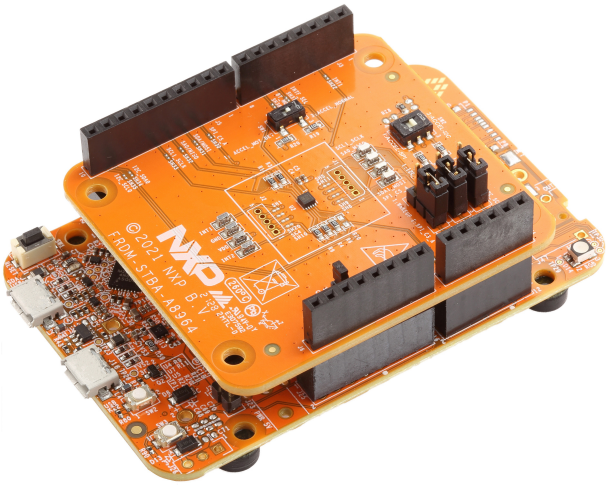


**Figure 1. FRDM-STBA-A8964 attached to FRDM-K22F MCU board**

The FRDM-STBA-A8964 shield board kitted with FRDM-K22F helps accelerate sensor evaluation by using the FreeMASTER-Sensor-Tool software tools. This combination of hardware and software enables end users to move through each phase of product development quickly and increase ease-of-use.

## 3.4 Featured components

The FRDM-STBA-A8964 sensor toolbox development board features the following components:

- FXLS8964AF: 3-axis digital accelerometer designed for applications requiring ultra-low power wake up on motion.

## 3.5 Schematics

The design files for the FRDM-STBA-A8964 sensor shield board are available at the FRDM-STBA-A8964 boards page in the Design Resources section. A snapshot of the schematic is provided in Figure 2 and Figure 3:

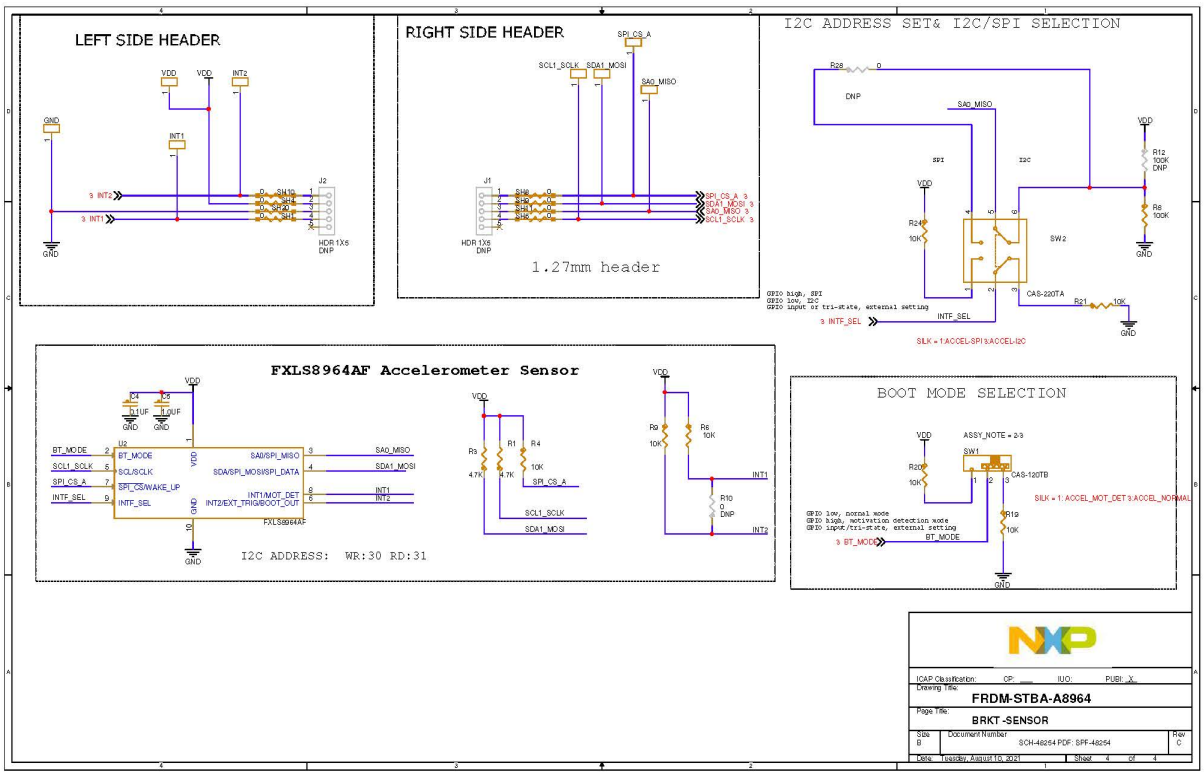



**Figure 2. FRDM-STBA-A8964 schematic**

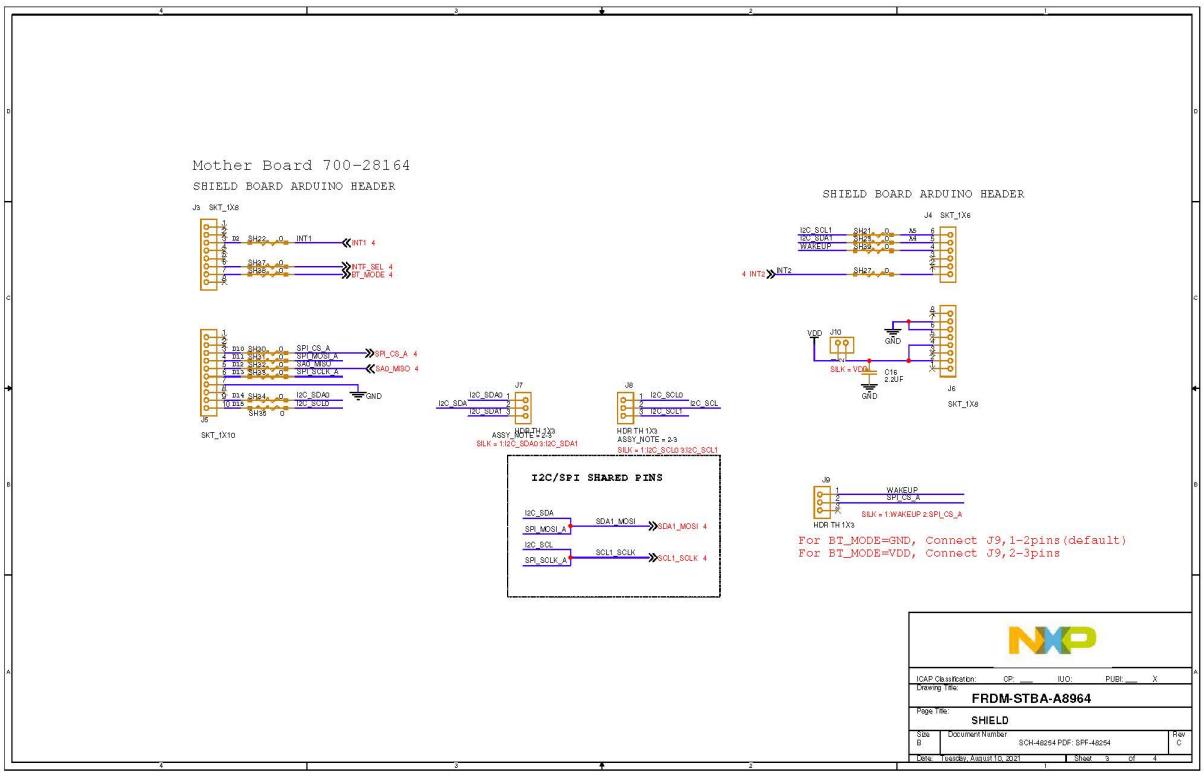



**Figure 3. FRDM-STBA-A8964 schematic**

# 4 References

[1] **Sensor evaluation boards** — https://www.nxp.com/SNSTOOLBOX

[2] **IoTSensingSDK: framework enabling embedded development using sensors** — https://www.nxp.com/IOT-SENSING-SDK

[3] **FreeMASTER Sensor Tool** — https://www.nxp.com/FREEMASTERSENSORTOOL

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# Figures

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