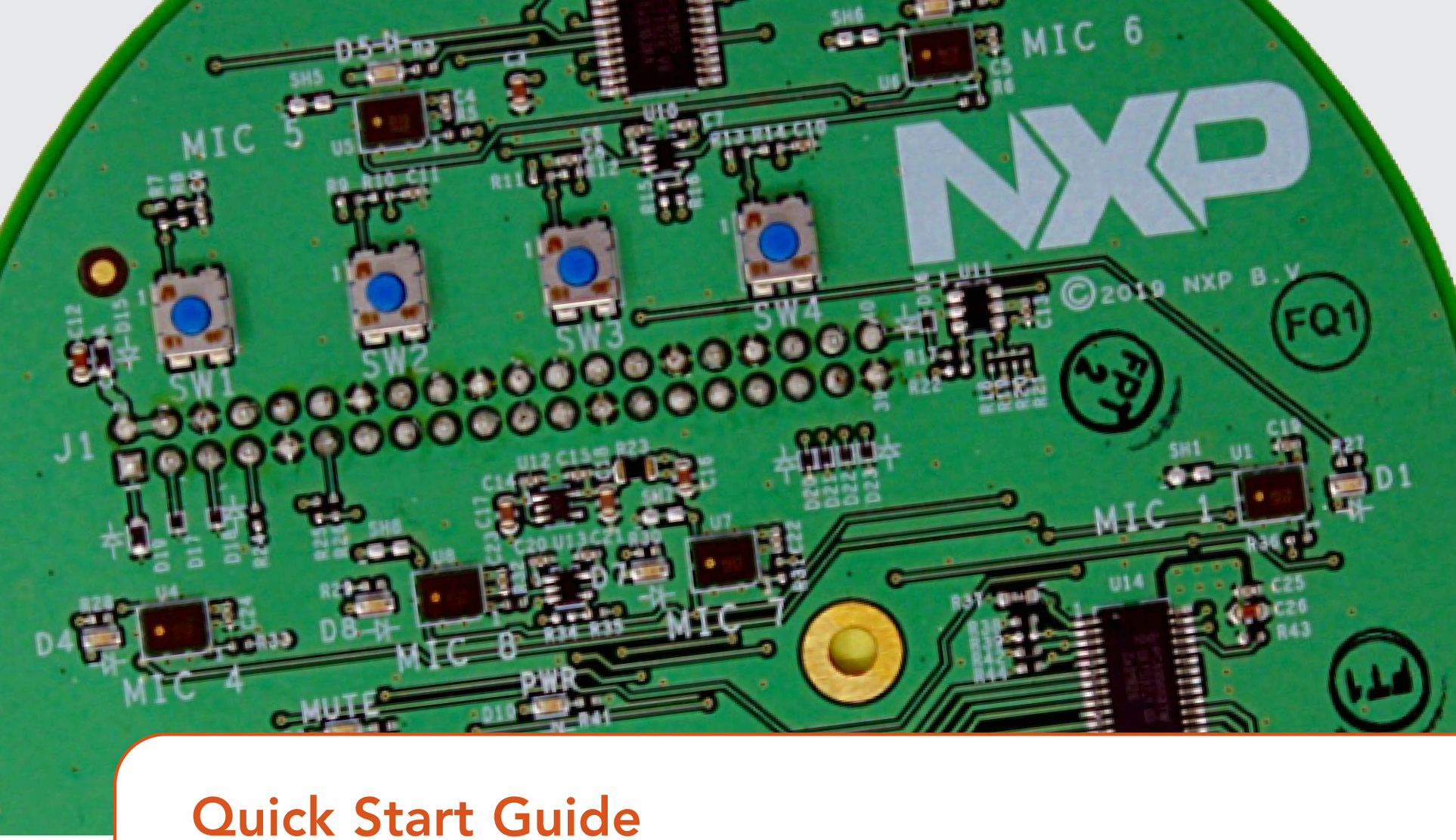


Quick Start Guide

i.MX 8MIC-RPI-MX8 Board

ABOUT THE 8MIC-RPI-MX8 BOARD

The 8MIC-RPI-MX8 accessory board is designed for voice enabled application prototyping and development on the i.MX 8M family. The board plugs directly into the 40-pin expansion connector on the i.MX 8M Mini and Nano EVK's.

The specific layout of the eight microphones allows for various microphone configurations to be evaluated and tailored to specific use-cases such as smart speaker, or smart display.

FEATURES

- 8 PDM Microphones
- 8 monochrome LEDs
- 4 multi-color LEDs
- 2 status LEDs
- 4 pushbuttons
- Microphone Mute Switch
- Microphone geometry switch

GET TO KNOW THE i.MX 8M MINI EVK

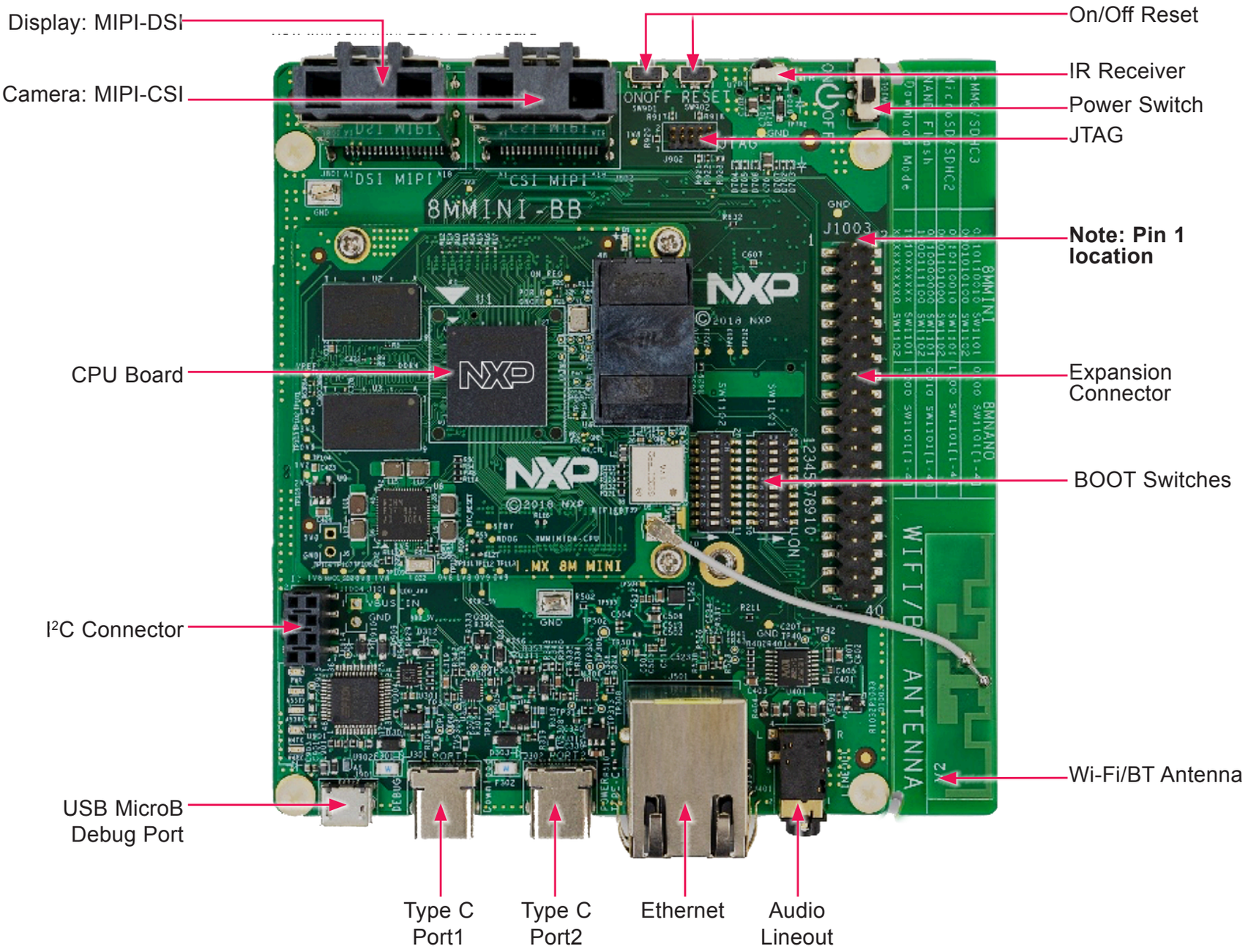


Figure 1: Top view i.MX 8M Mini DDR4 EVK board

GET TO KNOW THE i.MX 8M 8MIC BOARD (8MIC-RPI-MX8)

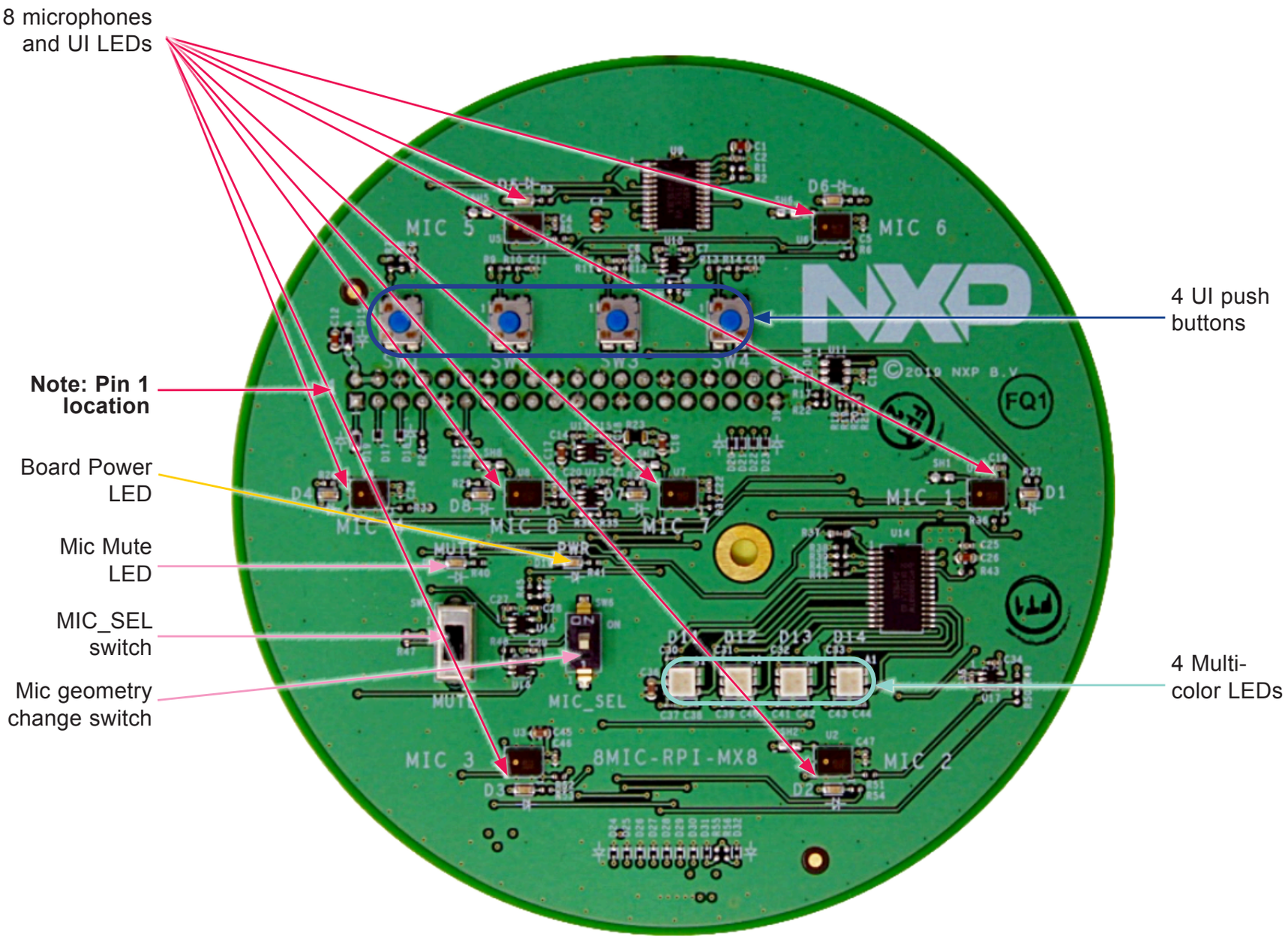


Figure 2: Front View of the 8MIC Board

GET TO KNOW THE i.MX 8M 8MIC BOARD (8MIC-RPI-MX8) CONTINUED

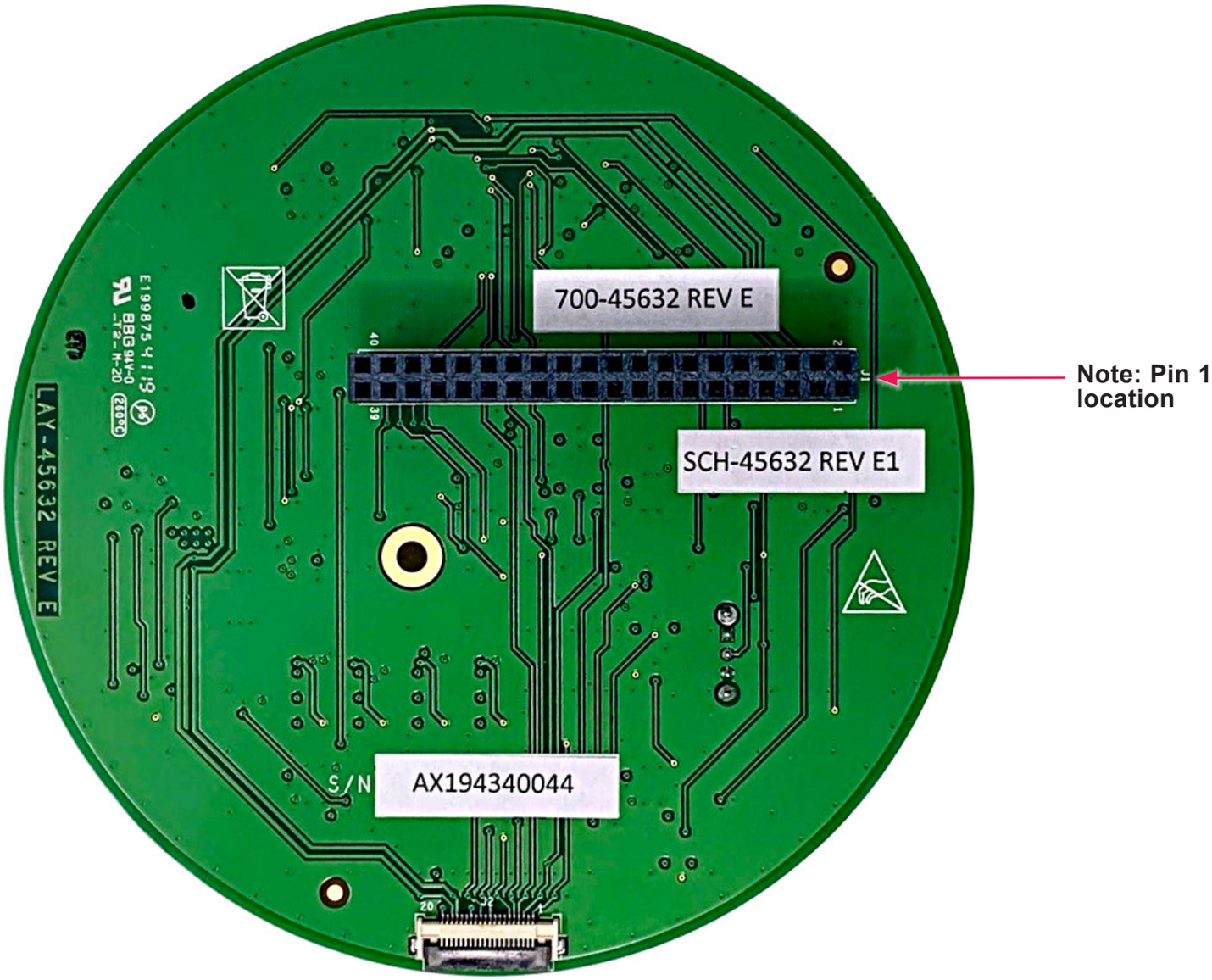
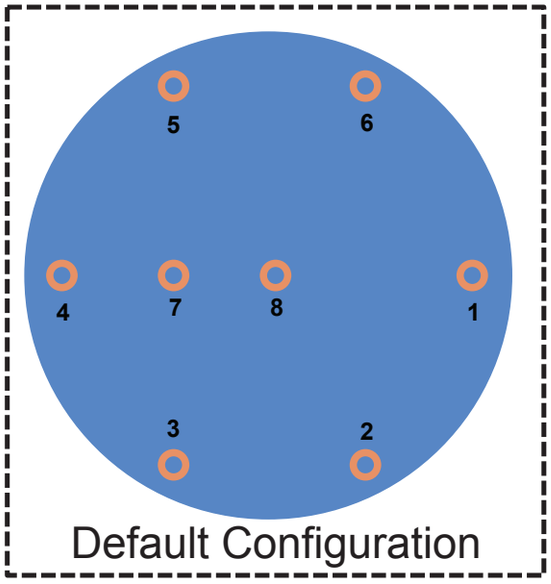
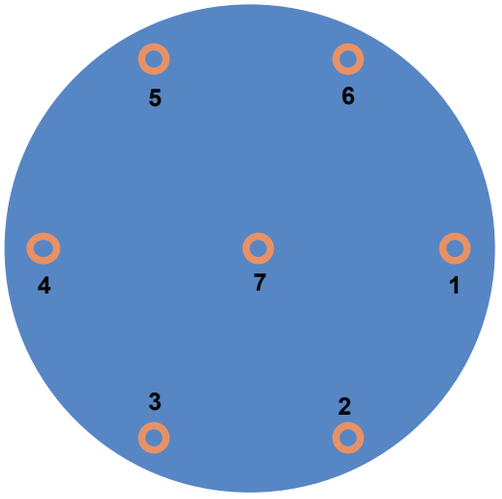


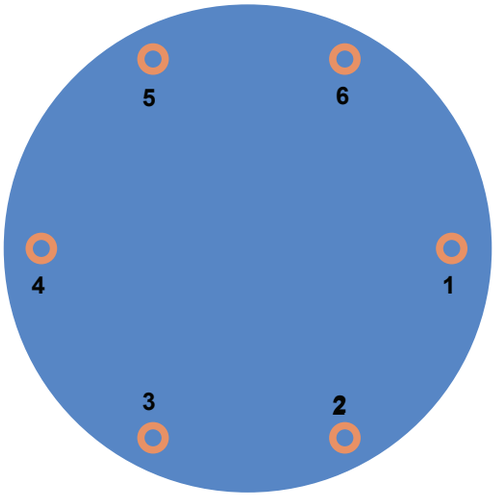
Figure 2: Back View of the 8MIC Board

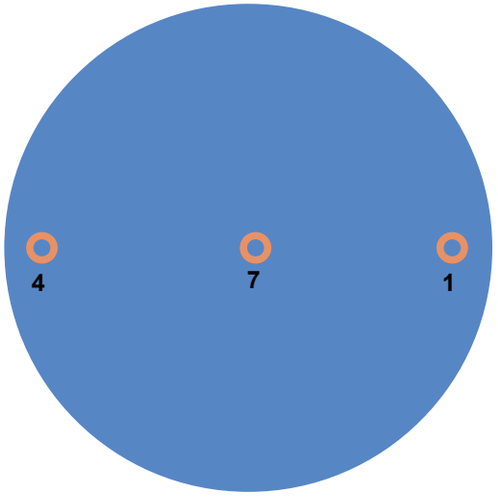
MICROPHONE ARRAY CONFIGURATIONS

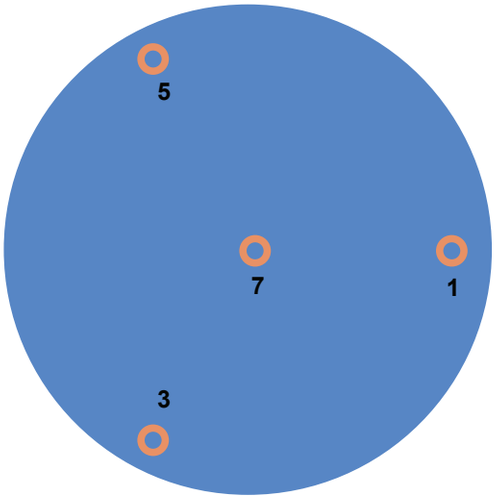


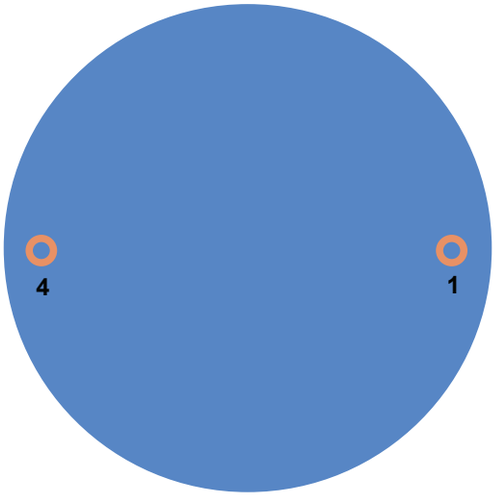
Default Configuration











GETTING STARTED

Unpack the Kit

This document assumes you are familiar with the i.MX 8M Mini EVK. If unfamiliar, please refer to the i.MX 8M Mini EVK Quick Start Guides at www.nxp.com/imx8mmini.

Download Software and Tools

Installation software and documentation are available at www.nxp.com/imx8mminievk. The following are available on the website:

Table 2 Software and Tools

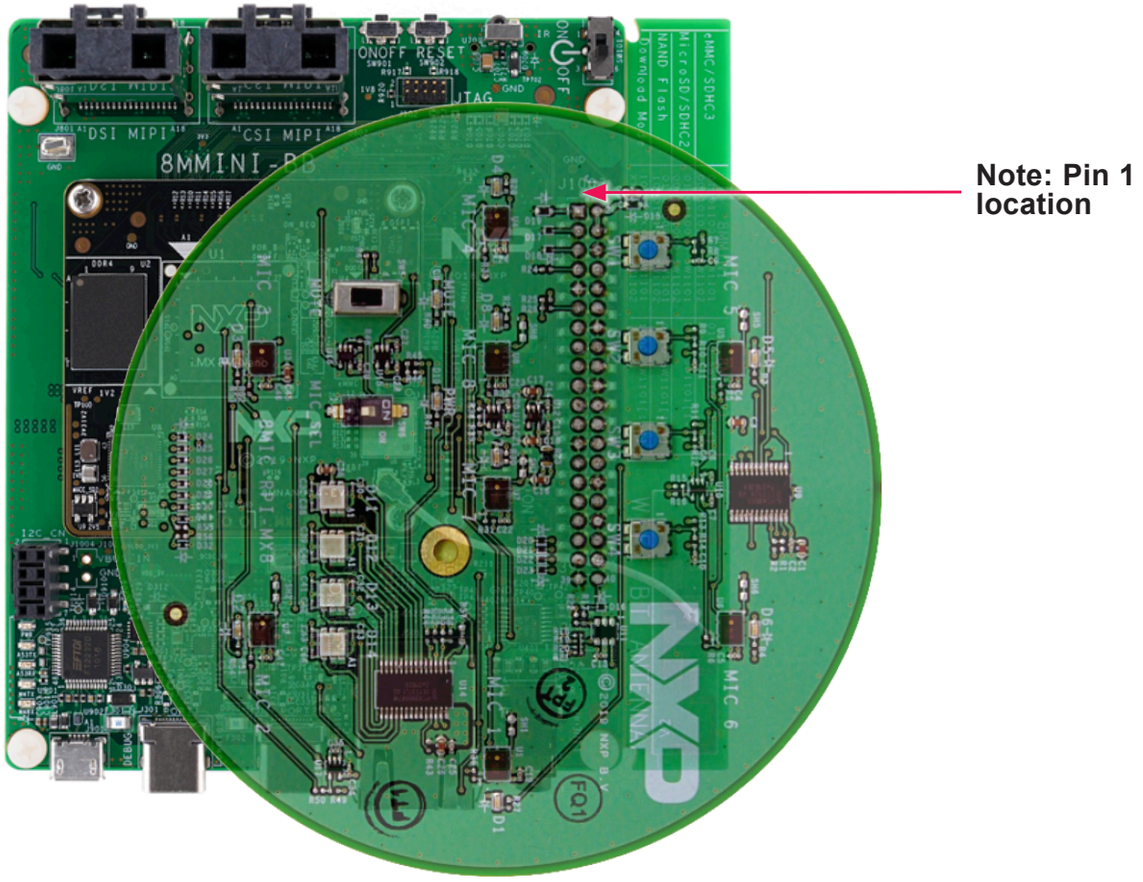
ITEM	DESCRIPTION
Documentation	• Schematics, layout and Gerber files • Quick Start Guide • Hardware Design Guide
Software Development	Linux BSPs, Android BSPs
Demo Images	Copy of the latest Linux and Android BSP images that are available to program on the SD Card. i.MX 8M Mini software can be found at www.nxp.com/imxsw.

SETTING UP THE SYSTEM

The following will describe how to run the pre-loaded Android image on the i.MX 8M Mini DDR4 EVK.

1 Connect the Boards

The 8MIC-RPI-MX8 connects directly to the EVK through the 40-pin accessory board connector. Ensure that pin 1 of the 8MIC-RPI-MX8 is aligned with pin 1 on the EVK J1001. The picture to the right shows the correct orientation.



SETTING UP THE SYSTEM CONTINUED

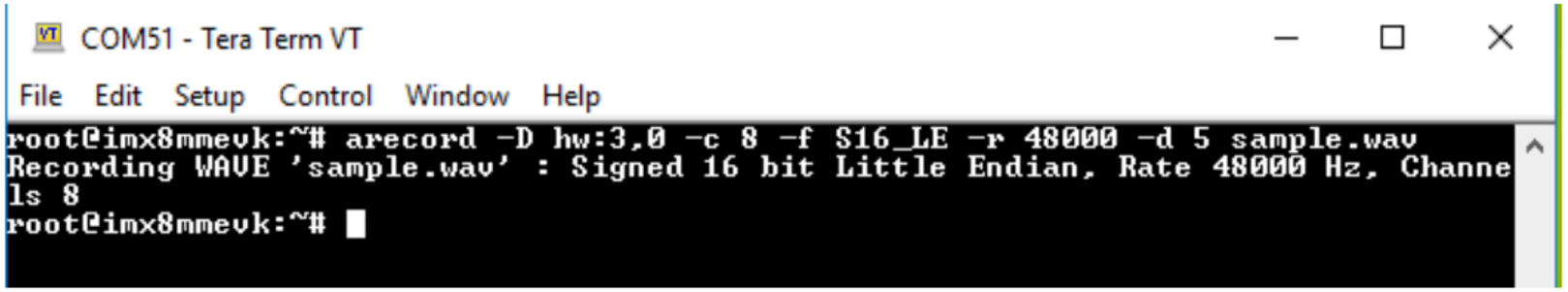
2 Connect the Cables

Connect the micro-B end of a USB cable into debug port J1701. Connect the other end of the cable to a PC acting as a host terminal. Connect the USB Type-C plug of the Power Supply to J302 (USB Type-C Port2), then power up the board using switch SW101. Use only J302 for power delivery to the board.

3 Record Audio

At the linux command line in the shell terminal you can use the arecord command to record audio. The following command will record a 5-second long .wav file on all 8 microphone channels at 48kHz sampling rate and 16-bits.

% arecord -D hw:3,0 -c 8 -f S16_LE -r 48000 -d 5 sample.wav

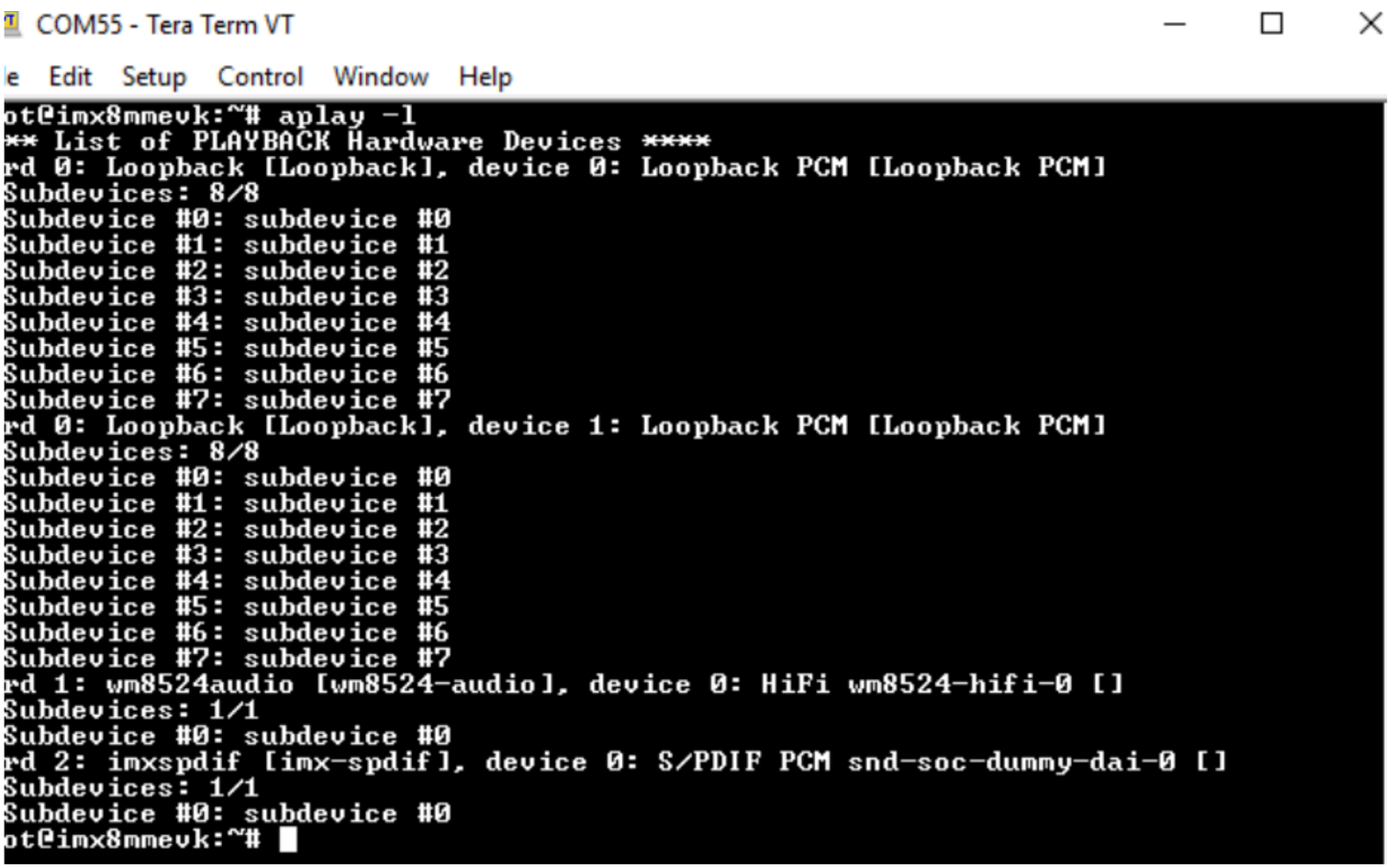


SETTING UP THE SYSTEM CONTINUED

4 Playback Audio

At the linux command line in the shell terminal you can use the aplay command to playback audio.

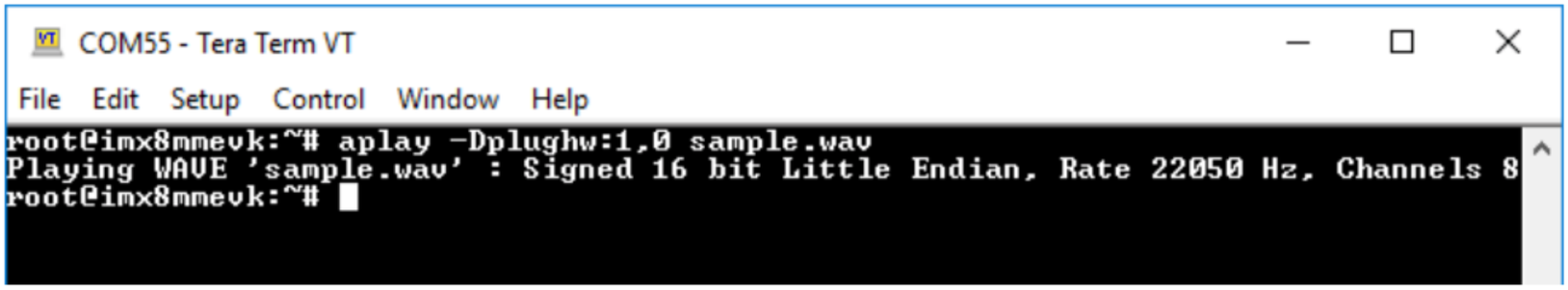
First list the available playback devices:
% aplay -l



SETTING UP THE SYSTEM CONTINUED

On the EVK the wm8524audio is the audio codec which drives the line-out jack. To play the sample.wav audio through that port the following command should be issued:

% aplay -Dplughw:1,0 sample.wav



5 Storage

- The 8MIC board should be stored in a dust free container or ESD bag. The microphones may be damaged by dust particles entering the microphone port hole.
- If the EVK and 8MIC board are stored on a desk top it would be best to invert the boards to prevent dust contamination.

ADDITIONAL INFORMATION

SUPPORT

Visit **www.nxp.com/support** for a list of phone numbers within your region.

WARRANTY

Visit **www.nxp.com/warranty** for complete warranty information.

www.nxp.com/8mic-rpi-mx8

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Document Number: IMX8MICQSG REV 0