Quick Start Guide

SensorTile Kit - STEVAL-STLKT01V1

www.st.com/sensortile

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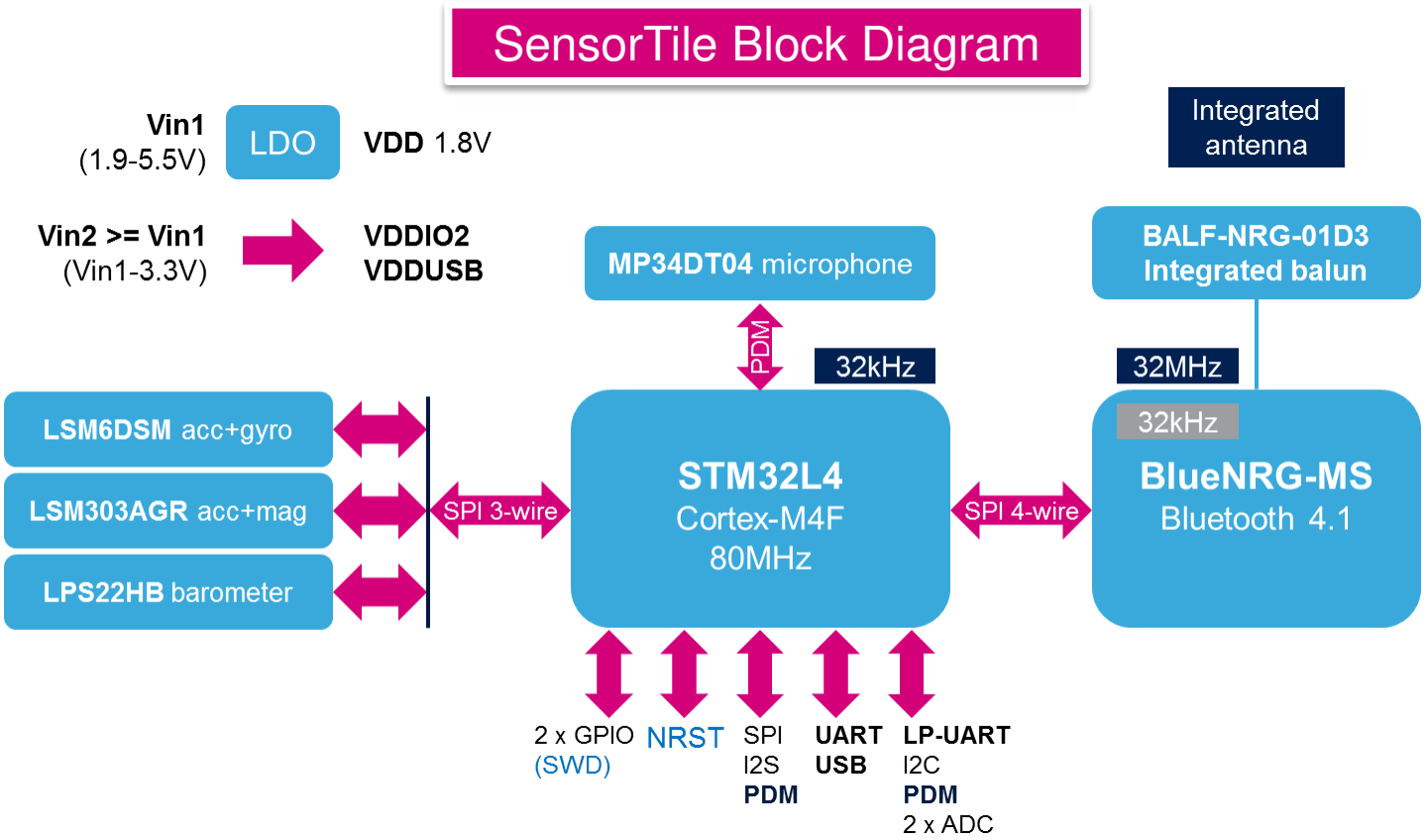
Summary

- SensorTile platform overview
  - SensorTile – STEVAL-STLCS01V1
  - SensorTile Cradle – STEVAL-STLCR01V1
  - SensorTile Expansion Cradle – STEVAL-STLCX01V1
- SensorTile Programming/Debugging
- First Setup: Running the pre-loaded demo
  - With the Expansion Cradle
  - With the Cradle
- Start your own Design
  - With the Expansion Cradle
  - With the Cradle

SensorTile Platform
Hardware overview

STEVAL-STLKT01V1 Hardware Description

- STEVAL-STLKT01V1 is the development kit for the SensorTile board (STEVAL-STLCS01V1), a highly Integrated Development Platform with a broad range of functionalities aiming to improve system design cycle and accelerate delivery of results
- Two host boards are also provided as part of the kit, both featuring SWD programming interface



SensorTile Core System

SensorTile Core System: STEVAL-STLCS01V1

MP34DT04

Microphone

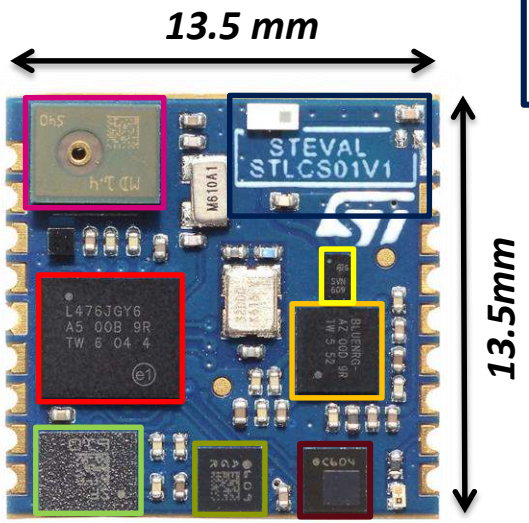
64 dB SNR, 120 dB SPL

STM32L476

Cortex-M4

Up to 100DMIPS 80MHz

100uA/MHz@24MHz in run mode



Antenna Clearance Area

Balun Filter

BlueNRG-MS

Bluetooth low-energy

Concurrent master/slave BT4.1

LSM6DSM

3DAcc+3DGyro

0.65 mA @ 1.6kHz – 9 µA @ 12.5Hz

LSM303AGR

3DAcc+3DMag

200 µA @ 20 Hz (HR mode)

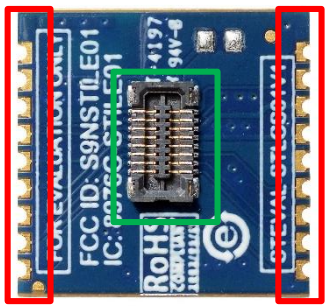
Accel/Mag independent power down mode

LPS22HB

Barometer

1-75 Hz, 3-12 µA @ 1Hz

Solderable

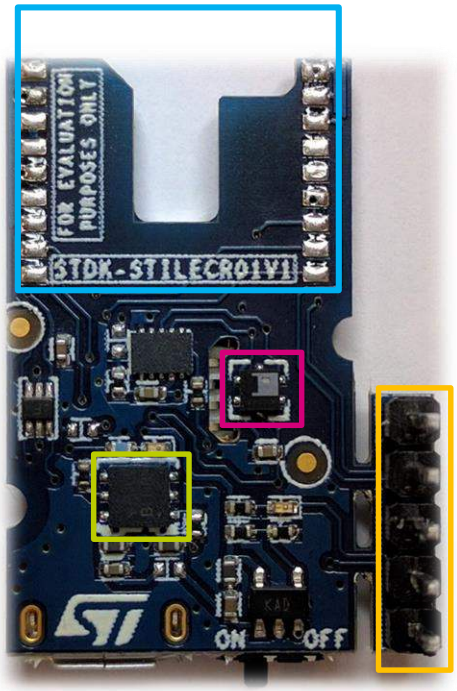


Plugin

SensorTile Cradle

SensorTile Cradle: STLCR01V1

TOP VIEW



SensorTile Footprint

Solderable

HTS221

Humidity and
Temperature sensor

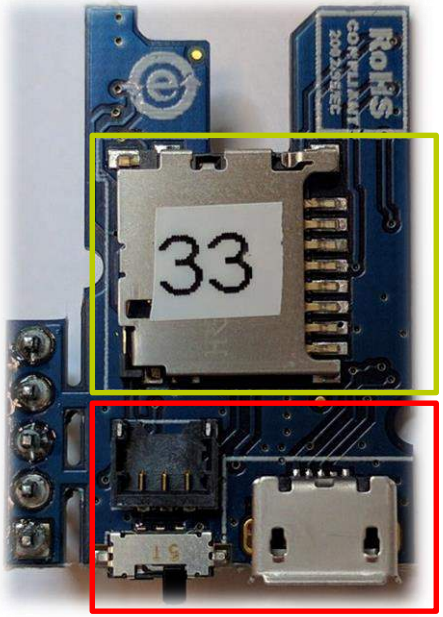
STBC08

Li-Ion Battery charger
with thermal regulation

SWD

SWD programming
interface

BOTTOM VIEW



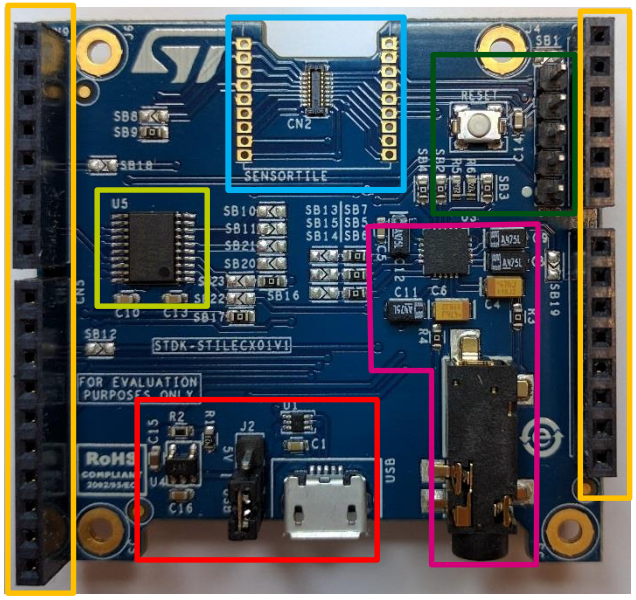
Micro-SD Card slot

Micro USB ON/OFF switch Battery Plug

SensorTile Expansion Cradle

SensorTile Expansion Cradle: STLCX01V1

SensorTile Footprint



ST2378ETTR

8-Bit Level Translator
3.3 V ←→ 1.8 V

SWD & Reset

SWD programming interface and reset button

Arduino Connector

Audio DAC & 3.5 mm jack

Micro USB & 3.3 V Regulator

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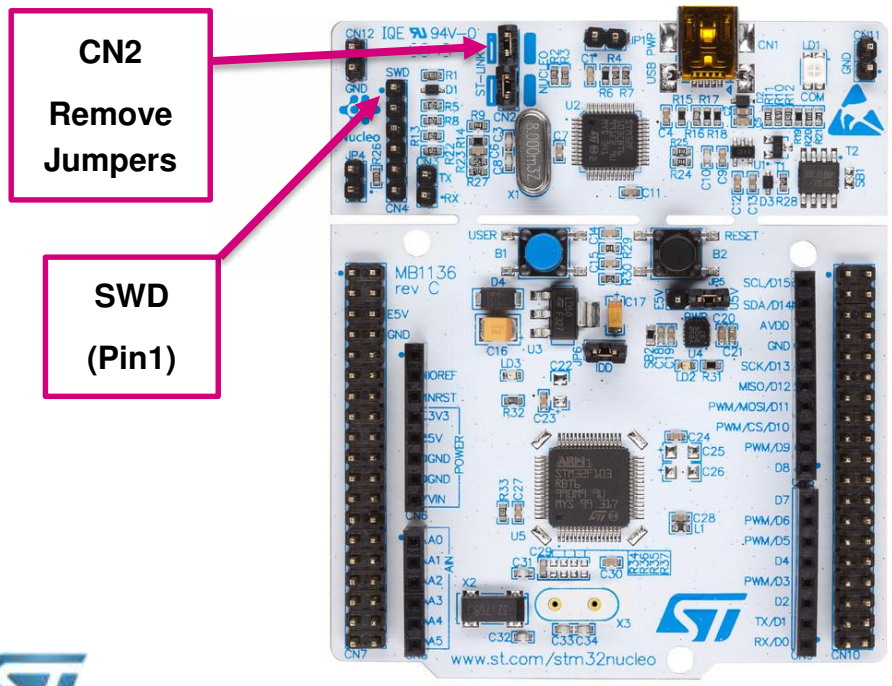
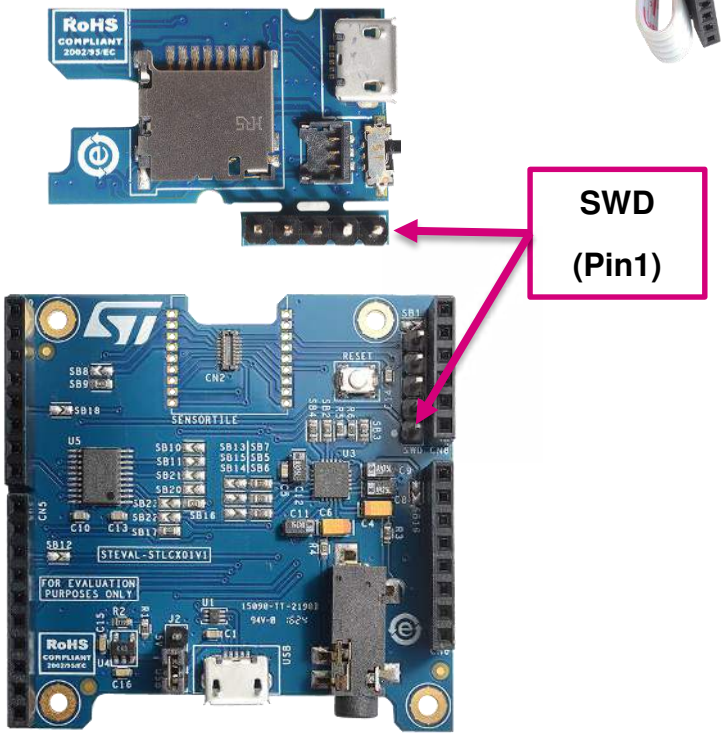
SensorTile Programming/Debugging [1/2]

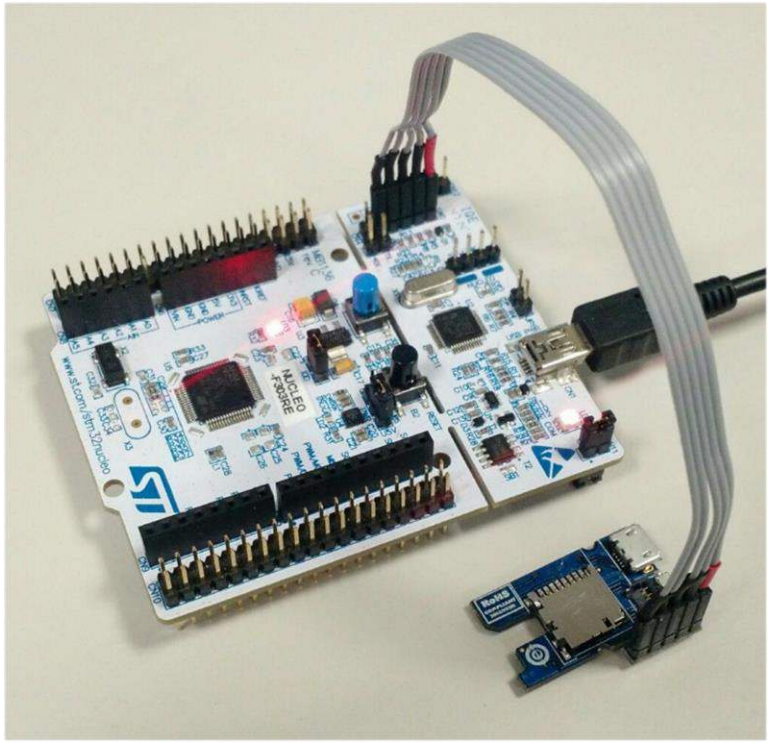
- Connect an external ST-Link to the cradles SWD connectors. A 5 pin flat cable is provided within the SensorTile Kit package
  - The easiest way is to get an STM32-Nucleo board which includes an ST-Link V2.1
  - Remove CN2 Jumpers from the Nucleo Board
  - Connect the SWD interfaces using the provided cable



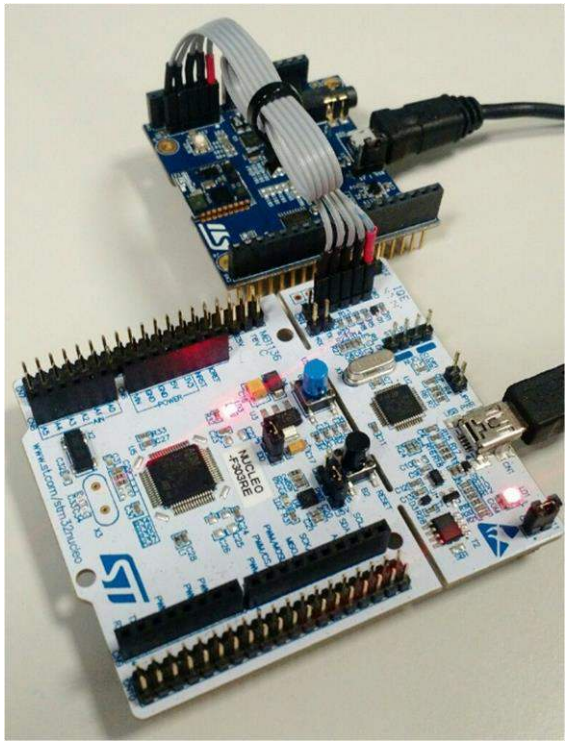


SensorTile Programming/Debugging [2/2]

SensorTile Programming with Cradle



SensorTile Programming with Expansion Cradle



First Setup with the Expansion Cradle

Running the pre-loaded demo [1/2]

HW

- SensorTile Core System **(STEVAL-STLCS01V1)**
- SensorTile Expansion Cradle **(STLCX01V1)**
- Android™ or iOS™ device
- USB type A to Micro-B USB cable for SensorTile power supply

Micro USB cable

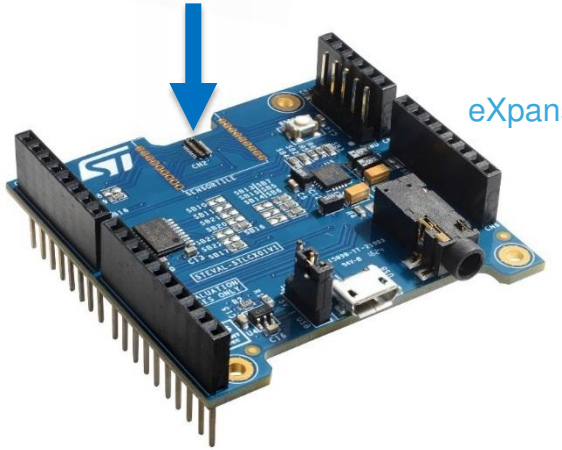
SW App (Android or iOS)

- ST BlueMS app (available on Play store and Apple store)

ST BlueMS App

www.st.com/bluems

Core System



eXpansion Cradle

Smartphone

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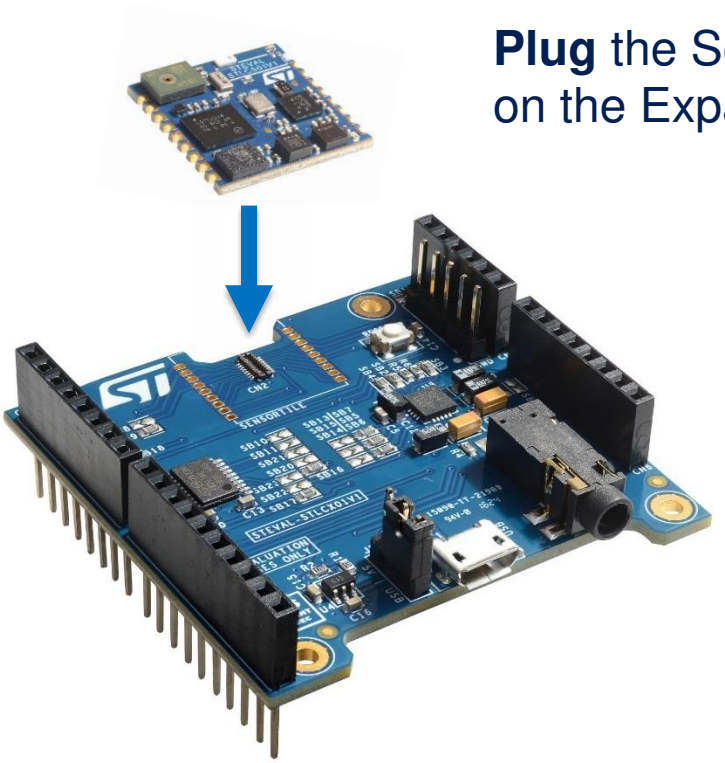
First Setup with the Expansion Cradle

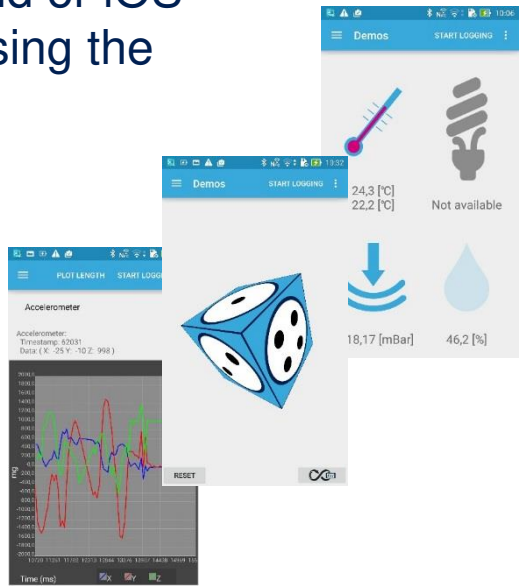
Running the pre-loaded demo [2/2]



Plug the SensorTile Core System on the Expansion Cradle.

Power it via USB

Connect to your Android or iOS smartphone or tablet using the BlueMS app



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First Setup with the Cradle

Running the pre-loaded demo [1/2]

HW

- SensorTile Core System **(STEVAL-STLCS01V1)**
- SensorTile Cradle **(STLCR01V1)**
- SensorTile Battery
- SensorTile Plastic Box
- Android™ or iOS™ device
- [optional] USB type A to Micro-B USB cable for battery charging

Micro USB cable

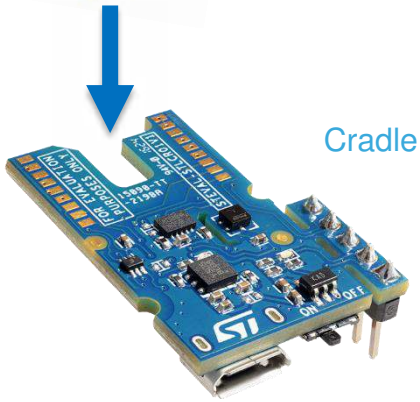
SW App (Android or iOS)

- ST BlueMS app (available on Play store and Apple store)

ST BlueMS App

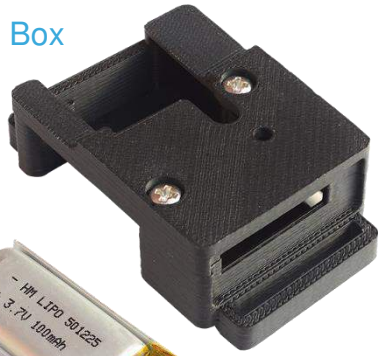
www.st.com/bluems

Core System



Cradle

Plastic Box



Battery

Smartphone

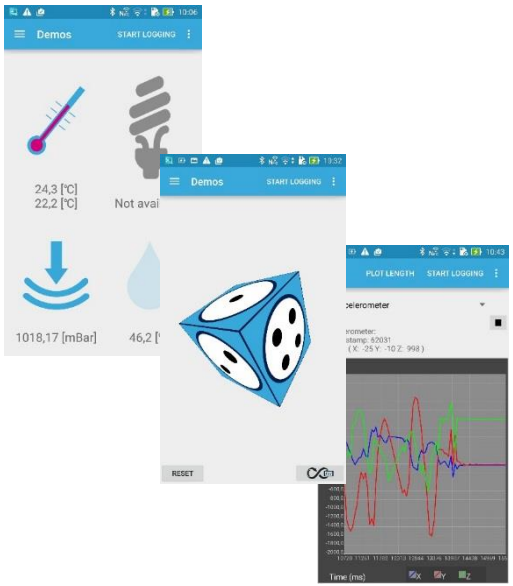
First Setup with the Cradle

Running the pre-loaded demo [2/2]

Solder the SensorTile Core System to the Cradle.

Plug the battery, protect it with the plastic cover

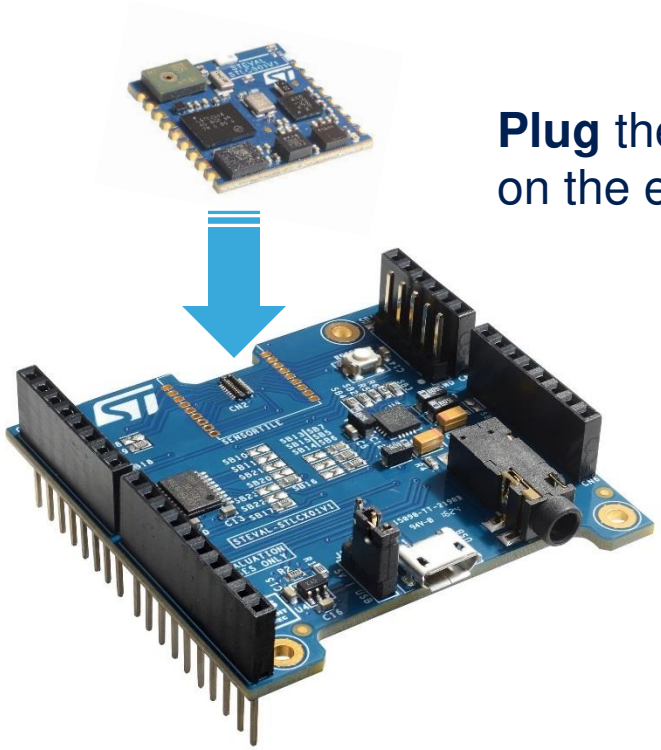
Turn it **ON** using the switch



Connect to your Android or iOS smartphone or tablet using the BlueMS app

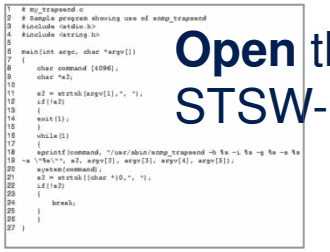
Start your own design

With the expansion Cradle

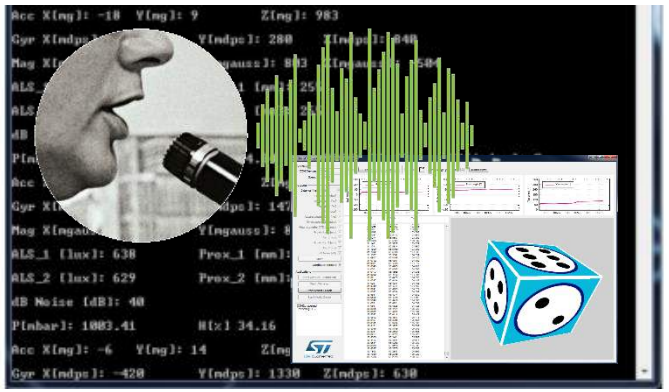


Plug the SensorTile Core System on the expansion Cradle.

Connect with your development environment



Open the USB starter project on your PC STSW-STLKT01



Compile & Run the USB Audio or DataLog example application

Design your custom application

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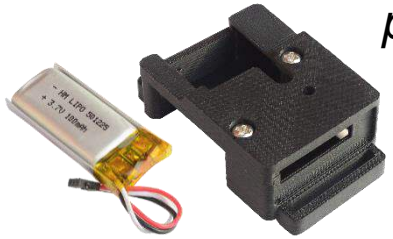
Start your own design
With the Cradle

Solder the SensorTile to its Cradle

You better protect it with its plastic cover!



Setup your PC programming environment

SWD

```
# my_trapsend.c
# Sample program showing use of snmp_trapsend
#include <stdio.h>
#include <string.h>

main(int argc, char *argv[])
{
    char command [4096];
    char *s2;

    s2 = strtok(argv[1],","  );
    if(!s2)
    {
    exit(1);
    }
    while(1)
    {
    sprintf(command, "/usr/sbin/snmp_trapsend -c %s -i %s -g %s -s %s
-a \"%s\"", s2, argv[2], argv[3], argv[4], argv[5]);
    system(command);
    s2 = strtok((char *)0,",");
    if(!s2)
    {
        break;
    }
    }
}
```

Program your data tracking application

Field test your application

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