



arm

# Workshop

3. Peripheral IPs control practice

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**1. Arm IoT Ecosystem**

**2. Setup develop environment**

**→ 3. Peripheral IPs control practice**

**4. Connecting your platform to Pelion**

**5. Remote FW update of your device**

# #3 Peripheral IPs control practice

1. LED Blinking (Online to CLI) with hello world
2. Sensor R/W
3. CLCD R/W

# LED Blinky test

```
[daniel@ workshop]$ mbed import mbed-os-example-blinky
[mbed] Importing program "mbed-os-example-blinky" from "https://github.com/ARMmbed/mbed-os-example-blinky" at latest revision in the current branch
[mbed] Adding library "mbed-os" from "https://github.com/ARMmbed/mbed-os" at rev #f8b140f8d7cb
[daniel@ workshop]$ cd mbed-os-example-blinky/
.
..
.git          .mbed          main.cpp        mbed-os.lib
..             .gitignore      README.md       mbed-os         mbed_settings.py
[daniel@ mbed-os-example-blinky]$ mbed compile -t GCC_ARM -m NUCLEO_F429ZI
[Error] @,: Compiler version mismatch: Have 7.3.1; expected version >= 6.0.0 and < 7.0.0
Building project mbed-os-example-blinky (NUCLEO_F429ZI, GCC_ARM)
Scan: .
Scan: mbed
Scan: env
Scan: FEATURE_LWIP
Compile [ 0.1%]: mbed_tz_context.c
```

## For Windows

```
$ copy ./BUILD/NUCLEO_F429ZI/GCC_ARM/mbed-os-example-blinky.bin E:\
```

## For Linux

If you are using the Linux on virtualbox, have to change USB detect from Window(or Mac) to the Linux on virtual box

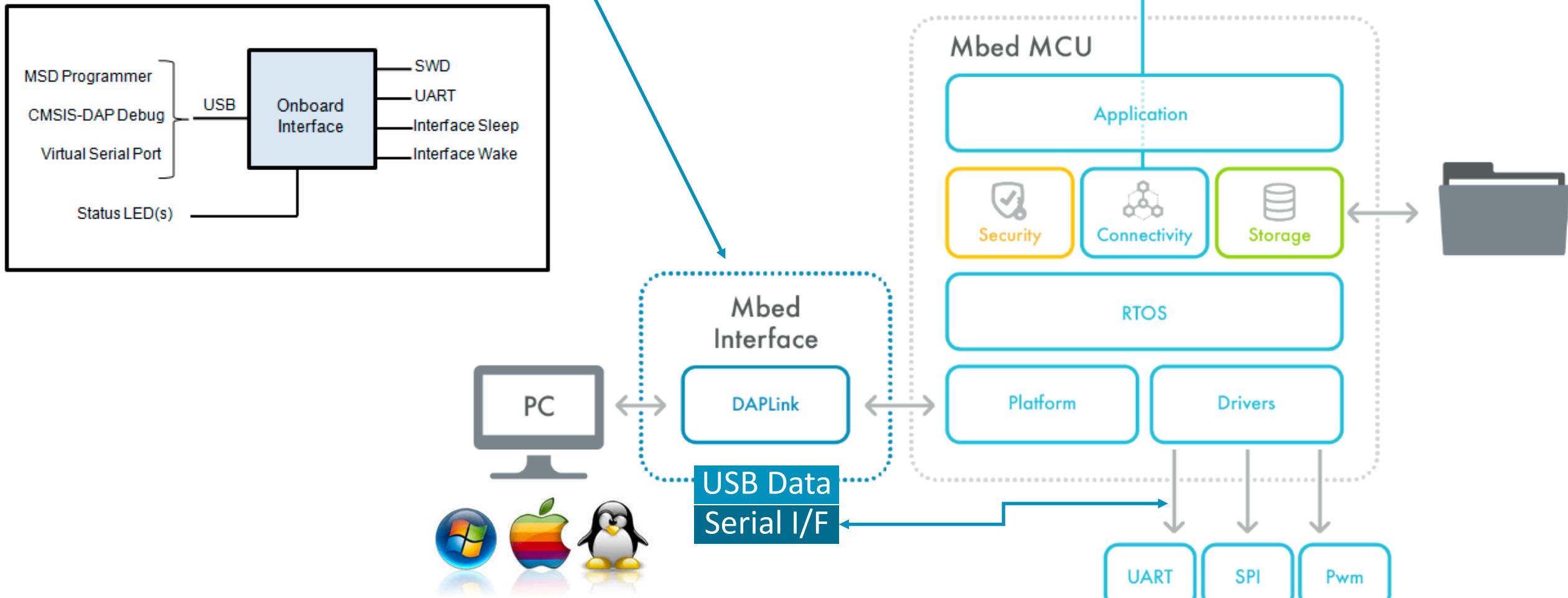
```
$ cp ./BUILD/NUCLEO_F429ZI/GCC_ARM/mbed-os-example-blinky.bin /Media/mbed/NODE_F429ZI/
```

## For Mac

```
$ cp ./BUILD/NUCLEO_F429ZI/GCC_ARM/mbed-os-example-blinky.bin /Volumes/NODE_F429ZI/
```

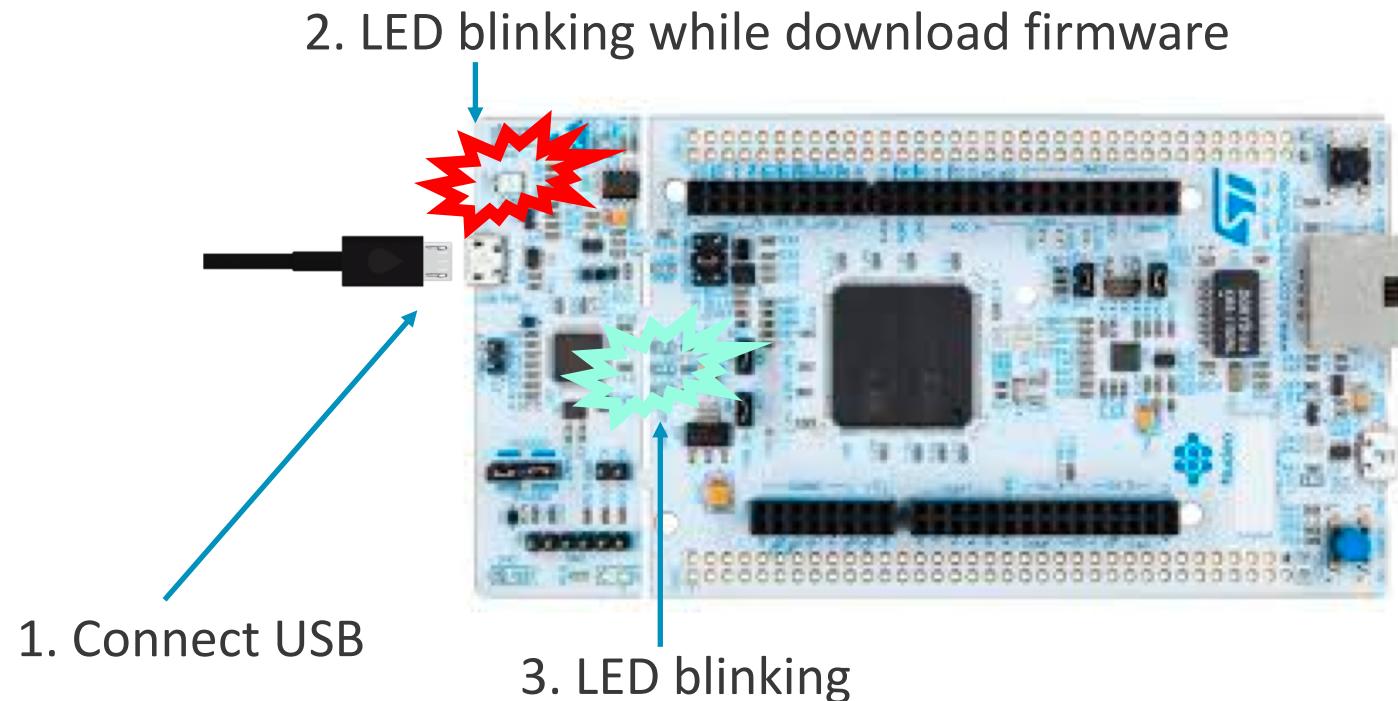
# Board operation sequence

<https://os.mbed.com/handbook/DAPLink>



- Drag-and-drop programming (MSC)
- A virtual serial port (CDC)
- CMSIS-DAP based debugging (HID)

# LED Blink test



# NUCLEO Board

<https://os.mbed.com/platforms/ST-Nucleo-F429ZI/>

- Microcontroller features
- Nucleo features
- Board pinout
  - Multi function GPIO

# Mbed – Online compile – Export to CLI

<https://os.mbed.com/compiler/>

The screenshot shows the Mbed online compiler interface. The top navigation bar includes links for Secure connection, Compiler, Mbed Cloud, Commit, Revision, Help, and a user profile for NUCLEO-L073RZ.

The main area is titled "Workspace Management" and displays a "Manage your Program Workspace" section. It lists programs in the "Program Workspace" under "My Programs", including GPS\_U-blox\_NEO-6M\_Test\_Code, mbed-os-example-blink, mbed-os-example-client, mbed-os-example-lorawan, and mbed-os-example-wifi. The "mbed-os-example-blink" program is selected, and a context menu is open, showing options like New File..., New Folder..., New Library..., Import Library..., Export Program... (which is highlighted), Find in Program..., and Revisions... (disabled).

A modal dialog box titled "Export program" is displayed, listing various toolchains and targets. The "Sw4STM32" target and "Make-GCC-ARM" toolchain are selected. Other options include GNU ARM Eclipse, Make-GCC-ARM, GNU ARM Netbeans, VSCode-GCC-ARM, Make-ARMc5, Eclipse-GCC-ARM, VSCode-Armc5, EmBitz, VSCode-IAR, Make-IAR, QtCreator, Eclipse-Armc5, uvision5, e2 studio, Eclipse-IAR, CMake-GCC-ARM, iar, and ZIP Archive (with repositories). The "Export" button at the bottom is enabled.

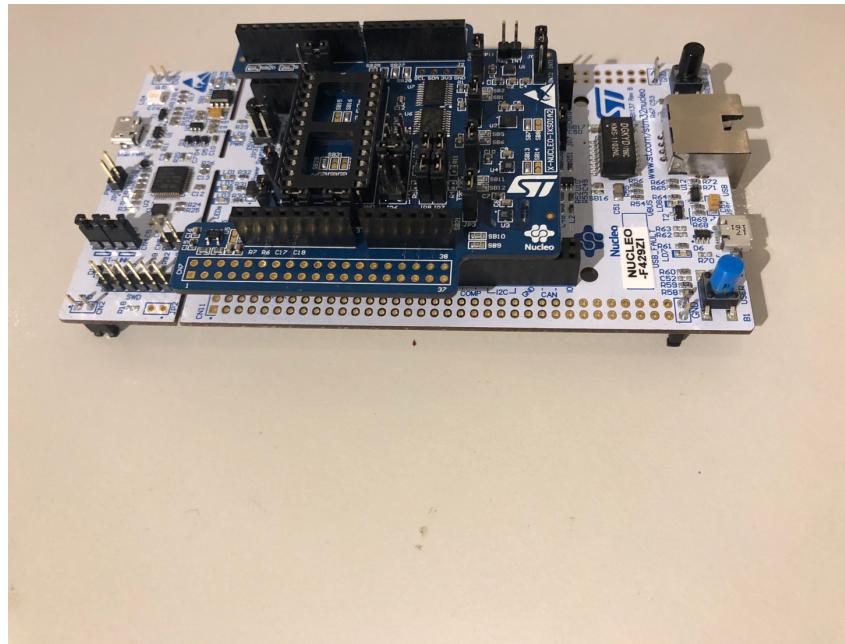
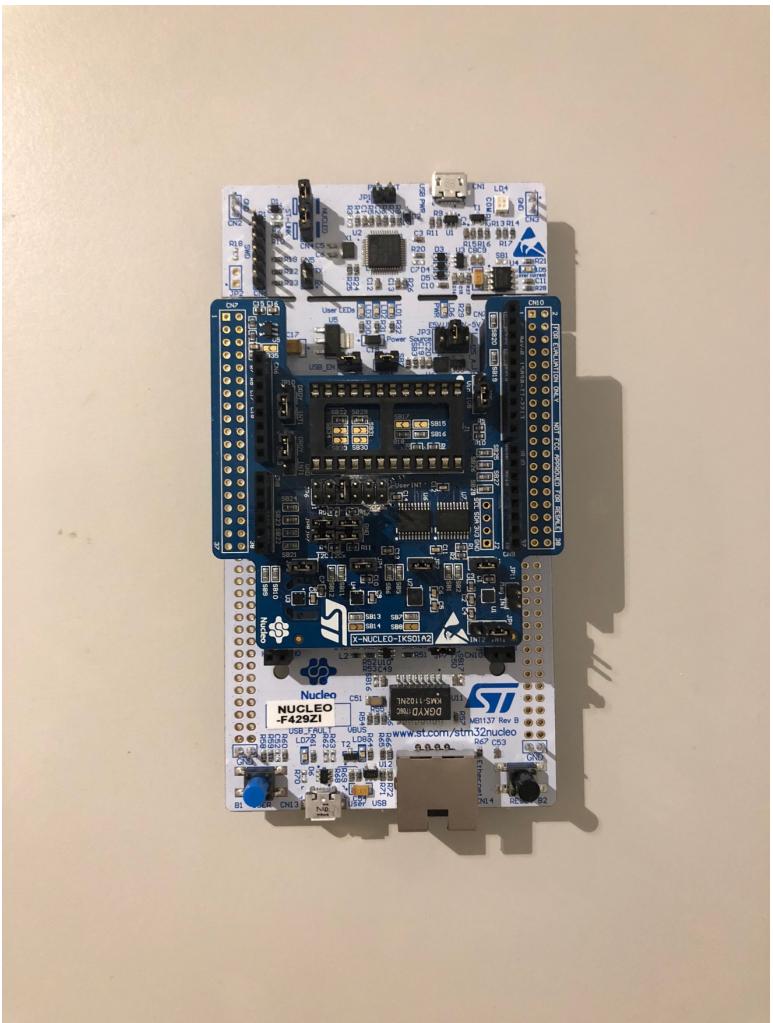
The right sidebar contains "Workspace Details" for Daniel Lee, showing 5 total programs modified 3 days, 3 hours ago. It also lists "Recently Modified" files like mbed\_app.json.

At the bottom left, there is a page number "8" and a footer note "Confidential © Arm 2017 Limited". The bottom right corner features the Arm logo.

## 1. Example1 : LED 1 -> LED 2

- How to find this information?
- What is LED2 color?
- Do you know How to mapped pin? or Where can we mapped information?
- What type sensor will you using?
- SPI / PWM / ADC / DAC / I2C /...

# Prepare H/W



## 2. Sensor Read/Write

- <https://os.mbed.com/components/X-NUCLEO-IKS01A2/>
- Let's try enable LSM6DS0 (3D accelerometer + 3D gyroscope)

## 2. Example2 : Sensor Read/Write

- [Complete] LSM6DS0 (3D accelerometer + 3D gyroscope)
- Example : LIS3MDL (3D magnetometer)
- Example : LPS25H (pressure)
- Example : HTS221 (humidity + temperature)

### 3. Example3 : CLCD control

\*\* Let's finding solution together.

Thank You!

Danke!

Merci!

谢谢!

ありがとう!

Gracias!

Kiitos!

감사합니다!

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