



# NORDIC SEMICONDUCTOR

Global leader in low power wireless connectivity solutions

# Who are we

Andreas  
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Marte Myrvold

Maria Gilje

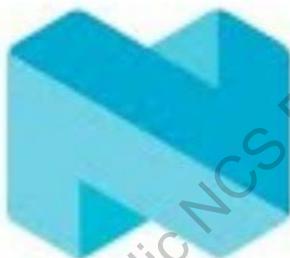
Simon Donnet-  
Monay

Kazi Sultana

Edvin Holmset

Michał Rowicki

Made for OV & Nordic ICSEBLE course



**NORDIC®**

SEMICONDUCTOR

trailer

Made for One & Nordic NCS BLE course



# We are Nordic

Simplifying lives through all things connected



Fabless  
semiconductor  
company



Founded in  
Norway, 1983



~1,400  
employees



\$511 MUSD revenue,  
CY 2024  
OSEBX: NOD



ISO 9001  
certified

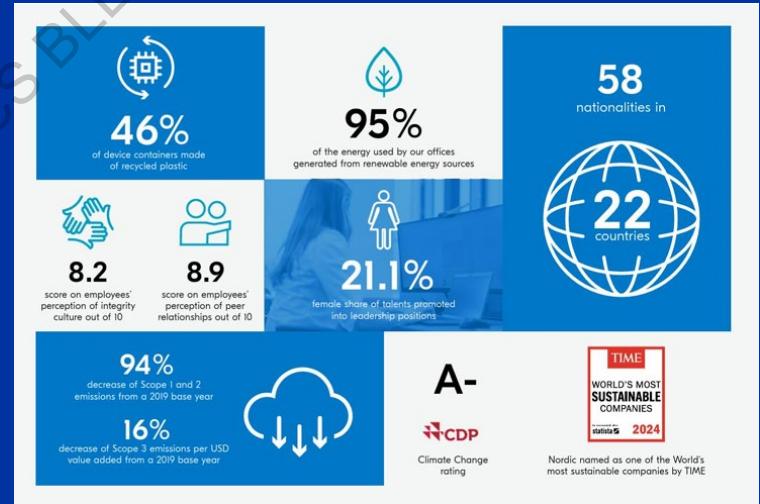


Global  
presence with  
over 20  
regional  
offices



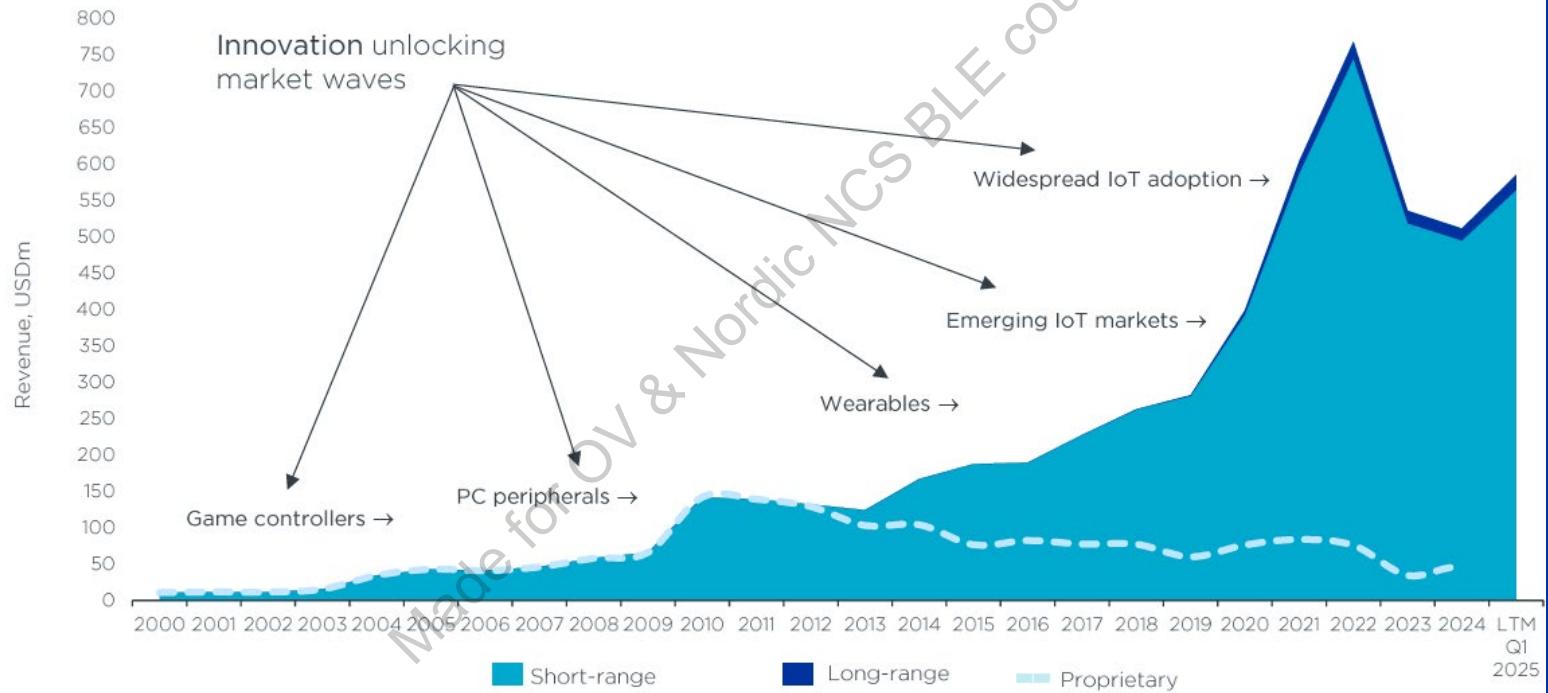
# We are connecting a more sustainable world

- Global and diverse organization
- Lean and flat organizational structure
- Collaborative but challenging work environment
- Large but still small
- Every and everyone's contribution matters



Source: ESG highlights Nordic Semiconductor Annual Report 2022 & TIME Worlds Most Sustainable Companies 2024

# Nordic is on a long-lasting growth journey



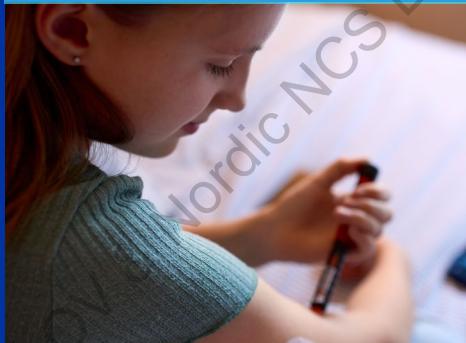
# Focus markets

## Consumer



Staying connected at work,  
at home, and on the go

## Healthcare



Connecting healthcare devices  
to improve accessibility and  
efficiency

## Industrial



IoT enable machinery,  
sensors, and systems to  
enhance efficiency and  
productivity

# Focus markets

## Breakdown by end-user markets

Aligned with customers end-products and our sales structure

| Markets               | Verticals  |
|-----------------------|--|
| Consumer              | <ul style="list-style-type: none"><li>▪ Mobile/PC HID</li><li>▪ Wearables</li><li>▪ Smart Home</li><li>▪ Gaming</li><li>▪ VR/AR</li></ul> <ul style="list-style-type: none"><li>▪ Consumer Asset Tracking<ul style="list-style-type: none"><li>▪ Consumer Health</li><li>▪ Consumer Transport</li><li>▪ Toys</li><li>▪ Audio</li></ul></li><li>▪ Remotes</li><li>▪ Wireless Charging</li><li>▪ Other</li></ul>   |
| Industrial/healthcare | <ul style="list-style-type: none"><li>▪ Drug Delivery</li><li>▪ Disease Monitoring</li><li>▪ Hearing Aids</li><li>▪ Asset Tracking</li><li>▪ Professional Lighting</li></ul> <ul style="list-style-type: none"><li>▪ Modules</li><li>▪ Retail</li><li>▪ Transportation</li><li>▪ Payment / ID</li><li>▪ Tools and Machinery</li></ul> <ul style="list-style-type: none"><li>▪ Agriculture</li><li>▪ Beacons</li><li>▪ Maker and Education</li><li>▪ Automotive</li><li>▪ Other</li></ul> |

# Nordic product overview

Cloud support across all our wireless connectivity solutions

Short-Range



Bluetooth® H-READ  
matter zigbee



powered by Memfault

Cellular IoT



LTE-M NB-IoT  
GNSS



powered by Memfault

Wi-Fi 6 IoT



WiFi matter



powered by Memfault

Power Management



# The market leader in Bluetooth LE

## Product leadership



2014



2019



2024

Decade of leadership in low power and high performance SoCs



Best-in-class  
2.4 GHz Radio



Recognized  
"industry standard"  
Bluetooth LE stack

## Fast time-to-market with a complete solution



nRF Connect SDK  
comprehensive  
software



High-quality  
production-ready  
SW libraries



Easy-to-use  
development kits



3<sup>rd</sup> party  
pre-qualified and  
certified modules

## World-class support



# Opportunities in Nordic as a student/graduate

-  Internships (Deadline for summer int. is Feb 22.)
-  Master thesis
-  Full-time employment

Go to our students & graduates page  
to stay up to date

[https://www.nordicsemi.com/Careers/  
Students-and-Graduates](https://www.nordicsemi.com/Careers/Students-and-Graduates)



# NORDIC SEMICONDUCTOR

Your low power wireless connectivity solutions partner



**NORDIC<sup>®</sup>**  
SEMICONDUCTOR

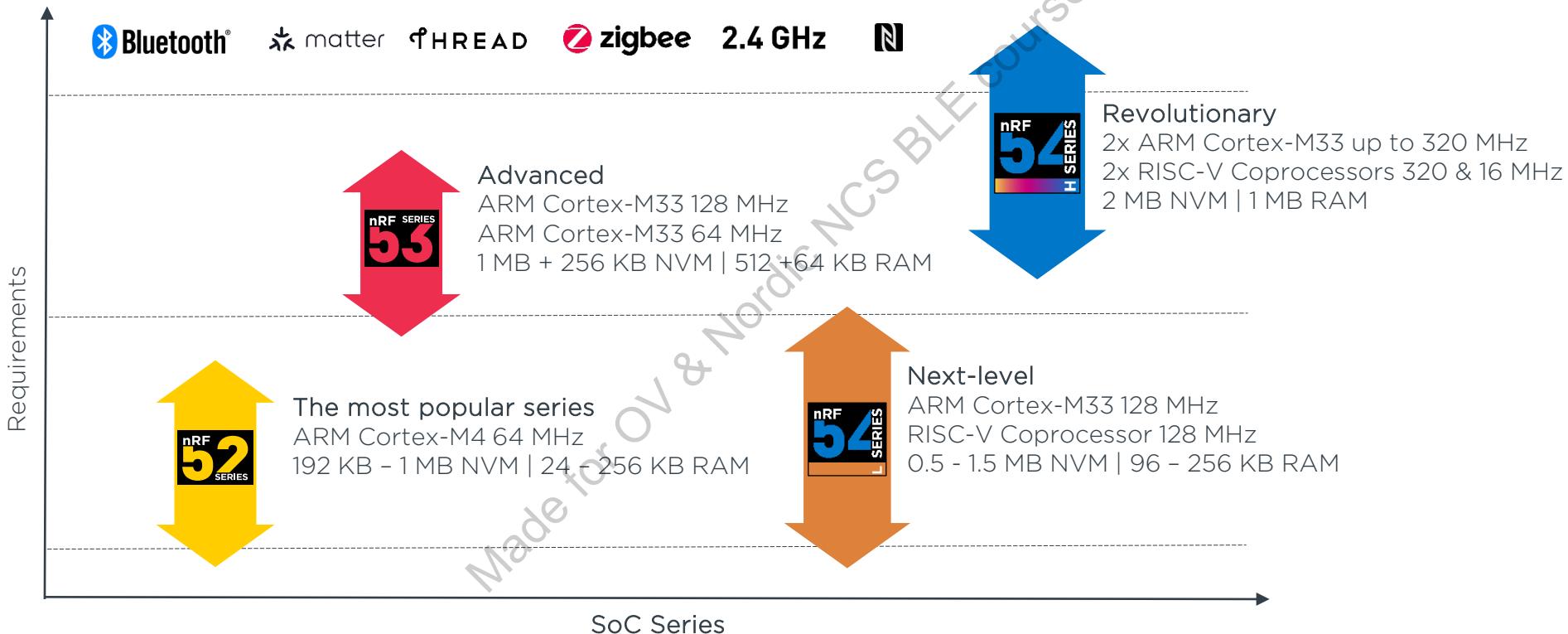
Made for OV & Nordic BLE course



nRF54L Series SoCs  
nRF54L15DK

Made for OG® & Nordic OS Embedded

## nRF54L Series: The next-level wireless SoCs



# Short-range product roadmap

## Aggressively expanding the product offering



### Fit for purpose

- Low voltage
- Ultra-low power
- Size constraints

### Mainstream

- Ultra-low power
- Radio performance
- Range of products

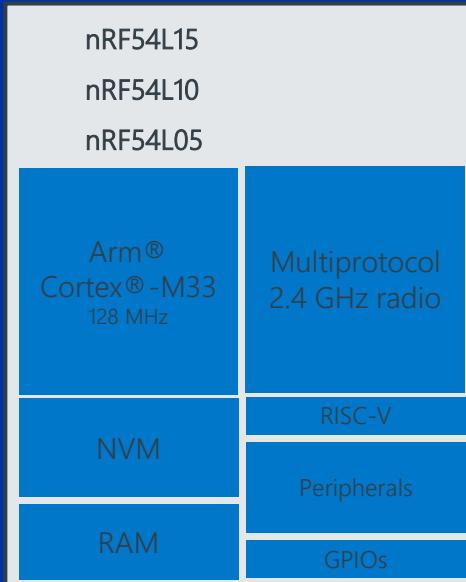
### High performance

- Multicore MCU
- Ample memory
- Rich peripherals



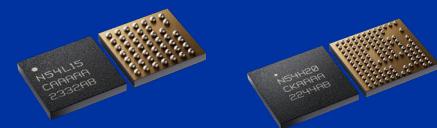
# Next generation wireless IoT

Based on 4th generation Nordic 2.4 GHz radio



| SoC      | NVM (RRAM) | RAM    |
|----------|------------|--------|
| nRF54L15 | 1.5 MB     | 256 KB |
| nRF54L10 | 1.0 MB     | 192 KB |
| nRF54L05 | 0.5 MB     | 96 KB  |

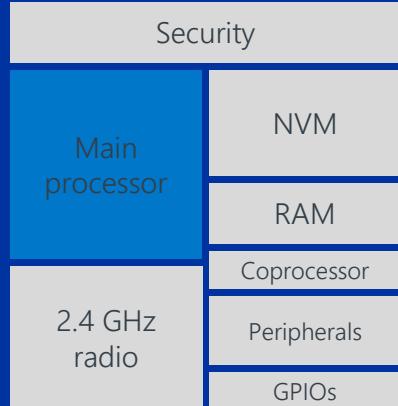
- Pin-to-pin compatible package options
- Selection of devices to fit an application
- 128 MHz RISC-V coprocessor



# More performance, lower power

nRF54L15

## nRF54L Series



Bringing the market-leading nRF52 Series to the next level

- > 2x processing power & energy efficiency
- Pioneering progression to 22nm process node

Arm Cortex-M33

128 MHz

TrustZone, DSP, FPU



# New multiprotocol 2.4 GHz radio

Lower power consumption and improved robustness

## nRF54L Series

| Security                              |               |
|---------------------------------------|---------------|
| Main processor                        | 2.4 GHz radio |
| NVM                                   | Coprocessor   |
| RAM                                   | Peripherals   |
|                                       | GPIOs         |
| Maximum TX Power                      | 8 dBm         |
| RX Sensitivity<br>1 Mbps Bluetooth LE | -96 dBm       |
| RX Sensitivity<br>IEEE 802.15.4       | -101 dBm      |

- ~30% reduction of power consumption  
Bluetooth LE 1M Advertising Connectable 100ms
- More robust communication  
Enabled by improved selectivity resulting in lower influence of noise
- Output power configuration with 1 dBm resolution  
1 dB step size from -10 dBm to +8 dBm
- 4 Mbps data rate  
For 2.4 GHz proprietary protocols | Enables lower latency
- Supports Bluetooth 6.0 features  
Ready to support Channel Sounding
- Designed to support upcoming specifications

# Peripherals

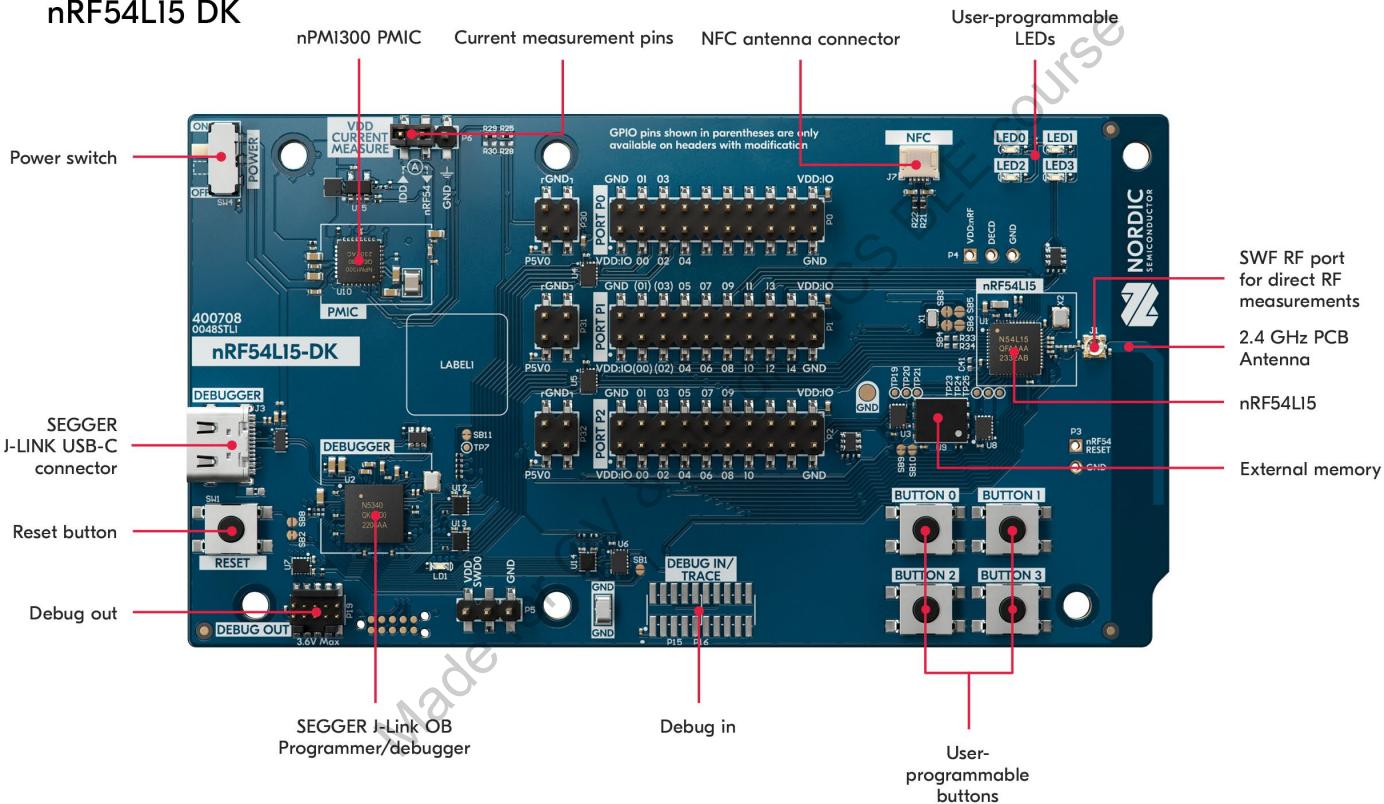
General-purpose peripherals, high-speed serial interface and RISC-V

## nRF54L Series

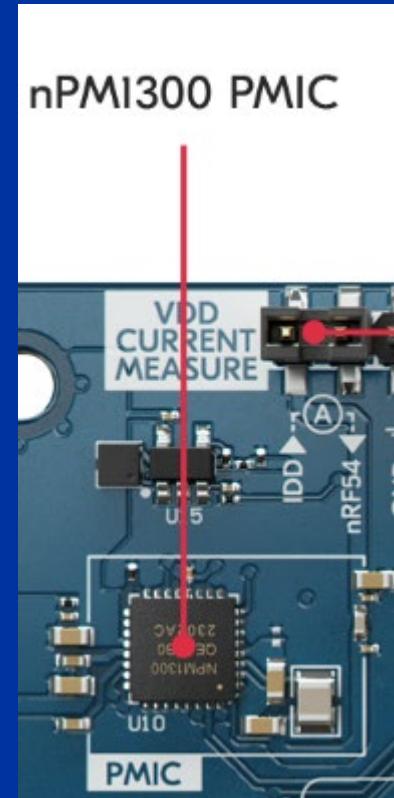
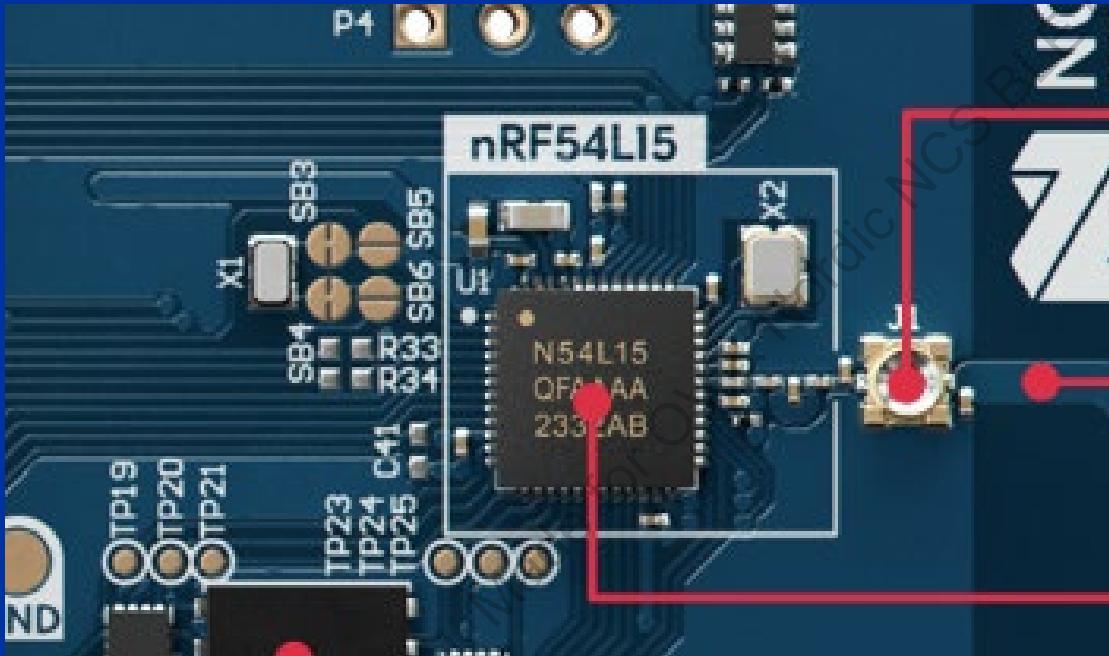


- The RISC-V coprocessor is intended to solve challenges related to time-critical tasks being handled concurrently with the stack on the main processor

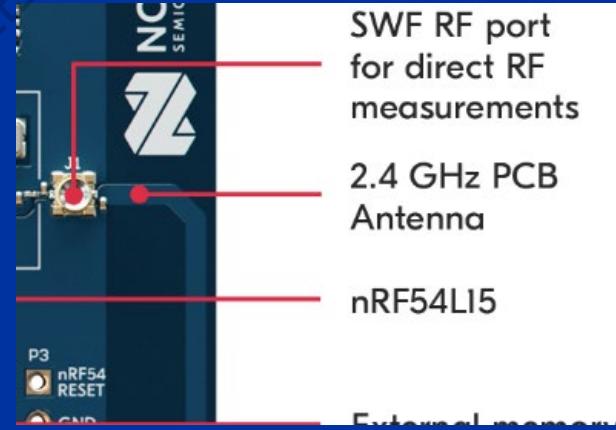
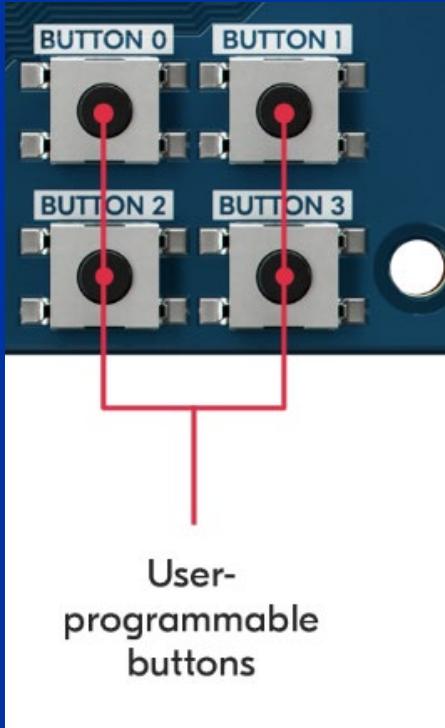
## nRF54L15 DK



# nRF54L15DK overview



# nRF54L15DK overview



# Resources

- Landing page for nRF54L15
- nRF54L15 DK Documentation  
[https://docs.nordicsemi.com/bundle/ug\\_nrf54l15\\_dk/page/UG/nRF54L15\\_DK/intro/intro.html](https://docs.nordicsemi.com/bundle/ug_nrf54l15_dk/page/UG/nRF54L15_DK/intro/intro.html)
- DevAcademy Express course



# BLE Remote Controller

A brief summary of the BLE Course

| Pause/food               | Time      | Day 1   | Time      | Day 2   | Time      | Day 3   |
|--------------------------|-----------|---|-----------|---|-----------|---|
| Course/Hands on Exercise | 1700-1715 | Pizza & setup   | 1700-1715 | Pizza & setup   | 1700-1715 | Pizza & setup   |
| Walkthrough and Q&A      | 1715-1800 | Presentation of Nordic, the course and nRF54L15DK                                 | 1715-1800 |   | 1715-1730 | Presentation: What it's like to work at Nordic as a student (student wanted for this part)  |
| Presentations            | 1800-1845 | Course module 1: Install NCS and setup  | 1800-1830 | Course module 3: Set up LED, buttons, PWM Motor & and understanding overlay files/dts configuring | 1730-1830 | Course module 5: Continue where we left off at module 4 and work with connections and custom services                                       |
|                          | 1845-1900 | Walkthrough of module 1   | 1830-1900 | Walkthrough of module 3   | 1830-1900 | Gjennomgang av kursbit hittil   |
|                          | 1900-1915 | Pause   | 1900-1915 | Pause   | 1900-1915 | Pause   |
|                          | 1915-1945 | Presentation about NCS, devicetree and overlay files [15-30 minutes]              | 1915-1945 | Presentation: BLE Fundamentals  | 1915-1945 | Course module 6: Continue with BLE, connection, custom services and remote controll implementation. Finish the implementation of the course |
|                          | 1945-2030 | Course module 2: Getting started with programming and building and running an app | 1945-2030 | Course module 4: Get started with BLE & Advertising   | 1945-2030 |   |
|                          | 2030-2100 | Walkthrough of module 2 & answering questions                                     | 2030-2100 | Walkthrough of module 4 & answering questions   | 2030-2100 | Walkthrough of module 6 and finishing up  |