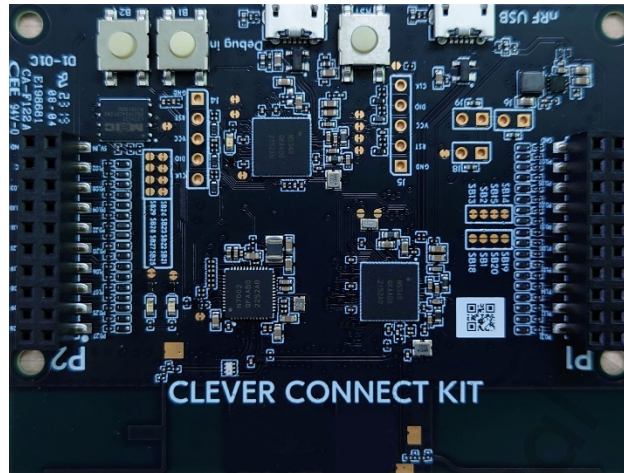


Clever Connect Kit



Overview

The Clever Connect Kit enables you to demonstrate the low-power wireless connectivity capabilities of:

- Wi-Fi 6
- Bluetooth Low Energy
- Thread
- Zigbee
- Matter

NOTE! The CCK is NOT:

1. a reference for hardware design engineers.
The RF performance is sufficient for firmware development but should not be considered a reference for your designs.
2. accurate for measurement of absolute power consumption characterization.
It provides relative power consumption to see the impact between firmware revisions.
3. an indicator of the performance of the onboard nRF5340 or nRF7002 SoCs.

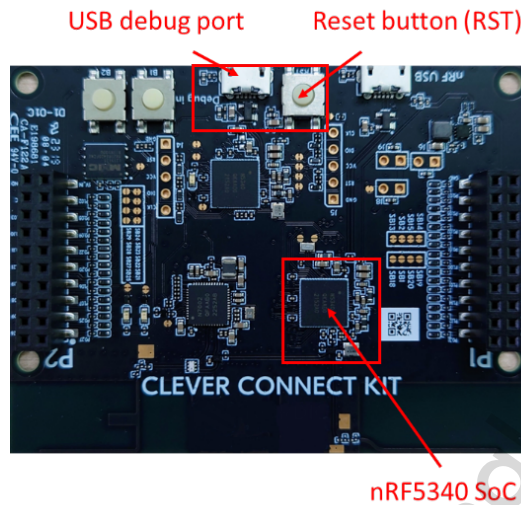
Key features

From a feature and board perspective, the Clever Connect Kit is fully compatible with the nRF7002-DK.

You can execute nRF Connect SDK examples for nRF7002-DK on the CCK.

- Nordic Semiconductor [nRF7002](#) Wi-Fi companion IC
 - Wi-Fi 6 CERTIFIED with nRF5340 running Zephyr Wi-Fi stack
- Nordic Semiconductor [nRF5340](#) SoC supporting
 - Bluetooth Low Energy
 - Matter
 - Thread
 - Zigbee
 - ANT
 - 2.4 GHz proprietary
- 1x 2.4 Ghz antenna for BLE
- 1x 2.4/5 GHz antenna for BLE and Wi-Fi
- 2x user-programmable LEDs
- 2x buttons
- Generic J-Link OBD support
 - Programming and Debugging
 - Virtual COM ports
- 1x header for power consumption measurement
- 1.8V and 3.6V power supply from USB

Programming and Debugging



The Reset button (RST) on the board resets the nRF5340 SoC.

The CCK comes with on-board programming debugging support through JLink-OBD.

USB debug port for programming and debugging provides power to all the components on the board as well.

Virtual COM Ports

Virtual serial ports are provided through the USB debug port to allow terminal programs on the developer machine to interact with the cores on nRF5340 SoC.

The following pins on nRF5340 SoC are occupied for the virtual serial ports:

| | Virtual COM port 1 | Virtual COM port 2 |
|-----|--------------------|--------------------|
| RTS | P1.05 | P0.19 |
| TXD | P1.01 | P0.20 |
| CTS | P1.04 | P0.21 |
| RXD | P1.00 | P0.22 |

The virtual serial ports support up to 1 Mbps baud rate and the default setting is 115200. It supports with or without flow control with a terminal on the developer machine.

If the pins on the nRF5340 need to be reclaimed for alternative use cases, then disconnect the corresponding solder bridges:

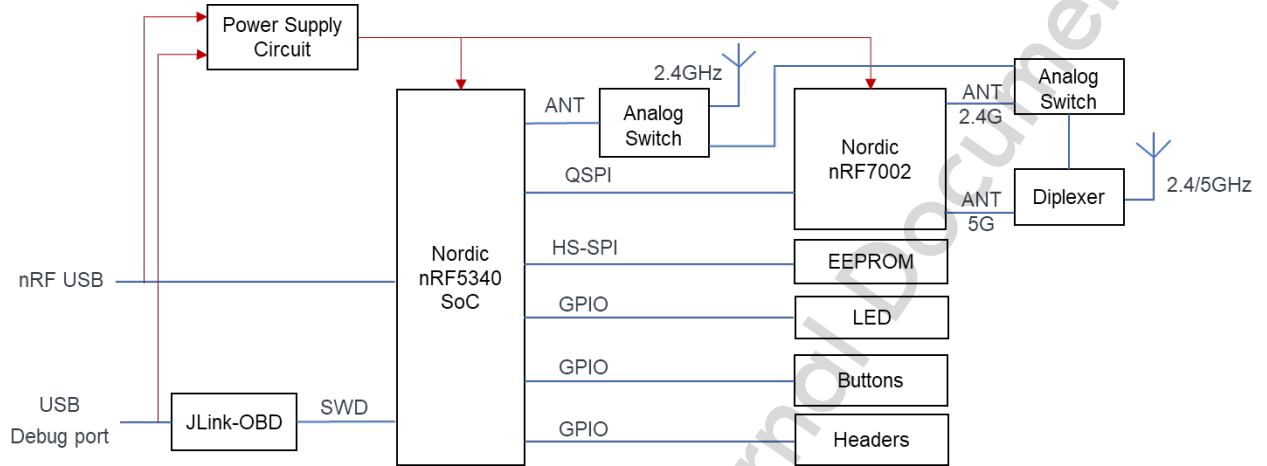
| | Virtual COM port 1 | Virtual COM port 2 |
|-----|--------------------|--------------------|
| RTS | SB1 | SB25 |
| TXD | SB18 | SB27 |
| CTS | SB19 | SB28 |
| RXD | SB20 | SB29 |

External debuggers can be connected to the nRF5340 SoC directly through (J5) and by disconnecting solder bridges SB7, SB9, SB10, and SB11.

Nordic Semiconductor Internal Document

Feature Descriptions

Block diagram



Power source

The CCK supports 1.8V and 3.6V power supply via USB.

You can supply power from either the *USB debug port* or the *nRF USB port*.

The power supply circuit is designed to handle dual power sources without causing power issues if you connect both USB ports.

External Memory

A 64 Mbit serial NOR flash is connected to nRF5340 SoC through high-speed SPI port (HS-SPI). The memory is connected to these pins on nRF5340 SoC

| Serial NOR flash | nRF5340 SoC |
|------------------|-------------|
| CS | P0.11 |
| SCLK | P0.08 |
| MOSI | P0.09 |
| MISO | P0.10 |

Buttons

There are two buttons connected to nRF5340 SoC.

| | |
|-----------|-------------|
| | nRF5340 SoC |
| Button B1 | P1.08 |
| Button B2 | P1.09 |

These GPIOs are also routed to the header (P2) which can be reclaimed without any hardware change.

LEDs

| | |
|------|-------------|
| | nRF5340 SoC |
| LED1 | P1.06 |
| LED2 | P1.07 |

These GPIOs are also routed to the header (P2) which can be reclaimed by disconnecting the corresponding solder bridges.

| | |
|------|----------------|
| | Solder bridges |
| LED1 | SB5 |
| LED2 | SB6 |

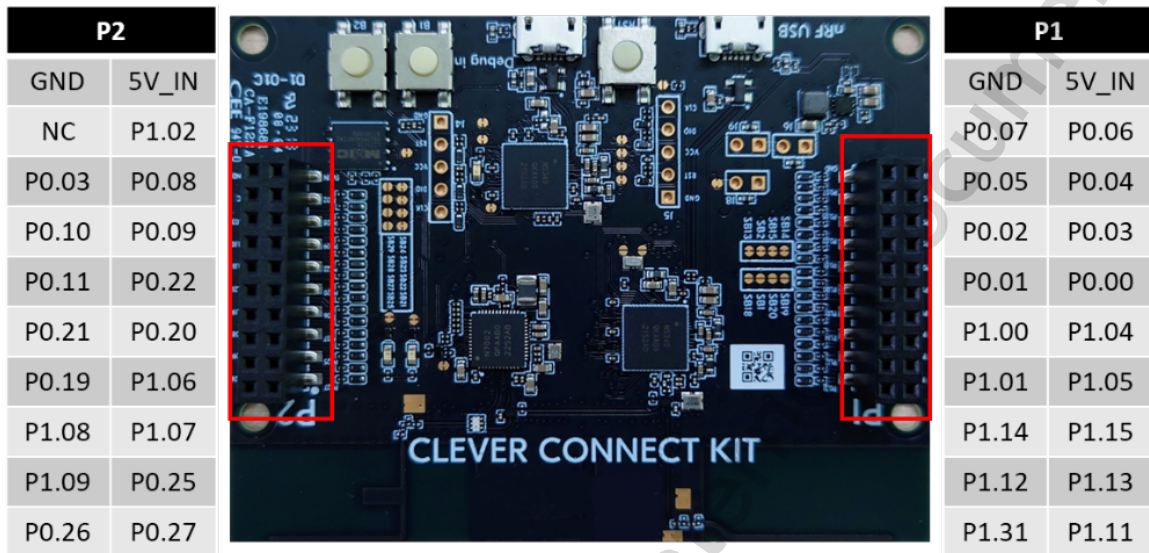
Antenna

There are two PCB antennas on the CCK

- 2.4 GHz antenna is dedicated to Bluetooth Low Energy transmissions.
- 2.4 GHz/5 GHz antenna can be shared between the nRF5340 SoC and the nRF7002 IC, or be dedicated to the nRF7002 by controlling the RF switches.

Headers

Two headers, (P1) and (P2), simplify the interface to the nRF5340 SoCs GPIO pins.



All pins routed to headers have serial resistors for interfacing with external hardware.

Current Measurement

Three test point pairs can be used for current measurements.

| Test point pair | Subject of measurement |
|-----------------|--------------------------|
| J6 | nRF5340 SoC + nRF7002 IC |
| J8 | nRF5350 SoC only |
| J9 | nRF7002 IC only |

A great tool for measuring current in IoT designs is [the Power Profiler II kit](#).

| | |
|----------------------------------|----------|
| Overview | 1 |
| <i>Key features</i> | 2 |
| Programming and Debugging | 3 |
| <i>Virtual COM Ports</i> | 3 |
| Feature Descriptions | 5 |
| <i>Block diagram</i> | 5 |
| <i>Power source</i> | 5 |
| <i>External Memory</i> | 5 |
| <i>Buttons</i> | 5 |
| <i>LEDs</i> | 6 |
| <i>Antenna</i> | 6 |
| <i>Headers</i> | 7 |
| <i>Current Measurement</i> | 7 |

Nordic Semiconductor Internal Document