

EVK-NINA-B1

Evaluation kit for NINA-B1 modules

User guide



Abstract

This document describes how to set up the EVK-NINA-B1 evaluation kit to evaluate NINA-B1 series standalone Bluetooth® Low Energy modules. It also describes the different options for debugging and the development capabilities included in the evaluation board.

Document information

| | | | |
|-------------------------------|------------------------------------|------------|--|
| Title | EVK-NINA-B1 | | |
| Subtitle | Evaluation kit for NINA-B1 modules | | |
| Document type | User guide | | |
| Document number | UBX-15028120 | | |
| Revision and date | R13 | 6-Nov-2020 | |
| Disclosure restriction | C1-Public | | |

This document applies to the following products:

| Product name | Type number | Firmware version | PCN reference |
|---------------------|--------------------|-------------------------|----------------------|
| EVK-NINA-B111 | EVK-NINA-B111-00 | | |
| EVK-NINA-B112 | EVK-NINA-B112-00 | | |

u-blox or third parties may hold intellectual property rights in the products, names, logos and designs included in this document. Copying, reproduction, modification or disclosure to third parties of this document or any part thereof is only permitted with the express written permission of u-blox.

The information contained herein is provided "as is" and u-blox assumes no liability for its use. No warranty, either express or implied, is given, including but not limited to, with respect to the accuracy, correctness, reliability and fitness for a particular purpose of the information. This document may be revised by u-blox at any time without notice. For the most recent documents, visit www.u-blox.com.

Copyright © u-blox AG.

Contents

| | |
|--|-----------|
| Document information | 2 |
| Contents | 3 |
| 1 Product description | 4 |
| 1.1 Overview | 4 |
| 1.2 Kit includes | 5 |
| 1.3 Jumper description | 5 |
| 1.4 LEDs | 5 |
| 1.5 Connectors | 6 |
| 1.6 Buttons | 9 |
| 1.7 Configuration options | 9 |
| 1.7.1 Power supply | 9 |
| 1.7.2 Disconnecting the debug MCU interface and LEDs | 10 |
| 1.7.3 NFC antenna interface | 11 |
| 1.7.4 Current measurement | 11 |
| 1.8 Software debug options | 12 |
| 2 Setting up the evaluation board | 13 |
| 2.1 Evaluation board setup | 13 |
| 2.2 Starting up | 13 |
| 2.2.1 EVK-NINA-B1 | 13 |
| 2.2.2 Getting the latest u-connectXpress software | 13 |
| 2.2.3 Open CPU | 13 |
| Appendix | 15 |
| A Schematics | 15 |
| B Glossary | 20 |
| Related documents | 21 |
| Revision history | 22 |
| Contact | 23 |

1 Product description

1.1 Overview

The EVK-NINA-B1 evaluation kit includes an evaluation board, which can be used as a reference design for the NINA-B1 series modules, a quick start guide, an NFC antenna, and a USB cable. For the NINA-B111 module, the evaluation board has a U.FL coaxial connector for connecting to the external antenna. The NINA-B112 module has an onboard antenna; thus the evaluation board does not have a U.FL connector.

The main features of the EVK-NINA-B1 are:

- Available in two variants - NINA-B111 and NINA-B112
- All the NINA-B1 module pins are available at connectors
- Can be powered through USB, external power supply, or coin cell battery
- Has an onboard debug MCU that allows serial communication and flashing/debugging over USB.

The EVK-NINA-B1 evaluation kits are available in the following two different versions depending on the NINA-B1 series module that is mounted:

- EVK-NINA-B111 – Evaluation kit for NINA-B111 module with antenna pin
- EVK-NINA-B112 – Evaluation kit for NINA-B112 module with onboard antenna

This section describes the main connectors and settings that are required to get started. Figure 1 shows the EVK-NINA-B1 evaluation board.

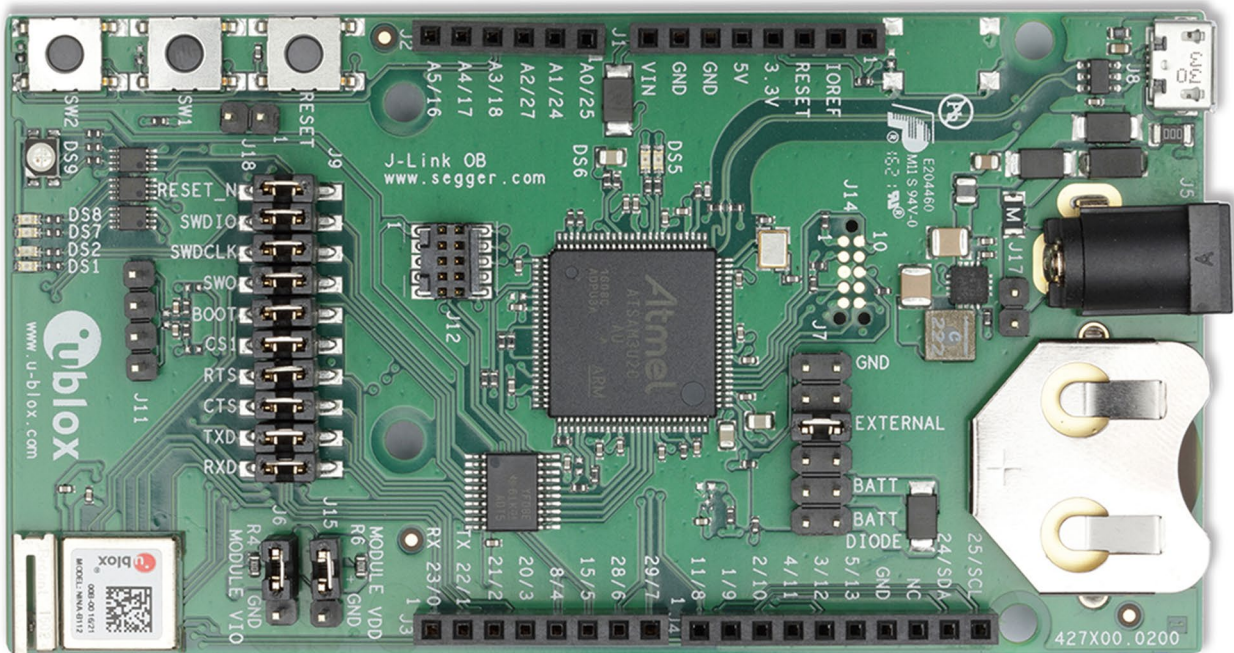



Figure 1: EVK-NINA-B1 evaluation board

-  Take care when handling the EVK-NINA-B112. Applying force to the NINA-B112 module might damage the internal antenna.

1.2 Kit includes

The EVK-NINA-B1 evaluation kit includes the following:

- NINA-B1 evaluation board
- 2.4 GHz antenna with U.FL connector (only in EVK-NINA-B111)
- NFC antenna
- USB cable
- Quick Start card

1.3 Jumper description

| Parameter | Description | Name | Default |
|------------------------|---|------|--------------|
| Power source selector | Selects the source from where the board is powered | J7 | External/USB |
| Peripheral connections | Selects the signals that will be connected to the module peripherals such as LEDs and MCU interface | J9 | All mounted |

Table 1: EVK-NINA-B1 jumper description

1.4 LEDs


| Function | Description | Name | Color |
|---------------------|--|------|--------|
| Orange Debugger LED | Red when EVK (both module and debug chip) is in reset | DS5 | Orange |
| Green Debugger LED | Non blinking LED shows communication link between the debug chip and the PC. | DS6 | Green |
| UART Rx | Blinking LED shows UART Rx activity | DS7 | Green |
| UART Tx | Blinking LED shows UART Tx activity | DS8 | Orange |
| UART CTS | Blinking LED shows CTS activity | DS1 | Green |
| UART RTS | Blinking LED shows RTS activity | DS2 | Orange |
| RGB LED | RGB LED shows status for u-connectXpress  See the NINA-B1 data sheet [1] for additional information. | DS9 | RGB |

Table 2: EVK-NINA-B1 LEDs description

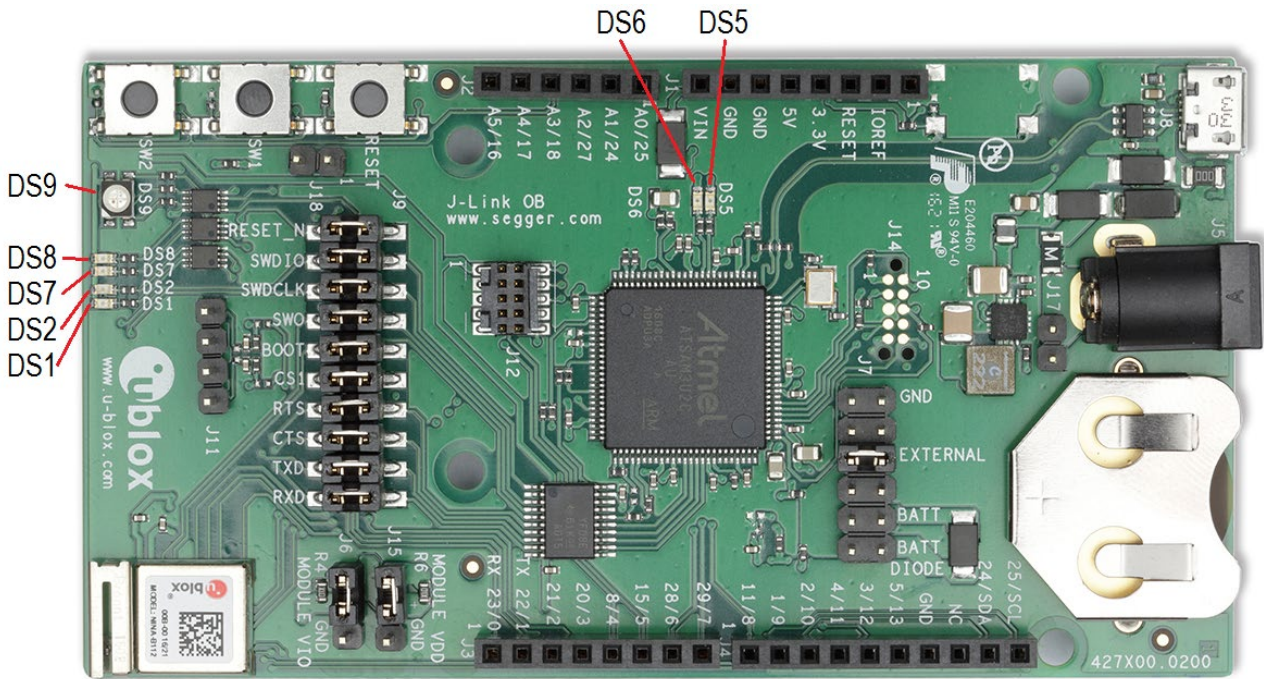
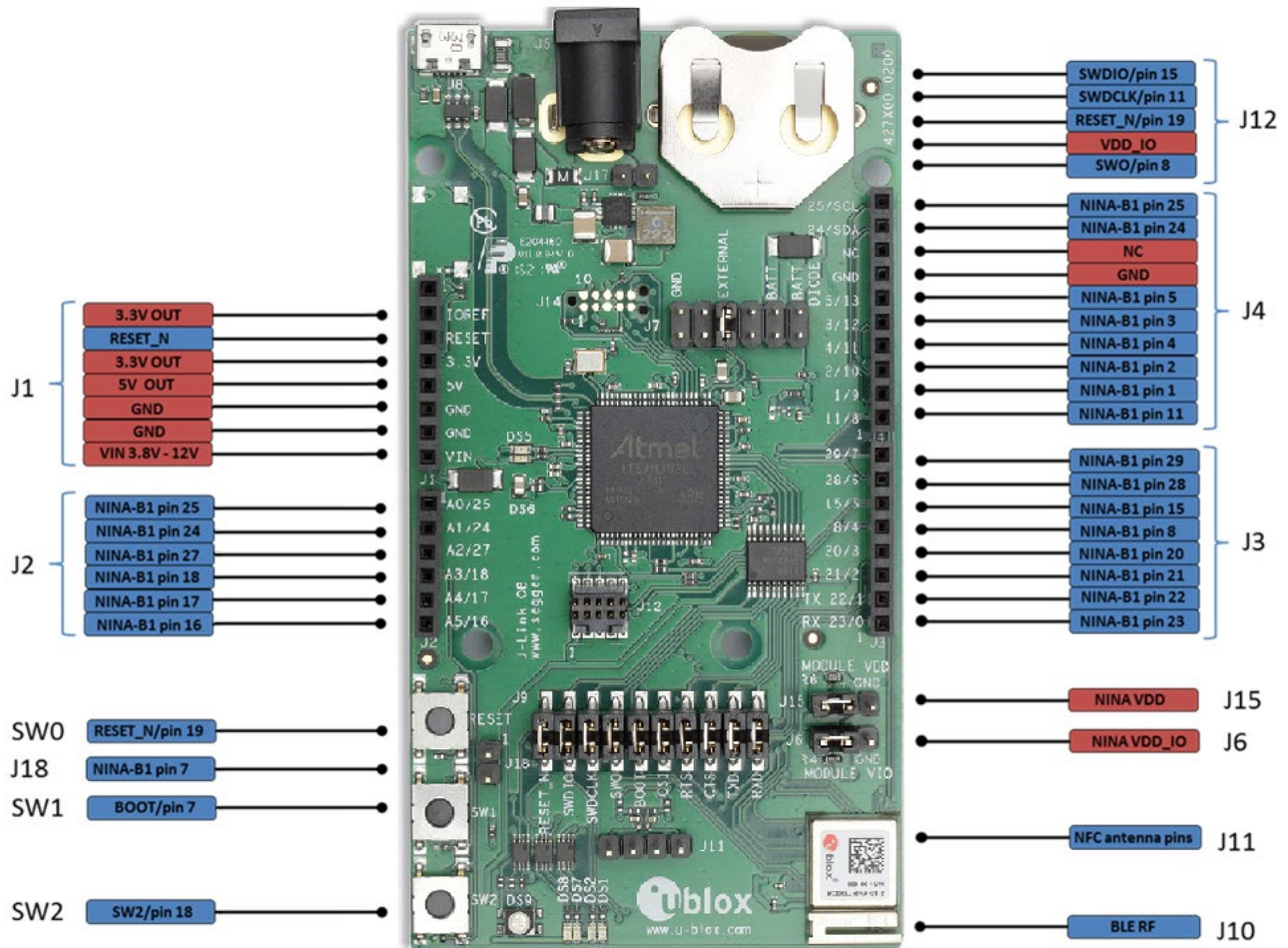


Figure 2: LED placement on the EVK-NINA-B112

1.5 Connectors

The available connectors on the EVK-NINA-B1 evaluation board are shown in Figure 3.


Figure 3: EVK-NINA-B1 connectors

| Connector | Description |
|------------------------|--|
| J1, J2, J3, J4 and J18 | Connectors for accessing all GPIOs on NINA-B1 |
| J12 | Serial wire debug connector for NINA-B1 module |
| J10 | U.FL connector for external antenna (EVK-NINA-B111 only) |
| J11 | Pin header for NFC antenna connection |
| J5 | Power jack |
| BT1 | Battery holder |
| J8 | USB connector |
| J15 | Module VCC power rail header |
| J6 | Module VCC_IO power rail header |
| J17 | External 5-12V supply pin |

Table 3: EVK-NINA-B1 connector description

| Conn. | NINA-B1 Pin No. | nRF52 pin | Arduino pin | Description | Schematic net name | Alternate functions and notes |
|-------|-----------------|-----------|-------------|--|--------------------|-------------------------------|
| J1 | 1 | - | N/C | Not Connected | - | Not connected |
| J1 | 2 | - | IOREF | I/O reference voltage level. Selectable by user to 1.7 – 3.6 V | VDD_IO | See section 1.7.1 |
| J1 | 3 | P0.21 | RESET | Reset signal input. Active low logic | RESET_N | |
| J1 | 4 | - | 3.3V | 3.3 V DC regulated supply output | 3V3 | |

| Conn. | NINA-B1 Pin No. | nRF52 pin | Arduino pin | Description | Schematic net name | Alternate functions and notes |
|-------|-----------------|-----------|-------------|--------------------------------------|----------------------|---|
| | 5 | - | 5V | 5 V regulated supply output | 5V | Cannot be used as supply input, use VIN instead. Only supplied by USB VBUS. |
| | 6 | GND | GND | Ground | GND | |
| | 7 | GND | GND | Ground | GND | |
| | 8 | - | VIN | External DC supply input, 5 – 12 VDC | VIN | |
| J2 | 1 | P0.03 | A0 | Analog input | GPIO_25 | Analog function capable GPIO |
| | 2 | P0.02 | A1 | Analog input | GPIO_24 | Analog function capable GPIO |
| | 3 | P0.04 | A2 | Analog input | GPIO_27 | Analog function capable GPIO |
| | 4 | P0.30 | A3 | Analog input | SWITCH_2/ GPIO_18 | Analog function capable GPIO, SWITCH_2 on NINA-B1. This signal is pulled low when the button SW2 is pressed |
| | 5 | P0.29 | A4 | Analog input | UART_DSR/ GPIO_17 | Analog function capable GPIO, UART_DSR signal on NINA-B1 |
| | 6 | P0.28 | A5 | Analog input | UART_DTR/ GPIO_16 | Analog function capable GPIO, UART_DTR signal on NINA-B1 |
| J3 | 1 | P0.05 | D0/RX | Digital I/O, UART RX | UART_RXD/ GPIO_23 | UART_RXD signal on NINA-B1 |
| | 2 | P0.06 | D1/TX | Digital I/O, UART TX | UART_TXD/ GPIO_22 | UART_TXD signal on NINA-B1 |
| | 3 | P0.07 | D2 | Digital I/O | UART_CTS/ GPIO_21 | UART_CTS signal on NINA-B1 |
| | 4 | P0.31 | D3 | Digital I/O | UART_RTS/ GPIO_20 | UART_RTS signal on NINA-B1 |
| | 5 | P0.18 | D4 | Digital I/O | GPIO_8 | SWO signal on NINA-B1 |
| | 6 | - | D5 | Digital I/O | GPIO_15 | SWDIO |
| | 7 | P0.09 | D6 | Digital I/O | GPIO_28 | Configured for NFC use |
| | 8 | P0.10 | D7 | Digital I/O | GPIO_29 | Configured for NFC use |
| J4 | 1 | - | D8 | Digital I/O | GPIO_11 | SWDCLK |
| | 2 | P0.08 | D9 | Digital I/O | GPIO_1 | |
| | 3 | P0.11 | D10 | Digital I/O | GPIO_2 | |
| | 4 | P0.13 | D11 | Digital I/O | GPIO_4 | |
| | 5 | P0.12 | D12 | Digital I/O | GPIO_3 | |
| | 6 | P0.14 | D13 | Digital I/O | GPIO_5 | |
| | 7 | | GND | Ground | GND | |
| | 8 | - | AREF | Analog reference voltage level | - | Not connected |
| | 9 | P0.02 | SDA | I2C data signal | GPIO_24 | |
| | 10 | P0.03 | SCL | I2C clock signal | GPIO_25 | |


Table 4: Pin number mapping of NINA-B1 Module and nRF52



The EVK-NINA-B1 has an I/O voltage range of 1.7-3.6 V. It can therefore be used only with shields that support an I/O voltage within this range.

The EVK-NINA-B1 has a pinout that is compatible with some Arduino or Arduino inspired shields. This section describes the features of the EVK pins that a shield has to comply with:

- IOREF: The I/O voltage level of the NINA-B1 module. Is 3.3 V by default, but the EVK can be modified to allow for other voltages (1.7-3.6 V).
- RESET: Is connected to the RESET button (SW0).

- 3.3 V: A regulated 3.3 V output or the battery supply voltage, depending on the power configuration used. May only be used as a 3.3 V input if no jumpers are mounted on jumper J7.
- 5 V: Is only a 5 V supply output if the EVK is being powered by USB. If any other power configuration is used, this pin will be unconnected (floating). It is safe to connect an external 5 V supply to this pin when the USB power configuration is not used.
- VIN: May be used as a 3.8-12 V supply input to power the EVK-NINA-B1.
- A0: Is also connected to the EVK pin SCL (NINA pin 25).
- A1: Is also connected to the EVK pin SDA (NINA pin 24).
- Pin 0 (RX): Is connected to the NINA-B1 UART RX pin (NINA pin 23).
- Pin 1 (TX): Is connected to the NINA-B1 UART TX pin (NINA pin 22).
- SDA: Is also connected to the EVK pin A1.
- SCL: Is also connected to the EVK pin A0.

 **Note on SCL/SDA:** On some Arduino boards, the I²C signals, SCL and SDA, are connected to the pins A4 and A5 while on some other boards, it is connected to the SCL and SDA pins in the top right hand corner. Some shields therefore short these pins together. This can cause problems when using the EVK-NINA-B1 as in this scenario, the SCL/SDA pins are also connected to the A0/A1 pins.

 **Note on digital I/O pins:** Some of the digital I/O pins can be connected to the on-board debug MCU, thus allowing serial communication and flashing/debugging over USB. This can cause interference on signals that are also used by an Arduino shield. See Section 1.7.2 on how to disconnect these signals from the debug MCU.

1.6 Buttons

The EVK-NINA-B1 evaluation board has four buttons. Three of them are directly connected to NINA-B1 pins. The fourth button is connected to the debug MCU interface.

| Button | Description |
|--------|---|
| SW0 | NINA-B1 reset button connected to pin 19 |
| SW1 | General function button connected to pin 7 |
| SW2 | General function button connected to pin 18 |

Table 5: EVK-NINA-B1 buttons description

1.7 Configuration options

1.7.1 Power supply

The EVK-NINA-B1 can be powered the following different ways:

- USB
- External power supply
- CR2032 coin cell battery

Depending on the selected power source, and whether or not NFC will be used, you must fit the jumper on pin header J7 in one of the three different positions as shown in Figure 4.

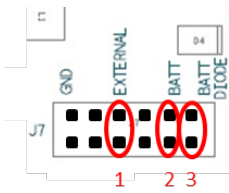


Figure 4: Power supply jumper positions of EVK-NINA-B1

1. To power the board from USB or external power supply, the jumper on J7 should be in position 1 as shown in Figure 4.
2. To power the board from the CR2032 coin cell battery for applications where NFC is not used, the jumper on J7 should be in position 2.
3. To power the board from the CR2032 coin cell battery for applications where NFC will be used, the jumper on J7 should be in position 3. The rationale for this is that the high field strength on the NFC antenna can cause reverse current flow to the coin cell battery – hence the possibility to connect the D4 diode as a protection for the reverse current.

If you would like to utilize the flexible input voltage 1.7-3.6 V of the NINA-B1 module, the power source has to be connected to header J7. Connect the positive voltage to one of the pins - 1, 2 or 3 (bottom row in Figure 4) and connect the ground to one of the two pins marked “GND” in Figure 4.

Coin cell battery considerations

When powering the EVK with a coin cell battery, keep in mind that the debug MCU will also have to be powered by the battery. This will drain the battery faster than needed for a realistic solution. The debug chip can be disabled to minimize the leakage during a battery powered setup. This is done by removing resistor R9; R9 is shown in Figure 5.

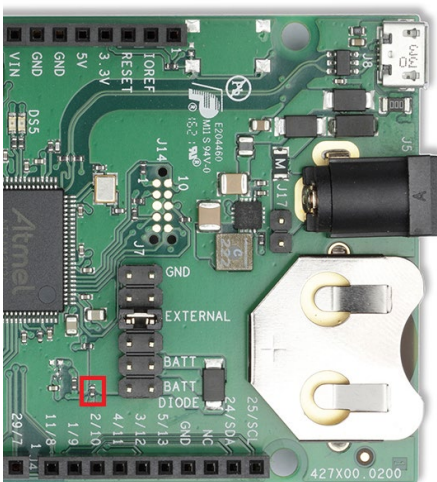



Figure 5: Resistor R9

1.7.2 Disconnecting the debug MCU interface and LEDs

The J9 pin header includes all signals that are passed between the NINA-B1 module, MCU interface, and LEDs.

If these connections are not required, you can disconnect these signals separately by removing the jumpers for that particular connection. This could be useful in a current measurement scenario for example.

 When taking any throughput measurements, we recommend that you disconnect the debug MCU and connect a USB to serial converter, or similar, to connector J9. This is suggested because the performance of the UART connection through the debug MCU is not equal to that

of the NINA-B1 module. This connection arrangement is also recommended when flashing u-connect software using the UART.

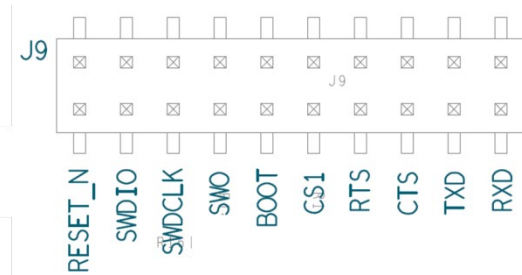


Figure 6: EVK-NINA-B1 peripherals connection to the pin header

1.7.3 NFC antenna interface

The NFC antenna interface is available on the J11 connector. The default configuration is shown in Figure 7. $0\ \Omega$ resistors are mounted on R15 and R16. This connects the J11 NFC antenna connector to pins 28 and 29 of the NINA-B1 module. If NFC is not needed, and pins 28 and 29 are used as GPIOs available on connector J3, then resistors on R15 and R16 should be removed and instead mounted on R13 and R14.

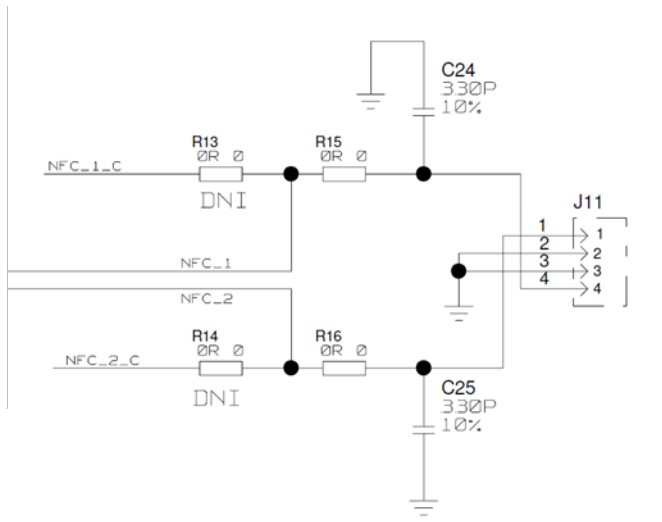


Figure 7: NFC antenna interface J11 of EVK-NINA-B1

1.7.4 Current measurement

The EVK-NINA-B1 offers the possibility to measure current consumption for the NINA-B1 module.

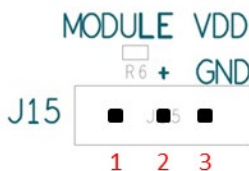


Figure 8: Current measurement pin header J15 of EVK-NINA-B1

The current consumption for the NINA-B1 module on the EVK-NINA-B1 can be measured in two ways as explained in the following subsections.



Figure 9: Placement of R4 and R6 (10 Ω resistors)

1.7.4.1 Current measurement with ampere-meter

Remove the jumpers on J15 and J6. Remove the 10 Ω resistors R4 and R6 and connect the ampere-meter in series between the pins 1 and 2 of the J15 pin header. This will give the NINA-B1 current consumption reading on the ampere-meter.

1.7.4.2 Current measurement with Oscilloscope

Remove the 10 Ω resistor on R4. Remove the jumpers on J15 and J6 and connect an oscilloscope to pins 1 and 2 of the J15 pin header. Then, this will display the voltage drop over the R6 resistor. Current consumption will be proportional to the voltage drop.

If $R6=1\ \Omega$, then 1 mV voltage drop equals 1 mA of current. If $R6=10\ \Omega$, then 10 mV voltage drop equals 1 mA of current.

⚠ The USB interface, MCU interface, and the LEDs should not be connected during current consumption measurement.

1.8 Software debug options

You can debug the software using the following two options in EVK-NINA-B1:

- Onboard debug solution available on the USB connector
- Using an external debugger connected to J12 connector

An external debugger connected to the J12 connector is useful when powering the evaluation board with the CR2032 coin cell battery, or through the external power supply connector J5. It could also be useful in a scenario where the debug MCU interface has been disconnected from the NINA-B1 module using the jumpers on J9 header. The SEGGER J-Link software [5] is required to debug using the onboard J-Link hardware on the EVK-NINA-B1.

2 Setting up the evaluation board


2.1 Evaluation board setup

The EVK-NINA-B1 will be delivered with the u-blox Connectivity Software installed on the module.


Before connecting the module, download and install the latest u-blox s-center evaluation software from the u-blox website.

To use Bluetooth Low Energy on the EVK-NINA-B1 11, connect a 2.4 GHz antenna to the U.FL antenna connector (J10). The EVK-NINA-B1 12 has an onboard antenna.

Plug in either an external power supply in J5 connector or connect to a USB host with a USB cable attached to J8 connector. You can also power the evaluation board with a CR2032 coin cell battery. The status light (**DS6**) will turn green, indicating it has power. The NFC antenna can be connected to the J11 connector.

-  Be careful to check polarity before connecting external power supply to the EVK-NINA-B1 evaluation board. Center conductor is positive (+) and the ring is negative (-).

The operating system will install the correct drivers automatically. The drivers will only need to be installed the first time you connect the unit to a new computer.

-  If the drivers are not installed automatically, download the nRFgo Studio from www.nordicsemi.com to get the Jlink CDC UART driver.

A COM port will automatically be assigned to the unit by Windows. On Windows 7, open the Control Panel, click Hardware and Sound. Click Device Manager in Devices and Printers. This will open Device Manager window where you can view the assigned COM ports.

2.2 Starting up

2.2.1 EVK-NINA-B1

Perform the following steps to enable communication with the module:

1. Start the u-blox s-center evaluation software.
2. Use the default baudrate 115200, 8N1 with flow control.
3. You will now be able to communicate with the module through AT-commands.

For a list of available AT commands, see the u-blox Short Range At commands manual [3].

To get started with basic use case setups of the EVK-NINA-B1 with u-blox u-connect Software, see the u-connectXpress user guide [4].

If you would like to use the EVK-NINA-B1 together with Nordic Semiconductor SDK or Arm® Mbed™ operating system, refer to the Software section of the NINA-B1 system integration manual [2].

2.2.2 Getting the latest u-connectXpress software

Go to the u-blox support webpage to obtain the latest available firmware. Instructions on reflashing the EVK-NINA-B1 can be found in the Software section of the NINA-B1 system integration manual [2].

2.2.3 Open CPU

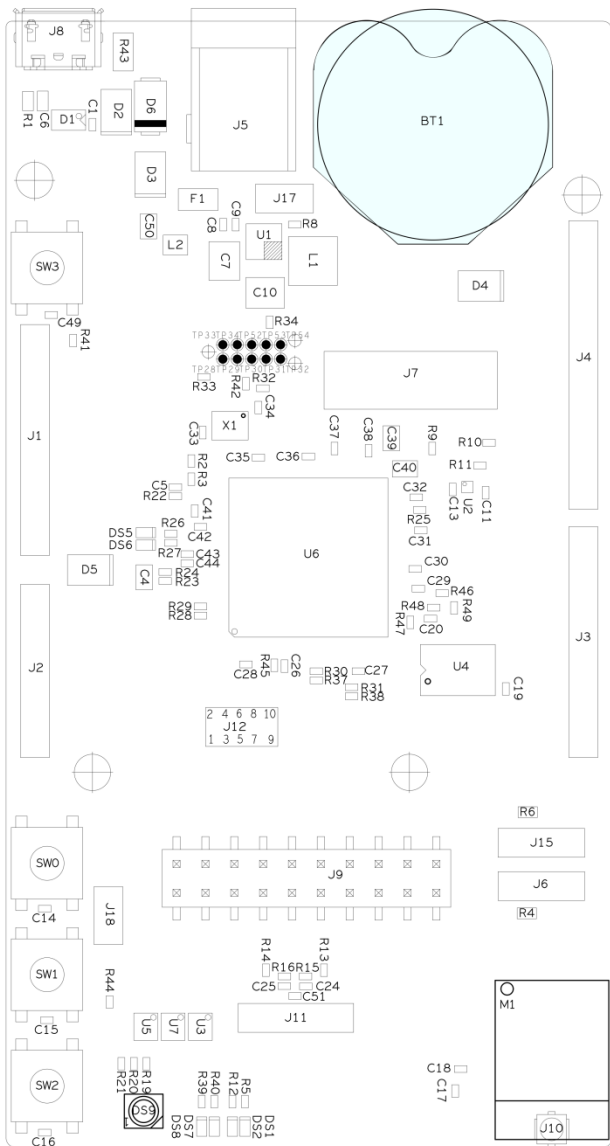
If you would like to use the EVK-NINA-B1 together with Nordic Semiconductor SDK, refer to the Software section of the NINA-B1 system integration manual [2], where it is described how to

- Create your own board file
- Adapt the examples in the Nordic Semiconductor SDK to use this board file

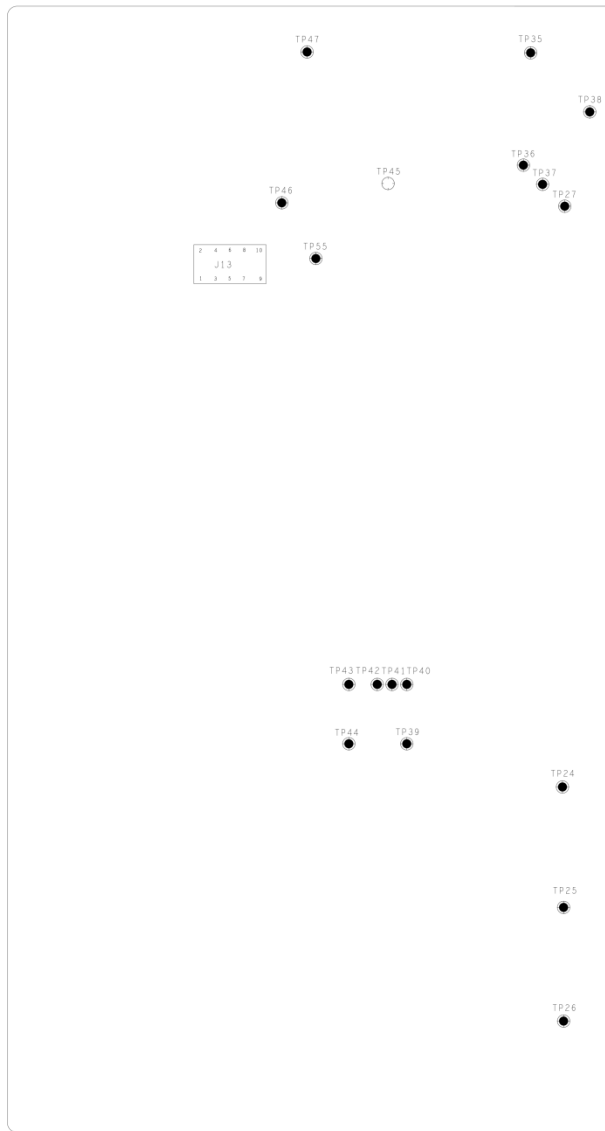
See also the u-blox short range open CPU github repository [6].

Appendix

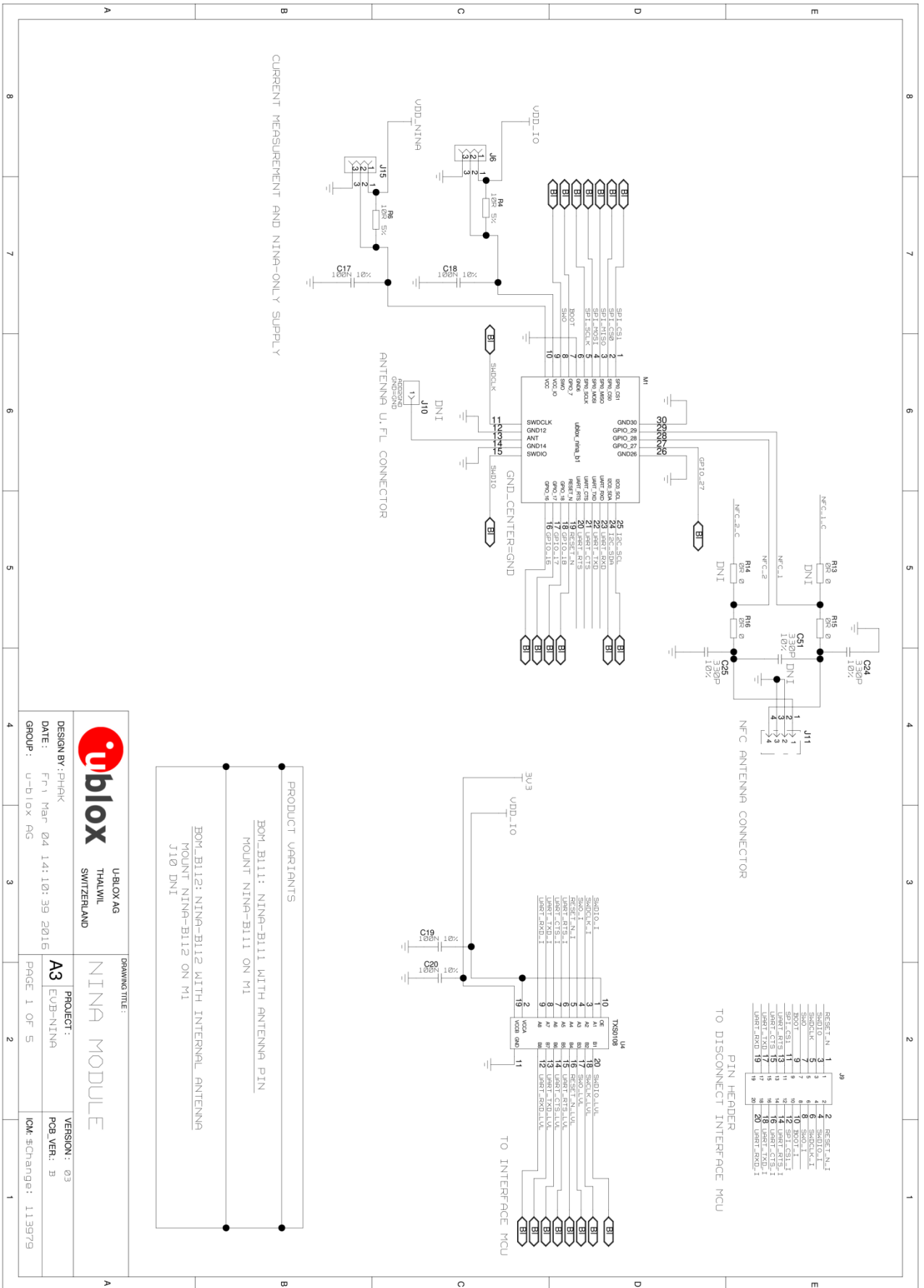
A Schematics

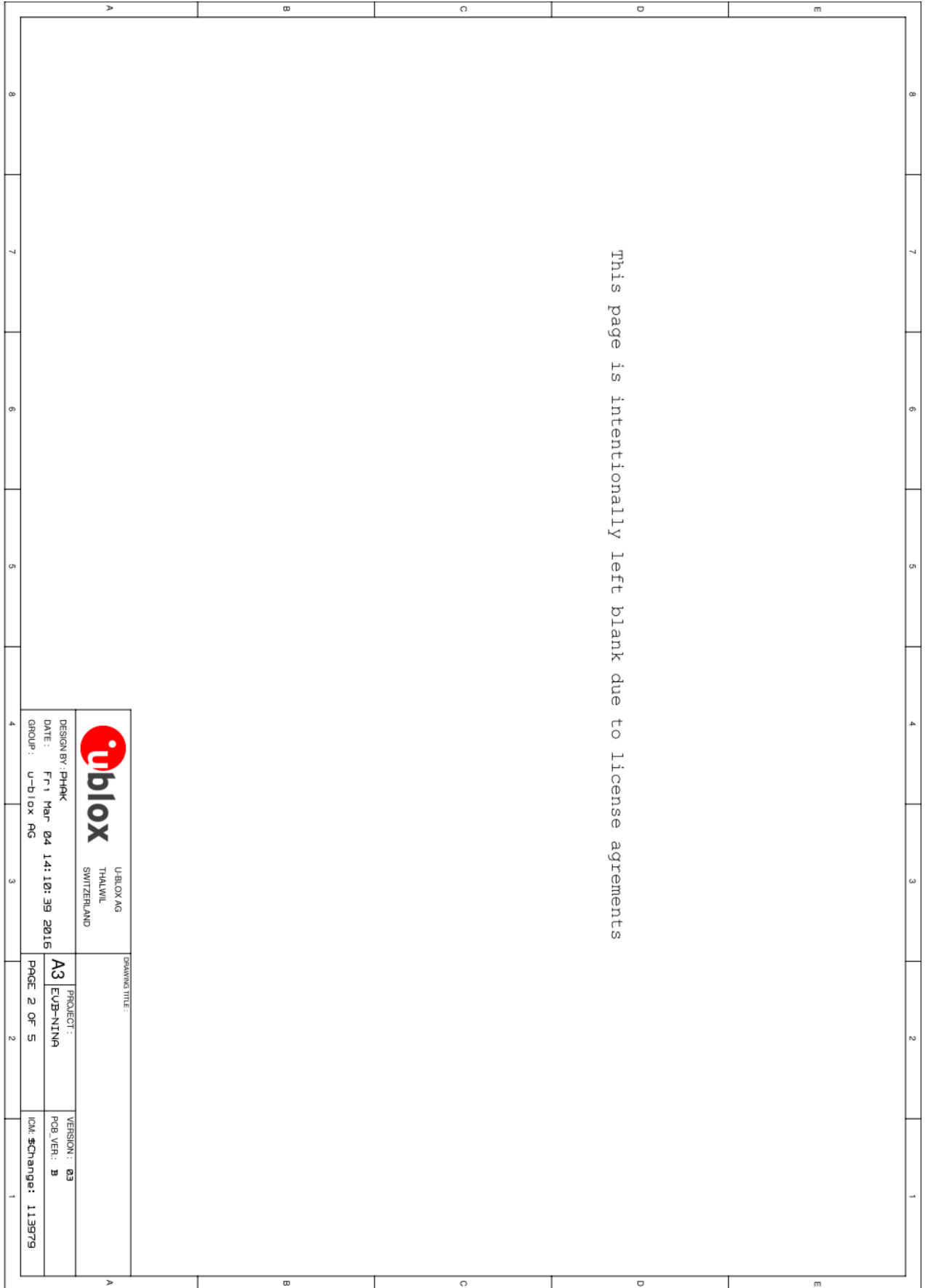


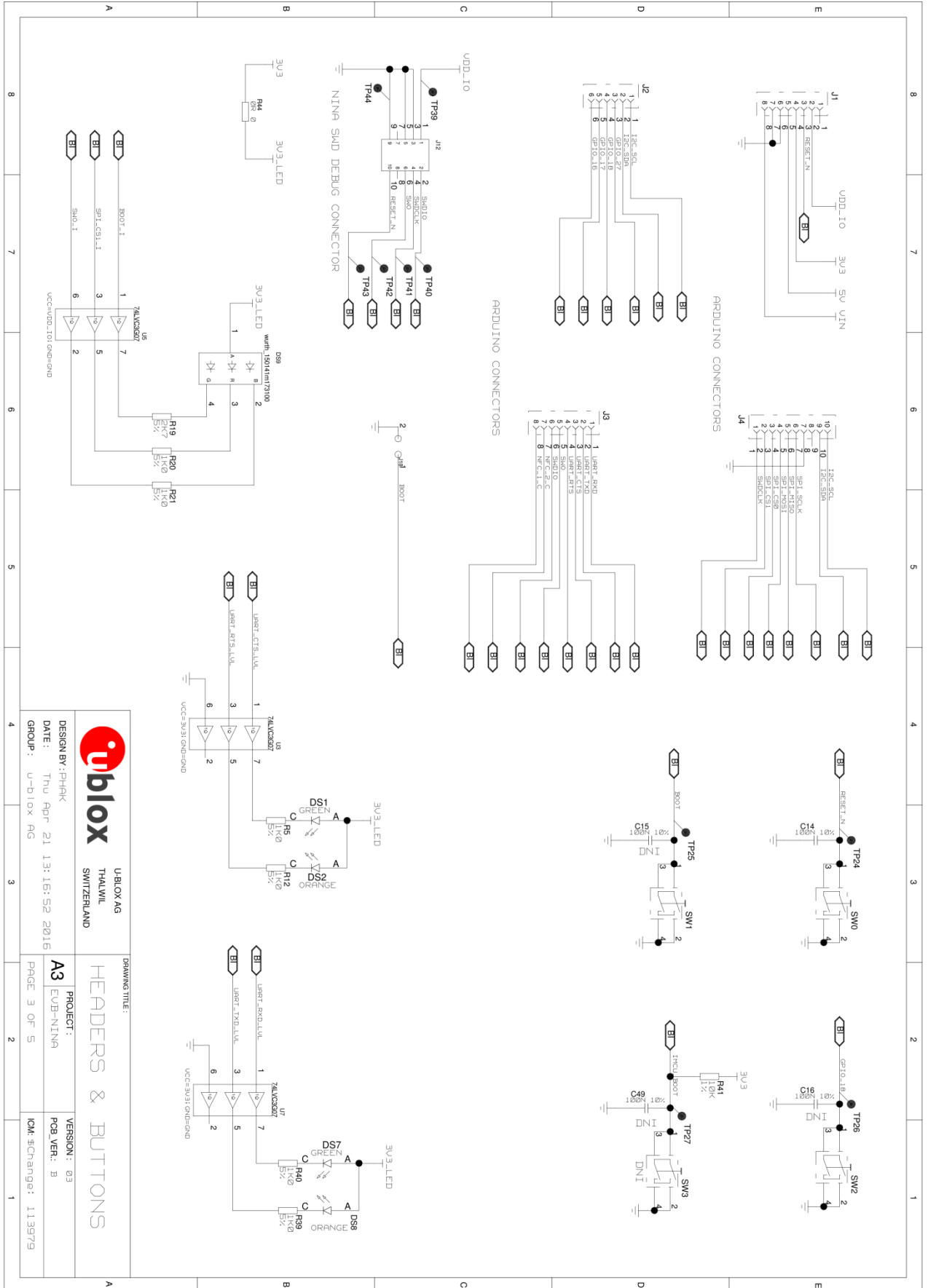
Top



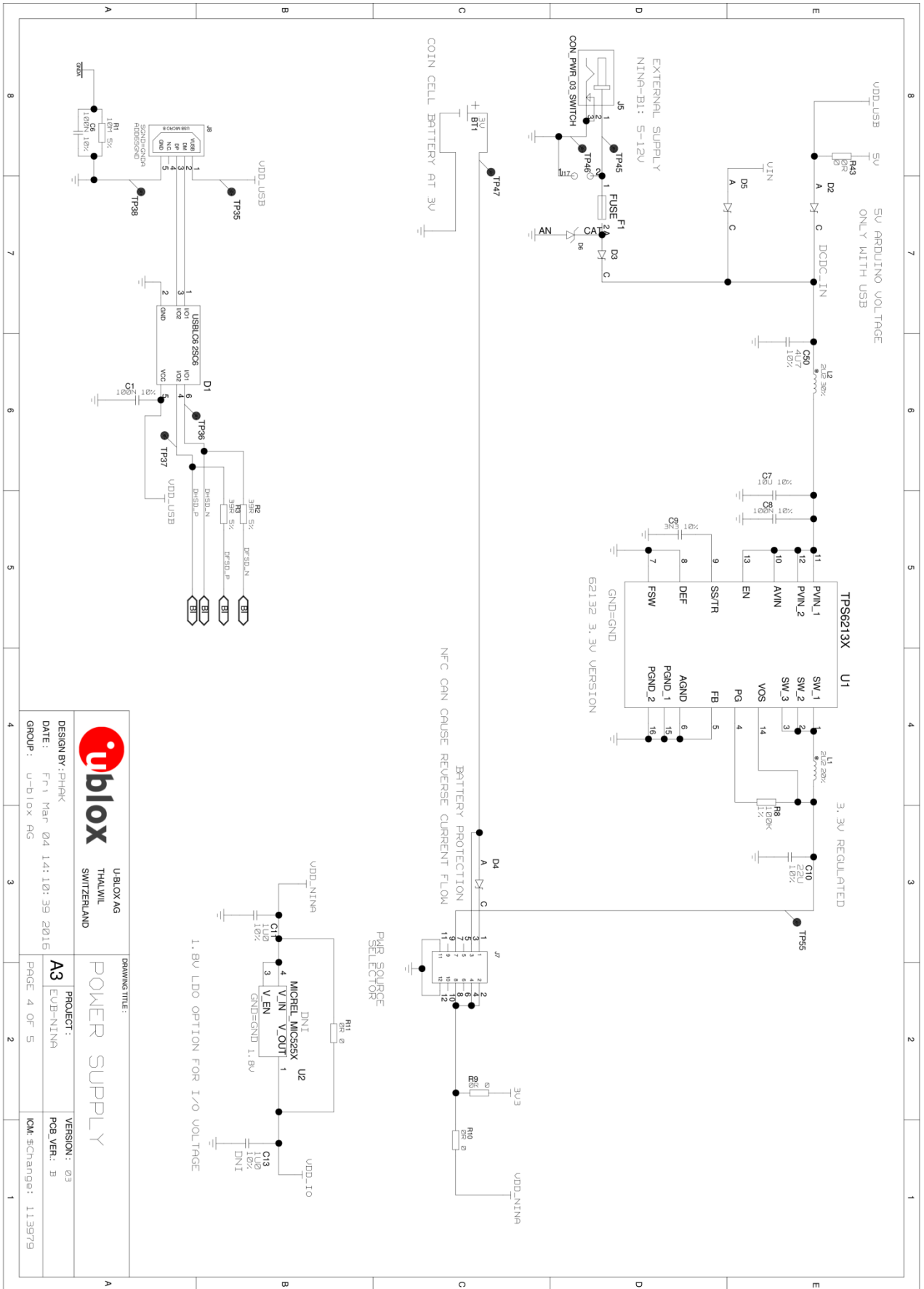
Bottom







| | | | |
|---|--|---|--|
| U-BLOX AG THALWIL SWITZERLAND | | DRAWING TITLE: | |
| | | HEADERS & BUTTONS | |
| DESIGN BY: PHAK DATE: Thu Apr 21 13:15:52 2015 GROUP: U-Blox AG | | PROJECT: EVB-NINA VERSION: 03 PCB VER.: B | |
| PAGE 3 OF 5 | | ICM-#Change: 113979 | |



| | | | |
|-----------------------|--------------------------------|-------------------------------------|-----------------------|
| | | U-BLOX AG THALWIL SWITZERLAND | |
| DRAWING TITLE: | | | |
| <h1>POWER SUPPLY</h1> | | | |
| DESIGN BY: PHAK | DATE: FRI Mar 04 14:10:39 2016 | PROJECT: A3 | VERSION: 03 |
| GROUP: U-BLOX AG | | PCB VER.: B | ICM: Exchange: 113979 |
| 8 | 7 | 6 | 5 |
| 4 | 3 | 2 | 1 |

B Glossary

| Abbreviation | Definition |
|--------------|---|
| API | Application programming Interface |
| CTS | Clear To send |
| EVK | Evaluation kit |
| GND | Ground |
| GPIO | General-Purpose Input/Output |
| LED | Light-Emitting Diode |
| MCU | Micro controller unit |
| MSD | Mass storage device |
| NFC | Near Field Communication |
| U.FL | Coaxial RF connector |
| USB | Universal serial bus |
| RTS | Request to send |
| SDK | Software development kit |
| SPA | Serial port application |
| UART | Universal Asynchronous Receiver/Transmitter |

Table 6: Explanation of the abbreviations and terms used

Related documents

- [1] NINA-B1 data sheet, [UBX-15019243](#)
- [2] NINA-B1 series system integration manual, [UBX-15026175](#)
- [3] u-blox u-connect AT commands manual, [UBX-14044127](#)
- [4] u-connectXpress user guide, [UBX-16024251](#)
- [5] SEGGER J-Link software - <https://www.segger.com/jlink-software.html>
- [6] <https://github.com/u-blox/u-blox-sho-OpenCPU>



For product change notifications and regular updates of u-blox documentation, register on our website, www.u-blox.com.

Revision history

| Revision | Date | Name | Comments |
|----------|-------------|------------------------|---|
| R01 | 22-Feb-2016 | phak,fbro, kgom | Initial release. |
| R02 | 26-May-2016 | fbro | Updated information about current measurement (section 1.7.4). Updated the links to Nordic resources in section 2.2. Removed SW3 from section 1.6. |
| R03 | 17-Jun-2016 | fbro, kgom | Modified the document status to Advance Information. Modified Figure 3 and Table 3. Included information about the u-blox NINA-B1 firmware (section 2). |
| R04 | 5-Jul-2016 | fbro, kgom | Included information about how to flash the EVK-NINA-B1. |
| R05 | 9-Sep-2016 | fbro, kgom | Modified Figure 2. Updated the section "UART flashing". Changed the document status to Early Production Information. |
| R06 | 24-Oct-2016 | apet, kgom | Added information about mbed OS. |
| R07 | 1-Mar-2017 | ajoh, fbro, kgom, apet | Included information on Arduino shield compatibility. Added schematics and placement (Appendix A). Updated all the figures. Replaced Document status with Disclosure restriction. |
| R08 | 16-May-2017 | kgom | Minor updates. |
| R09 | 23-Nov-2017 | kgom | Minor changes based on the recent brand guidelines of Arm Mbed. |
| R10 | 6-Dec-2018 | mwej, fbro, kgom | Added a new table describing Arduino to NINA to nRF pin numbering (Table 4). |
| R11 | 21-Oct-2019 | flun | Clarified the status for RGB LED in Table 2 (section 1.4). |
| R12 | 7-Apr-2020 | mape | Added recommendation to use connector J9 instead of UART via debug chip for performance measurements and flashing. |
| R13 | 6-Nov-2020 | mape | Clarified open CPU chapter. |

Contact

For complete contact information, visit us at www.u-blox.com.

u-blox Offices

North, Central and South America

u-blox America, Inc.

Phone: +1 703 483 3180
E-mail: info_us@u-blox.com

Regional Office West Coast:

Phone: +1 408 573 3640
E-mail: info_us@u-blox.com

Technical Support:

Phone: +1 703 483 3185
E-mail: support@u-blox.com

Headquarters

Europe, Middle East, Africa

u-blox AG

Phone: +41 44 722 74 44
E-mail: info@u-blox.com
Support: support@u-blox.com

Asia, Australia, Pacific

u-blox Singapore Pte. Ltd.

Phone: +65 6734 3811
E-mail: info_ap@u-blox.com
Support: support_ap@u-blox.com

Regional Office Australia:

Phone: +61 2 8448 2016
E-mail: info_anz@u-blox.com
Support: support_ap@u-blox.com

Regional Office China (Beijing):

Phone: +86 10 68 133 545
E-mail: info_cn@u-blox.com
Support: support_cn@u-blox.com

Regional Office China (Chongqing):

Phone: +86 23 6815 1588
E-mail: info_cn@u-blox.com
Support: support_cn@u-blox.com

Regional Office China (Shanghai):

Phone: +86 21 6090 4832
E-mail: info_cn@u-blox.com
Support: support_cn@u-blox.com

Regional Office China (Shenzhen):

Phone: +86 755 8627 1083
E-mail: info_cn@u-blox.com
Support: support_cn@u-blox.com

Regional Office India:

Phone: +91 80 405 092 00
E-mail: info_in@u-blox.com
Support: support_in@u-blox.com

Regional Office Japan (Osaka):

Phone: +81 6 6941 3660
E-mail: info_jp@u-blox.com
Support: support_jp@u-blox.com

Regional Office Japan (Tokyo):

Phone: +81 3 5775 3850
E-mail: info_jp@u-blox.com
Support: support_jp@u-blox.com

Regional Office Korea:

Phone: +82 2 542 0861
E-mail: info_kr@u-blox.com
Support: support_kr@u-blox.com

Regional Office Taiwan:

Phone: +886 2 2657 1090
E-mail: info_tw@u-blox.com
Support: support_tw@u-blox.com

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Bluetooth Development Tools - 802.15.1 category](#):

Click to view products by [U-Blox manufacturer](#):

Other Similar products are found below :

[DA14580PRODTLKT 1628](#) [SP14808ST](#) [MBH7BLZ02-EF-KIT](#) [FWM7BLZ20-EB-KIT](#) [SP14801-DUT](#) [SKY66111-21EK1](#) [SECO-RSL10-TAG-GEVB 3026](#) [MIKROE-2471](#) [BLE-IOT-GEVB 450-0184](#) [EKSHCNZXZ](#) [EVAL_PAN1026](#) [EVAL_PAN1720](#) [EVAL_PAN1740 2267](#) [2479](#) [2487](#) [2633](#) [STEVAL-IDB005V1D](#) [STEVAL-IDB001V1](#) [MIKROE-2545](#) [SIPKITSLF001 2995](#) [STEVAL-IDB007V1M 2829](#) [DFR0267](#) [DFR0296](#) [BM-70-CDB](#) [STEVAL-BTDP1](#) [ACD52832](#) [TEL0095](#) [RN-4871-PICTAIL](#) [DA14695-00HQDEVKT-P](#) [DA14695-00HQDEVKT-U](#) [EBSHJNZXZ](#) [EKSGJNZWY](#) [EKSHJNZXZ](#) [BMD-200-EVAL-S](#) [ACN BREAKOUT BOARD](#) [ACN SKETCH 2746](#) [3242](#) [3574](#) [4062](#) [4333](#) [4481](#) [4500](#) [ABX00030](#)