

AN11700

PN7120 product quick start guide

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Application note
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Document information

Information	Content
Keywords	PN7120, NFC, quick start-up
Abstract	This document describes the PN7120 documentation to be used to start working with PN7120.



1 Revision history

Revision history

Rev	Date	Description
1.9	20210201	<ul style="list-style-type: none">Removed Windows IoT supportThe format of this application note has been redesigned to comply with the new identity guidelines of NXP Semiconductors.
1.8	20190708	Updated Linux demo part with link to instructions
1.7	20181113	Updated with MCUXpresso reference
1.6	20180725	Updated weblinks
1.5	20170222	Updated demo images weblinks
1.4	20160819	Added Arduino demo kit description and fixed broken links
1.3	20160520	Corrected syntax error in demo kit images list
1.2	20151013	<ul style="list-style-type: none">Updated with Windows for IoT SW supportSection 6 updated
1.1	20150624	Corrected wrong link to "NXP-NCI NullOS library example" document
1.0	20150611	First released version

2 Introduction

This document describes how to start working with PN7120 to add NFC functionality to a device. It points where to find the dedicated information for hardware, antenna and software integration as well as information related to the PN7120 demo kit.

3 General description of PN7120

PN7120 is a full NFC controller solution with integrated firmware and NCI interface designed for contactless communication at 13.56 MHz.

PN7120 is the ideal solution for rapidly integrating NFC technology in any application. Especially those running O/S environment like Linux or Android, reducing Bill of Material (BOM) size and cost.

You can get PN7120 technical details in the product data sheet: http://www.nxp.com/documents/data_sheet/PN7120.pdf.

4 PN7120 Integration steps

4.1 Hardware integration

Guidelines for hardware integration of the PN7120 are given in the “Hardware Design Guide” document: http://www.nxp.com/documents/application_note/AN11565.pdf.

The “Low-Power Mode Configuration” document describes how to optimize power consumption by use of PN7120 low-power polling mode: http://www.nxp.com/documents/application_note/AN11562.pdf.

The PN7120 demo kit can be used as reference design (see [Section 5.1.1](#)).

4.2 Antenna integration

Recommendation for the antenna design choice and guidelines for antenna matching are given in the “Antenna Design and Matching Guide” document: http://www.nxp.com/documents/application_note/AN11564.pdf.

The PN7120 demo kit can be used as reference design (see [Section 5.1.1](#)).

4.3 Software integration

The “User Manual” describes the PN7120 host interface commands: http://www.nxp.com/documents/user_manual/UM10819.pdf.

Furthermore, depending on the targeted platform the following software solutions are supported.

4.3.1 Linux

The “Linux Software Stack Integration Guidelines” document describes the Linux libnfc-nci software stack supporting PN7120 under a Linux system: http://www.nxp.com/documents/application_note/AN11697.pdf.

4.3.2 Android

The “NXP-NCI Android Porting Guidelines” document provides guidelines about how to integrate support of PN7120 under an Android system: http://www.nxp.com/documents/application_note/AN11690.pdf.

4.3.3 Other OS or Null OS

For other systems, source code examples and related documentation are given for both NXP’s LPC and NXP’s Kinetis MCUs:

- NXP-NCI MCUXpresso example project: <https://www.nxp.com/doc/SW4325>
- AN11990 NXP-NCI MCUXpresso example: http://www.nxp.com/documents/application_note/AN11990.pdf

5 PN7120 demo kits

Two PN7120 NFC Controller SBC kits exist. First one been referenced as OM5577/PN7120S allowing plug’n’play support of Raspberry Pi and BeagleBone platforms. While the second one, referenced as OM5577/PN7120ARD, allows easy support to Arduino compatible platforms.

All information can be found on the related webpage: <https://www.nxp.com/products/rfid-nfc/nfc-hf/nfc-readers/development-kits-for-pn7120-plugn-play-nfc-controller:OM5577>

5.1 OM5577/PN7120S

5.1.1 Hardware

The “PN7120 NFC Controller SBC Kit User Manual” provides a description of the demo kit from hardware perspectives: http://www.nxp.com/documents/user_manual/UM10878.pdf.

The related schematics, BOM and Gerber files can be found here: <https://www.nxp.com/downloads/en/board-support-packages/HW3346.zip>.

5.1.2 Software

The “PN7120 NFC Controller SBC Kit Quick Start Guide” document describes how to get started with the demo kit with Raspberry Pi on Linux or with BeagleBone on Linux/Android: http://www.nxp.com/documents/application_note/AN11646.pdf.

Guidelines to set up the Linux demonstration are provided here <https://community.nxp.com/t5/NXP-Designs-Knowledge-Base/Easy-set-up-of-NFC-on-Raspberry-Pi/ta-p/1099034>. For others demonstration-related software images can be downloaded here:

- SW OM5577 BeagleBone Android KitKat demo image: https://www.nxp.com/lfiles/updates/NFC/OM5577-PN7120S_BBB_AndroidKitKat_demo_v1.0.zip
- SW OM5577 BeagleBone Linux demo image: https://www.nxp.com/lfiles/updates/NFC/OM5577-PN7120S_BBB_Linux_demo_v1.1.zip

5.2 OM5577/PN7120ARD

5.2.1 Hardware

The “PN7120 NFC Controller Arduino SBC Kit User Manual” provides a description of the demo kit from hardware perspectives: http://www.nxp.com/documents/user_manual/UM11008.pdf.

The related schematics, BOM and Gerber files can be found here: <https://www.nxp.com/downloads/en/board-support-packages/HW3739.zip>

5.2.2 Software

The “PN7120 Arduino SBC Kit Quick Start Guide” document describes how to get started with the demo kit on Udooneo platform running Linux and Android but also on LPCXpresso and Kinetis (relates to NulIOS and RTOS software integration described at Section 4.3.3): http://www.nxp.com/documents/application_note/AN11844.pdf.

The related software images can be downloaded here:

- UDOO Neo Linux demo image: https://www.nxp.com/lgfiles/updates/NFC/OM5577-PN7120S_UdooNeo_Linux_demo_v1.1.zip
- UDOO Neo Android Lollipop demo image: https://www.nxp.com/lgfiles/updates/NFC/OM5577-PN7120S_UdooNeo_AndroidLollipop_demo_V1.0.zip
- UDOO Neo Android Marshmallow demo image: https://www.nxp.com/lgfiles/updates/NFC/OM5577-PN7120S_UdooNeo_AndroidMarshmallow_demo_v1.1.zip

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