Cutting-edge NFC controller supporting all NFC Forum modes, with integrated firmware and NCI interface

# Plug-and-Play NFC Solution PN7150

Optimized for fast design-in, NXP's PN7150 NFC solution supports all NFC Forum modes and includes Linux®, Android™, and WinIoT drivers. It works with the most popular platforms, including Raspberry Pi®, BeagleBone® Black, and any boards featuring an Arduino® stackable header, including Kinetis®, LPC, and i.MX boards.

## KEY FEATURES

▸ Full hardware and software compatibility

– Support for Linux, Android, Windows IoT, RTOS, Bare Metal

– Interface to Raspberry Pi, BeagleBone Black, and all boards with Arduino-compatible header

▸ All NFC operating modes

– Read/Write Mode: ISO/IEC 14443 A&B up to 848 kbit/s, FeliCa at 212 & 424 kbit/s, MIFARE 1K, 4K, NFC Forum type 1, 2, 3, 4, 5 tags, ISO/IEC 15693

– Card Emulation Mode (from host): NFC Forum T4T (ISO/IEC 14443 A&B) at 106 kbit/s, NFC Forum T3T (FeliCa)

▸ Flexible host interface

– Supply voltage: 1.8 to 3.3 V

– $I^2C$ interface: 3.4 Mbit/s

– NCI 1.0-compliant protocol

– IRQ signal for improved synchronization

▸ Complete, power-efficient NFC controller

– RF driver: 3.0 to 4.75 V, 180mA max

– NFC Forum device requirement: v1.3

– Fully configurable polling loop with low-power mode

– Active load modulation scheme

▸ Standard packages: HVQFN40

## KEY BENEFITS

▸ Seamless integration of NFC into any application, especially those with operating systems

▸ Plug-and-play NFC operation with many platforms, including most LPC, QorIQ®, Kinetis and i.MX boards

▸ All typical NFC use cases, including pairing, commissioning, personalization, configuration, maintenance, etc.

▸ Fast deployment of advanced, fully interoperable NFC functionality, with a lower overall cost

## APPLICATION EXAMPLES

▸ Gateways, routers

▸ Set-top boxes

▸ Audio

▸ Printers

▸ Home appliances

▸ Healthcare/Medical

▸ Accessories

The NXP PN7150 controller is a plug-and-play solution, integrating a complete NFC frontend and an advanced 32-bit microcontroller equipped with dedicated code and data memories.

The embedded firmware simplifies development by handling critical timings on the host, reducing certain host interactions and abstracting RF protocols. There's no need to spend time with the RF protocols to finalize a design. The firmware is easy to integrate with the main OS and, because it performs so many functions reduces the host code footprint. NXP-supplied design guidelines for the antenna help simplify design-in even more.

The PN7150 is optimized for power consumption, supporting automatic transitions to low-power mode, and letting the host remain in sleep mode until RF communication is needed.

## SMART HOMES AND IOT

Embedded firmware and interoperability bring significant benefits to a wide range of smart-home and IoT applications, including gateways, routers, set-top boxe, and remote controlllers. The PN7150 can be connected directly to the host processor, to save bill of materials while reducing size and costs, limiting interactions with the host, and minimizing code size.

More specifically, the PN7150 can be used for Bluetooth®, Wi-Fi®, or ZigBee® pairing, and simplifies the commissioning of smart home equipment.
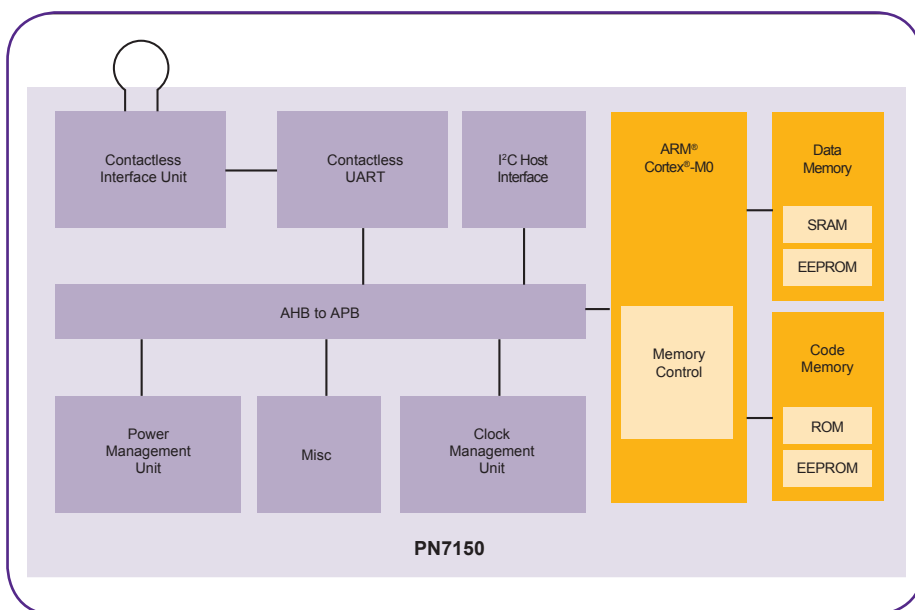
With the PN7150 designed into a home gateway or router, smart home equipment can be installed with just a tap.

## EASY INTEGRATION

Linux, Android, and WinIoT software drivers ease integration and reduce time-to-market. For Bare Metal and RTOS integration, NXP supplies a set of code examples running on our industry-leading microcontrollers.

| | |
|---|---|
| Embedded firmware | Yes |
| NFC reader tag | Type 1, 2, 3, 4, 5 |
| RF driver supply voltage | 3.0 to 4.75 V |
| Read/Write mode | MIFARE, FeliCa, ISO/IEC 15693 |
| Peer-to-Peer mode | ISO/IEC 18092 target and initiator (active and passive) |
| Card emulation mode | NFC Forum T3T & T4T (FeliCa & ISO/IEC 14443 A and B) |
| NFC Forum compliance | Yes |
| Package | HVQFN40 |
| Load modulation scheme | Active |

## PN7150 BLOCK DIAGRAM



**PN7150**

## DEVELOPMENT TOOLS

NXP helps jump-start design by offering a range of development tools, including a PN7150 demo kit (OM5578). Other options include a dedicated controller board, adapter boards based on Raspberry Pi and BeagleBone Black, and boards featuring an Arduino-compatible header, such as LPCXpresso, Kinetis, and i.MX products.

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