PLUG AND PLAY SOLUTION: PN7160 WITH INTEGRATED FIRMWARE AND NCI INTERFACE

No matter what kind of device you're working on, this highly integrated NFC controller simplifies the development of any application, including those running Android™ OS or Linux® OS.

TARGET APPLICATIONS

- Tablets, mobile computers
- Smart home gateways, routers
- Printers, e-boards, gaming
- A/V conference phone
- Closed-loop payment
- Closed-loop access
- Fitness, medical

Designed for quick integration into a very wide range of systems, the PN7160 supports all NFC Forum modes and includes drivers for Android and Linux. It supports RTOS and no OS applications. Embedded NFC firmware reduces the need for host interactions and minimizes code size, making design-in much easier. Available with an I²C or SPI interface, the PN7160 is compatible with popular MCUs, including LPC, Kinetis® and i.MX. The PN7161 version adds support for Apple® ECP.

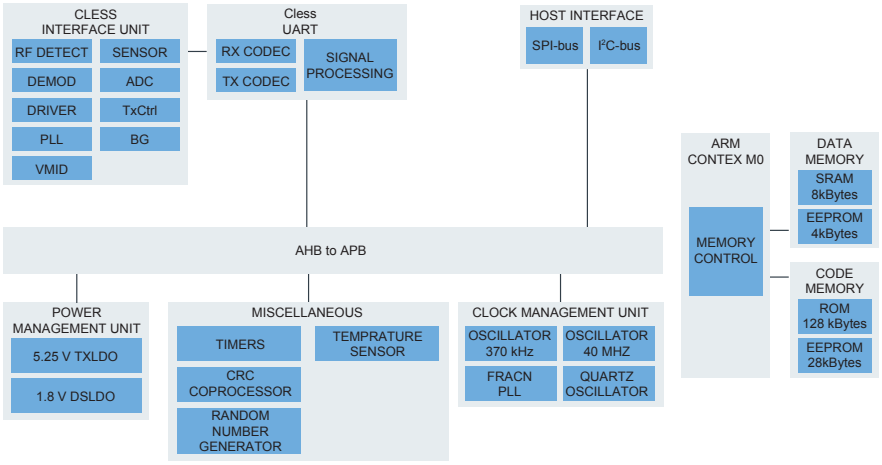
KEY FEATURES

- Supports all NFC Forum modes
  - Reader/writer mode: ISO/IEC A&B, FeliCa®, MIFARE® 1K, 4K, NFC Forum type 1, 2, 3, 4, 5, ISO/IEC 15693
  - Peer-to-Peer mode: Passive & Active, Initiator and Target
  - Card-emulation mode: NFC Forum type 3, 4 (A&B)
- Flexible host interface
  - Supply voltage 1.8 or 3.3 V
  - Host interface: I²C (up to 3.4 Mb/s) or SPI (up to 7 Mb/s)
  - NCI 2.0-compliant protocol
  - IRQ signal for improved synchronization
- High-performance NFC controller
  - RF driver: 2.7 to 5.25 V, 250 mA max
  - Receiver sensitivity 20 mV_{p-p}
  - Fully configurable polling loop with low-power mode
  - Active load modulation and dynamic power control
- Standard packages: HVQFN40 (6 mm x 6 mm), VFGBA64 (4 mm x 4 mm)

KEY BENEFITS

- Seamlessly add NFC to any design, including those with an OS
- Quickly integrate with widely used platforms (LPC, Kinetis, i.MX)
- Support popular NFC use cases (pairing, commissioning, authentication, configuration)
- Create a compact (BGA package) and cost-efficient design (HVQFN package)
- Compliant to NFC Forum Universal Device class

PN7160 BLOCK DIAGRAM



RELIABLE CONVENIENCE

The PN7160 enables quick, easy pairing of OS-driven devices with other NFC-enabled devices. There's no menu, no waiting and no conflicts. Credentials are securely exchanged over short distances, and the handover mechanism for sharing credentials (that is, request and read data) initiates with just a tap. From there, data can automatically be exchanged using Wi-Fi® or Bluetooth®.

Intuitive operation makes devices easy to use and reduces tech-support costs. The PN7160 makes it easy to identify a device at once, without entering codes or creating device conflicts. The NFC function is compatible with other popular protocols, including Zigbee®, Bluetooth Low Energy, Thread and Wi-Fi.

The PN7160 follows the NFC Forum specification for NFC Data Exchange Format (NDEF), which describes an interoperable way to exchange pairing data over NFC, independent of device manufacturer and without an application.

FAST TIME-TO-MARKET

Much of the upfront work of integration has already been done. The Android and Linux drivers include an NFC stack that communicates with NCI; for RTOS and no OS integration, NXP supplies a set of code examples running on familiar microcontrollers. All protocol handling is done directly in the PN7160, so there's less time spent configuring for specific NFC tags or NFC smartphones.

The NFC function is pre-configured for optimal performance and interoperability, and directly manages critical timing requirements. But developers have the option to fine-tune key parameters, such as discovery mechanism, power states, antenna settings and the configuration mode.

MORE WAYS TO SAVE TIME

Autonomous NDEF card emulation means the PN7160 can emulate a tag with an NDEF message without having to power up the host process.

For added robustness, the firmware includes an anti-tear mechanism that ensures safe writing of configuration data and preserves data in the event of an unexpected power loss.

The PN7160 directly manages critical timing requirements and is compliant with NFC Forum Device Requirement CR11.

SUPPORT FOR APPLE ECP

The PN7161 supports all features of PN7160 plus "Enhanced Contactless Polling" (ECP) by Apple. The ECP feature is available after formal authorization only.

DEVELOPMENT TOOLS

The PN7160 Evaluation Kit, designed to help simplify development and reduce time-to-market, includes a PN7160 controller board with I²C or SPI interface, Arduino® and Raspberry Pi® interface boards and a sample card. Standalone controller boards are also available.

PRODUCT NAME	CONTROL INTERFACE	PACKAGE FORMAT	12NC TRAY	12NC REEL
PN7160A1HN/C100	I²C	HVQFN40	9354 166 65551 (1-tray)	9354 166 65518
PN7160A1EV/C100	I²C	VFBGA64	9354 166 64557 (5-tray)	9354 166 64518
PN7160B1HN/C100	SPI	HVQFN40	9354 237 44551 (1-tray)	9354 237 44518
PN7160B1EV/C100	SPI	VFBGA64	9354 237 61557 (5-tray)	9354 237 43518

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