Release Note

P2P Extensions NxpRdLib

Document information

Info	Content
CUSTOMER	Internal Release
Doc Name	Samples Release Note

Contents

1. Document purpose

This document describes the content of the source package of the NXP NFC Reader Library for LPC1769 board along with PNEV512B v1.5 blue board and CLRC663 blue board v3.0.

This document also lists known problems and restrictions.

The application programming interface itself is described in the Programmers Reference Manual.

2. Material list

- NXP LPC1769 board Rev B
- CLRC663 blue board v3.0
- PNEV512B v1.5 blue board with CE certification mark
- Sample cards
- USB Cables, etc

3. Features supported in this release

- Poll, Pause and Listen phases of Discovery Loop.
- The listen mode support for Type A and Type F.
- 18092 target mode.
- The ISO 18092 protocol supports passive and active communication mode.
- LLCP 1.1 and SNEP 1.0. This is verified with NDEF message exchange with a Samsung Galaxy S3, Google Nexus S phone, and Google Nexus Tab and PN512 target application with client and server configurations.

3.1 Detailed list of Components

- |----BAL
- |--------Stub
- |
- |----HAL
- |--------Pn512/Rc523
- |--------Rc663
- |--------Callback
- |
- |----PAL
- |--------I14443p3a
- |------------Sw
- |
- |--------I14443p3b
- |------------Sw

•|
•|--------I14443p4
•|------------Sw
•|
•|--------I14443p4a
•|------------Sw
•|
•|--------Mifare
•|------------Sw
•|------------Stub
•|
•|--------Felica
•|------------Sw
•|
•|--------I18092mPI (Active and Passive)
•|------------Sw
•|
•|--------I18092mT (Active and Passive)
•|------------Sw
•|
•|----AC
•|--------DiscLoop
•|------------Sw
•|
•|----AL
•|--------Mfc
•|------------Sw
•|
•|--------Mful
•|------------Sw
•|
•|--------Mfdf
•|------------Sw
•
•|--------T1T
•|------------Sw

- |
- |--------TOP
- |------------Sw
- |
- |--------Felica
- |------------Sw
- |
- |----LN
- |--------Llcp
- |------------Fri
- |
- |----NP
- |--------Snep
- |------------Fri
- |
- |----Common
- |--------CidManager
- |------------Sw
- |
- |--------KeyStore
- |------------Sw
- |------------Rc663
- |
- |--------Log
- |--------Tools
- |
- |--------OSAL
- |------------Stub
- |
- |----Documents
- |--------14_user_doc
- |------------NXP_SLDA.pdf
- |------------Nxp Reader Library.chm
- |
- |--------22_rel_doc
- |------------NXP Reader Library Release Note

•|
•|----LPC1769
•|--------STUB
•|------------BAL
•|------------OSAL
•|
•|----Sample examples
•|--------Classic
•|--------PN512-P2P-Active_Initiator
•|--------PN512-P2P-Initiator
•|--------PN512-P2P-Initiator
•|--------Polling

4. Installation instructions

This release is built for NXP LPC1769 board. A project file for LPCXpresso (Version: LPCXpresso v5.0.14 [Build 1109] [2012-12-19] has been packaged along with this release.

Detailed list of instructions are described in the ReadMe.txt in each of the Sample Applications folder.

The accompanying sample applications can be compiled along with the library and runs on the LPC1769 board attached with either the PN512 or the CLRC663 blue board. This compilation of the project is tested on Microsoft Windows 7 64-bit Operating System using the LPCXpresso IDE mentioned above.

When compiling with logging disabled i.e., removing NXPBUILD__PH_LOG from ph_NxpBuild.h file, take care to comment out exports for logging under GENERIC LOG EXPORTS section in NxpRdLib.def file.

5. Possible problems - Known Errors and Restrictions

- While executing PN512_Target application, it is noticed that sometimes connection between LPCXPresso IDE and board is lost and as a result the application is running in NO-Host mode instead of Semi-host mode. The transactions happen but result will not be available in console.

    a. This is an issue with the LPCXpresso IDE.

- With PN512_Initiator application the Sony XPeria-T phone is not getting detected. It works only with PN512_Active Initiator application, PN512_Target application.
- Nokia 720 - Windows 8 phone is not receiving the SNEP packet PUT from the PN512 applications.

    a. Windows phone expects the remote device to host Client and server simultaneously. This has to be taken care in the Application.

- Nexus-4 is not working with PN512_Lpc17xx_Target application as after PSL response sent from the target, the phone is not sending DEP.

a.This is being investigated.

- Sometimes it's noticed that autocoll timer is not generating an interrupt and target application appears to be hung. Restarting the Application is needed.
- Nexus-5 is not working sometime with PN512_Lpc17xx_Target.
- Due to the unreliable nature of external RF detection using register bits in Pn512, it is not possible to start autocoll (listen mode/card mode activation handling command) only after an external RF is ON. Due to this the card selection (REQA, ANTICOLLISION, SELECT, RATS) in card emulation mode should be done within the configured listen time period otherwise this will timeout. You may use phacDiscLoop_SetConfig(pDataParams,PHAC_DISCLOOP_CONFIG_LISTEN_TIMEOUT, 3000); to set the required timeout value.

5.1 Additional Information:

- The package is NFC Forum compliance tested as per test cases applicable for CR4.

  a. **All the tests have been executed.

- LLCP and SNEP are tested for default MIU(128) and default rw (1 or 2)

5.1.1 Hardware Changes Required:

- When using PNEV512 v1.5 board with LPC1769, GPIO 2.13 (Pin #27) of LPC1769 should be connected to IRQ PIN (#26) of PNEV512 board. This is required for the system to function in **target mode**.

6. Document management

6.1 Abbreviations and terminology

Table 1: Abbreviations and terminology

Abbreviation	Description
IUT	Implementation Under Test
LT	Lower Tester equipment
PDU	Protocol data unit
SOT	Start of test frame
FDTA,POLL,MIN	The time an NFC Forum Device in Poll Mode has to wait before sending a new Poll Frame after receipt of a listen frame

6.2 Revision History P2P Extensions

6.2.1 V3.010.01.001447 (Build 20112014)

+ Fix for Sector Select command in MFUL AL and Tag Operation for T2T.

6.2.2 V3.010.00.001407 (Build 13022014)

+ Final release for P2P Extensions for PN512 and CLRC663.
+ Fix for NFC forum test ID : TC_LIS_NFCA_UND_BI_130
+ Fix for NFC forum test ID : TC_POL_NFCA_T4AT_BI_31_xy
+ Bug fix on WTOX timer
+ Bug fix on FIFO read for PN512 and RC663 HAL

+ Random hardfault in SNEP layer and sample application
+ Monitoring of exchange timeout in target application is done with timer instead of watchdog timer
+ DSL and PSL to support DID
+ Removal of DSL_COMMAND switch
+ CHM file updated with error codes.

6.2.3 V2.1.0.0 (Build 10012014)

+ Final release for P2P Extensions for PN512 and CLRC663.
+ P2P and LLCP/SNEP stack with Active mode support for initiator and target
+ LLCP/SNEP stack with better performance
+ Active communication support at different baudrates (106k, 212k, 424k)
+ Bug fixes for NFC forum digital protocol test cases.

6.2.4 V2.0.4.2 (Build 20122013)

+ Pre-Final release for P2P Extensions for PN512 and CLRC663.
+ Optimized LLCP/SNEP stack
+ Optimized sample application code
+ Application layer for Tag Operations (TOP) supporting T1T, T2T, T3T, T4T
+ P2P Active initiator with AutoRF controls enabled which has improved the interoperability with different devices
+ Initiator and Target applications has extended support for Bi-directional message communication between phone and PN512/RC663
+ Bug fixes made for Poll and listen mode test cases for P2P protocol.
+ Based on the sample application(Initiator/Target) configuration 1KB PUT/GET could be possible with the phone on both the directions
+ Alerting message is added if the phone sends the message bigger than the allocated buffer size of SNEP Response buffer.
+ Auto_Coll with configurable timer option is supported
+ PN512_Target application as SNEP SERVER/CLIENT is tested and working with Nexus S, Nexus Tab and Samsung S3
+ Watchdog Timer is implemented in PN512_Target application to restart the device discovery, if the Initiator looses the
communication after DEP activation.
+ Demo applications are available for Tag Operations

6.2.5 V2.0.4.1 (Build 27112013)

+ Pre-Final release for P2P Extensions for PN512 and CLRC663.
+ Optimized LLCP/SNEP stack
+ Optimized sample application code
+ Application layer for T1T(Jewel/Topaz) component
+ P2P Active initiator with AutoRF controls enabled which has improved the interoperability with different devices
+ Initiator and Target applications has extended support for Bi-directional message communication between phone and PN512/RC663
+ Contains Code for Tag Operations excluding T3T support
+ Bug fixes made for Poll and listen mode test cases for P2P protocol.
Based on the sample application(Initiator/Target) configuration 1KB PUT/GET could be possible with the phone on both the directions

6.2.6 V2.0.4.0 (Build 13082013)

+ Development Release for P2P Extensions for PN512 and CLRC663.
Contains Discovery loop(Poll/Pause/Listen), ISO/IEC 18092 passive/active initiator, ISO/IEC 18092 passive/active target, LLCP 1.1, SNEP 1.0, OSAL LPC1769, components for LPC1769 board with PN512 blue board or CLRC663 blue board and
* Pn512_Lpc17xx_P2P_Active_Initiator - Sample application to demonstrate the SNEP/LLCP GET/PUT 1K message over Active mode Initiator on PN512
* Pn512_Lpc17xx_P2P_Initiator - Sample application to demonstrate the SNEP/LLCP GET/PUT 1K message over Passive mode Initiator on PN512
* Pn512_Lpc17xx_P2P_Target - Sample application to demonstrate the SNEP/LLCP GET/PUT 1K message over Active/Passive mode Target on PN512

* Rc663_Lpc17xx_P2P_Initiator Sample application to demonstrate the SNEP/LLCP GET/PUT 1K message over Passive mode Initiator on RC663
The initiator sample applications will do 1KB SNEP PUT action if the target is NFC enabled Phone or 1KB PUT/GET if the target is PN512 application
configured for NON DEFAULT server.

6.2.7 V2.0.3.0 (Build 05122012)

+ Beta package for P2P Extensions for PN512 and CLRC663.
Contains Discovery loop, ISO/IEC 18092 passive initiator, LLCP 1.1 components for LPC1227 board with PN512 blue board or CLRC663 blue board

6.2.8 V2.0.2.0 (Build 04082011)

+ Mifare Ultralight EV1 beta release.
+ Some critical Mantis issues resolved.

6.2.9 V2.0.1.0 (Build 04082011)

+ Fixed 0x0A authentication bug in MIFARE Desfire Application Layer component.

6.2.10 V2.0.0.0 (Build 04072011):

+ Added various PAL and AL blocks (refer to 3. Material list)
+ Added lots of example code (refer to 3. Material list)
+ Added wOption parameter to phbalReg_Exchange function
+ Added support for SCardControl through Exchange for PcscWin BAL
+ Added support for P5DF081 SAM with CLRC663 in X-Mode configuration
+ Added (experimental) ISO14443B support to RD70x HAL
+ Added (experimental) PN512 support to MFRC523 HAL
+ Added support to use LoadReg instead of internal constants for CLRC663 register configuration
* Updated pphLog_Callback_t, now also includes pointers to pDataParams and pEntries
* Various bugfixes and cleanup throughout the components

6.2.11 V1.1.0.0 (Build 13092010):

* Updated release

6.2.12 V1.0.0.0 (Build 26022010):

* First packaged version.

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