LMX9820 Bluetooth Serial Port Module - Firmware Release Notes

National Semiconductor
Firmware Relase Notes
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Revision 1.0

Introduction

The National Semiconductor® LMX9820 Bluetooth Serial Port Module is a highly integrated radio, baseband, and memory implemented on an LTCC (Low Temperature Co-Fired Ceramic) substrate. All hardware and firmware is included to provide a complete solution from antenna through the complete lower and upper layers of the bluetooth stack up to the application including the Generic Access Profile (GAP), the Service Discovery Application Profile (SDAP) and the Serial Port Profile (SPP). The module includes a configurable service database to fulfill service requests for additional profiles on the host.

The module offers an automatic slave mode without any configuration necessary from an external host. Additionally it offers a command set for hardware configuration and SPP full bluetooth operation.

Due to our ongoing quality test and firmware improvements, several changes to the firmware have been made. This document is a describes all release changes in the LMX9820 firmware.

This document is based on:

Table 0-1.

Item	Version
Hardware	LMX9820V5.2
Firmware	V5.05 and later
Actual Firmware Release	V5.15

1.0 Firmware Release History

1.1 VERSION 5.15

Release date: 18th May 2004

Table 1-1. Firmware Release Changes 5.15

Issue	Type	Description
Automatic limited discoverable	Bug fix	Radio driver went down after switching to Automatic limited discoverable and switching back to normal operation.
LSTAT1 pin not raising	Bug fix	In Eventfilter setting 00 and 01 the LSTAT1 pin did not inidicate a lost link as long as the UART driver could not send the released link event. (eg. Application not ready) The pin raises now independently
Configurable Link Supervision Timeout	New Feature	The Supervision timeout describes, after which time a link should be assumed as lost, if no packages could be received. Default is set to 20seconds. The range is defined as in bluetooth spec. (2 bytes 0x0000 to 0xFFFF).
Failing Sensitivity Test	Bug fix	Due to the way the loopback has been implemented, the sensitivity measurement has shown worse results at R&S testers.

1.2 VERSION 5.14

Release date: 23th February 2004

Table 1-2. Firmware Release Changes 5.14

Issue	Type	Description
Low Power + Multipoint operation problem	Bug Fix	Switched to core version 2.02 to fix two errors where the D-SNIFF parameter is not calculated correctly. The changes only affect sniff mode parameter calculation when multiple connections are in sniff mode simultaneously or when some of the slaves has been put in park mode before one or more connections are put in sniff mode. The sniff mode parameter calculation is unchanged if a single connection is put in sniff mode. I.e. the test results are unchanged if the qualification tests are rerun!
NVS Initialization failed	Bug Fix	Init Byte programmed at last byte of initialization process.
Changed Conditions for Transport Layer Enabled Event	Bug Fix	The Simply Blue device does not send a TL_ENABLED to the PC if the following condition is satisfied: 1. The transport layer is disabled. 2. The Simply Blue device is in "automatic mode" i.e. it switches to transparent mode when a connection is established to it. 3. Another Simply Blue device makes a SPP connection to the local device.

1.3 VERSION 5.13

Release date: 15th January 2004

Table 1-3. Firmware Release Changes 5.13

Issue	Type	Description
Internal Regulator	Bug Fix	Internal Dig Vreg Value changed from 2.5 to 2.6V for improved stability.

1.4 VERSION 5.12

Release date: 19th December 2003

Table 1-4. Firmware Release Changes 5.12

Issue	Type	Description
Device not discoverable or connectable after a certain time. Radio link instable (after several hours).	Bug Fix	Radio driver fixed Changed to Core Version 2.0.0

1.5 VERSION 5.11

Release date: 11th December 2003

Table 1-5. Firmware Release Changes 5.11

Issue	Type	Description
Connection with Qualification tester TS8960 fails	Bug Fix	LMP Multi-slot packet request suppressed in DUT mode.

1.6 VERSION 5.10

Release date: 17th November 2003

Table 1-6. Firmware Release Changes 5.10

Issue	Type	Description
Device not responding if link lost as slave	Bug Fix	Slave device switches to command mode and indicates released link correctly, if ACL link was dropped without closing it.

1.7 VERSION 5.09

Release date: 06th November 2003

Table 1-7. Firmware Release Changes 5.09

Losing data in switching from transparent to command	Bug Fix	Buffers are emptied before switching process, no data lost.
Not able to send responses to new commands during receive	Bug Fix	Device listening to commands during receive.
Low Power Modes	New Feature	- Support for Host Wake_up pin functionality - Support for Wakeup over UART pins - Support for all Power Modes
CQDDR support	New Feature	Device tries to use DH5 if possible and switches to DM5 or smaller if too many errors in the packages detected. Reaching up to 88kbytes/s speed in transparent mode now.
Park Mode Unpark Events	Bug Fix	Device just indicates once if unpark was unsuccessfull.

1.8 VERSION 5.08

Release date: 01. October 2003

Table 1-8. Firmware Release Changes 5.08

Issue	Type	Description
Initialization Byte in NVS	Bug fix	Device completely initialized on first boot-up
BREAK Signal not detected during transmit	Bug fix	Device empties buffers and then switches to transparent

1.9 VERSION 5.07

Release Date: 23. September, 2003

Table 1-9. Firmware Release Changes 5.07

Issue	Type	Description
Initialization Byte in NVS	New feature	Byte 1FF in NVS checked on boot-up. Firmware initializes NVS like “Restore to factory settings” if Byte is different from 0x00.
Use new Apollo version	Bug fix	Improved Sniff and Park mode behavior
Discoverable/Connectable after Sniff/Slave	Bug fix	9820 now changing discoverability depending on transparent mode - Transparent = not discoverable/connectable - Not Transparent/Command = discoverable/connectable
UART Settings for None and ODD can not be activated	Bug fix	All UART settings supported

1.10 VERSION 5.06

Release Date: 04. July, 2003

Table 1-10. Firmware Release Changes 5.06

Issue	Type	Description
IVT Interoperability	Bug fix	Improved Interoperability with IVT Stack (Negotiations of RFCOMM buffer-size failed)
SDP client	Bug fix	In some cases the SDP client returned no record handles even though they were received from the remote devices.

1.11 VERSION 5.05

Release Date: 04. June, 2003

Table 1-11. Firmware Release Changes 5.05

Issue	Type	Description
Link Policy	New feature	Default Link Policy stored in NVS, setting can be changed by command, Default value (restore fact.) is 0x000F (everything allowed)
Connectable and discoverable as slave	New feature	Connectable and discoverable switched off as soon as device was connected from outside. In Force Master Mode device still behaves as stored in NVS.
Events can be switched off	New feature	For automatic slave some customers asked for implementing the feature to switch of the events by command. The setting should be stored in NVS. Changing the status is done by an additional command
Power Mode CFm	Bug fix	PowerModeCfm is now confirmed by correct BD_Addr
ACL Events	New feature	ACL events are reported as well for better analysis of link termination.