BL620 Firmware Release Notes

Release Note **v12.4.14.0**

OVERVIEW

This release note describes the changes and enhancements to the firmware of the BL620 *smart*BASIC based Bluetooth Low Energy Module in reverse chronological order. The BL620 provides central mode capability.

For each version there are subsections for 'Enhancements', 'Bug Fixes' and 'Known Issues'.

BL620 firmware version numbers consist of four numbers in the format **W.X.Y.Z** which can be read back from the module by submitting the command AT I 3 when it is in command mode.

W is 12 to signify that it has Central Role capability only.

X is used to indicate the underlying BLE stack version and so far the values have been:-

0	An alpha release of the Nordic S110 softdevice BLE Stack
1	Nordic S120 Softdevice Stack version 0.8.0-3.alpha
2	Nordic S120 Softdevice Stack version 1.0.0-1.alpha
3	--
4	Nordic S120 Softdevice Stack version 1.0.0

Y is the build number and when it is an even number it is a production image and when an odd number it is an engineering image.

Z is a sub-build number. When it is 0 or an even number it signifies that the firmware image has been fully regression tested. When both X and Y is odd, it will usually be the case that the firmware image was released to do a quick field test and a full regression test will not have been performed on it.

1 Version 12.4.14.0 (Mar 2015)

This firmware is built to work with v1.0.0 of the S120 Softdevice from Nordic Semiconductor and is described below, Please refer to the user manual for more specific details.

Main headline changes:-

- None

1.1 Migration from earlier firmware

Please refer for further details in the user manual

- None

1.2 Enhancements

1. None

1.3 Bug Fixes

1. ADC reading when uart was closed was resulting in 0
2. Uart Driver fixed so that when the internal rx ring buffer fills up there is no longer any data corruption. This fix only applies to the XLR2 or newer variants of the Nordic chipset which has a 6 byte receive fifo as opposed to just two in the first release of the silicon.

1.4 Known Issues

1 Uart upgrade of firmware is not possible. Will be fixed in future to allow app and softdevice to be upgraded at the same time.

2 The Whitelist management functions are not fully functional and should not be used.

2 Version 12.4.10.0 (Oct 2014)

This firmware is built to work with v1.0.0 of the S120 Softdevice from Nordic Semiconductor and is described below, Please refer to the user manual for more specific details.

Main headline changes:-

- 4 fully tested connections allowed from smartBASIC application
- Added a bonding manager database with a capacity of 8 with rolling and persistent tables.
- Functionality severely limited if module does not contain a valid licence.

2.1 Migration from earlier firmware

Please refer for further details in the user manual

- BleGattcWrite() and BleGattcWriteCmd() : The offset parameter had been removed so existing smartBASIC app will need fixing to successfully compile again.

2.2 Enhancements

2. Added the following functions in smartBASIC:-
BleGetConnHandleFromAddr()
BleGetAddrFromConnHandle()
BleScanFlush()
AssertBL620()
BleSecMngrOobPref()
BleBondingStats()
BleBondingEraseKey()
BleBondingEraseAll()
BleBondingPersistKey()
BleBondingIsTrusted()
BleBondngMngrGetInfo()

2.3 Bug Fixes

3. Although capable of multiple connections, only the first was usable because the stack connection handle was not being cached. For example, making a second connection and then initiating a disconnect to same, it resulted in the first connection being dropped. It also meant that connection parameter update for the second connection were being ignored as the stack connection handle could not be resolved.
4. UartReadMatch() smartBASIC function would sometimes not trigger on the matching character specified.
5. Bug Fixes in the following smartBASIC functions:-
BleGetADbyIndex()
BleGetADbyTag()
AesEncrypt()

2.4 Known Issues

3 Uart upgrade of firmware is not possible. Will be fixed in future to allow app and softdevice to be upgraded.

4 The Whitelist management functions are not fully functional and should not be used.

3 Version 12.2.9.0 (Apr 2014)

This firmware is built to work with v1.0.0-1.alpha of the S120 Softdevice from Nordic Semiconductor and described below, Please refer to the user manual for more specific details.

Main headline enhancements:-

- Up to 8 connections allowed from smartBASIC, however only 2 connections have been tested.

3.1 Migration from earlier firmware

Please refer for further details in the user manual

- None

3.2 Enhancements

3. Uart IRQ is gated so that if a nested IRQ happens then it is serviced again in a synchornised fashion
4. Rbf Wrap buffer, head and tail pointer updates now ensure that at no time so those pointers point outside the buffer when the wrap occurs
5. BLE_MAX_NUM_OF_CONNECTIONS set to 8, but only 2 concurrent connections tested.

3.3 Bug Fixes

6. In conditions of high uart activity due to high virtual serial port data activity there was data corruption on the uart arising from the temporary assignment of a tail pointer of the ring buffer outside the size of the buffer. There was a race condition.

3.4 Known Issues

5 There is no bonding manager.

6 The event EVBLE_FAST_PAGED is thrown to the application even when the ADV_DIRECT_IND advert is not targeted to this device. Awaiting a fix from the stack vendor. This means when BleScanGetPageAddr() is called to get the address of the advertiser, it is not certain if it wants to connect to this device.

4 Version 12.1.3.0 (Apr 2014)

This firmware is built to work with v0.8.0-3.alpha of the S120 Softdevice from Nordic Semiconductor and described below, Please refer to the user manual for more specific details.

Main headline enhancements:-

- Scan Capability
- Connection Capability

4.1 Migration from earlier firmware

Please refer for further details in the user manual

- The nOffset parmeter in function BleGattcWrite() and BleGattcWriteCmd() is not required and so has been removed.
  Remove that parameter where you invoke the functions and the application will compile again.

4.2 Enhancements

6. Added the following new smartBASIC functions:-
   UartReadN()

4.3 Bug Fixes

7. No known bug fixes.

4.4 Known Issues

7 There is no bonding manager.

8 The event EVBLE_FAST_PAGED is thrown to the application even when the ADV_DIRECT_IND advert is not targeted to this device. Awaiting a fix from the stack vendor. This means when BleScanGetPageAddr() is called to get the address of the advertiser, it is not certain if it wants to connect to this device.

5 Version 12.1.1.0 (Feb 2014)

This firmware is built to work with v0.8.0-3.alpha of the S120 Softdevice from Nordic Semiconductor and described below, Please refer to the user manual for more specific details.

Main headline enhancements:-

- Scan Capability
- Connection Capability

5.1 Migration from earlier firmware

Please refer for further details in the user manual

- None

5.2 Enhancements

7. Added the following new smartBASIC functions over and above that available in V1.5.63.X release of the BL600 firmware:-
   BleConnectConfig()
   BleConnect()
   BleConnectCancel()
   BleScanConfig()
   BleScanStart()
   BleScanAbort()
   BleScanStop()
   BleScanGetAdvReport()
   BleScanGetPagerAddr()
   BleWhiteListCreate()
   BleWhiteListAddAddr()
   BleWhiteListAddIrk()

BleWhiteListDestroy()

8. Added the following new smartBASIC events and messages over and above that available in V1.5.63.X release of the BL600 firmware:-
   EVBLE_ADV_REPORT
   EVBLE_CONN_TIMEOUT
   EVBLE_SCAN_TIMEOUT
   EVBLE_FAST_PAGED

5.3 Bug Fixes

8. No known bug fixes.

5.4 Known Issues

9 There is no bonding manager.

10 The event EVBLE_FAST_PAGED is thrown to the application even when the ADV_DIRECT_IND advert is not targeted to this device. Awaiting a fix from the stack vendor. This means when BleScanGetPageAddr() is called to get the address of the advertiser, it is not certain if it wants to connect to this device.

6 Further Information

Further information relating to firmware and the use of UWTerminal is available from the Laird website at http://www.lairdtech.com/Products/Embedded-Wireless-Solutions/Bluetooth-Radio-Modules/BL600-Series