

# Release Notes

## BL652

Version 28.6.2.0

May 2017

Release notes are a summary of new and enhanced features, resolved issues, and known issues that are not resolved in this firmware version. This release note describes the changes and enhancements to the firmware of the BL652 *smartBASIC* based Bluetooth Low Energy Module in reverse chronological order.

For each version (excluding the initial 28.6.1.2) there are subsections for 'New Features', 'Bug Fixes' and 'Known Issues'.

BL652 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** signifies the module ID, which in the case of BL652 is 28.

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

6          Production release of Nordic's Softdevice version 3.0.0

**Y** is the release version, i.e. the major build number

**Z** is a sub-build number. When it is 0 or an even number it signifies that the firmware image is a production image that has been fully regression tested. An odd number indicates an engineering image.

### VERSION 28.6.2.0 (MAY 2017)

This firmware is built to work with v3.0.0 of the S132 Softdevice from Nordic Semiconductor which is BT Spec version 4.2 qualified.

### New Features

The following are new features in the current version, please refer to the manual for usage.

- **LE Ping:** added the ability to use authenticated payload timeout to monitor the integrity of an encrypted link.
- **Bandwidth Configuration:** Added the option to achieve high bandwidth on first connection. This allows up to six packets to be sent per connection interval, therefore improving the BLE throughput.
- **Data in notifications and write events:** Added new events that allow BLE data to be thrown in the events therefore significantly enhancing the throughput.
- **BleVspInfo:** The length of the VSP Rx/Tx characteristics can now be returned using BleVspInfo(5).
- **Gatt Server Write:** added a new function that allows the user to write data at a certain offset.

## Resolved Issues

The following issues have been resolved in this release:

- The unexpected behavior of UartWrite() at 921600 baud rate has now been resolved (10415).
- When a characteristic that requires authentication is written to using 'write without response' procedure, an event is now thrown to the application (EVAUTHVALEX) allowing the user to choose to accept or reject the data (11050).
- Added EVBLE\_PASSKEY event so that during passkey pairing, the connection handle is included as part of the event, therefore enabling the application to identify the device performing the pairing (11145).
- Added a function to get the maximum packet length supported by the device - BleMaxPacketLengthGet (10599).
- If slave prefers LESC pairing and master only supports legacy, the pairing fails instead of reverting back to legacy pairing (11164).

## Known Issues

The following are known issues this release:

- During a BLE connection, when a GATT service is changed in a GATT server, the GATT client does not receive an event notifying it of the change (9628).
- For the GATT server, the long writes feature on authorizable characters is not yet implemented and will be added in future releases (11193).
- When two devices are bonded, erasing the bond on one device can sometimes cause a disconnection (9663).

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## VERSION 28.6.1.4 (DECEMBER 2016)

This firmware is built to work with v3.0.0 of the S132 Softdevice from Nordic Semiconductor which is BT Spec version 4.2 compliant.

## New Features

The following are new features in the current version; please refer to the manual for usage.

- **Packet Length Extension:** added the ability to set the maximum packet length up to 251 bytes.
- **Attribute MTU:** Added the ability to increase the maximum transmission unit for attributes, i.e. allowing GATT operations to be performed on attributes larger than 20 bytes.
- **Maximum Attribute Length:** added ability to increase the attribute data size up to 244 bytes.
- **Long Writes:** added support for Long Writes on both the GATT client and the GATT server.

## Resolved Issues

The following issues have been resolved in this release:

- The central device can now get an event with the connection parameter update request from the peripheral instead of being forced into accepting the peripheral's parameters

- The Device Information service now contains the BL652 device name instead of the BL600.

## Known Issues

The following are known issues in this release:

- During a BLE connection, when a GATT service is changed in a GATT server, the GATT client does not receive an event notifying it of the change (9628).
- Unexpected behavior occurs with the UartWrite() function at 921600 baud rate when writing large amounts of data, causing data loss. As a work around the PRINT smartBASIC function can be used instead (10415).
- BleMaxPacketLengthGet() is not implemented and will be added in future releases when the softdevice supports it. If BleMaxPacketLengthSet() succeeds then that value can be saved in the smartBASIC application and used as a reference for the maximum packet length (10599).
- For the GATT server, the long writes feature on authorizable characters is not yet implemented and will be added in future releases (11193).
- When two devices are bonded, erasing the bond on one device can sometimes cause a disconnection (9663).

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## VERSION 28.6.1.2 (AUGUST 2016)

This firmware is built to work with v3.0.0 of the S132 Softdevice from Nordic Semiconductor which is BT Spec version 4.2 compliant.

## Known Issues

The following are known issues in this release:

- During a BLE connection, when a GATT service is changed in a GATT server, the GATT client does not receive an event notifying it of the change (9628).
- When adding the Device Information service to a GATT table using BleSvcRegDevInfo(), the Firmware Revision String contains the value BL600:v28.6.1.2 when it should be BL652:v28.6.1.2

## Further Information

Further information relating to the BL652 and its firmware is available from the Laird website at <http://www.lairdtech.com/products/bl652-ble-module>