BlueNRG MS
Connections strategy

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AVNET
Silica

External MCU

- **Application**
- **BLE Profiles**
- **Application Controller Interface**

BLE Network Processor BlueNRG

- **Application Controller Interface**
- **BLE Protocol stack**
- **Link Layer**
- **2.4 GHz Radio**
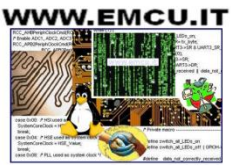
FLASH | **RAM**

M0 Core

BLE Protocol stack

BLE Protocol stack

RAM1 : 6KB

RAM2 : 6KB
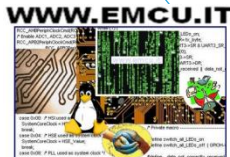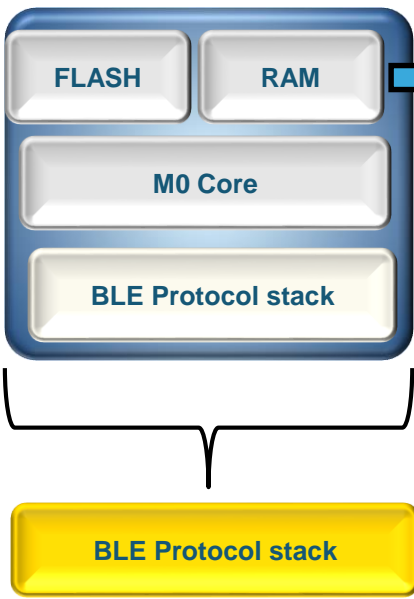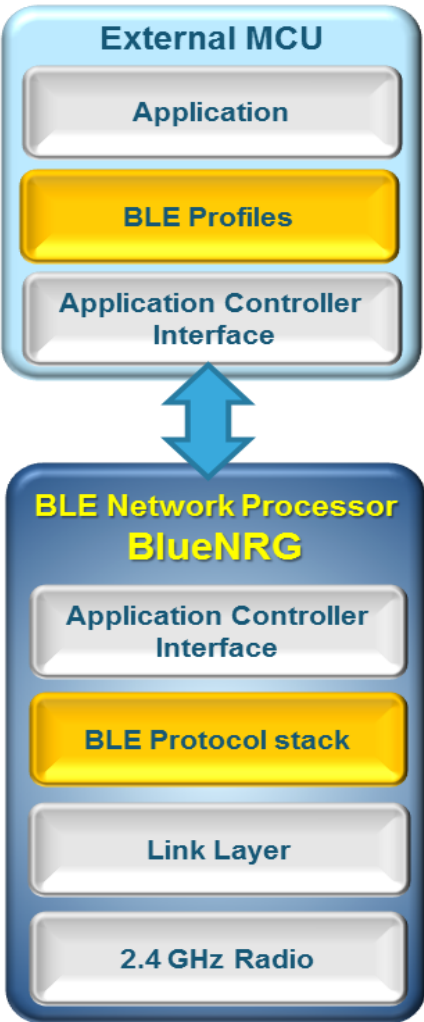
12KB RAM allocated to
1. stack and associated connections management
2. BLE attributes table size

pending to stack mode used, RAM allocation is spread accordingly

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mode 1 : 6K RAM only

- ✓ master and Slave
- ✓ only one connection
- ✓ number of attribute records for characteristics is 35 (9 records are reserved for GAP and GATT services)
- ✓ Attribute table is 302 bytes (36 bytes + length of the device name characteristic are reserved for GAP and GATT services)
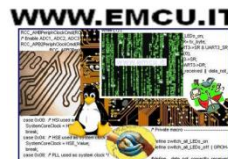
mode 2 : 12K RAM

- ✓ master and Slave
- ✓ only one connection
- ✓ number of attribute records for characteristics is 68 (9 records are reserved for GAP and GATT services)
- ✓ Attribute table is 700 bytes (36 bytes + length of the device name characteristic are reserved for GAP and GATT services)

This is the more suitable mode for server application exposing data to client

allocation details part of BlueNRG MS Release Note

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mode 3 : 12K RAM

✓ master and Slave
✓ up to 8 connections
   ✓ up to 8 slaves at same time (BlueNRG MS acting as master only)
   ✓ or up to 7 slaves and be slave of one master at same time. (BlueNRG MS acting as master and peripheral)

✓ What you can do : you will be able to act as a master and perform scan command, or to advertise as a peripheral
✓ use case : boot as master and scan, if no peripheral around, then stop scanning then start an advertising sequence

✓ number of attribute records for characteristics is 22(9 records are reserved for GAP and GATT services)
✓ Attribute table is 490 bytes (120 bytes + length of the device name characteristic * 8 are reserved for GAP and GATT services

mode 4 : 12K RAM

✓ master and Slave simultaneously
✓ up to 4 connections

What you can do : you will be able to act as a master and perform scan command, and to advertise as a peripheral simultaneously
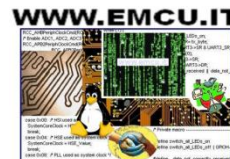use case : boot as master and scan, in same time advertise as a peripheral.

✓ number of attribute records for characteristics is 34 (9 records are reserved for GAP and GATT services)
✓ Attribute table is 576 bytes (72 bytes + length of the device name characteristic * 4 are reserved for GAP and GATT services)

allocation details part of BlueNRG MS Release Note

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In mode 3 and mode 4 when BlueNRG MS is acting as a peripheral , up to 2 clients connections are possible.

Use case : BlueNRG MS connecting to smartphone A and smartphone B and in same time still able to advertise (non-connectable) or to scan

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Beacons advertising events (non connectable)

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