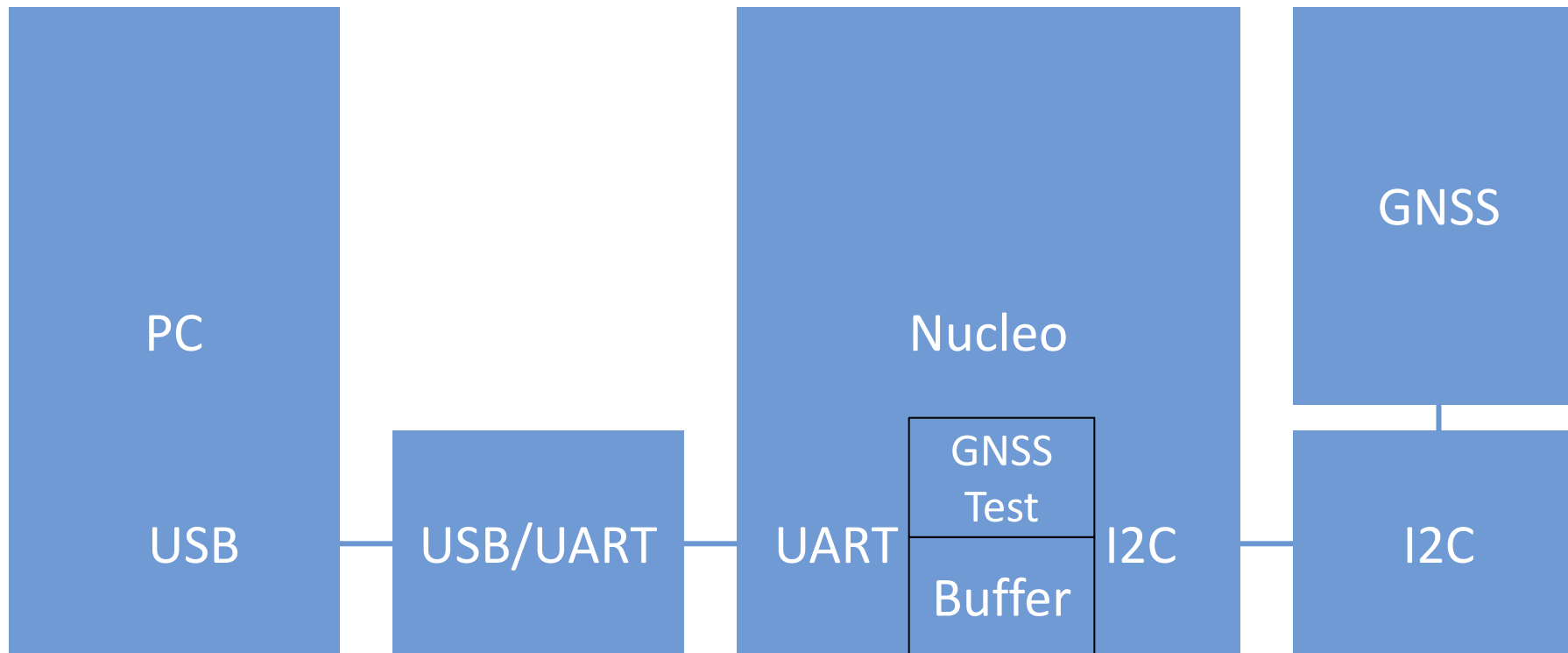# Belmont test
software architecture

Bittium

Index

- GNSS communication

  - Tested with I2C communication (yes)

- Audio communication

  - SPI communication, recording and playback

- Modem communication

  - UART communication SW implementation

- Sensors' communication

  - Sensor SW implementation

- Control menu to the software
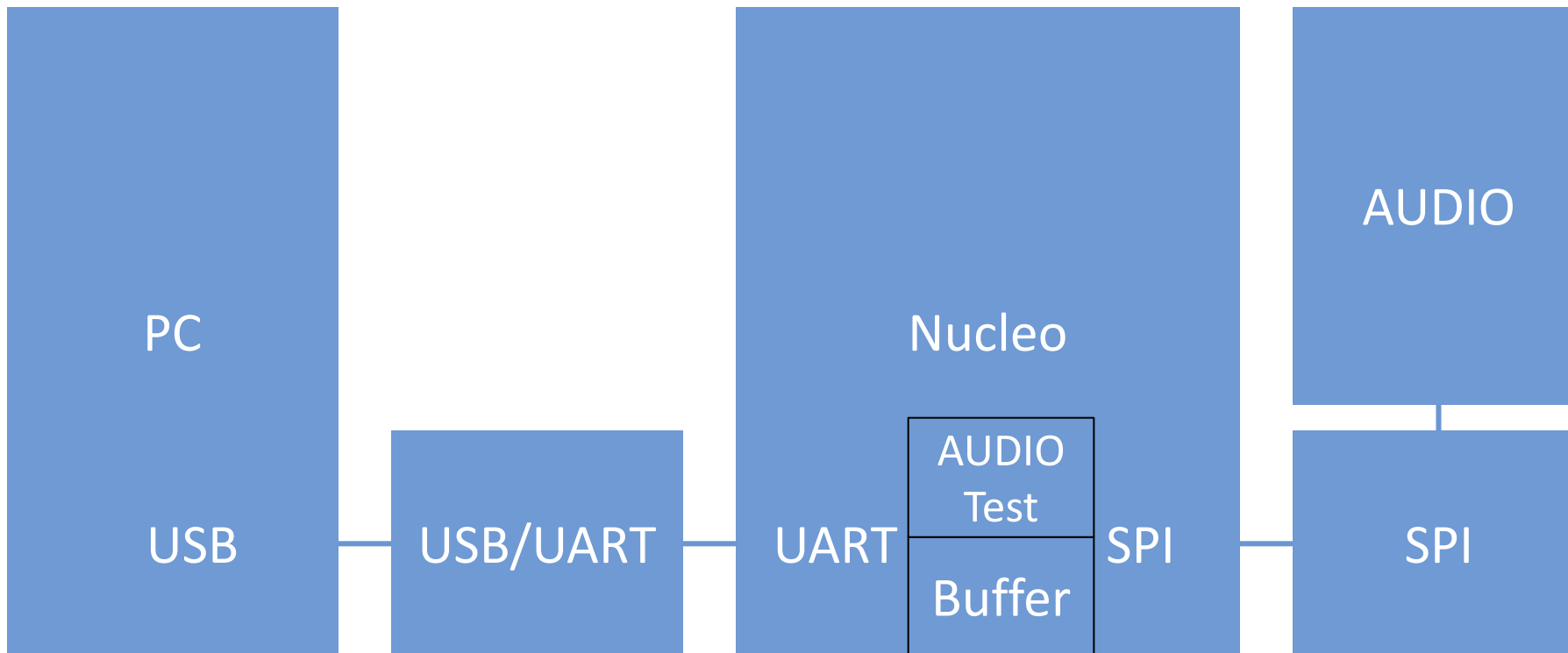
  - Menu SW implementation

Bittium

GNSS Communication

GNSS test
- Pulls NMEA message through I2C
- Dumps NMEA to console
- Transfers ASCII (NMEA) from console to GPS using I2C
- Compatible with Sony PC test SW.
- Uses Sony GPS config

- GPS flashing tested using debug UART

PC

USB

USB/UART

Nucleo

UART

GNSS Test

Buffer

I2C

GNSS

I2C

Audio communication

Audio test
- Records audio
- Playback same audio
- Used Ogg-Vorbis
  (mono left, 16kHz, 1024 byte frame)
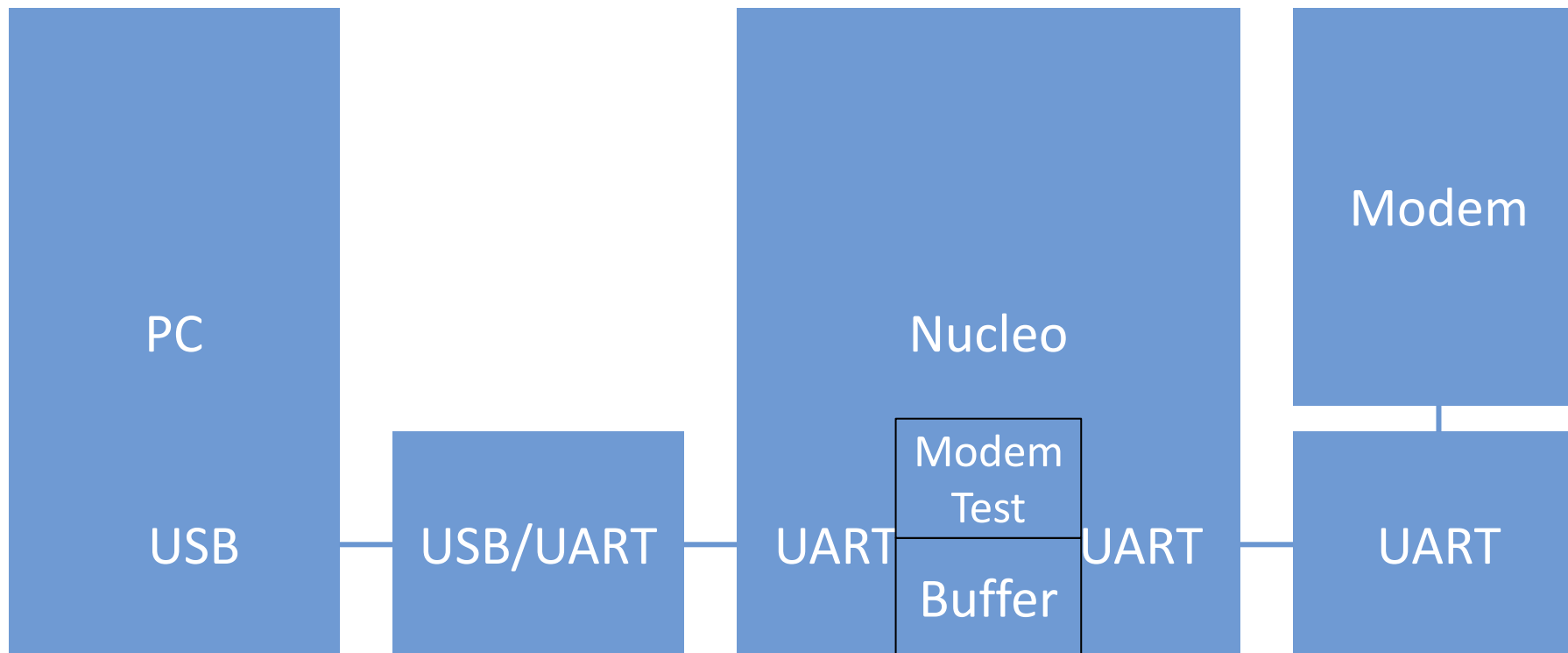- Hex dump Ogg-Vorbis
  to console

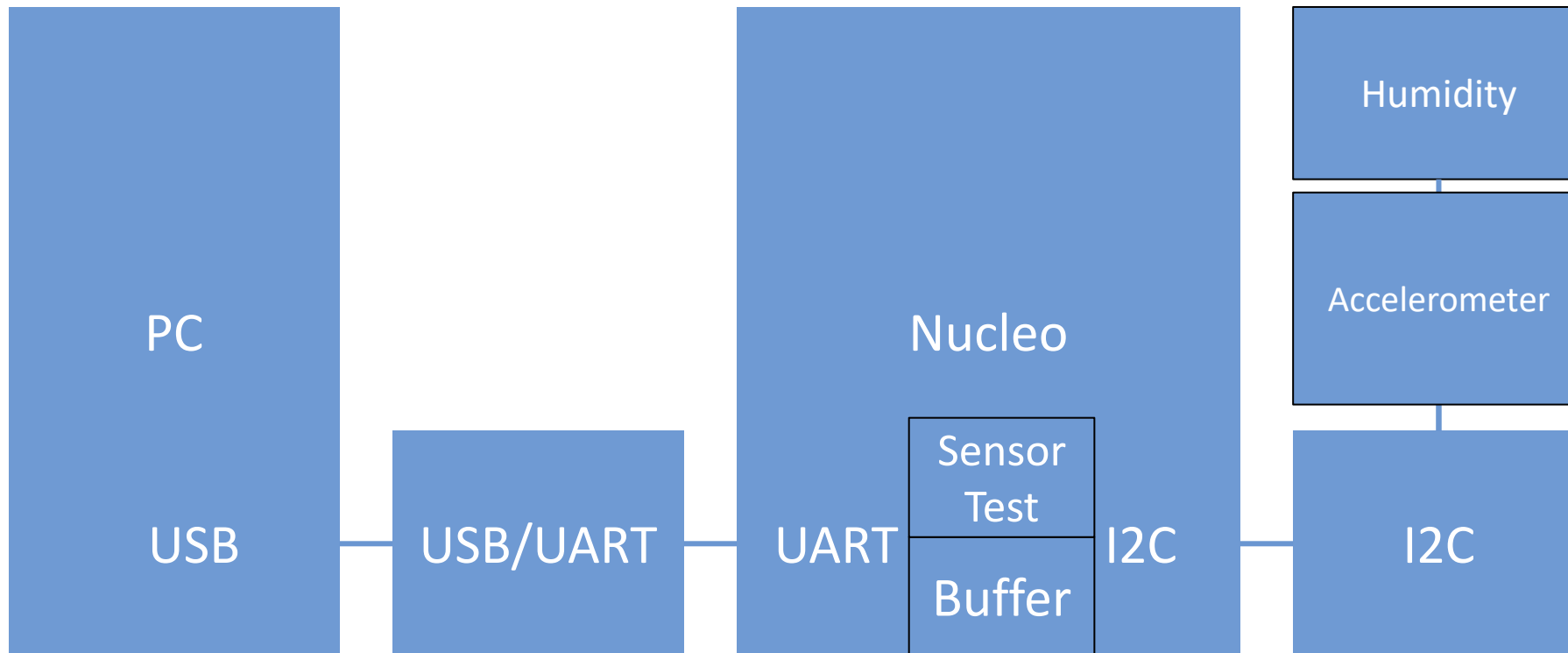| PC | | | | Nucleo | | AUDIO | |

C:\Data\121401
ont\local\belmont

Outlook Item

Modem communication

Modem test
- Pass-through UART test
- Supports sending AT commands from console with answer.

PC		USB/UART	Nucleo		Modem

```
PC          USB/UART        Nucleo                  Modem

                                    Modem
                                    Test
USB         USB/UART    UART                UART    UART
                                    Buffer
```
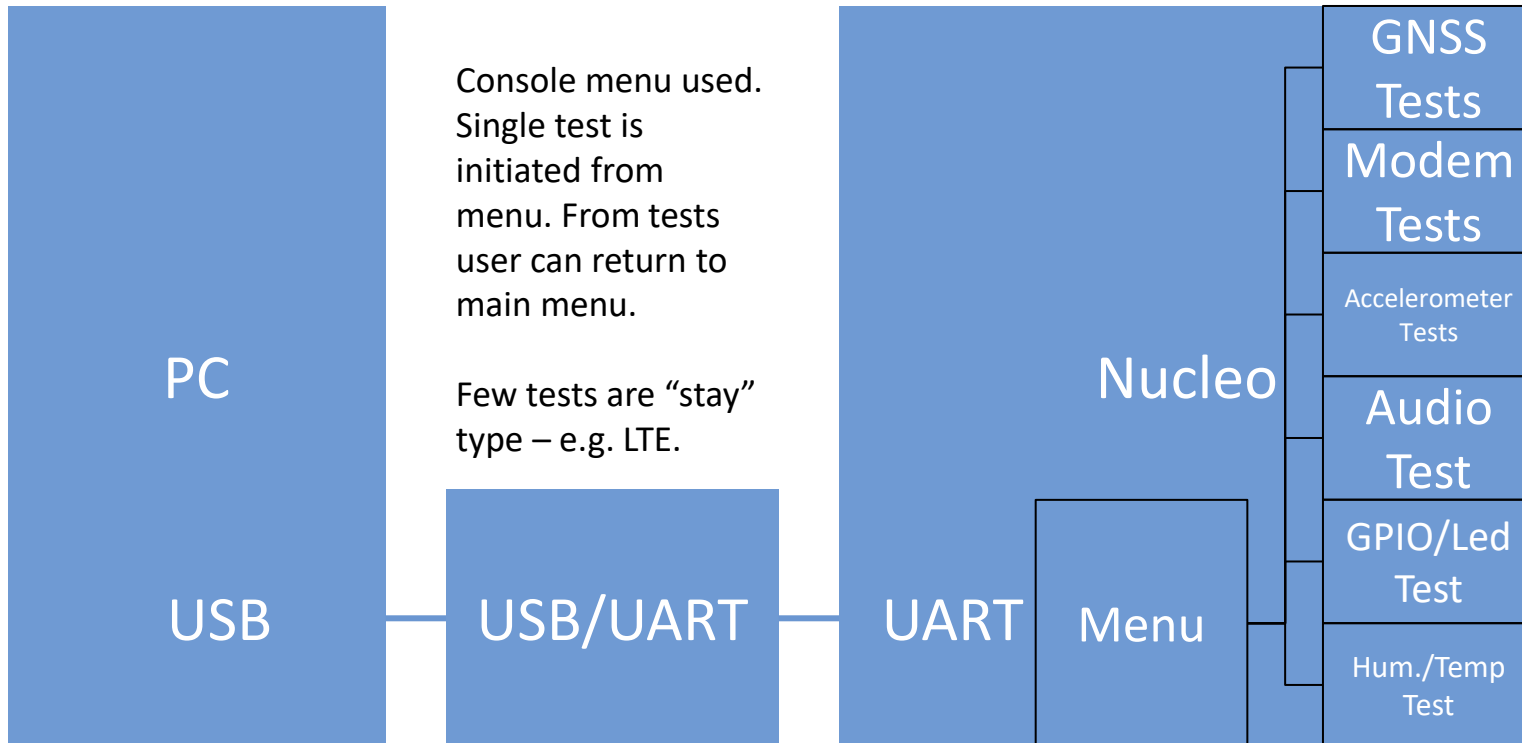
Sensor Communication

Sensor test
- Dumps sensor register data to console
- No control currently.

- Due to the lack of Belmont boards sensor communication has not been verified yet with real sensors.

Menu SW Implementation

PC

USB

Console menu used. Single test is initiated from menu. From tests user can return to main menu.

Few tests are "stay" type – e.g. LTE.

USB/UART

Nucleo

UART

Menu

GNSS Tests

Modem Tests

Accelerometer Tests

Audio Test

GPIO/Led Test

Hum./Temp Test

BELMONT Build Jan 31 2017 14:21:34, dev: 0x419 rev: 0x2001
Write '?' for menu
?
--- Menu -----------------
 1 ..... Reset GNSS
 2 ..... Read GNSS version
 3 ..... Write GNSS commands
 4 ..... Pipe GNSS traffic
 5 ..... Reset LTE
 6 ..... Pipe LTE traffic
 7 ..... Accelerometer id
 8 ..... Accelerometer test
 9 ..... Accelerometer register write/read
 A ..... audio test
 B ..... GPIO test
 C ..... GPIO write/read
 D ..... Ambient light sensor test
 E ..... Humidity & Temperature sensor test
 ? ..... This menu

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