Thunderdome
2016_WW14.1
3.0.164
mainline build

Release Notes

NDG DSW team

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1 RELEASE CONTENT

This is the Thunderdome mainline (TD v3) release based on Zephir 1.0 RTOS.

It supports Curie (Atlaspeak) platform.

1.1 SUPPORTED HARDWARE

This release is supported on

- Curie Customer Reference Boards (CRB).
- Curie ORB Boards
- Curie Morpheus devices

1.2 BINARIES

Version	Device : 3.0.164 Android library : 3.0.164 iOS library : 3.0.164
Release area	ATP1XXXXXX-1613W0164
Device binaries	Curie IQ CRB Curie IQ ORB Curie sandbox for CRB Morpheus Proof Of Concept
Android IQ Test app (DSW internal testing only)	DeviceIQTestApp.apk
iOS Device IQ Test app (DSW internal testing only)	IOSDeviceIQTestApp.ipa
Developers documentation	Developers documentation
Memory consumption report	Memory consumption report
Base build	manifest-latest-2151

Cherry-pick patches	None

1.3 MAIN CHANGES

95 patches (65 JIRA) were integrated in this release.

Patchlog is available here. Changelog is available here.

1.3.1 Device

- Use tickless idle on ARC (FIRE-4213)
- Configure pin-muxing for all devices(FIRE-4215)
- updated gcc-arc-elf32 with latest toolchain (FIRE-4616)
- Add curie 'hello world' sample apps (FIRE-4636)
- Support QMSI driver (FIRE-4737)
- Workaround to stop deepsleep wakeup after 4s (FIRE-4874)
- calibrate the barometric altimeter in all cases (FIRE-4825)
- Services declaration are decentralized (FIRE-4876)
- Subscription to events should not be persistent across BLE connections (FIRE-4919)
- log system events from bootloader (FIRE-3731)
- Add identity IQ system events (FIRE-4855)
- Code cleanup in BLE service, ADC service, circular storage(FIRE-4847, FIRE-4885, FIRE-4891, FIRE-4915, FIRE-4900, FIRE-4967)
- Memory Optimization (FIRE-4656, FIRE-4659, FIRE-4836)

1.3.2 Android connection library

- Refined isPaired and isConnect methods return values(FIRE-4424)
- Fix memory leak in PreferencesManager (FIRE-4822)
- Support IASP logs in testapp (FIRE-4914)
- Readable BodyIQ Timestamp values (FIRE-4928)

1.3.3 iOS connection library

- Set reception closure as optional in applications (FIRE-4942)

1.4 KNOWN ISSUES

- Battery level needs to be aligned for low temperature FIRE-3345, FIRE-4450
- FOTA on multiple devices is not possbile – FIRE-4604, FIRE-4727
- BLE connection timeout during stress test – FIRE-4692
- FOTA upload duration is more than 6 minutes – FIRE-4484
- Charging status is not cosistent during deep sleep – FIRE-4741

1.5 SANITY TESTS RESULTS

Device	Campaign	Results	
CRB curie_reference	Sanity	SanityTests_CRB_16ww14.xlsx	Test Passed: 43 Test Failed: 1 Total Test Case: 44
	Daily	DailyTests_CRB_16ww14.xlsx	Test Passed: 32 Test Failed: 0 Total Test Case: 32
ORB curie_reference	Sanity	SanityTests_ORB_16ww14.xlsx	Test Passed: 41 Test Failed: 1 Total Test Case: 42
	Daily	DailyTests_ORB_16ww14.xlsx	Test Passed: 26 Test Failed: 0 Total Test Case: 26
CRB Sandbox	Sandbox	DailyTests_CRB_Sandbox_16ww14.xlsx	Test Passed: 15 Test Failed: 0 Total Test Case: 15

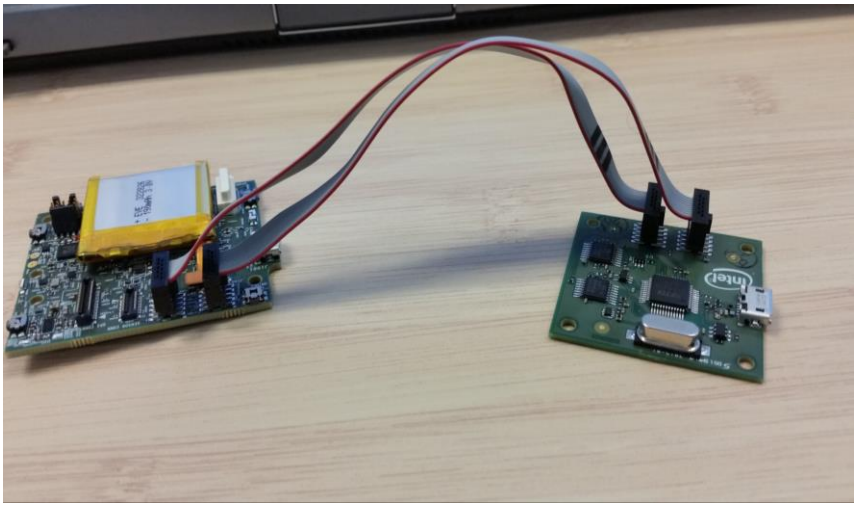
2 DEVICE FLASH INSTRUCTIONS

2.1 SUPPORTED TOOLS

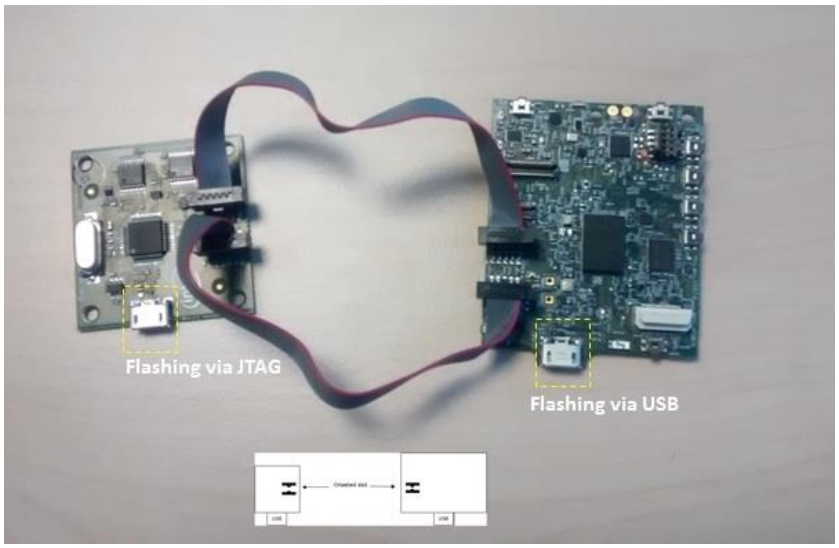
Platform Flash Tool	Version 5.4.2.0 https://wiki.ith.intel.com/display/DRD/Platform+Flash+Tool
NDG tools	Version 1.4.0 https://confluence.ndg.intel.com/display/NDGTOOLS/Flashing+software+release

2.2 CRB CONNECTIONS

1. Attach the battery to the CRB
2. Connect the CRB and debug board with appropriate wires as shown below



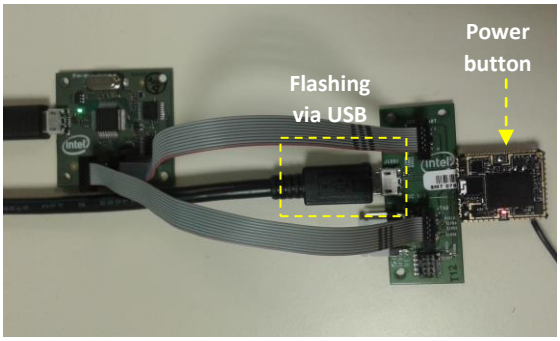
3. The battery connects at the base of the two-wire mounting points on the main board.
4. Pay special attention to the orientation of the plastic nub on the wires and their relative orientation to the USB port. They should be on pointing the same way.



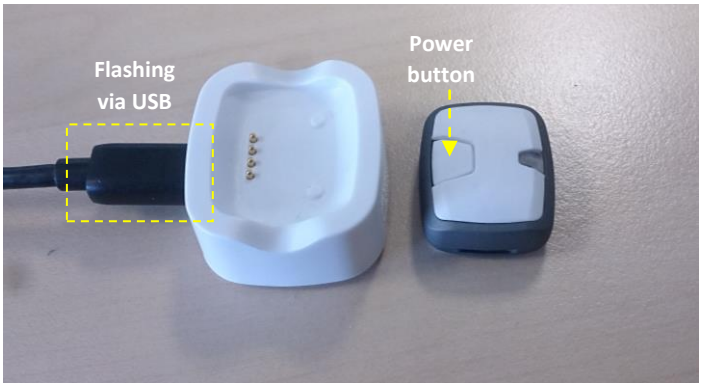
5. Plug both USB ports to the computer and wait a few seconds for the board to boot up.
    - You can optionnally verify the presence of two devices
        - For windows, open the *device manager*, and go to Ports (COM&LPT) section
        - For linux, run *lsusb* command and check the productString.

2.3 ORB DEVICE CONNECTIONS

2.3.1 Open ORB devices

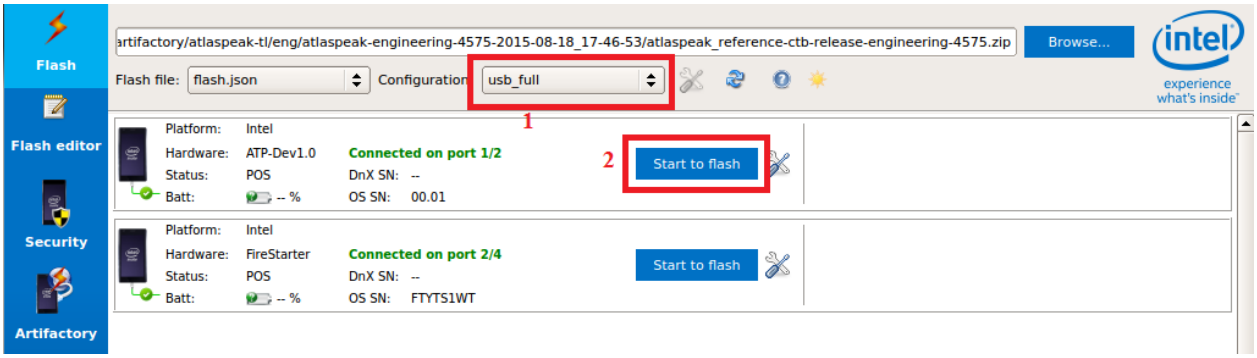


2.3.2 ORB amulet devices



2.4 FLASHING

1. Download the desired release binary (See chapter 1)
2. **Launch Platform flash tool**
3. Check that two devices are listed in the main panel
4. **Press the Browse button** near the top of phone flash tool.
5. Browse and **select the downloaded archive of the build**.
6. **Choose "usb_full"** from the configuration drop down menu.
7. **Press "Start to flash"** for the *Intel CURIECRB* device to flash through USB, **within 10 seconds** of the board rebooting, or **press the reset button** on the CRB if you missed the time window.



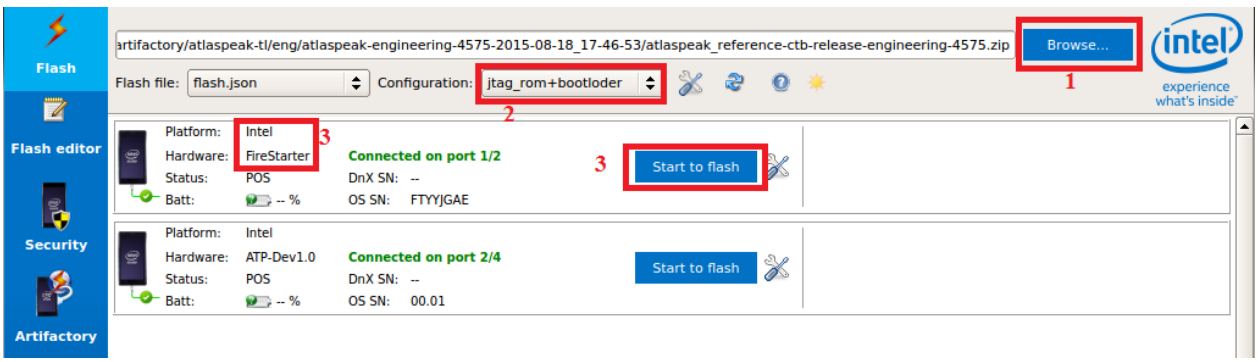
8. Wait until the USB flashing is done. The board should reboot by itself.

Note: JTAG flashing is supported only for Windows OS and NOT supported for Mac OS.

2.5 RECOVERY

This procedure is to apply only if the standard flashing procedure is not working

1. **Choose *"jtag_rom+bootloader"*** from the configuration drop down menu.
   - A pop up for documentation may occur when changing the configuration but this can be ignored.
2. **Press the *"Start to flash"* button** for the *Intel FireStarter* device to flash through JTAG.



3 DEVICE USAGE INSTRUCTIONS

3.1 CURIE IQ

3.1.1 Features set

This project supports the following features :

- BLE peripheral
- FOTA IQ
- Body IQ
- Social IQ
- Set/get clock, factory reset, user&systems events over BLE
- SW Fuel gauging
- Critical battery shutdown
- Log in SPI flash

CRB only:

- OHRM support + BLE HRM standard profile

3.1.2 Device interactions

Desired behavior	Device state	Action	Device feedback
Power on the device	OFF	Press the power button	green LED for 1s once booted
Power off the device	ON	Press the power button for 2s	white LED for 1s before shutdown
Reset BLE credential	ON	Press the power button for 6s	None
Start OHRM measures	ON OHRM OFF	Press the power button	white LED for 1s
Stop OHRM measures	ON OHRM ON	Press the power button	blue LED for 1s
Restart BLE fast advertising	ON	Double press the power button	None
Hard shutdown **(ORB only)**	ON	Keep the power button pressed for 12 seconds	None

3.2 CURIE SANDBOX

3.2.1 Features set

- BLE peripheral
- BLE central
- BLE ISPP capable
- Data collection (raw sensor data collection at 100Hz)
- Gestures recognition thru PVP - neuronal network
- Math/Algo library

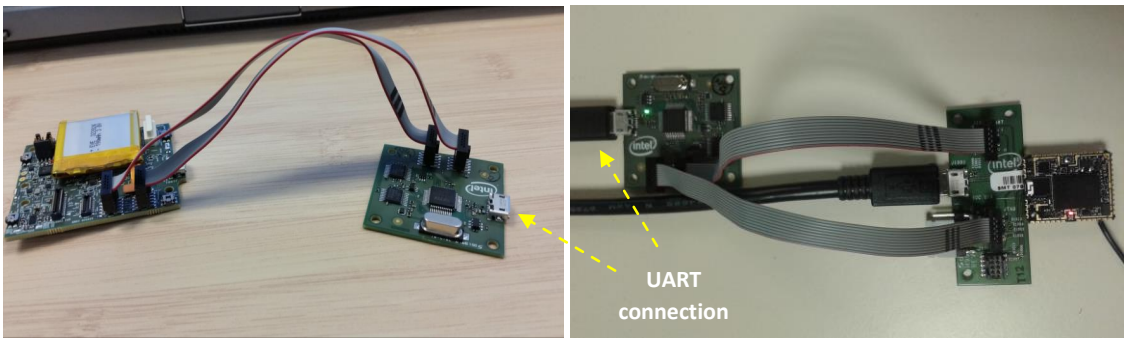
Note: IQs are not available in Curie Sandbox
Note2: Curie sandbox features are not integrated with a phone application. Use through test commands only.

3.2.1 Device interactions

Desired behavior	Device state	Action	Device feedback
Power on the device	OFF	Press the power button	None
Power off the device	ON	Press power button for 2s	None
Reset BLE credential	ON	Press power button for 6s	None
Start Sensor raw data collection	ON COL. OFF	Press the power button	white LED for 1s
Stop Sensor raw data collection	ON COL. ON	Press the power button	blue LED for 1s
Restart BLE fast advertising	ON	Double press the power button	None

4 DEVICE BASIC DEBUGGING

4.1 UART INTERFACE



Note: UART logs can't be retrieved on ORB amulets.

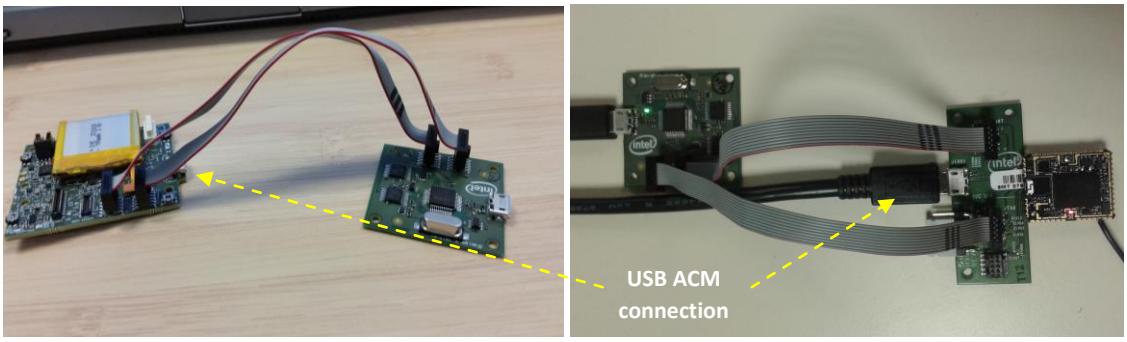
- Connect the USB cable between your host PC and the debug board.
- Check the port assigned on your host PC (Windows: COMxx, Linux: /dev/ttyUSBxx)
- Connect a Com terminal. Baudrate is 115200 8N1
- Logs are printing

4.2 TEST COMMANDS

On the UART console, type help to get the list of available test command.

See the technical documentation for commands details.

4.3 USB ACM INTERFACE



USB ACM interface is only available when the device is powered on. This

USB ACM driver are only available on Linux as of now.

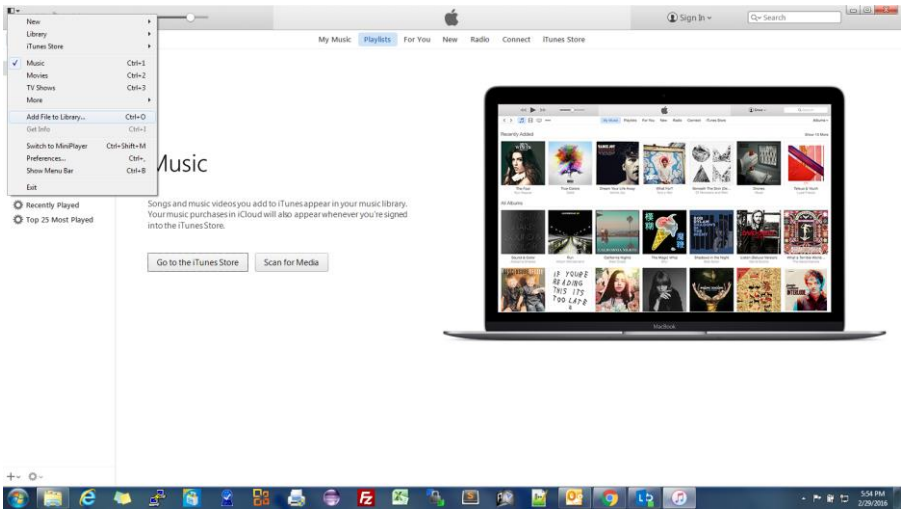
- Connect the USB cable between your host PC and the debug board.
- Check the port assigned on your host PC (Eg: /dev/ttyACM and /dev/tyyACM1)
- Connect a Com terminal. Baudrate is 115200 8N1 to /dev/ttyACM0 and another to /dev/ttyACM1
- One of the console will accept the test command
- By default the logs are not directed to the ACM interface. The following test command allows to route the logs to the ACM interface "`log setbackend usb`"

Note: The logs from ACM interface and UART are one and the same. ACM logging interface is supported only on AORB amulets

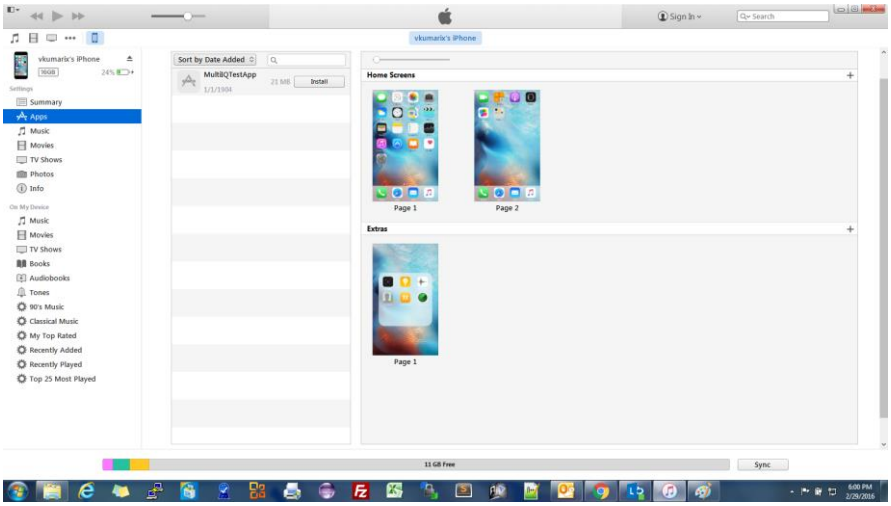
5 ANDROID AND IPHONE TEST APPLICATIONS

5.1 INSTALLATION ON IOS

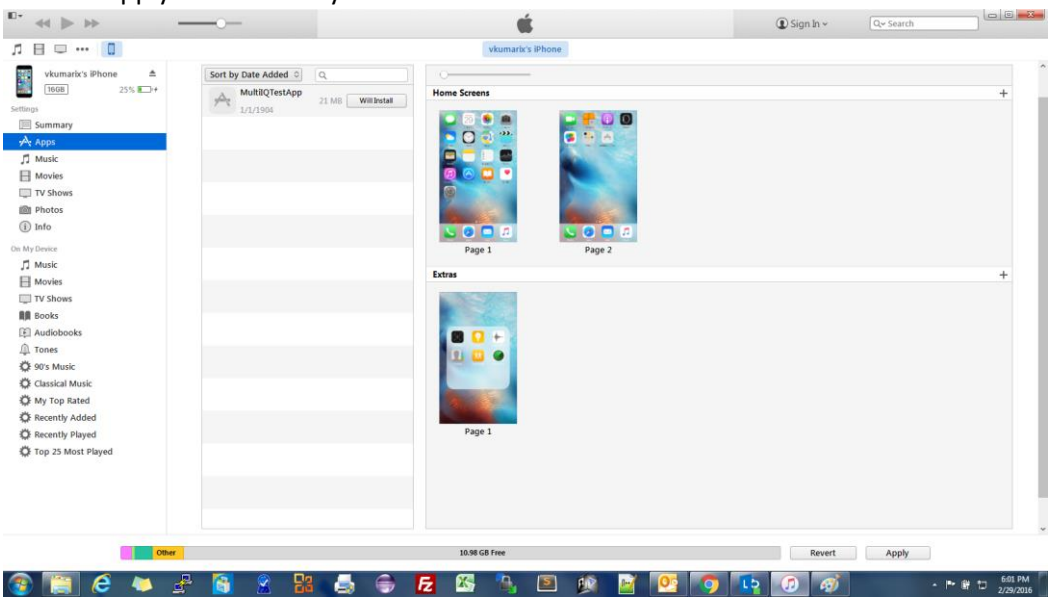
- Download the ipa file on your host PC.
- Install iTunes if you don't have it already.
- Add downloaded ipa file to Library...



- Plug your iPhone to your computer
- In iTunes, sync the iPhone to iTunes
- Go to your iPhone and select the Apps section
- Click on install button for the DeviceIQTestApp



- Click on Apply button and sync the iPhone



- The app starts installing on iPhone.
- To launch it, go to Settings -> General -> Device Management (Profile if under iOS 9.1) and select “Intel Corp”
- Select “Trust” your device must be connected to the Internet.
- On that same page, the Device IQ test app should be marked as “Verified”.
- You can now launch the application and use it.

5.2 Installation on Android phones

5.2.1 Prerequisites

The Android test application is supporting Android version 4.3 and greater.

Phone:

- Enable developer mode. See http://developer.android.com/tools/device.html#device-developer-options for details
- Activate USB debugging in the developer options.

Host PC

- Install adb. Adb is automatically installed with Platform Flash tool

Note: The first time you connect your host PC to your phone, the phone will request to accept the connection.

5.2.2 Installation

From the host PC, go in the command line and type:

```
adb install -r AndroidDeviceIQTestApp.apk
```

6 DEVICE BUILD INSTRUCTIONS

6.1 GET SOURCES

The manifest xml file contains the collection of GIT commits that are required to replicate the build.

- The manifest is posted here: https://mcg-depot.intel.com/artifactory/atlaspeak/release/ATP1XXXXXX-1613W0164/manifest-ATP1XXXXXX-1613W0164.xml

If you are doing repo init for the first time, make sure that the directory in which you are sitting is totally empty; no .repo or .git or anything. Then follow the instructions below:

For all users :

- Synchronize from the HEAD:

```
repo init -u ssh://android.intel.com/atlaspeak_manifest
```

- Synchronize from a Weekly/Daily manifest:

```
repo init -u ssh://android.intel.com/atlaspeak_manifest

wget --no-check-certificate -P .repo/manifests  https://mcg-depot.intel.com/artifactory/atlaspeak/release/ATP1XXXXXX-1613W0164/manifest-ATP1XXXXXX-1613W0164.xml

repo init -m manifest-ATP1XXXXXX-1613W0164.xml

repo sync -j 5 -d
```

6.2 BUILD COMMANDS

- Prepare your environement:

```
make setup -C wearable_device_sw/projects/curie_iq_crb/
            BOARD=crb                       (crb | orb)
            BUILDVARIANT=release            (release | debug)
            OUT=out/
```

- Compile the code

```
cd out/
make package ota
```