

//-----

Release version = 7.5.8.65
tag = v7.5.8.65
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.20

ARM (branch = RS-3328): version 5.8.77 (appended 'f' for factory version with authentication disabled)

DSP: version 5.8.40

BSP (branch = RS-3328): version 5.8.37

Changes:

RS-3328: fix potential race condition at poweron. First channel collar report from HW domain should not result in a subsequent zone change event because we always powerup in previous zone i.e. zone change message is ignored in state powering on, but not other states

//-----

Release version = 7.5.8.64
tag = v7.5.8.64
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.20

2) THIS VERSION IS NOT COMPATIBLE WITH BKR5000 V2 rev 1 logic boards

ARM: version 5.8.68 (appended 'f' for factory version with authentication disabled)

DSP: version 5.8.40

BSP: version 5.8.37

Changes:

+ RS-3300: assert ACC_DET_MASK gpio to always energize side port to match previous BKR5000 hardware

+ RS-3298: wrap metafile creation and modification with a VIC transaction; Fixed up FindCodeplugKey when searching by (algID, keyID)

//-----

Release version = 7.5.8.63
tag = v7.5.8.63
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.20

2) THIS VERSION IS NOT COMPATIBLE WITH BKR5000 V2 rev 1 logic boards

ARM: version 5.8.68 (appended 'f' for factory version with authentication disabled)

DSP: version 5.8.39

BSP: version 5.8.36

Changes:

- + RS-3152: Add support for VIC encryption IC
- + RS-3291: Add support for DSP to add DES, DES-XL, or ADP key to .neo keys (i.e. codeplug keys)
- + RS-3293: add zerioze codeplug keys message
- + RS-3294: add delete codeplug key message
- + RS-3296: add codeplug inventory message
- + RS-3297: add OTAR enabled flag to encryption enabled ARM->DSP message for VIC support

```
//-----  
Release version = 7.5.8.62  
tag = v7.5.8.62  
branch = master unless specified below
```

General Comments:

- 1) Tested with RES 5.8.20
- 2) THIS VERSION IS NOT COMPATIBLE WITH BKR5000 V2 rev 1 logic boards

ARM: version 5.8.67 (appended 'f' for factory version with authentication disabled)
DSP: version 5.8.36
BSP: version 5.8.36

Changes:

- + Revert "RS-3274: add temporary v2 ADC mux selection table (to be reverted)"

```
//-----  
Release version = 7.5.8.61  
tag = v7.5.8.61  
branch = master unless specified below
```

General Comments:

- 1) Tested with RES 5.8.20

ARM: version 5.8.66 (appended 'f' for factory version with authentication disabled)
DSP: version 5.8.36
BSP: version 5.8.36

Changes:

- + RS-3290: Add USB command support to provision VIC
- + RS-3289: revert back to BKR 2.6.28-omap1 kernel version i.e. not patched from mainline

```
//-----  
Release version = 7.5.8.60  
tag = v7.5.8.60  
branch = master unless specified below
```

General Comments:

1) Tested with RES 5.8.20

ARM: version 5.8.65 (appended 'f' for factory version with authentication disabled)

DSP: version 5.8.36

BSP: version 5.8.35

Changes:

+ RS-3288: Invert TX modulating signal to VCO for BKR5000 V2 hardware

+ RS-3281: Add support to remote write AD9864 registers

+ RS-3287: ignore keypad matrix events other than EV_KEY

+ RS-3286: prevent NULL bitmap entries from crashing application

//-----

Release version = 7.5.8.59

tag = v7.5.8.59

branch = master unless specified below

General Comments:

1) Tested with RES 5.8.20

2) First version that supports BKR5000 V2 boards

ARM: version 5.8.64 (appended 'f' for factory version with authentication disabled)

DSP: version 5.8.35

BSP: version 5.8.34

Changes:

+ RS-3227: Add support for Codec IC TLV320AIC3107

+ RS-3245: Synchronize dual port modulation with new AIC3107 codec

+ RS-3275: Use the GPIO directly to detect power-off on v2 hardware

+ RS-3244: GPIO changes for BKR5000 v2

+ RS-3274: Make temporary change to support AMUX change on initial v2 boards

+ RS-3273: Generate 256*Fs signal, or equivalent, on Tuna v2 hardware platform

+ RS-3276: Front display backlight driver doesn't work for new TPS61158 IC

+ RS-3229: Add runtime detection for BKR5000 hardware version

//-----

Release version = 7.5.8.57

tag = v7.5.8.57

branch = master unless specified below

General Comments:

1) Tested with RES 5.8.20

2) NEW FIRMWARE IMAGE MUST ALSO BE LOADED NOW. THERE IS AN ADDITIONAL IMAGE "kernel-backup.raw.jimage" THAT SHOULD ALSO BE LOADED WITH LIGHTNING/FLASHER

ARM: version 5.8.60 (appended 'f' for factory version with authentication disabled)

DSP: version 5.8.30
BSP: version 5.8.33

Changes:

+ RS-3248: Add DTMF live dial feature for portable (cherry-pick from commit 5a0a5085)

```
//-----  
Release version = 7.5.8.56  
tag = v7.5.8.56  
branch = master unless specified below
```

General Comments:

- 1) Tested with RES 5.8.20
- 2) NEW FIRMWARE IMAGE MUST ALSO BE LOADED NOW. THERE IS AN ADDITIONAL IMAGE "kernel-backup.raw.jimage" THAT SHOULD ALSO BE LOADED WITH LIGHTNING/FLASHER

See ResolvedTickets.pdf for table of resolved JIRA tickets

ARM: version 5.8.59 (appended 'f' for factory version with authentication disabled)
+ RS-3235: check ioctl return values correctly
+ RS-3235: Add retries to transmit IPC messages
+ RS-3233: BKR9000 - add kv to remote set VCO frequency message
+ RS-3192: change BKR-9000 to composite fuel gauge and radio-authentication driver
+ RS-3191: add auth/fuelgauge combo unit test for BKR-9000

DSP: version 5.8.30

+ RS-3233: BKR9000 - add kv to remote set VCO frequency message
+ RS-3235: Add retries to transmit IPC messages
+ RS-3235: Increase IPC message buffers from 8 to 16
+ RS-3238: BKR9000 - give remote set PA gate bias setting priority over value from alignment file
+ RS-3239: BKR9000 - give remote set RF power value priority over value from alignment file

BSP: version 5.8.33

+ RS-3240: If block is bad in kernel image x-loader will attempt to load equivalent block from backup kernel image
+ RS-3235: reduce I2C timeout to 1msec
+ RS-3235: Increase number of IPC buffers from 8 to 16
+ RS-3235: only dequeue DSP-2-ARM message if user buffer is available
+ RS-3237: I2C write failure to LED driver will result in a software reset of IC to clear potential failure observed in multi-master configuration
+ RS-3236: remove deadlock condition introduced in I2C ISR

- at some point the mainline I2C OMAP driver had some code added that attempts to ignore ISR bits based on if the latest message mode is Tx or Rx. We have witnessed the driver getting into a state where it thinks it is in Rx mode so it is ignoring the Tx status bits which results

- in the status register never getting cleared.
- this commit reverts some of the changes introduced to the mainline affecting the ISR structure.

//-----

Release version = 7.5.8.55
tag = v7.5.8.55
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.19

ARM: version 5.8.57 (appended 'f' for factory version with authentication disabled)
DSP: version 5.8.29
BSP: version 5.8.32

+ See ResolvedTickets.pdf for table of resolved JIRA tickets

//-----

Release version = 7.5.8.54
tag = v7.5.8.54
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.15

ARM: version 5.8.50 (appended 'f' for factory version with authentication disabled)
DSP: version 5.8.20
BSP: version 5.8.27

+ RS-3161: Add support for SS1Tool for Bluetooth testing
+ RS-3161: Add SS1Tool to rootfs

//-----

Release version = 7.5.8.53
tag = v7.5.8.53
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.15

ARM: version 5.8.49 (appended 'f' for factory version with authentication disabled)
DSP: version 5.8.20
BSP: version 5.8.26

+ TUNA-463: Cloning fails between tuna radios
+ RS-3110: Create patch files to transform mainline into our current kernel
+ RS-3143: Cloning support between BKR9000 and single band radios
+ TUNA-464: Add support for new RSM design removing Volume button and adding Volume Up/Down buttons

```
//-----  
Release version = 7.5.8.52  
tag = v7.5.8.52  
branch = master unless specified below
```

General Comments:

1) Tested with RES 5.8.14

ARM: version 5.8.48 (appended 'f' for factory version with authentication disabled)

DSP: version 5.8.20

BSP: version 5.8.25

- + RS-3150: BKR9000 add support to remote set DAC channels on AD5592R
- + RS-3149: BKR9000 add support to set TX-RX switches. Changes involved adding 700 band and eliminating the previous defined 900 band
- + RS-3148: [BKR9000] PSET control by McBSP only. Add TXControllerBKR9000 and TXControllerBKR5000 files. Tx power forced to zero for development
- + RS-3147: account for SPI MISO from AD9864 is not inverted on BKR9000 hardware
- + TUNA-456: Add support to save mic samples to file system for engineering use
- + RS-3146: BKR5000 & BKR9000 hardware is always TDMA capable
- + RS-3145: [BKR9000] move internal/external speaker mute gpio to pins 97/98
- + RS-3134: Uniboard bring-up support (multiple commits in each repo)
- + TUNA-461: Real Time Clock (RTC) doesn't retain time with battery swap
- + TUNA-456: For engineering use - add method to record mic samples and store to file system
- + TUNA-451: need way to unpair Bluetooth Device
- + RS-3124: Finishing work on wahoo top display. Adding the wifi top display icon.
- + RS-3144: make ext emergency only on BKR5000
- + RS-3139: Add support for all band radio when validating conventional channel frequency parameters
- + RS-3142: Remove power-up band check for all-band radio
- + RS-3137: Add LP5562 4-channel RGB- or White-LED driver
- + RS-3136: [BKR9000] invert logic on external PTT pin to match hardware
- + RS-3108: Mux SPI1 CS3 for use with BKR9000 synthesizer

```
//-----  
Release version = 7.5.8.51  
tag = v7.5.8.51  
branch = master unless specified below
```

General Comments:

1) Tested with RES 5.8.14

ARM: version 5.8.47 (appended 'f' for factory version with authentication disabled)

DSP: version 5.8.19

BSP: version 5.8.24

- + RS-3133: Fixing parms shadow save interfering with a clone

- + TUNA-451: Add Forget-All-Devices choice to Bluetooth menu. Users are now prompted if they want to connect when connecting from a remote for the first time
- + TUNA-452: disable keypad mute function and mark it as deprecated
- + PA-3124: Remove requirement that MSB of ESN is 0x10
- + TUNA-453: Fix mishandled DSP to GPP trace event message when transaction IDs match, a rare event, but does occur immediately after power-up
- + RS-3116: Adding missing tuna emwin library file.
- + TUNA-435 Ported changes from conventional to trunking
- + RS-3115: Prevent an unknown parameter type from cancelling a clone
- + TUNA-142 Fixed up most cases where GLOSFD file descriptors were being saved in member variables
- + TUNA-439: BKR5000 hardware workaround - hard limit keypad backlight PWM duty cycle % when external PTT is pressed to avoid PWM switching frequency from coupling onto external mic.

```
//-----  
Release version = 7.5.8.50  
tag = v7.5.8.50  
branch = master unless specified below
```

General Comments:

- 1) Tested with RES 5.8.14
- 2) See "ReleaseNotes.html" file for resolved JIRA tickets

ARM: version 5.8.46 (appended 'f' for factory version with authentication disabled)
DSP: version 5.8.18
BSP: version 5.8.23

```
//-----  
Release version = 7.5.8.49  
tag = v7.5.8.49  
branch = master unless specified below
```

General Comments:

- 1) Tested with RES 5.8.13

*****ARM*****

version 5.8.45 (appended 'f' for factory version with authentication disabled)

- + TUNA-414: reduce accelerometer time-for-check rate
- + TUNA-410: Add scan list edit button & menu item
- + TUNA-418: Replace DSP trace ID with string
- + TUNA-412: restructure received GPS display modes
- + TUNA-409: Add global parameter voice announcement priority
- + TUNA-413: Fix VA audio distortion during playback due to underflow. DSP now controls timing of VA processing.
- + RS-3101: Fix audio pop at power-down on BKR5000 seen with quick power-up/down sequence
- + TUNA-411: Add 'Disabled' to choices available in the Min Volume menu
- + TUNA-404: MBT# 2438: Added Global DTMF Live Dial

+ KF-2642: Adds Code Plug Version as a global parameter
+ TUNA-406: Fix so volume table from parameters file is recognized. HWController will not init domain objects until parms file has been parsed, needed to eliminate issue where HW domain accesses parms before they are valid. Secondary fix needed for GLAnalo

*****DSP*****
version 5.8.17

+ TUNA-418: Replace DSP trace ID with string
+ TUNA-413: Fix VA audio distortions during playback due to underflow. DSP now controls timing of VA processing.

*****BSP*****
version 5.8.23

+ TUNA-414: clear IRQ properly in accelerometer driver
+ RS-3101: nSPKR_MUTE and nEXT_SPKR_MUTE are connected to gpio pins 4 & 5. Their reset value enables an internal pull-up resistor, which results in a audio pop at power-up. The pop is reduced by maintaining the reset state until the pin is reconfigured as

//-----
Release version = 7.5.8.48
tag = v7.5.8.48
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.11

*****ARM*****
version 5.8.44 (appended 'f' for factory version with authentication disabled)

+ TUNA-402: Allow zone to change when voice announcement is playing. Play the zone change beep once the voice announcement is stopped.

*****DSP*****
version 5.8.16
*****BSP*****
version 5.8.22

//-----
Release version = 7.5.8.47
tag = v7.5.8.47
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.11

*****ARM*****

version 5.8.43 (appended 'f' for factory version with authentication disabled)

- + TUNA-400: add scrolling to top display; make left-justify
- + TUNA-401: When a channel change interrupts a voice announcement, cancel the voice announcement.
- + TUNA-399: Add support for voice announcement gain
- + TUNA-387: fix top display logic to allow 128x64 within 132x65

*****DSP*****

version 5.8.16

- + TUNA-401: Handle the cancel voice annunciation message which is primarily used when a channel change interrupts the announcement
- + TUNA-399: Add support for voice announcement gain

*****BSP*****

version 5.8.22

- + TUNA-387: fix top display driver to have 65 lines
- + TUNA-396: Fixing signedness of battery statistics per datasheet. This allows the stats to show up correctly in the system test battery stats

//-----

Release version = 7.5.8.46

tag = v7.5.8.46

branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.9

*****ARM*****

version 5.8.42 (appended 'f' for factory version with authentication disabled)

- + TUNA-393: Add Squelch Statistics to system test menu

*****DSP*****

version 5.8.15

- + RS-3100: add bkr9000 build
- + TUNA-391: remove FIPSCOM support from Tuna
- + TUNA-394: remove KNG mobile specific code. That product required a slower squelch update due to observed lockups resulting from slow traffic to the remote control head(s)

*****BSP*****

version 5.8.21

- + TUNA-397: Fix power up issue where some display units may not power up correctly

(portion of display corrupted)

```
//-----  
Release version = 7.5.8.45  
tag = v7.5.8.45  
branch = master unless specified below
```

General Comments:

1) Tested with RES 5.8.9

*****ARM*****

version 5.8.41 (appended 'f' for factory version with authentication disabled)

- + TUNA-395: Fix seg fault caused by using incorrect GPS coordinate formatted string ID. This bug was added when we switched to decimal degrees format
- + TUNA-392: When waiting for the clone after selecting the destination clone, check the correct softkey to exit.
- + TUNA-389: Fixing GPS UBX configuration messaging and the UBX queuing mechanism for when there is no response expected.
- + RS-3099: Add precompile flag to separate TUNA and BKR9000 OS file descriptors

*****DSP*****

version 5.8.14

Same

*****BSP*****

version 5.8.20

- + RS-3098: add bkr9000 build

```
//-----  
Release version = 7.5.8.44  
tag = v7.5.8.44  
branch = master unless specified below
```

General Comments:

1) Tested with RES 5.8.8

*****ARM*****

version 5.8.40 (appended 'f' for factory version with authentication disabled)

- + TUNA-388: assume disconnection when UI receives discovery message
 - several places in the HWBluetoothManager will attempt to return to discovery in the event a BluetopiaPM API call fails, so the UIBluetooth object needs to return to discovery if it receives the indication even without receiving a disconnection first
- + TUNA-388: ignore hands-free callback message

- + TUNA-388: use common method for handling disconnection process
- + TUNA-388: ignore audio disconnection messages
 - for us, this is a redundant indication of the regular disconnection message which triggers the message to the UI
- + TUNA-388: add and pass-down all HFR and HDS callback messages
 - most will be ignored, but for debugging Trace logs it will be more helpful to have a specific unhandled message compared to a generic one; during development most HFR messages were not needed so they were never defined in the application
- + RS-3106: Display GPS coordinates in Degrees Decimal (DD) format
- + TUNA-379: remove unused member
 - prior to the previous commit a different attempt was made at updating the list via a GLTimer timeout which would call DEVM_QueryRemoteDeviceList; that version of code failed because the Query call would return a list of entries that didn't match our own list... regardless the new method works. This commit removes a member that was used in the previous attempt but no longer needed now.
- + TUNA-379: use BTM discovery timeout to refresh list
 - allow the BT discovery process to timeout after 10 seconds at which time the list can be updated via a new discovery flag that keeps track of if a device was seen in the most recent discovery scan
- + TUNA-379: exit device list after connecting
- + TUNA-379: prevent user from connecting to multiple remotes
- + TUNA-379: prevent BKR 5000 bluetooth devices from being listed
- + TUNA-379: filter detected devices based on COD
 - keep track of each remote class of device
 - when presenting the list to the UI domain filter the devices; only allow valid audio devices to be selectable
- + TUNA-382: notify DSP that BT is connected
- + TUNA-377: send DSP speaker update when BT disconnected
- + RS-3107: Dual mode scan conventional table in memory: last entry is for the selected channel, and is not guaranteed to be valid. Add logic to ensure an invalid channel is not scanned
- + TUNA-385: add HDS messages to HW controller
- + TUNA-385: add HSP disconnection
 - also, able to use a common method for returning to discovery
- + TUNA-385: start/stop local abilities based on active connection
 - previously the local connectability settings were left on

- after a connection was made; this allowed the remote device the ability to immediately reconnect when trying to force a disconnection.
- this commit disables pairable, connectable and discoverable as soon as a remote connection is made.
- additionally, discovery mode is turned on/off based on having a remote device connected or not
- + TUNA-385: add state to manage events while forcing disconnection from UI
 - also use a single common lower-level disconnection API to force the disconnection
- + TUNA-375: use common method for returning to discovery when disconnection
- + TUNA-375: reset remote flags whenever returning to discovery
- + TUNA-375: stop device discovery when connecting from remote
- + TUNA-375: remove early message to UI that HFR is connected
 - similar to the HDS connection, wait until the HFR audio is connected before telling the UI; in this case we were doing that already, but there was an additional message being sent to the UI that the HFR was connected
- + TUNA-375: return to discovery if a connect fails
 - instead of shutting down, just return to discovery
- + TUNA-375: wait for HDS audio connection to tell UI
 - move the HW->UI message that head-set is connected from the point it is connected to the point when an audio connection is made
- + TUNA-375: set remote BD_ADDR at connect-time
 - the previous design was based on the initial proof-of-concept of connecting to a device in a list;
 - this commit simplifies the remote BD-ADDR whereby it is set whenever a connection is established which includes being connected from the device
 - also handle hands-free device re-connecting while in discovery
- + TUNA-375: no need to respond to local device change event
- + TUNA-375: minor change for completeness
 - It turns out hands-free and headset speaker gain maximums are both 15, but better to define this to be complete
- + TUNA-375: configure local BT properties during power on
 - there is no need to wait for event callbacks to set other local properties
- + TUNA-375: minor cleanup from previous commits
 - mostly to make things consistent
- + TUNA-381: fix to update bluetooth icon in all conventional display states (e.g. receive)

+ TUNA-373: Update remote bluetooth speaker volume based on radio volume

*****DSP*****
version 5.8.14

+ TUNA-386: increase response timeout for zeroize command from 1 second to 2 seconds. CACE uC and flash access is slower on Tuna compared to KNG2

*****BSP*****
version 5.8.19

+ TUNA-380: Texas Instruments provided a .bts file that disables Bluetooth BLE. Testing shows this eliminates the issue where DEVM_PowerOnDevice() randomly fails with a timeout

+ TUNA-375: set working directory to writable partition

- it turns out BluetopiaPM saves configuration information and remote device information in files on the filesystem; hence it expects a writeable partition.
- this commit changes directory to /storage/ before starting the BluetopiaPM daemon -- this allows the server to write files in /storage/

+ TUNA-380: add ability to restart the BluetopiaPM server

//-----
Release version = 7.5.8.43
tag = v7.5.8.43
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.8

*****ARM*****
version 5.8.39 (appended 'f' for factory version with authentication disabled)

+ TUNA-371: Add support for continuous channel knob part with alternate encoding

*****DSP*****
version 5.8.13

*****BSP*****
version 5.8.18

//-----
Release version = 7.5.8.42
tag = v7.5.8.42
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.7

*****ARM*****

version 5.8.38 (appended 'f' for factory version with authentication disabled)

+ TUNA-322: add bluetooth support

*****DSP*****

version 5.8.13

+ TUNA-317: add bluetooth support

*****BSP*****

version 5.8.18

+ TUNA-322: add bluetooth support

//-----

Release version = 7.5.8.41

tag = v7.5.8.41

branch = master unless specified below

General Comments:

1) Tested with RES 5.8.7

*****ARM*****

version 5.8.37 (appended 'f' for factory version with authentication disabled)

+ TUNA-366: Initializing domain controller mailboxes before initializing the domains to avoid dropping messages on startup.

+ TUNA-367: add retries to battery authentication to eliminate bad battery falsing

+ TUNA-317: PMIC is not the master of BT McBSP(4) for Tuna radio

*****DSP*****

version 5.8.12

*****BSP*****

version 5.8.17

//-----

Release version = 7.5.8.40

tag = v7.5.8.40

branch = master unless specified below

General Comments:

1) Tested with RES 5.8.7

*****ARM*****

version 5.8.36 (appended 'f' for factory version with authentication disabled)

*****DSP*****

version 5.8.12

TUNA-362: +3 dB gain to internal mic, +6 dB gain to external mic per BK request

*****BSP*****

version 5.8.17

//-----

Release version = 7.5.8.39

tag = v7.5.8.39

branch = master unless specified below

General Comments:

1) Tested with RES 5.8.7

*****ARM*****

version 5.8.36 (appended 'f' for factory version with authentication disabled)

+ TUNA-365: fix portable mic bias control to cover all TX scenarios e.g. emergency hot mic

*****DSP*****

version 5.8.11

*****BSP*****

version 5.8.17

//-----

Release version = 7.5.8.38

tag = v7.5.8.38

branch = master unless specified below

General Comments:

1) Tested with RES 5.8.7

*****ARM*****

version 5.8.35 (appended 'f' for factory version with authentication disabled)

+ TUNA-365: mic bias is on only when associated PTT is pressed

*****DSP*****

version 5.8.11

*****BSP*****

version 5.8.17

//-----

Release version = 7.5.8.37

tag = v7.5.8.37
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.7

*****ARM*****

version 5.8.34 (5.8.34f for factory version with authentication disabled)

- + TUNA-361: fix display state machine to enter/exit sleep. Also exclude fuel gauge updates from updating backlight
- + TUNA-363: Eliminate battery icon with question mark when status is unknown.
- + TUNA-360: Adding null terminator to radio name string.
- + TUNA-358: Revert "TUNA-340: If battery voltage is < 6.15V and battery is charging periodically alert the user to turn off the radio"
- + TUNA-357: Make battery icon appear full if greater than or equal to 92 percent.
- + TUNA-220: MBT #2484: Fixed issue where GPS debug information wouldn't work on a trunking channel.
- + TUNA-345: Handling sub menu abort at the sub menu level. The battery stats menus now both exit properly when aborted via PTT.
- + TUNA-337: enable GPS tier 1 periodic trigger to work with conventional scan

*****DSP*****

version 5.8.11

- + TUNA-362: apply -10.1 dB gain to external mic to match sensitivity of internal mic

*****BSP*****

version 5.8.17

//-----

Release version = 7.5.8.36
tag = v7.5.8.36
branch = master unless specified below

General Comments:

1) Tested with RES 5.8.6

*****ARM*****

version 5.8.33 (5.8.33f for factory version with authentication disabled)

- + TUNA-346: Fix bug where first fuel gauge read of 0 State Of Charge(SOC) disables the fuel gauge.
- + TUNA-340: If battery voltage is < 6.15V and battery is charging periodically alert the user to turn off the radio
- + RS-3090: Changing the location of the parms shadow save to occur at the start of the legacy clone.

*****DSP*****

version 5.8.10

*****BSP*****

version 5.8.17

+ TUNA-340: add IOC to read fuel gauge ATTF register
+ TUNA-339: use spin-lock instead of mutex due to irq

- can't sleep in an irq; mutex locking can sleep, so we
need to use a spin-lock

//-----

Release version = 7.5.8.35

tag = v7.5.8.35

branch = master unless specified below

General Comments:

1) Tested with RES 5.8.6

*****ARM*****

version 5.8.32 (5.8.32f for factory version with authentication disabled)

+ TUNA-338: Fix bug where a PTT press during contrast adjust left top screen stack
in erroneous state

*****DSP*****

version 5.8.10

*****BSP*****

version 5.8.16

//-----

Release version = 7.5.8.34

tag = v7.5.8.34

branch = master unless specified below

General Comments:

1) Tested with RES 5.8.6

2) RSM authentication disabled if ARM version = 5.8.31f

*****ARM*****

version 5.8.31 (5.8.31f for factory version with authentication disabled)

+ TUNA-336: if radio is rx'ing a transmission delay periodic GPS location reporting
+ TUNA-333: send GPS location information upon press of GPS button. Press-and-hold
enters GPS menu. Allow Tier1 location information sent on TX mixed mode channel
independent of selected Tx mode

*****DSP*****

version 5.8.10

*****BSP*****

version 5.8.16

//-----

Release version = 7.5.8.33

tag = v7.5.8.33

branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.6
- 2) RSM authentication disabled if ARM version = 5.8.30f

*****ARM*****

version 5.8.30 (5.8.30f for factory version with authentication disabled)

+ battery authentication enabled

+ RS-3091: Disable PA fault detection upon a transmit test tx timeout event to avoid false fault detection

+ RS-3087: When cloning from DPH to KNG, keep the existing state for the Allow Cxcss Selection On All Channels zone parameter.

+ RS-3093: Tier1 data transmissions are not available when the channel rx mode is analog

+ RS-3085: Change DPH clone backlight always on setting to depend only on KNG display timeout being set to always on.

*****DSP*****

version 5.8.10

*****BSP*****

version 5.8.16

//-----

Release version = 7.5.8.32

tag = v7.5.8.32

branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.5
- 2) RSM authentication disabled if ARM version = 5.8.29f
- 3) Battery authentication disabled

*****ARM*****

version 5.8.29 (5.8.29f for factory version with authentication disabled)

*****DSP*****

version 5.8.10

*****BSP*****

version 5.8.16

```
//-----  
Release version = 7.5.8.31  
tag = v7.5.8.31  
branch = master unless specified below
```

General Comments:

- 1) Tested with RES 5.8.5
- 2) RSM authentication enabled

*****ARM*****

version 5.8.29

- + RS-3088: When cloning from DPH to KNG, keep the existing channels 17 and up in the KNG and replace channels 1-16 with the DPH channels.
- + RS-3086: Fixing UCG menu when legacy cloning. This fixes the behavior of being unable to exit the main menu.
- + RS-3084: Fix DPH G2 tx power cloning bug. DPH L bit means forced low power transmit, otherwise tx power is selectable. KNG2 has 4 settings: Low, Selectable Low, Selectable High, and High. New cloning map of L bit to KNG2 is Low else Selectable High on the KNG2. From KNG2 to DPH, only Low sets the L bit
- + Revert "TUNA-330: add support for secondary software authentication of RSM using old secret"
- + RS-3081: [KF-2711] Parse VA_VOICE_BLOCK_RESP even if it's an invalid transaction ID
- + TUNA-324: Handling channel number on top display for trunking channels.
- + TUNA-324: Reducing options for top display line text in keypad programming.
- + TUNA-329: Initialize() members of UI objects are not allowed to send messages, because the Start() member has not been called to initialize mailboxes. A call to RefreshMuteTones() in UIKeypadMute::Initialize() did nothing and only resulted in a logged error
- + TUNA-323: Add keypad programming option for top display channel alias.

*****DSP*****

version 5.8.10

TUNA-335: DSP will reset the CACE after a response (new) from the enter boot load command. Previously the CACE would reset itself, but it's now necessary the DSP reset the CACE for it to correctly transition from app to boot loader. Further, empirically found necessary delays and added 2 seconds for margin

*****BSP*****

version 5.8.16

```
//-----  
Release version = 7.5.8.30  
tag = v7.5.8.30  
branch = master unless specified below
```

General Comments:

- 1) Tested with RES 5.8.5
- 2) RSM authentication enabled

*****ARM*****
version 5.8.28

- + RS-3076: fix use of memcmp(). Could false report no new GPS NMEA data and halt periodic GPS location transmissions
- + TUNA-320: Increasing string buffer sizes by 1 for date/time when getting user input string to allow room for the null terminator.

*****DSP*****
version 5.8.9

*****BSP*****
version 5.8.16

//-----
Release version = 7.5.8.29
tag = v7.5.8.29
branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.5

*****ARM*****
version 5.8.27

- + TUNA-318: enable authentication check for RSM
- + [TUNA-316] Sending speaker unmute message before first voice announcement block to ensure the voice announcement plays every time.

*****DSP*****
version 5.8.9

- + [TUNA-316] Playing silence before voice announcements to avoid clicks

*****BSP*****
version 5.8.16

//-----
Release version = 7.5.8.28
tag = v7.5.8.28
branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.5
- 2) HWMO_DISABLE_RSM_AUTHENTICATION defined

*****ARM*****

version 5.8.26

- + TUNA-315: add ability for x-loader to turn on blue LED, used to indicate radio is in bootloader mode
- + TUNA-305: add ioctl auto-retry for I2C-1 GPS device
- + TUNA-305: add ioctl auto-retry for I2C-1 GPS device
 - because the radio shares the I2C-1 bus with the battery charger for the fuel gauge, devices on I2C-1 can see errors on ioctl tries. This commit attempts to mitigate the amount of failures appearing to the user. The GPS driver's only ioctl that would fail in this way is the WRITE (so the READ and POWER are left alone).
 - note: this commit doesn't include additional retries beyond the global call; it is possible a configuration write could fail and cause undesired behavior of the GPS
- + TUNA-305: add LED refresh timer due to I2C possible failures
- + TUNA-305: add LED refresh timer due to I2C possible failures
 - Because the I2C bus can fail (especially in the charger), the application needs to perform retries; this commit adds an LED refresh timer that will redo the most recent LED settings in the event there was a failure.
- + TUNA-305: add ioctl auto-retry for I2C-1 devices
- + TUNA-305: add ioctl auto-retry for I2C-1 devices
 - because the radio shares the I2C-1 bus with the battery charger for the fuel gauge, devices on I2C-1 can see errors on ioctl tries. This commit tries to mitigate the amount of failures appearing to the user
- + [TUNA-135] Replacing sprintf with snprintf
- + TUNA-305: update backport after TWL4030 MADC driver update
- + TUNA-305: backport TWL4030 MADC driver from mainline
- + TUNA-305: refactor wake-pulse using bus recovery functions
- + [TUNA-305] applied i2c: change input parameter to i2c_adapter for prepare/unprepare_recovery
- + [TUNA-305] applied i2c: omap: fix bus recovery setup
- + TUNA-305: remove previous non-mainline bus-clear patch
- + [TUNA-305] applied i2c: omap: implement bus recovery
- + [TUNA-305] applied i2c: Add bus recovery infrastructure
- + TUNA-305: squashed 150 backport commits from mainline

*****DSP*****

version 5.8.8

*****BSP*****

version 5.8.16

- + TUNA-305: fix authentication driver from previous commit
- + TUNA-305: update fuel gauge driver for I2C bus failure
- + TUNA-305: update authentication driver for I2C bus failure
- + TUNA-305: update gps driver for I2C bus failure
- + TUNA-305: update accelerometer driver for I2C bus failure
- + TUNA-305: update LED driver for I2C bus failure
- + TUNA-305: refactor ambient light driver for I2C bus failure
- + TUNA-305: changes for OMAP2430's I2C peripheral

//-----

Release version = 7.5.8.27

tag = v7.5.8.27

branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.4
- 2) HWMO_DISABLE_RSM_AUTHENTICATION defined

*****ARM*****

version 5.8.25

- + TUNA-119 Adjustments for new (i.e. production) volume pot
- + [TUNA-310] Adding enum PRCONewChannelProtocolDataConventional and PRCONewChannelProtocolDataP25Trunking for clarity
- + [TUNA-276] RS-2618 BKPRT-115 GPS tier 1 preamble
- + [TUNA-200] RS-2379 BKPRT-59 conventional emergency alarm sends no data
- + [TUNA-246] RS-845 BKPRT-79 dedicated conventional GPS channel

*****DSP*****

version 5.8.8

- + TUNA-314: Adjust microphone gain to match microphone sensitivity to the KNG2 product

*****BSP*****

version 5.8.15

- + TUNA-311 Cold start - driver for GPS IC reports an error

//-----

Release version = 7.5.8.26

tag = v7.5.8.26

branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.3
- 2) HWMO_DISABLE_RSM_AUTHENTICATION defined

*****ARM*****

version 5.8.24

- + [TUNA-271] RS-2275 BKPRT-47 man-down emergency alarm
- + [TUNA-213] RS-2729 BKPRT-7 GPS peer not in keypad programming display choices
- + [TUNA-219] RS-2423 BKPRT-55 configuration menu cannot be accessed
- + [TUNA-229] RS-2672 BKPRT-96 unprogrammed channel tone failure
- + [TUNA-308] Backport Daylight Savings time parameter
- + [TUNA-307] Backport Date and Time source options
- + [TUNA-306] Remove GPS display options for top display
- + [TUNA-278] RS-2657 BKPRT-99 daylight savings time support for RTC
- + [TUNA-267] RS-2161 BKPRT-68 choose how RTC is set
- + [TUNA-231] RS-2688 BKPRT-97 nuisance deleted cannot be undeleted
- + [TUNA-226] RS-2627 BKPRT-100 configuration menu not accessible at boot
- + [TUNA-223] RS-2579 BKPRT-110 error messages for unusable soft keys
- + [TUNA-249] RS-2255 BKPRT-24 lat/lon display
- + [TUNA-302] Black and Orange button on RSM are backwards
- + [TUNA-290] System test - If you enter Button Test, then a Tx test (e.g. 1kHz @ 1kHz dev) will not work first time
- + [TUNA-249] RS-2255 BKPRT-24 lat/lon display

*****DSP*****

version 5.8.7

NO CHANGE

*****BSP*****

version 5.8.14

NO CHANGE

//-----

Release version = 7.5.8.25
tag = v7.5.8.25
branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.1-rc1
- 2) P3 analog mic hardware expected
- 3) HWMO_DISABLE_RSM_AUTHENTICATION defined

*****ARM*****

version 5.8.23

- + [TUNA-304] RS-3072: If a remote control command to set the volume is received stop volume updates via the volume knob
- + [TUNA-289] KF-2802: Display Tx frequency for Tx tests
- + [TUNA-214] KF-2792: Priority Scan List in Trunking menu now displays softkeys properly
- + [TUNA-195] Fixed button display issue with DualModeScanListEdit

- + [TUNA-299] Fix to prevent reentering GPS menu after exiting while GPS is still enabling.
- + [TUNA-218] MBT #2377 gps info lat/long displayed on menu list screen upon channel change
- + [TUNA-222] RS-2534: GPS option error
- + [TUNA-262] Merged in KF-2745-change-status-needs-to-reply-to-
- + [TUNA-253] MBT #2402 Added the ability to turn GPS on / off via code-plug and menu, does not apply to portable with attached speaker mic
- + [TUNA-234] KF-2758: Only initialize keyset options if we have an encryption module
- + [TUNA-261] Added support for u2u call while monitor mode is active

*****DSP*****
 version 5.8.7

NO CHANGE

*****BSP*****
 version 5.8.14

- + TUNA-303: mount all but /storage and /log as read only
- + TUNA-303: remove unnecessary MTD driver settings in kernel config
 - trying to reduce chance of corruption; remove /dev/mtdN character device nodes (they are not used anywhere)
 - we don't pass in partition information on kernel command line so don't bother supporting it
 - UBIFS is not used so don't bother including its support; I think this was considered at one time but is not used -- no need to include it
- + TUNA-303: remove unnecessary flash-related settings in busybox config
 - trying to reduce chance of corruption with the flash
 - remove nandwrite (and nanddump) tool
 - remove UBIFS tools
 - remove ability to eject CDs
 - note: there are probably many other tools that could be removed from the build but are not necessarily related to flash at all
 - this commit may not really fix anything; it is meant to further reduce the chance of flash corruption

//-----
 Release version = 7.5.8.24
 tag = v7.5.8.24
 branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.1
- 2) P3 analog mic hardware expected
- 3) HWMO_DISABLE_RSM_AUTHENTICATION defined

*****ARM*****

version 5.8.22

- + TUNA-296 Enhanced Scan With Zone Scan parameter can't be set
- + TUNA-270 RS-2269 BKPRT-48 delete-key KMM support
- + TUNA-252 RS-2381 BKPRT-11 disable beeps option
- + RS-3059 Discard non GPS GSV messages.

Allow users to retrieve the satellite constellation of NMEA sequences. This can enable

BK radios to work with simultaneous constellations. Currently, our code does not make any

distinction between different GNSS constellations.

- + TUNA-128 Add authentication checks to KNG application
- + TUNA-257 RS-2492 BKPRT-28 disable voice annunciation

*****DSP*****

version 5.8.7

- + TUNA-297: Change for P3 hardware which connects front microphone audio to left I2S channel and rear/external to the right I2S channel

*****BSP*****

version 5.8.14

- + TUNA-294: reset GPS chip at driver probe-time
 - The chip was never being reset at probe-time, so restarting the radio would give different results since the GPS chip would remain on whenever the radio rebooted.
 - Every other reset the GPS chip would act like it was there
 - Without the post-reset delay, whenever the radio was booted for the first time the GPS chip would fail to communicate and the driver would fail
 - This commit toggles the power supply to the GPS chip, and then delays an empirical amount before trying to talk to the chip - it failed at 50msec but succeeded at 62.5msec, so 65msec was ultimately selected as the power-on wait amount

//-----

Release version = 7.5.8.23

tag = v7.5.8.23

branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.0-rc9
- 2) P3 analog mic hardware expected
- 3) HWMO_DISABLE_RSM_AUTHENTICATION defined

*****ARM*****

version 5.8.21

- + TUNA-132: Support smart battery fuel gauge in KNG application
- + TUNA-254: RS-2410 BKPRT-119 USB command to retrieve single parameter
- + TUNA-269: RS-2241 BKPRT-71 one button conventional quick status
- + TUNA-273: RS-2447 BKPRT-118 system test PTT counter
- + TUNA-285: Add channel label for top display
- + TUNA-257: RS-2492 BKPRT-28 disable voice annunciation
- + TUNA-256: RS-2487 BKPRT-39 keypad programming of command zone channels

*****DSP*****

version 5.8.6

NO CHANGE

*****BSP*****

version 5.8.13

- + TUNA-292: allow authentication chip Linux driver to support both chips (radio and battery)
- + TUNA-172: Add battery fuel gauge Linux driver

//-----

Release version = 7.5.8.22

tag = v7.5.8.22

branch = master unless specified below

General Comments:

- 1) Tested with RES 5.8.0-rc8
- 2) P3 analog mic hardware expected
- 3) HWMO_DISABLE_RSM_AUTHENTICATION defined

*****ARM*****

version 5.8.20

- + TUNA-288: Add 4 transmit tests to system test: 1k @ 1.5kdev, 1.5k @ 1.5kdev, 3k @ 1.5kdev, and 0 @ 0kdev
- + [TUNA-250] RS-2359 BKPRT-25 GPS menu persistence
- + TUNA-286: Fix battery icon handling
- + [TUNA-251] MBT #2361 enter gps info menu on press and hold
- + [TUNA-274] MBT#2452: Added System Test button
- + [TUNA-259] MBT#2522 Added radio info as a programmable button
- + [TUNA-265] MBT1627: Added lifetime uptime to RadioInfo menu.

*****DSP*****

version 5.8.6

NO CHANGE

*****BSP*****

version 5.8.12

NO CHANGE

```
//-----  
Release version = 7.5.8.21  
tag = v7.5.8.21  
branch = master unless specified below
```

General Comments:
1) Tested with RES 5.8.0-rc8
2) P3 analog mic hardware expected
3) HWMO_DISABLE_RSM_AUTHENTICATION defined

*****ARM*****
version 5.8.19

*****DSP*****
version 5.8.6

+ TUNA-287: MIC2/nEXT_MIC needs to be inverted for P3 logic boards

*****BSP*****
version 5.8.12
NO CHANGE

```
//-----  
Release version = 7.5.8.20  
tag = v7.5.8.20  
branch = master unless specified below
```

General Comments:
1) Tested with RES 5.8.0-rc8
2) P3 analog mic hardware expected

*****ARM*****
version 5.8.19

+ HWMO_DISABLE_RSM_AUTHENTICATION defined

*****DSP*****
version 5.8.5
NO CHANGE

*****BSP*****
version 5.8.12
NO CHANGE

```
//-----  
Release version = 7.5.8.18  
tag = v7.5.8.18  
branch = master unless specified below
```

General Comments:

1) Tested with RES 5.8.0-rc6

*****ARM*****

version 5.8.17

+ TUNA-281: P3 system board uses analog microphone

*****DSP*****

version 5.8.5

NO CHANGE

*****BSP*****

version 5.8.12

NO CHANGE

//-----

Release version = 7.5.8.17

General Comments:

1) Tested with RES 5.8.0-rc6

*****ARM*****

version 5.8.16

branch: master

tag: v7.5.8.17

- + [TUNA-227] RS-2653 BKPRT-91 contrast cannot adjust via button
- + [TUNA-230] RS-2685 system menu select in keypad programming has no tone
- + [TUNA-225] RS-2622 BKPRT-112 keypad programming punctuation
- + [TUNA-241] RS-2461 BKPRT-26 ignore P25 transmissions from self
- + [TUNA-197] invalid scan list causes errors
- + [TUNA-210] RS-2689 BKPRT-98 talkback scan fails encryption sometimes
- + [TUNA-202] RS-2460 BKPRT-53 control lock button failure
- + [TUNA-206] RS-2634 BKPRT-103 UI inconsistency for key picklist
- + [TUNA-196] trunked PTT without being registered never warns user
- + [TUNA-198] RS-2198 trunking PTT failure after regroup delete
- + [TUNA-237] RS-2249 BKPRT-41 backlight on channel change
- + [TUNA-207] RS-2658 BKPRT-6 keypad programming accepts invalid frequencies
- + [TUNA-208] RS-2666 BKPRT-77 no data registration after busy ends
- + [TUNA-201] RS-2380 BKPRT-14 display times out during cloning
- + [TUNA-205] RS-2621 BKPRT-111 key picklist lacks navigation
- + [TUNA-221] RS-2532 BKPRT-88 system test lockup in button test
- + [TUNA-209] RS-2668 BKPRT-94 keypad programming of locked out items
- + [TUNA-204] RS-2612 BKPRT-51 delete channel confirmation problem
- + [TUNA-247] RS-2199 BKPRT-69 mute text message alert tone

*****DSP*****

version 5.8.5

branch: master

tag: v7.5.8.17

NO CHANGE

*****BSP*****

version 5.8.12
branch: master
tag: v7.5.8.17

NO CHANGE

//-----

Release version = 7.5.8.16

General Comments:

1) Tested with RES 5.8.0-rc6

*****ARM*****

version 5.8.15
branch: master
tag: v7.5.8.16

- + [TUNA-211] KF-2690: Fixes UI confusion after priority scan turned on while zone scan on
- + [TUNA-177] RS-2795 cloning KNG to DPH tone pick list
- + [TUNA-260] KF-2722: Pressing home button while on the home channel will now bring you back to the previously selected channel
- + [TUNA-190]: Hide navigation keys (i.e. Softkey 2-4) in keypad programming display timeout if feature is locked.
- + [TUNA-280]: use default background pixel color to clear displays
- + [TUNA-181] MBT# 2556: Fixed backlight/softpower down issue where backlight didn't turn off.
- + [TUNA-175] MBT #2301: Resolved issue where radio would get stuck in registration loop on a weak site. Reported by Moffat County.
- + [TUNA-193] BKPRT-76: Fix memory stomping when picklist has > 99 entries

*****DSP*****

version 5.8.5
branch: master
tag: v7.5.8.16

NO CHANGE

*****BSP*****

version 5.8.12
branch: master
tag: v7.5.8.16

- + TUNA-279: disable Linux serial console in x-loader and inittab
- + TUNA-120: implement send/receive transaction retry

- to avoid every returning all 0's from the driver
//-----
Release version = 7.5.8.15

General Comments:

1) Tested with RES 5.8.0-rc6

*****ARM*****

version 5.8.14
branch: master
tag: v7.5.8.15

- + TUNA-171: Add support for RSM authentication
- + [TUNA-188] KF-2637: Fixed label loss issue when deleting zone
- + [TUNA-192] KF-2695: Do not timeout display when in unit call mode
- + [TUNA-189] KF-2640: encryption mode is now set to what is sent from DPHCMD
- + [TUNA-188] KF-2637: Fixed label loss issue when deleting zone
- + [TUNA-186] KF-2628: Hide the Exit key when destination clone starts
- + [TUNA-185] KF-2619: 'Tx' does not display if no picklist entry is selected
- + [TUNA-184] KF-2611: Changes to fix soft key error on cloning.
- + [TUNA-182] KF-2566: Forces the user to backout entirely of Keypad programming if we end up on a trunking channel after deletion of zone/channel
- + [TUNA-174] BKPRT-20: MBT# 2540: Fixed Scan List seg fault issue
- + [TUNA-173] KF-2705: Fixed 7/800 Keypad programming of frequencies

*****DSP*****

version 5.8.5
branch: master
tag: v7.5.8.15

NO CHANGE

*****BSP*****

version 5.8.11
branch: master
tag: v7.5.8.15

TUNA-120: add driver/ioctl for authentication

//-----
Release version = 7.5.8.14

General Comments:

1) Tested with RES 5.8.0-rc6

*****ARM*****

version 5.8.13
branch: master
tag: v7.5.8.14

+ No change

*****BSP*****

version 5.8.10

branch: master

tag: v7.5.8.14

+ No change

*****DSP*****

version 5.8.5

branch: master

tag: v7.5.8.14

+ Fixed warnings for C-ACE and RSSI measurement sendoff

(cherry picked from commit 9b95007256fee90cd13ea27338bbb6c6cb2a9c40)

+ Update C-ACE SetLowPower command version to 1.0.103

- This is the reported version from the latest
C-ACE firmware that Andy provided me.

(cherry picked from commit 35508f645148da4da31678f4c2249455b93c16d3)

+ KF-2625: Check C-ACE version before setting low power mode

(cherry picked from commit 1420ec473c0455864e19d2a5e66c85e0cd23c6ea)

+ KF-2711: Fix skipping playback of Voice Annunciation while scanning

(cherry picked from commit 767b89387d07b9e9685fb84030df6a0669bc8e84)

+ Mute Frame Synch message in Idle, which was caused by spamming PTT

(cherry picked from commit e6a5ac4c216e83a7ea7461a3e4635c2a0e4dec0d)

+ Mute warnings from RSSI measurement messages in specific states

(cherry picked from commit 0918795de1cb756c1377e068b24d159f867b5538)

+ Ignore RSSI measurements prior-to and while in Transmit ISP state

(cherry picked from commit 6165d4792e680a8537cb97eac47b3f0279616dbd)

+ fix #2508 2-tone bug

(cherry picked from commit 1445f07ff3d6edef53091c4c8044637c3792cd71)

(cherry picked from commit 8adafb983d7459b4a82ee6f1383dc127be7e2497)

- + [PATCH] fix lockup bug in squawk fixes
 - (cherry picked from commit c07e771f77e44dc1fc31696763ca71f9b58ae131)
- + [PATCH] squawk improvements that check for incorrect decoding of AMBE 1 word
 - (cherry picked from commit cb7d3757f3910f66992c657ceba006d00e82b830)
 - TUNA-170: fixed merge conflicts
- + [PATCH] more bug fixes to shenanigans, this should take care of those
 - (cherry picked from commit b462d2901967e086dc9e743d39e5396368544a7b)
- + TUNA-170: manual cherry-pick of 64d08def61f73da2cc036ec57d5a3b260e8b38d7 excluding changes to use soft bits to detect bad frame sync
- + [PATCH] improved squawk problem by checking for Motorola shenanigans
 - (cherry picked from commit 0284580a4946a244e7b094a3c8e07c0e332941d6)
 - TUNA-170: With modifications for merge conflict and I also removed unrelated code present in original commit that attempted to improve P25 sync detection
- + TUNA-169: ANSI C correct define for GLT_Q31_MINUS_ONE. Equivalent to commit b09ea75816453fdd16ad56d2d0b100d8ac6661f1
- + fixed continued call encrypted garble bug by resetting crypto at RX of terminator
 - (cherry picked from commit d907110d7072018b68a0258bf14f03cff500e042)
- + Add MI initialization and Crypting.
 - Verified:
 - SW <-> SW
 - SW <-> C-ACE Encryption enabled
 - SW <-> FIPSCOM Encryption enabled
 - SW <-> C-ACE Encryption disabled
 - SW <-> FIPSCOM Encryption disabled
 - (cherry picked from commit a8edd077363a6eddbef0a12f4bee0592111f8c7e)
- + Remove unused modes; move OFB to private.
 - (cherry picked from commit a7d75e74d0e9d6faf47653cff680cc3659276365)
- + Initial AES algorithm added to build.
 - Replaced existing stub files with contents from console test code.
 - Missing MI loading and Crypt method calls

- Contains all other AES modes too.

(cherry picked from commit 1de03c829ef33b454f752178b26293bd0d174ca0)

+ MBT #2371: Added baseline (non-FIPS) AES software encryption support.

(cherry picked from commit fff50ea7c1f299581c4986373f9331f721364877)

+ Merged in ne-esg/TUNA-156 (pull request #24)

TUNA-156: cherry-pick 712f316 - Added delete key by keyID HWCrypto support

Approved-by: Dave Russell <drussell@ne-esg.com>

Approved-by: David McCreight <dmccreight@ne-esg.com>

+ TUNA-156: cherry-pick 712f316 - Added delete key by keyID HWCrypto support

//-----
Release version = 7.5.8.13

General Comments:

1) Tested with RES 5.8.0-rc6

*****ARM*****

version 5.8.13
branch: master
tag: v7.5.8.13

+ TUNA-155: Top Display: add ability to adjust LCD contrast
+ TUNA-68: Backport: '*' and '#' shortcuts for KNG-S compatibility
+ TUNA-149: After adding all menu items selections 49 and 50 are blank
+ TUNA-147: Top display text on trunking channel isn't always correct

*****BSP*****

version 5.8.10
branch: master
tag: v7.5.8.13

+ TUNA-155: Top Display: add ability to adjust LCD contrast

*****DSP*****

version 5.8.4
branch: master
tag: v7.5.8.13

+ No change

//-----

Release version = 7.5.8.12

General Comments:

1) Tested with RES 5.8.0-rc5

*****ARM*****

version 5.8.12

branch: master

tag: v7.5.8.12

+ PA-3060 Synch Codeplug parameters enumerations with RES.

+ TUNA-129: Rotate top display feature

*****BSP*****

version 5.8.9

branch: master

tag: v7.5.8.12

TUNA-151: change pinmux of GPIO_11 to McBSP1_DX

*****DSP*****

version 5.8.4

branch: master

tag: v7.5.8.12

+ No change

//-----
Release version = 7.5.8.11

General Comments:

1) Tested with RES 5.8.0-rc5

*****ARM*****

version 5.8.11

branch: master

tag: v7.5.8.11

+ TUNA-26: BSP cleanup

+ TUNA-146: cherry-pick commit a38fcce -> fixed rx-only trunking system attempting to do SNDCP registration

*****BSP*****

version 5.8.8

branch: master

tag: v7.5.8.11

+ TUNA-144: Add short delay to prevent the driver to sporadically fail when writing omap2430pb.raw

+ TUNA-26: BSP cleanup

*****DSP*****

version 5.8.4
branch: master
tag: v7.5.8.10

+ No change

//-----

Release version = 7.5.8.10

General Comments:

1) Tested with RES 5.8.0-rc5

*****ARM*****

version 5.8.10
branch: master
tag: v7.5.8.10

+ TUNA-138, TUNA-137, and TUNA-136: Update RSM command fields based on information provided for David G.

+ TUNA-111: update speaker state with DSP whenever it changes

- Although I didn't see a problem, it seems like a good idea to update the DSP of the current state whenever it changes in the ARM and isn't part of a message already being sent to the DSP.

+ TUNA-111: recombine mute/unmute messages into an update message

- It turns out this makes more sense in sending a speaker update message to the DSP; it also allows for muting the BT speaker flag (which was going to be ignored)

+ TUNA-111: check if DSP muted at end of tone

- The DSP now passes back a flag indicating if it muted after the current tone finished playing; check to see if it isn't correct, in which case log an error and issue a message to mute/unmute the speaker (ideally this shouldn't happen, but just in case not all tone cases have been tested or thought-of at this time)

+ TUNA-111: pass UIAudioManager state to DSP's HWSpeaker

- hopefully this will help the DSP make the correct decision to mute (or not) the speaker at the end of a tone

+ TUNA-111: split mute/unmute into two messages

- Split the mute/unmute message into two messages

to make the DSP speaker state tracking cleaner
+ TUNA-111: remove unused PlayTone method

- While working on the DSP speaker-mute state-machine, I saw that this PlayTone method isn't ever used; further, removing it makes the DSP mute problem simpler

+ TUNA-111: add speaker unmute flags to DSP play-tone message

- As part of moving the speaker GPIO control into the DSP, the "play-tone" functionality requires knowledge as to the state of the speaker in terms of the ARM's point-of-view. This commit adds flags to the play-tone message to tell the DSP if it should unmute after starting the tone. So many flags are necessary to account for the ARM knowing about internal vs. external speaker, and the left-over BT stuff for now.

+ TUNA-111: move mute GPIOs from ARM to DSP

- Use message to DSP to control muting

+ TUNA-111: reuse BT mute/unmute message for int/ext speaker

- Repurpose the existing BT mute/unmute message to allow internal, external and BT muting in one message; flags are included to specify which speakers are affected by any one particular reception of the message

*****BSP*****

version 5.8.7
branch: master
tag: v7.5.8.10

+ no change

*****DSP*****

version 5.8.4
branch: master
tag: v7.5.8.10

+ TUNA-111: recombine mute/unmute messages into an update message

- It turns out this single message is cleaner compared to splitting them; it allows the ARM the ability to update the state without actually changing any speaker condition, or to update an individual speaker (like the BT case)

+ TUNA-111: report if DSP muted speaker at end of tone

- mostly for debugging, but also the ARM can see if it is wrong and send a mute/unmute message back to undo it just

in case.

- + TUNA-111: pass ARM's UIAudioManager state to DSP HWSpeaker
 - hopefully this will be used for making the decision to mute the speaker at the end of a tone
- + TUNA-111: split mute/unmute messages; add mute control enum
 - In preparation for tracking the mute state in the HWSpeaker, splitting the mute/unmute message into two messages will make code cleaner
- + TUNA-111: add mute flags to play-tone message
 - To synchronize the start of a tone with the opening of a speaker, flags needed to be added to the play-tone message telling the DSP which GPIOs should be toggled to either mute or unmute internal, external or the BT speakers.
- + TUNA-111: move mute GPIOs to DSP
 - ARM tells DSP to mute via message
- + TUNA-111: reuse BT mute/unmute message for int/ext speaker
 - Repurpose the existing BT mute/unmute message to allow internal, external and BT muting in one message; flags are included to specify which speakers are affected by any one particular reception of the message

//-----
Release version = 7.5.8.9

General Comments:

1) Tested with RES 5.8.0-rc5

*****ARM*****

version 5.8.9
branch: master
tag: v7.5.8.9

- + TUNA-122(closed): Top display is a copy of Wahoo - needs improvement prior to production
- + TUNA-136(QA): fix RadioTrace errors resulting from unused parameters reserved for backporting that were introduced when RSM features got added
- + TUNA-111(In progress):

take ADC measurements directly from TWL4030-MADC

- The misc/tuna driver was being used for multiple ioctl calls, but the file descriptor was controlled by a single mutex; so whenever the ADC measurement would delay (due to some timeout in the driver), it would delay any other

calls to the TUNA driver.

- This commit moves the ADC measurement to match that of the original EB method (in cwtest), which calls an ioctl into the TWL4030-MADC driver directly; brief testing with cwtest showed this technique to be more reliable (i.e., I didn't see a ~100msec delay) as compared to the TUNA driver trying to call it in the kernel

revert GPIO IRQ events out of TUNA-driver back to standard Linux way

- Normally gpio_keys driver would have worked, but the kng application needed to read the GPIO values at launch-time, so a new OMAP-based GPIO driver was created to allow such functionality
- The Linux driver controls the direction of the GPIOs, so don't allow the application to try and manage them at all
- The new device/driver pairing resulted in the event number to change among the power-switch, keypad and GPIO interrupts

revert GPIO access out of TUNA-driver back to standard Linux way

- The typical method for accessing GPIOs in Linux is via the /sys/class/gpio/ path. I checked out an old tag version of ARM and saw this is how we used to do it. At some point GPIO access was moved into the misc/tuna driver. Unfortunately, no one noticed that the tuna driver is also currently used for several things, including reading the ADC. The file-descriptors have a mutex around them, so any time any thread wants to ioctl the tuna driver they will block. The current situation is such that if the ADC is blocking and taking a long time (i.e., ~100msec until a timeout occurs), then other things block and wait on the mutex. Hence, the GPIO access through the tuna driver is not reliable at all.
- This commit reverts the application back to the way it was done a long time ago

*****BSP*****

version 5.8.7

branch: master

tag: v7.5.8.9

+ TUNA-111 (In progress):

remove TWL4030 ADC measurement from TUNA driver

- The MADC call via the TUNA driver has a random ~100msec timeout delay that causes other things to backup due to the usage of the shared Linux workqueue.
- Allow the user-space to call the TWL4030 MADC driver in its own thread, which based on cwtest measurements doesn't experience the same timeout problem anyway

add omap-gpio-keys driver based on gpio_keys

- The gpio_keys driver is meant to manage using GPIO lines

for buttons and switches, and it works fine; unfortunately, it does not allow the ability to read the state of the GPIO line which is required by the kng application. Further, the GPIO lines were exported in the /sys/class/gpio way, the IRQ failed to function, so there is some weird interaction between the gpio_keys driver and the gpiolib driver. Additionally, the gpio_keys driver uses a Linux timer to perform debouncing which relies on the Linux scheduler to allow the input to be reported -- as we have learned with the DSP mailbox, this leads to potential unwanted delays.

- This omap-gpio-keys driver started from the gpio_keys driver and has been modified to: 1) use the OMAP24xx hardware debouncing feature so the input is reported straight from the IRQ, and 2) creates file descriptors for each GPIO line registered so the user-space can read the current state of the GPIO if it wants to and the IRQ still functions okay

remove GPIO IRQ reporting from TUNA driver

- This should be handled via the gpio_keys driver

remove GPIO access from TUNA driver

move OMAP mailbox workqueue into its own work thread

- When the OMAP mailbox driver receives either a Tx or Rx IRQ it clears the condition and then schedules work to be run when the scheduler gets to it. It was using the shared thread to do so, but this means there can be delays to get to the messages if other drivers have already scheduled work. In particular, the display framebuffer core, GPS, ambient light sensor, accelerometer and TWL4030-MADC drivers all schedule_work with the shared work thread. There may be other drivers as well, but some of these have been added over the last several builds which could partially explain why the problem has increased.
- This commit should improve the time it takes for the application to receive any messages from the DSP; it may not be the only fix necessary, but it should be a good starting point.

*****DSP*****

version 5.8.3
branch: master
tag: v7.5.8.9

+ No change

//-----
Release version = 7.5.8.8

General Comments:

1) Tested with RES 5.8.0-rc2

*****ARM*****

version 5.8.8
branch: master
tag: v7.5.8.8

- + TUNA-138: Add support for RSM emergency LED flash
- + TUNA-137: Add support for RSM Led function
- + TUNA-136: Add support for RSM speaker attenuation function

*****BSP*****

version 5.8.6
branch: master
tag: v7.5.8.8

+ No change

*****DSP*****

version 5.8.3
branch: master
tag: v7.5.8.8

+ No change

//-----

Release version = 7.5.8.7

General Comments:

1) Tested with RES 5.8.0-rc2

*****ARM*****

version 5.8.7
branch: master
tag: v7.5.8.7

- + TUNA-131: Respond to heartbeat message with ping. This will allow RSM engineer to debug RSM rx issues
- + TUNA-131: Add programmable buttons RSMTToLeftButton and RSMTopOrangeButton
- + TUNA-131: Minor clean up
- + TUNA-131: Base structure for RSM support added. Add files HWRemoteSpeakerMicCommsManager.cpp/.h

*****BSP*****

version 5.8.6
branch: master
tag: v7.5.8.7

+ No change

*****DSP*****

version 5.8.3
branch: master
tag: v7.5.8.7

+ No change

//-----
Release version = 7.5.8.6

General Comments:

1) Tested with RES 5.8.0-rc2

*****ARM*****

version 5.8.6
branch: master
commit: f617a823b5d75802b86ed7f15e0f1fe2681bb128

- + TUNA-130: Remove HWGPSCondorMonitor and associated code
- + TUNA-133: GLOSFileDescriptors will lock a mutex on a file open error, but will not unlock on close
- + TUNA-91: Use ambient light sensor values in KNG application
- + TUNA-126: Remove temp and magnetometer sensor components
- + TUNA-102: Remove legacy product #defines from ARM master branch
- + TUNA-127: Inter-domain UI message to HWGPSUBloxMonitor also processed as a PR message
- + TUNA-110: KNG: simplify source directory structure

*****BSP*****

version 5.8.6
branch: master
commit:

- + TUNA-126: Remove temp and magnetometer sensor components

*****DSP*****

version 5.8.3
branch: master
commit: 1eefc32739781e73e8c88498f06a3dbe1a5cd1ff

+ No change

//-----

Release version = 7.5.8.5

General Comments:

1) Tested with RES 5.8.0-rc2

*****ARM*****

version 5.8.5

branch: master

commit: db92b8b76913e80862045da95ed621f75375db38

- + TUNA-123: ADC sample every 2 msec i.e. too fast
- + TUNA-113: UI display rework to look more like KNG2
- + TUNA-94: Use accelerometer sensor values in KNG application
- + TUNA-121: Debug: move variable-argument LogEvent copy from several objects into Traceable object
- + TUNA-101: Remove older style file history from ARM source
- + TUNA-117: GPS: reduce time spent by application waiting for NMEA/UBlox message reception
- + TUNA-114: Update Git repos so master is Tuna and Mahi code base
- + TUNA-99: Volume knob response does not match user expectation
- + TUNA-100: Add ioctl interface to new Linux drivers

*****BSP*****

version 5.8.5

branch: master

commit: 303fe60475

- + TUNA-117: GPS: reduce time spent by application waiting for NMEA/UBlox message reception
- + TUNA-114: Update Git repos so master is Tuna and Mahi code base

*****DSP*****

version 5.8.3

branch: master

commit: 1eefc32739781e73e8c88498f06a3dbe1a5cd1ff

- + TUNA-103: Replaced a couple #ifdef GL_PORTABLE (which is always defined) with correct #if (GL_RADIO == GL_PORTABLE). Bug affecting internal/external microphone selection
- + TUNA-114: Update Git repos so master is Tuna and Mahi code base

//-----

Release version = 7.5.8.4

General Comments:

- 1) Tested with RES 5.8.0-rc2
- 2) MAS version 0.0.12 doesn't support this newest RadioId (i.e. 7)
- 3) GPS support added in this version

*****ARM*****

version 5.8.4
branch: master_BKR
commit: 706649f6116879a5571dd20e233252d34d93aa8d

- + TUNA-73: Toggle High Mid Zone implementation in the application layer (fixed)
- + TUNA-11: Linux 2.6.x driver support for GPS IC
- + TUNA-96: Button Test needs to be updated for TUNA HMI

*****BSP*****

version 5.8.4
branch: master_BKR
commit: 11a11ofea180

- + TUNA-11: Linux 2.6.x driver support for GPS IC
- + TUNA-100: Add ioctl interface to new Linux drivers

*****DSP*****

version 5.8.2
branch: master_BKR
commit: e92ab76422101c57038295dcd337aed570a3e03d

- + TUNA-103: Remove legacy product #defines from DSP master_BKR branch
- + TUNA-98: removed old style commit messages from source file

//-----
Release version = 7.5.8.3

General Comments:

- 1) Tested with RES 5.8.0-rc1

*****ARM*****

version 5.8.3
branch: master_tuna
commit: d208b90d6e351ed90d953f10f2c36acce6c6be61

- + TUNA-73: Toggle High Mid Zone implementation in the application layer (partially complete)

*****BSP*****

version 5.8.3
branch: master_tuna
commit: 81fce56fc36e023ed211d6a733c5db377bac2f3e

- + TUNA-32: Magnetometer Linux driver
- + TUNA-28: Move accelerometer from ADC to I2C
- + TUNA-34: Linux driver for ambient light sensor
- + TUNA-93/55: Assign ID 7 for Tuna

*****DSP*****

version 5.8.1
branch: master_tuna
commit: 39a7ef7ff657073d2ba9cd13d8814911c8ca562b

//-----
Release version = 5.5.8.2

General Comments:

- 1) top display is working in this release
- 2) digital mic clock (2.4 MHz) is turned off in receive mode
- 3) Tested with RES 5.5.10 pre-release version

*****ARM*****

version 5.8.2
branch: master_tuna
commit:b73456

- + TUNA-86: Top display backlight
- + TUNA-72: Implement Top Display support for Tuna
- + TUNA-82: Turn off digital mic clock during radio receive (excluding phase II inverted slot)
- + TUNA-9: Linux Driver for Tuna Top Display

*****BSP*****

version 5.8.2
branch: master_tuna
commit: 452347

- + TUNA-72: Implement Top Display support for Tuna
- + TUNA-78: Add support to put the is31f13196 LED driver IC into shutdown to save power
- + TUNA-9: Linux Driver for Tuna Top Display

*****DSP*****

version 5.8.1
branch: master_tuna
commit: 39a7ef7ff657073d2ba9cd13d8814911c8ca562b

//-----
Release version = 5.5.8.1

General Comments:

- 1) Front display is working. Sleep mode is not supported.
- 2) top display not supported
- 3) RSM, GPS, smart battery functionality not included
- 4) new collar switch not supported

*****ARM*****

version 5.8.1

branch: master_tuna

commit:129a15dec725a78a9d7fe0968943e54c3c0462fe

- + TUNA-74: correct version list entries
- + TUNA-13: remove white-space
- + TUNA-13: don't continue if an error occurs in display init
- + TUNA-13: move framebuffer includes to tuna-specific
- + TUNA-13: correct output directory for kng_g2
- + TUNA-74: correct version list entries
 - Date and Release entries both contained a non-printable character at the end causing their displayed values in the Version menu to be corrupted a little
- + TUNA-13: re-enable backlight settings and ambient light timer
 - Note: the ambient light value still needs to be managed via TUNA-34
- + TUNA-13: update message screens
- + TUNA-13: set emWin default paint in parent class
- + TUNA-13: update P25 icon positions
 - also pass-back (0,0) in the event of an unknown icon
- + TUNA-13: update entry screens
- + TUNA-13: remove unnecessary changes to screens
- + TUNA-13: updates to slider screens
- + TUNA-13: minor change to battery icon
- + TUNA-13: several updates to ListScreens
- + TUNA-13: add ability to display custom softkey text
- + TUNA-13: always center text on main screen
- + TUNA-13: set default emWin paint callback in parent class
- + TUNA-13: proper y-alignment of bitmap cursor in listbox in emWin
- + TUNA-13: add background gradient to screens
- + TUNA-13: update main screen dimensions for front display
- + TUNA-13: update List-box dimensions for front display
- + TUNA-13: update several dimensions for front display
 - several dimensions were pointing to the top-display size
- + TUNA-13: change icons to bitmaps defined in Pegasus project
- + TUNA-13: change location of general and conventional icons
- + TUNA-13: set default emWin paint callback in parent class
 - Just a code simplification, not really changing anything
 - Also cleanup the Icons file just a little
- + TUNA-13: changes to alert message
- + TUNA-13: changes to softkeys

- + TUNA-13: Update GUI defines for Tuna display
- + TUNA-13: Initial KNG-G2 screens displayed on Tuna
 - Sleep command stubbed
 - KNG-G2 screens are half-width/half-height
- + TUNA-13: remove incorrect translation in emWin LCD config
 - These flags were causing (x,y) coordinates to write to the display outside the valid (320,240) region (because x values were being translated into y coordinates)
- + TUNA-13: split UIDisplay into platform-specific folder
 - The displays are different-enough to deserve their own file
- + TUNA-13: Initial emWin LCD driver
 - This includes 2 files that were missing from the library source. The flag "LCD_SWAP_RB" in LCDConf.h is used to swap the position of the Red and Blue values within the "565" format. There are several functions in the emWin source that used either "565" or "M565" depending on this swap flag. In previous product configurations, either the SWAP flag was set, or the display had fewer BPP. Regardless, the Wahoo hardware evidently sets the SWAP flag for the main display, but does not set it for the top display. Hence, there was a link error that the two functions were missing.
- + TUNA-13: revert display change for Tuna board bring-up

```
*****BSP*****
version 5.8.1
branch: master_tuna
commit:8cefede67565d559338805c3d63bba1288e50aa9
```

```
*****DSP*****
version 5.8.1
branch: master_tuna
commit: 39a7ef7ff657073d2ba9cd13d8814911c8ca562b
```

```
//-----
Release version = 5.5.8.0
```

```
ARM:
branch: master_tuna
commit: d87b338a6f142bf2c249b709099a7a256c16b04f
```

```
BSP:
branch: master_tuna
```

commit: 1ff2df3c5d1c10aa18bf81b209aa42331f51fdc6

DSP:

branch: master_tuna

commit: 2decd0e797c2240cdb48b2e43bb597a0c1943321

Comments:

- 1) top display functionality is missing
- 2) Front display splash screen only
- 3) RSM, GPS, smart battery functionality not included
- 4) All other radio functionality is present