Ameba Release Note

SDK release note

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● Support sensor ps5258
● Support build on Linux

2 Release v9.1

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● Update base BSP
● Add posix api
● New structure for all example
● Add BT Simple Config
● Add BT coexist PTA mode
● Support sensor gc4653
● Add power save API
● Add sys_reset api
● Add QR code example
● Add kvs_webrtc_plus_producer_mmf

3 Release v9.2

3.1 v9.2a

● Update base BSP

3.2 v9.2b

● Support asdk 10.3.0
● Add at-command of isp
● Add fileloader module and filesaver module of NN
● Add mic type choose in audio examples

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- BT config support pro2 5G scan
- Add baremetal modules and example of NN
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- support wowlan and keep alive
- Add Nand flash example
- Set char as signed char
- Update power save example
- Support OTA
- Update secure storage example
- Support sensor mis2008
- Update kvs webrtc to support aws-iot credential
- Support fast connect at Nand flash

4 Release v9.3

4.1 v9.3a

- [wlan]add wifi_get_sta_max_data_rate api
- [nn] support model store in SNAND
- [flash]Sync ftl and std example
- [nn] add fwfs to merged application
- [wlan]add set mac address without writing efue api
- [video] upgrade to VOE 1.0.0.0
- enable ota checksum in default
- [wlan] increase the lwipopt.h buffer setting
- [isp] add osd2 and example
- [wlan] wowlan tcp and mqttssl keep alive
- [nn] add yolov4-tiny and support mbnetssd store in SNAND
- [mmf] add support data channel for kvs webrtc
- [wlan] user data flash layout and add normal driver power by rate and fine tune RX spur level
- [wlan] Reverse workaround 2.4G/5G LNA_LDO / TIA_LDO and thermal trim and PA Bias K new method
- [bt:ble] fix address error in bt power on
- [isp] add sensor imx307 on voe 1.0.0.0
- [wlan] Fixed 5G 40M throughput problem due to pro2 without vht
- [wlan] thermal trim and PA Bias K new method for new lead frame RL6601B BD1031

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- [video]Support g711 format for mp4
- [file] Support VFS function
- [isp] add motion detection and example
- [sdk] add ftl nand verify code
- [bt:ble] Fix hardfault while WiFi power off after bt deinit

5 Release v9.4

5.1 v9.4a

- [sdk]support trust zone
- [video] upgrade VOE version to 1.2.2.0
- [wlan] upgrade FW version to 1007
- [wlan] Fixed 5G 40M throughput problem due to pro2 without vht
- [wlan] increase the lwipopt.h MBOX size and udp tx skb unavailable
- [nn] update nn fwfs for new nand spare definition
- [isp] add motion detection and example
- [wlan] fixed ping failure when some packet size given
- [mmf] kvs producer module support g711 audio format
- [nn] draw nn results with osd
- [mmf] Support g711 format for mp4
- [mmf] Fixed the problem linker module block when pause input
- [file] Support VFS function
- [mmf] add demuxer module and modify the related examples
- [sdk] add ftl nand verify code and fix ftl bug
- [mmf] webrtc module using VFS for reading certs
- [nn] model yamnet
- [mmf] kvs producer support resolution change
- [sdk] add api to enable backtrace
- [pwr] update power save api
- [video] Support multi sensor and FCS
- [nn] set nn rgb channel resolution according to model input size
- [nn] yamnet smoke small model
- [wlan] fix wowlan block issue
- [mmf] webrtc stability improvement
- [wlan:coex] add coex driver code
- [mmf] modify the audio setting and add EQ api

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- [sdk] configSTACK_DEPTH_TYPE to uint32_t for pthread max stack size
- [wlan] add rltk_wlan_get_bandwith function
- [mmf] adjust display roi according to isp resize method
- [wlan] add rltk_wlan_get_thermal function and errno bug fixed and pwer limit by rata table
- [mmf] support fmp4
- [sdk][ota] update NN model by fwfs ota method
- [mmf] add file cache feature for webrtc to speedup the connection
- [wlan] fix audio noise due to beacon mode and fix ATBp hardfault in tz project
- [file] Muxer driver support vfs

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- [video] Reduce the multi sensor setup procedure
- [mmf] webrtc add flexible media source layer
- [video] Add the AE and AWB for fcs mode
- [wlan]fixed RA bug due to wireless_band setting
- [wlan] wowlan dtim setting
- [isp] add motion detect trigger nn example
- [usbd:cdc] Support usb cdc function
- [sdk] fix c++ list crash issue
- [sdk] modify nand mutex lock/unlock behavier
- [isp] osd2 update
- [wlan] fix mqtt wowlan wake up fail issue
- [file] Add the mp4 example without mmf
- [mmf] webrtc support opus and add rtw_create_secure_context
- [wlan] add wowlan wake up pattern dump
- [mbedtls] sync net_would_block from mbedtls-3.0.0
- [wlan] add wifi/bt address api and get ap dtim info api
- [lwip] fix lwip 2.1.2 dhcp renew and rebind
- [isp] replace hal_video_obj_region with osd draw
- [sdk] modify link file for DDR size
- [isp] add motion detect after AE stable mode
- [mmf] fix the choppy audio issue while using g711 streaming framesize large than 160
- [mbedtls] mbedtls-3.0.0 use bignum rom codes
- [mbedtls] mbedtls-2.16.6 use bignum rom codes
- [nn] yolo decode for multi-layer output
- [mmf] webrtc sync amazon deadlock fix

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- [isp] add condition check for safe OSD operation
- [sdk] fix strdup error
- [mmf] add howling suppression function based on AECM
- [sdk] sync VOE1.2.4.0
- [wlan] fix audio noise due to beacon mode and fix fast connect hardfault
- [bt:hci] Add BT vendor command to send cut version to BT FW
- [bt:ble] Add privacy module for ble peripheral & scatternet
- [wlan:bbrf] phydm/halrf from phydm trunk for rtl8735b V28 (RF v23)
- [sdk] change DDR to no_dss and 1t cmd setting
- [wlan] add rx ring count to avoid rx fifo overflow
- [mmf] add rtsp,video,NN,audio and SD joint test and fix some error for video examples
- [isp] fixed osd hide function fail issue and add stroke function of osd
- [video] Support OSD and snapshot for fcs mode
- [mmf] adjsut the clock rate for rtsp AAC
- [video] Check the bad block status for FCS mode
- [mbedtls] use std snprintf in mbedtls-2.16.6, sync from 3.0.0
- [video] Modify AE/AWB setup for fcs mode
- [wlan] add adjustable buffer size for wakeup pattern packet
- [mmf] webrtc sync amazon: change all the strcpy to strncpy
- [sdk] sync VOE1.2.5.0
- [wlan] fix hardfault in example_wlan_scenario
- [flash] Set flash default speed to 62.5MHz
- [sdk] fix crash when generating fwfs nn binary on linux
- [wlan:coex] add wifi change mode for Pro2
- [sdk] sync VOE1.2.6.0
- [mmf] fix the audio play slow and update Readme
- [wlan:bbrf] sync phydm for rtl8735b V29 RX DCK flow to fix BT RX deadzone
- [nn] remove unnecessary model
- [i2s] update i2s example
- [video] Support day/night mode and drop frame for FCS mode
- [eco:awsiot] update user guide of aws-iot
- [usbd] Fixed the low voltage problem for USB
- [isp] update sensor driver(voe1260)
- [wlan] add 0x6E wakeup for segmented mqtt packet, resample and decode the packet data
- [nn] default insert 2 models

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6 Release v9.5

6.1 v9.5a

- [sdk] fix _malloc_r style api wrap
- [nn] add viplite driver 1.8.0
- [isp] add iq timestamp information
- [nn] yolo support int8 and f32 tensor decode
- [nn] object detection + face recognition with muti-source osd_draw
- [wlan] upgrade wowlan FW to V010B
- [video] Support different channel for fcs mode
- [isp] add hw-md method
- [sdk] upgrade VOE1.3.1.0
- [nn] update nn file operation layer for loading model from sd card
- [sdk] embedded fcs_sensor_iq firmware to ota firmware
- [usbd:dfu] Add the usb dfu ota example
- [nn] update yolov4_tiny model
- [file] Support thread-safe for littlefs
- [gpio] Update IRQ registration process AON and PON GPIO via ROM patch
- [bt] Update pro2 & lite upper stack & bt normal patch to enable handshake
- [sdk] upgrade BSP to 2022/08/04
- [freertos] fix pthread_attr_t size
- [mmf] audio_test_tool_improved, fix DMIC stereo audio and modify AEC api
- [sdk][ethernet] support ethernet_mii & add example
- [wlan] add wowlan new feature, smartdtim
- [nn] support yolov7-tiny
- [mmf] modify AGC api, module_audio parameters and related examples
- [wlan] Support antenna diversity and NCC power limit table and OTP speed up and fix RA FW rate up
- [usbd:uvc] Support fcs mode for UVC
- [gpio] Fix AON GPIO/PON GPIO multiple interrupt triggers when used as wakeup pins when system exits Standby Mode and GPIO IRQ is reinitialized and re-enabled; Added missing return statements for value-returning function calls
- [sdk][ota] add the cert type

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6.2 v9.5b

- [wlan] add RTW_SECURITY_WPA_AES_PSK/RTW_SECURITY_WPA2_TKIP_PSK security for fast connect
- [video] fix stop stream block issue
- [nn] add image process api for nn resize and rotate
- [video] Support to load sensor and IQ from SD card
- [nn] add md to video joint test
- [mmf] update viplite driver and nn video example
- [flash] Modify Flash HAL to support flash size > 128Mbit
- [nn] replace memcpy with dma multiblk memcpy to release cpu
- [file] Compatible with different partition table
- [wlan] add wlan resume api
- [wlan] add tcp resume codes
- [nn] update the gdma_cb_para in img_dma_copy
- [wlan] Add wowlan new feature: add arp request keep alive, add gpio wdt
- [video] Add the mpu config for video
- [usbd:storage] Support nor flash of USB mass storage
- [pwr] add retention example
- [mmf] add data group for sharing input data for several modules
- [nn] scrfd face detection
- [mmf] fix crash after setting customized taskname in simo and mimo
- [wlan:coex][bt] Update bt fw to fix mailbox function
- [filesystem:fwfs] use flash api instead of using directly memory access on NOR flash
- [log_service] support console io redirect
- [nn] add scrfd 16:9 version
- [wlan] fixed fast connect crash bug
- [usbd:cdc] Support log service from CDC-ACM
- [mmf] T2FF av sync and clear the use of different AEC library
- [wlan] TX power is too low due to PA protection mechanism
- [eco:awskvs] add kvsDoWorkEx api to support sending end of frames
- [video] Add the user buffer for FCS mode
- [wlan:coex] Fix wifi state update date while using WPA ap
- [wlan] add api to set antenna diversity
- [wlan] set ips/lps mode while using concurrent
- [nn] add nn model decryption implementation
- [wlan] add atcmd to flush system or disable antoreconnect
- [wlan] update disconn_reason_code for wrong password

- [video] Add the sensor select API
- [Video] upgrade VOE 1.3.4.0
- [sdk] console applications – xmodem
- [nn] set nn viplite driver to 1.8.0
- [nn] add mutex protect when access NN engine
- [eco:awskvs] webrtc reduce buffer and update media queue
- [video] Add the httpfs example for MP4 record
- [wlan] fixed system hang up issue because enter ips to write mac reg
- [eco:awskvs] add api to get AppConfiguration in module
- [isp] move md api into libispfeature & modify nn osd api
- [isp] fix md row, col adjust bug
- [wlan] Fix addba response and mqtt keepalive send error in wowlan
- [wlan]Fix puback error in wowlan
- [wlan]Fix arp packet encryption error in wowlan
- [wlan] add server keep alive in wowlan
- [wlan] add mqtt puback in wowlan keep alive
- [video] Load relative position for video FW
- [wlan:coex] fix register setting to close tx req in STA mode
- [bt] Support BT LO resolution calibration
- [sdk] turn off stdout internal buffer
- [wlan] reduce TBTT rxbeaconlimit to 2ms
- [mmf] Fix the av timestamp not sync in not fcs boot
- [isp] fix osd cannot draw last row and last col
- [sd] Add mutex protect and card detect API
- [video] Add the meta data feature
- [mmf] add removing stream id from id bitmap when streaming is close
- [wlan] Support TX report from FW

6.3 v9.5c

- [wlan] wowlan add ssl counter report function
- [wlan] wowlan add pattern match range function
- [wlan] wowlan add mqtt ping response keep alive timer
- [wlan] update ssl resume codes to wlan tcp resume
- [wlan] Support 2 way group key for wlan resume
- [wlan] Add setting RA start rate and max rate
- [wlan] Lower CCK current for D cut
- [wlan] Change the length for memcpy to prevent overflow in coap_send

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- [wlan] Add mbedtls wrapper for coap usage
- [wlan] fixed wlan resume security mode: wep/tkip failure issue
- [wlan] fixed wps scan error due to fast connect and auto-reconnect conflict
- [wlan] modified the rltk_wlan_get_sta_max_data_rate to get fixed rate value
- [video] upgrade VOE to 1.3.6.1
  1. add private mask API
  2. extend osd block num: 6→24
  3. add awb statis r/g/b mean for meta data and change meta data timing after statis
  4. update 3Alib for 120fps support
- [isp] Fix md row, col setting problem
- [wdt] Fix compile error, add aon wdt nsc function for TZ build
- [flash] Support QSPI mode NOR Flash
- [flash] Add weak function for NOR Flash spic bit mode select by customer assign
- [rtc] Initializes the RTC device with 32k calibration setting
- [boot] Init for NS ROM debug level before NS log UART init. To avoid standby resume system hang due to system access non-init UART
- [sdk] remove duplicate version setting of lwip, freertos, mbedtls in CMakeLists.txt
- [filesystem] Fix error in reading and writing return value at virtual
- [sdk] Update the whole firmware upgrade example
- [sd] Add the mutex protect when using the OTP api
- [sd] Disable force 3.3v setup
- [boot] Fix the read user data failed problem for 32MB NOR flash
- [nn] add scrfd and mbfacenet to amebapro2_fwfs_nn_models.json as default
- [nn] adjust partition table otherwise nn model will destroy flash file system and user data region
- [isp] fix osd include header miss problem
- [isp] remove unsupported md code
- [mmf] fix the potential memory leak error in module_array
- [audio] fix the AGC gain curve and AEC work not well
- [audio] fix the AEC parameter check function and correct the setting parameters
- [audio] adjust the AGC attack/release time from 20 ~ 1000 (interval 20) to 0~ 500 (interval 1)
- [audio] allocate a memory for Tx NS processing parameters to prevent NS process error
- [sdk] fix stdin/stdout/stderr in vfs wrapper bootloader force using rom printf , fix resume time too long cause by feeding buffer in to strchr without '\0'
- [nn] change embedded name in nb files
- [nn] fix module vipnn reinit fail problem

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- [coex] Close send null frame while using SoftAP and BLE scan
- [coex] Add concurrent handle while BT on
- [bt] Fix long run stack overflow error after ATBO
- [bt] Fix BT config lack of secure context problem
- [isp] Fix md row, col setting problem

7 Release v9.6

7.1 v9.6a

- [mbedtls] add mbedtls-2.28.1
- [video] Store the snapshot from VFS
- [mmf] update the consilient VQE library for correcting AGC attack/release time and NS memory size
- [freertos] support tick count initial value based on dwt cycle counter
- [ota] Modify the download procedure of DFU upgrade FW for nor flash
- [sd] Fixed the return code fail and support to modify the timing parameter
- [video] Add the time information for fcs mode
- [sqlite] add sqlite as a light-weighted database engine
- [video] upgrade voe to 1.3.7.2
- [sdk] add _realloc_r wrapper
- [wlan] wlan tcp resume support gpio wakeup
- [wlan] wowlan add wdt gpio pull ctrl setting
- [sdk] NOR Flash spic bit mode select by customer assign
- [video] add the encoder setup parameters, Support to setup the level, profile and cavlc parameters for h264 and hevc
- [md] md sensitivity improvement
- [sdk] fix errno re-entrance
  [wlan] wowlan keep alive packet receive optimization
- [sdk] solve multitask message interleaving
- [mmf] add mmf example to grab bayer image
- [isp] add isp feature private-mask
- [wlan] wlan resume and wlan phy parameter optimization
- [usb] Add the the new usb architecture and relative example
- [rtsp]reset the rtp timestamp to zero at the begin
- [mmf] mmf av timestamp sync
- [md] fix md bug & separate md into new lib

- [sdk] printf message interleaving issue fix
- [mmf] add choice for AGC to detect on RMS or peak value
- [mmf] fix sweep tone erase by NS algorithm in some case
- [wlan] Get wlan RSSI in MP mode
- [md] modify md adaptive threshold
- [sdk] use sys/errno.h instead of lwip built-in
- [vfs]fix the memory leak for readdir function.
- [video]add get buffer info api.
- [isp]add log message to trace status when dumping iq-data.
- [audio]fix the loss block of the wav file header using in audio test tool.
- [wlan]add division zero error handle.
- [audio]smooth the NS transition band to prevent sound change dramatically.
- [sdk]fixed to read nor flash error at boot loader.
- [isp]dynamically decide OSD bitmap size.
- [audio]move audio trx start after cache queue create.
- [wlan]support arp resume.
- [usb]fix the high cpu utilization problem and add the hotplug event for usb ethernet.
- [usb]support bootloader update at dfu mode.
- [sdk]disable AON WDT in DSLP and Standby.
- [video]adjust hal_voe_send2voe timeout limit and return proper status when close video.
- [lwip]update dhcp resume.
- [mbedtls]ssl resume support to fix in_ctr.
- [wlan]add Wi-Fi roaming example.
- [usb]add the test pattern to measure the USB eye.
- [isp]add API to modify customized iq address.
- [video]add the roi feature for fcs mode.
- [wlan]increase wowlan keepalive compatibility.
- [lwip]fix tcp resume when zero seqno and ackno.
- [wlan]wlan API requirements and default setting for acura.
- [wlan]MP wlan API requirements and default setting for acura.
- [sdk]fix error if re-include errno.h.
- [sdk]support telnet console.
- [audio]fix the aec loss convergence.
- [mmf]change the handle task priority when doing mmf crtl and increasing mmf crtl timeout.
- [mmf]fix the danger of module_audio using mm_ctrl while creating module.
- [lwip]tcp resume support to not queue first out-of-sequence packet

- [lwip]fix arp retain.
- [usb]modify the lwip process to assign the initial data for usb ethernet dongle.
- [usb]modify the transfer packet size to speed up the download process with dfu mode.
- [nn]add crc32 check for face feature validity.
- [video]MMF support to get sps/pps info.
- [bt]support BT UART bridge by USB CDC.
- [audio]fix the error of getting the stereo mic data and add parameters to clarify the setting of the new version AGC.
- [wlan]add TBTT shift adjust
- [md]add md stop, start command and fix MD calculate issue
- [md]increase md time filter interval and auto WDR update
- [usb]support to change the serial number with dfu driver.
- [audio]add rx, tx start, stop control in module for user to operate mic and speaker audio process separately.
- [sdk]fixed the gpio e4 conflict with fcs mode.
- [video]modified hal_voe_send2voe timeout customized settings amd add customized timeout handle.
- [audio]move the audio mixing process before DRC/AGC in speaker path.
- [aduio]change the mix method from the averaging to the adding and clipping the 4 channels audio data.
- [audio]remove the mix input num 2, only remain mix 4 channels.
- [audio]add audio mix mode example mmf2_example_2way_audio_g711_doorbell_init
- [audio]support opus array and add opus array rtsp example.
- [video]update the voe 1.42.1 version and it need to refer hal_video_release_note.txt.
- [video]support private mask for fcs mode.
- [video]force 16 alignment of encoder's input width and crop to desired width as output
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- [video]add sync mode jpeg snapshot example with face detection.
- [video]add external mode jpeg HW encode example.
- [sdk]add NSC functions for Ethernet.
- [wlan]Update wlan API.
- [nn]add codec type NV12 and NV16 for nn input.
- [nn]set face recognition module param in related examples and add null check for input param in module_vipnn.c
- [nn]add result argument for post-processing and modify vipnn to support new model structure
- [wlan]wlan scan done state update

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- [nn]set result size and result max count for nn related examples.
- [wlan]update wowlan TBTT shift adjust.
- [sdk]support to get the version from library.
- [usb]cdc supports image transfer example.
- [audio]modify the AGC 0 dBFS not attenuating correctly.
- [isp]support SW-ALS function.
- [isp]merge the production line calibration iq data to default iq.
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- tcp_protocol_layer_keep_alive_(v02)
- support_encoder_align_then_crop_in_fcs_(v01)
- add_AEC_ConvergenceTime_PPLevel_adjustment_(v01)
- tcp_protocol_layer_keep_alive_(v01)
- ps5420_bringup_rotate_(v08)
- add_version_info_(v01)
- modify_the_hot_plug_procedure_cdc-ecm_(v01)
- tinyssh_(v01)
- modify_mmf_queue_clear_and_turn_off_opusc_module_extra_prinf_(v01)
- modify_audio_dummy_frame_could_reset_after_reset_(v01)
- example_for_isp_mode_change_(v01)
- update_sensor(voe1421)_(v01)
- add_libVQE_get_version_in_libVQE_(v02)
- wlan_rtw_ignore_wpa_tkip_wpa2_tkip_(v01)

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- [nn] add ftp loader to nn file tester
- [nn] add nanodet object detection model
- [video] add return value check of vfs registering
- [md] increase md queue size
- [flash] remove flash_resource_lock
- [nn] adjust task priority in nn joint test video/audio example
- [sdk] rodata protection by mpu_protect.c
- [wlan] fix wps pin issue to join wpa2/wpa3 ap
- [nn] reduce the cpu usage of face recognition model
- [video] add md and nn to fcs joint test example
- [sdk] fix wlan_scenario example show unknown security
- [wlan] store the BSSID info to wlan_fast_reconnect
- [wlan] provide bssid and crc for fast connection structure
- [wlan] add atcmd to enable/disable reconnection
- [video] modify video parameter setting of video examples for auto sensor parameter
- [mp4] add the append header config
- [vfs] fix access return error
- [isp] add osd render task deinit in example
- [isp] add description at fcs mode
- [lwip] add dns resume
- [wlan] add bandsteering example for roaming plus
- [ethernet] Add ethernet_detect_phy_state for Ethernet
- [lwip] refine arp resume
- [lwip] check expire for dns resume
- [isp] add ir_control initial in video example flow
- [flash] Support GD new flash type
- [isp] fix osd render task skip update
- [isp] modify sw-als function
- [video] add dcache clean before HW jpeg encoding
- [video] support scaling up in ch0
- [sdk] gdma busy issue fix
- [otp] support jtag fixed key
- [nn] set viplite driver version to 1.12.0
- [isp] fixe secure-fault of bayercap_rtsp_init
- [isp] update for tuning tool
- [isp] isp control update: reorganize isp control list

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- [wlan] add wifi_get_sta_current_data_rate api to avoid confusing client and support dhcp renew 1 minute

7.2 v9.6b

- [vfs] modify scandir flow
- [video] add protect for video open/close
- [wps] fix wps hardfault issue
- [ethernet] add Ethernet detect phy state for Ethernet
- [sdk] fix the flash 4 bytes address mode issue after CHIP_EN reset in boot loader for Quad IO mode
- [sdk] update sgpio_multc_counter_mode example
- [video] remove the semaphore and reset procedure
- [usb] add the reset procedure for the ECM
- [wowlan] correct suspend fail
- [md] add md event record example
- [isp] remove osd dummy code
- [wlan] add example about wifi roaming
- [audio] change library of aac encoder and decoder to fdkaac
- [wowlan] fine tune the beacon tracking flow
- [lwip] modify tcp resume to send keepalive packet immediately after resume
- [video] upgrade voe to 1.4.7.1 and sensor driver
- [audio] set the opus delay time to 20ms when the delay time is invalid
- [audio] correct the audio close flow
- [video] add the UUID and fixed the SEI size for HEVC
- [video] correct the video force I frame flow
- [audio] set up the initialed flag when the audio is initialed in the audio reset
- [audio] add mute in parameter and protect audio command
- [wlan] add RA 1st fallback API
- [nn] create vipnn buffer from existing video data buffer
- [audio] add eq reset command in audio module
- [wlan] avoid unsupported security connection(ex: wpa3 gcmp/gcmp256/ccmp256 ...)
- [nn] add audio detection result type and display callback
- [spi] update spi example
- [wlan] add API function about average data rate of ten packets and probe request modification
- [video] support different channel to setup the SEI
- [mmf] correct the flow when mmf linker fail to dynamically allocate memory

- [nn] correct the nn file tester to prevent the crash in TZ mode
- [sdk] add function to overwrite log uart baud rate in application
- [wlan] correct wps connection process for the AP's SSID with 32 characters
- [wowlan] revise the wowlan flow to reduce the suspend fail rate
- [mbedtls] sync solution from 2.28.2 for dtls vulnerability of CVE-2022-46393 in 2.28.1
- [usb] modify the usb cdc procedure
- [wlan] add user configuation to set the keepalive(unicast arp request) interval and modify listen interval
- [sdk] modify bootloader cmake and libboot for fcs fast boot
- [sd] add the used space API for fatfs
- [audio] enable some float api in opus library
- [mbedtls] add mbedtls platform constructor
- [video] modify the SEI procedure
- [wowlan] lift the restriction of dhcp renew
- [elf2bin] update elf2bin
- [wlan] send ADDBA request after WiFi connection
- [usb] modify the maximum size for mjpeg in uvc
- [nn] revise the model copy process to prevent the potential null access
- [nn] improve model loading time
- [nn] add lock for nn driver api
- [sdk] remove unused trustzone macro configuration
- [isp] isp feature and osd update
- [isp] set enable as default for merging calibration data
- [isp] correct 3a and meta information in isp at command
- [wlan] support CSA channel switch announcement
- [wowlan] add wifi status check in suspend flow
- [otp] add rom log message disable api
- [wlan] add debug message for wifi connection
- [mbedtls] move crypto initialization to constructor
- [wowlan] fix notbtt issue
- [nn] revise the model loading flow by adding dcache clean after model load
- [wlan] disable sending ADDBA request after WiFi connection
- [wlan] Make sure wifi resume is completed before setting the connection status
- [wowlan] change arp keep alive to pwrbit 0
- [audio] optimize on low SNR signal and AEC NS runtime configure
- [sdk] add stdio_port_init_s for ntz
- [wlan] tcp resume input more packet

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- [wlan] correct wifi resume backup to prevent the stuck
- [usb] support usb reset and ecm deinit flow
- [audio] improve flexibility for AEC run and audio dummy setting
- [md] add module eip for video signal process
- [nn] fix incorrect copy size of face feature
- [audio] correct the audio to drop first pop noise
- [wlan] support GCMP128/256 wifi connection
- [vfs] modify the assert and format API
- [mmf] add mmf fast poweroff flow in wowlan example
- [sdk] remove unnecessary while loop
- [wowlan] support set dtimtimeout before standby
- [sdk] add method and command for enabling/disabling application uart log output
- [video] support to setup the jpeg level for fcs mode
- [video] add auto rate control (fps adjustment) for h265
- [wlan] modify scan_timeout and add api to get status code about association failure
- [wlan] check packet in fifo when resume read packet to prevent unaligned fault due to invalid data
- [mmf] remove infinite loop and memory leak in mmf
- [os] add freertos 202210.01 LTS
- [nn] remove infinite loop in yamnet_s SVM prediction
- [mbedtls] add mbedtls-3.4.0
- [audio] correct the audio signal process to prevent audio drop frame
- [wlan] add RTW_JOINSTATUS_TIMEOUT status about driver timeout state for application layer usage
- [ethernet] modify the timer handler location
- [video] create parameter for mini fps of rate ctrl
- [mmf] correct mmf task to prevent the danger of unexpected return
- [isp] eip support more resolutions
- [wlan] add pno mechanism and example
- [sdk] add bootloader log customer control condition
- [wlan] add_RTW_JOINSTATUS_STATUS_CODE_FAIL_for_application_layer
- [audio] correct the audio receive flow to prevent rx frame random drop
- [lwip] avoid crash caused by asynchronous operation of lwip variables
- [audio] add audio trx reset in audio error handler
- [sdk] correct function user_wputc to prevent the random initial address
- [audio] correct the flow to prevent the AEC not working
- [video] add hal_voe_send2voe timeout customized settings

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- [lwip] fix the compile error to disable CONFIG_FAST_DHCP
- [lwip] correct hal_user_otp_set api to prevent the over wright
- [secure] open sau setup to app_start
- [freertos] upgrade pthread porting from 1.0.3 to 1.2.1
- [video] modify the video flow
- [isp] enable/disable fps drop frame mode
- [usb] reset the usb insert status and support to setup the usb priority
- [wlan] add debug message for auto_reconnect and millisecond setting for auto_reconnect
- [sdk] modify SDM 32K to XTAL low power mode
- [audio] optimize CPU utilization of audio algorithm
- [mbedtls] mbedtls-3.4.0 support trustzone
- [isp] remove the dummy copy procedure
- [wlan] change clock source from SDM 32K to XTAL low power mode on wowlan mode
- [video] upgarde auto rate control from 2 steps to 4 steps
- [video] fix SEI formatting error in H264
- [video] modify sample time calculate
- [isp] add day, night mode change example
- [wlan] Don't turn off xtal lps clock when wifi off due after changing clock source from SDM 32K to xtal low power mode
- [otp] add ethernet mac address 0x1d0 ~ 0x1d5 to otp logical map
- [wlan] fix iperf bidirection issue about tx/rx throughput difference

7.3 v9.6c

- [wlan] fine tune TX IQK for TX EVM for 2.4G and 5G
- [wlan] correct some wps issue
- [wlan] add api to get the candidate router for fast connection
- [video] support at most 3 mode for iq configuration
- [video] revise the video init to prevent blocking the system
- [usb] support function to change usb related task priority and modify the de-initial flow
- [sdk] update power lib
- [crypto] revise the random seed function
- [wlan] correct the usage of wifi_set_idle_roaming_time
- [wowlan] add PS command
- [sdk] Add option for customizing the io mode and the flash max speed
- [usb] fine tune the task priority for sof task
- [video] set isp min fps as the auto rate control fps upbound
- [video] add api for new video heap calculation

- [nn] improve the model loading speed
- [bt] upgrade the bt patch and change vendor command
- [usb] revise the ethernet cable connect status
- [sdk] correct the mqtt example connection
- [wlan] correct 5g roaming issue to match rssi_delta
- [isp] correct osd 1bpp buffer length settings
- [isp] update privacy mask configuration to support multi-blocks
- [audio] modify the audio module when the rx output is not needed
- [video] correct the preallocate function for the fcs video heap
- [osd] reduce osd code size
- [osd] correct the osd table size
- [lwip] add lwip 2.1.3
- [mbedtls] add gcm alt in mbedtls-2.28.1
- [isp] support isp initial parameters read/write retention memory
- [audio] add api to get audio signal processing status
- [sdk] adjust partition table
- [usb] add callback for plugging and unplugging the cable
- [usb] revise tx/rx procedure and USB FIFO threshold
- [sdk] adjust file system configuration
- [wlan] add flag for wpa3 transition to force wpa2 connection
- [wlan] fix RTS issue
- [video] support getting boottime in both fcs and non-fcs mode
- [video] update sensor driver
- [isp] eip support 64x32 acceleration
- [flash] support user defined SPIC speed
- [wlan] provide the fast scan retry times for upper layer to revise
- [sdk] add list init check to prevent using uninitialized list
- [mmf] fix input port resource not recycle when pause
- [sdk] support build sdk on macos arm64/intel
- [sdk] update elf2bin and combine tz/ntz encrypt config
- [video] support getting the NALU payload information
- [rtsp] revise the delay during the rtsp initialization
- [audio] improve performance for low SNR signal
- [mbedtls] add mbedtls-3.5.0
- [osd] correct the privacy mask setting result
- [wdt] correct watchdog interrupt mode in TZ condition
- [freertos] correct freertos posix clock for clock set/get time

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- [usb] support static IP connection mode
- [video] fine tune video rate control
- [wlan] support Null1 resend time limits in 3 times
- [audio] adjust quiet speech noise gate for audio signal process combination
- [nn] reduce the prepare step execution time
- [lwip] fix lwip 2.1.3 compile error
- [usb] re-activate the USB TX Idle state
- [video] enable encoder reference frame compression
- [wowlan] add unicast wakeup enable option
- [wlan] refine RSSI
- [video] integrate auto-ir function into sensor service
- [usb] fine tune the connection mode flow
- [wowlan] ensure suspend rx flow continuity
- [isp] correct the privacy mask disable flow
- [nn] support user load model binary from any file system
- [wowlan] fine tune the flow to increase chances of receiving tcp ka ack
- [video] sync fcs encoder option with normal mode
- [video] revise video timestamp calculation flow
- [nn] correct nn unchecked return value
- [mmf] correct fmp4 unchecked return value
- [wowlan] enable dhcp renew limit wakeup
- [wowlan] ensure getting correct register status to prevent suspend fail
- [sdk] revise the code by coverity
- [usb] revise the usb ecm process
- [audio] add 32 ms echo tail length for AEC and tune the needed memory of the audio signal process
- [usb] add the USB DHCP Status API
- [nn] support nn model decryption in abstraction layer
- [audio] reduce code size in audio module
- [usb] support to change the different connect mode
- [video] correct flow to prevent releasing jpeg buffer repeatedly
- [video] reverse heapstruct memory size to prevent the overlap memory in the freertos system
- [usb] revise the usb bulk out flow
- [waln] modify the ATCMD to prevent the confliction with BTCMD
- [wlan] modify the api about wifi_get_channel
- [video] automatically align image height

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- [video] add crop function for jpeg
- [wlan] fix wpa3 connection hardfault in TZ
- [filesystem] fix nand pfw init
- [sdk] update example readme
- [mmf] fix kvs producer incorrect aac type
- [mmf] fix nn joint test incorrect face feature output size
- [filesystem] remove abandoned littlefs example
- [sdk] update qr_code_scanner example readme
- [wlan] fix hardfault in TZ project about example_wifi_roaming_plus
- [amebapro2][mmf] fix webrtc restart not working
- [video] fix same color label for registered face
- [sdk] update ssl_download example readme
- [sdk] update fatfs example readme
- [video][rtsp] limit width and height of jpeg over rtp to 2040
- [sdk] update ssl_download example readme
- [filesystem] correct implicit declaration of function
- [mmf][video] modify the auto rate control problem
- [sdk] fix sdk for TZ build
- [video] fix compiler error for cdc snapshot example
- [wlan] add new security ENUM for WIFI scanning to get more detailed security information
- [fwfs] fix the fwfs crash problem with nand flash
- [usb] fix connect status and modify the deinit flow
- [wlan] fix iperf hang up and enable/disable concurrent mode hardfault issue in trustzone
- [mmf][video] modify the auto rate control lower bound