MMWAVE RadarSS Release Notes

1 Introduction

RadarSS firmware is responsible for configuring RF/analog and digital front-end in real-time. It also schedules periodic temperature-based calibrations and monitors based on application need. This enables the mm-Wave front-end to be autonomous and capable of adapting itself to handle temperature and ageing effects, and to enable significant ease-of-use. This firmware also supports cascade mode of operation for imaging application.

2 Release Overview

2.1 Platform and Device Support

The device and platforms supported with this release include:

Supported Devices	Release Status	Supported EVMs
AWR2243 ES1.1	Production Release	AWR2243BOOST: AWR2243 ES1.1 Booster pack + DCA1000EVM MMWCAS-RF-EVM: AWR2243 ES1.1 cascade imaging RF EVM + MMWCAS-DSP-EVM

2.2 Release version

Version	Type
ROM: 2.2.0.13 PATCH: **2.2.3.3**	Binary Patch (6kB)

3 Release Contents

3.1 AWR2243 ES1.0 RAM contents (ES1.1 ROM)

3.1.1 Features and enhancements (DFP 2.0.3 - Compared to DFP 1.2 / AWR1243)

- AWR2243 is TIs second generation 77GHz RF CMOS Radar, features supported in this firmware release are:
    - This release is derived from AWR1243 DFP1.2 release baseline and backward compatible to AWR1243 DFP 1.2 supported APIs.
    - Synthesizer RF frequency supported 76 – 81GHz
        - VCO1: 76 – 78GHz
        - VCO2: 76 – 81GHz
    - Supports 20MHz IF bandwidth
    - Supports 266MHz/us max slope
    - Supports New programmable filter (not tested in this release)
    - 20GHz LO cascade configuration improvements
- Refer mmWave-Radar-Interface-Control.pdf (ICD) for more information on AWR2243 ES1.0 API details.

3.1.2 Features and enhancements (DFP 2.0.8)

- Supported 13dBm max TX output power
- VCO calibration improvements
- Added support for new Programmable filter
- APLL boot calibration improvements
- New advance chirp configuration API (Only delta-F increment supported)
- Bug fixes and stability improvements in RadarSS
- Update to TX phase shifter reset time w.r.t. knee of the ramp
- Supported calibration store and restore APIs for factory calibration
- The cascade link budget improvement

3.1.3 Features and enhancements (DFP 2.1.0)

- Added TX Phase Shifter DAC Monitoring part of TX internal signal monitor
- Updated 20GHz cascade sync circuit buffer/bias settings for PVT
- Updated LODIST circuit buffer/bias settings for PVT based on DOE learning
- Added new API to enable VMON in analog monitor API

- Added option to enable/disable OSC clock in channel config API (enabled by default)

- Improvements to IF stage calibrations (HPF and LPF)

- Improvements to HPF Monitor

- Improvements to IQMM calibration

- Improvements to Synth calibration and control voltage monitor

- Improved 20GHz cascade sync power monitor

- Added new APLL and SYNTH BW control API

- Added new API to control runtime monitors to reduce effective FTTI interval in cascade systems

- Added an API to override temperature bin index for run time calibration to provide Host controlled run time calibration.

- Added a new DCC self-test monitor at boot-up and in latent fault API

- Added new power optimization logic to reduce inter burst/frame power consumption.

- Added an option to disable dither in test source configuration API

- Enabled and updated LPF monitor configuration and reports

- Added a new option in loopback burst API to disable RF front end

- Added a new API "AWR DIGITAL COMP EST CONTROL SB" to estimate and compensate digital corrections in cascade use case

- Enhanced TX OLPC calibration to improve power accuracy

- Enabled non-live synth frequency monitor

3.1.4 Features and enhancements (DFP 2.1.5)

- Enabled new advance waveform chirp configuration API

- Updated inter burst/frame power saving scheme to reduce power consumption

- Added new frame stop features in frame start stop API

- Enabled LODIST CLPC calibration

- Updated TX gain phase monitor to report interference/noise data

- Added new error codes in CPU fault Async-event

- Updates to calibration and monitors frequency limit to avoid out of band emission

- Improvements to LPF calibration

- Improvements to RX gain calibration and updated RF gain target

- Replaced TX BPM monitor with new TX phase shifter monitor (API update)

- Added a new API to disable inter burst power save

- Improvements to HPF calibration

3.1.5 Features and enhancements (DFP 2.2.0)

- Updated DCC driver to overcome IP limitation
- Fix for intermittent ADC DC offset fluctuations
- Increased max supported PS dither value in AWR_ADVANCE_CHIRP_CONF_SB
- Improved Synth boot calibration
- Added new AWR_ADVANCE_CHIRP_DYN_LUT_ADDR_OFFSET_CFG_SB API
- Added a new feature ADVANCE_CHIRP_ERROR_CHK_DIS in AWR_RF_MISC_CTL_SB API
- **Final support release for AWR2243 ES1.0 device**

3.2 AWR2243 ES1.1 Patch contents

AWR2243 ES1.1 is having DFP 2.2.0 contents in ROM and below DFP releases applicable only for ES1.1 through patch updates.

3.2.1 Features and enhancements (DFP 2.2.1)

- **Patch Release for AWR2243 ES1.1 device (not supported on ES1.0)**
- Fix for RX IFA saturation issue
- Improved TX power boot calibration sequence
- Improvements to synthesizer over and under shoot
- Added a new option to disable PS DAC monitor in AWR_MONITOR_TX0_INTERNAL_ANALOG_SIGNALS_CONF_SB API
- Added a new feature CAL_MON_TIME_UNIT_ERROR_CHK_DIS in AWR_RF_MISC_CTL_SB API to optimize the monitoring duration in advance framing
- Updated calibration and monitor timing info as per measurement done on AWR2243 ES1.1 device

3.2.2 Features and enhancements (DFP 2.2.2)

- Improved Synthesizer duty cycle performance
- Few minor bug fixes based on system validation feedbacks

3.2.3 Features and enhancements (DFP 2.2.3)

- Added user programmable RF Frequency dither limits to enable frequency separation of devices during RX Gain Phase monitoring in cascade systems
- Few minor bug fixes

3.3 Feature/Changes List

3.3.1 Changes in DFP 2.0.3 release (with respect to DFP 1.2 / AWR1243)

Item type	Key	Description
Enhancement	MMWAVE_DFP-30	20MHz IF bandwidth support
Enhancement	MMWAVE_DFP-18	VCO2 5GHz 76-81GHz BW support
Enhancement	MMWAVE_DFP-24	20G LO cascade configuration improvements
Enhancement	MMWAVE_DFP-42	New Programmable filter support (not tested)

3.3.2 Changes in DFP 2.0.8 release

Item type	Key	Description
Enhancement	MMWAVE_DFP-92	Supported 13dBm max TX output power
Enhancement	MMWAVE_DFP-64	Added support for Programmable filter
Bug	MMWAVE_DFP-122	Fixed a bug in phase shifter calibration (Inconsistent current fluctuation during boot time)
Bug	MMWAVE_DFP-102	Fixed a bug related to Rampgen parity self-test.
Bug	MMWAVE_DFP-98	Fixed VCO2 boot time calibration occasional failure
Bug	MMWAVE_DFP-97	Fixed Issue with Rx Mixer power analog monitor
Bug	MMWAVE_DFP-96	Fixed a race condition in getting available time for calibration and monitoring chirps in inter burst/frame time, which would cause firmware fatal error
Bug	MMWAVE_DFP-95	Added a condition to protect BSS from data corruption when host is programming 11th segment with more than 32 chirps data in dynamic chirp config API fast mode.
Bug	MMWAVE_DFP-163	Fixed DFE boot time STC run corrupting DFE registers.
Enhancement	MMWAVE_DFP-162	Added a New advance chirp configuration API to program start frequency variation.
Enhancement	MMWAVE_DFP-164	TX phase shifter reset is done ahead of the knee of the ramp to improve settling behaviors.
Enhancement	MMWAVE_DFP-140	Improvements to APLL boot time calibration.
Bug	MMWAVE_DFP-179	Disabled ESM self-test monitoring in periodic runtime digital monitoring. The "ESM MONITORING EN" field in "AWR MONITOR RF DIG PERIODIC CONF SB" is reserved.
Bug	MMWAVE_DFP-176	Fixed an issue with runtime forced frame stop API in Hw triggered mode.
Bug	MMWAVE_DFP-178	Fixed an issue in timing when analog monitors are enabled in fault injected mode.
Bug	MMWAVE_DFP-177	Fixed an issue with race condition while accessing sequencer extension RAM during chirping.

Enhancement	MMWAVE_DFP-170 MMWAVE_DFP-189	Improvements to VCO1 and VCO2 calibration robustness across temperature and device corners.
Bug	MMWAVE_DFP-174 MMWAVE_DFP-181	Fix to Synthesizer frequency monitor first sample large error issue and spike in Tx power
Enhancement	MMWAVE_DFP-190	Updated DFE statistics memory initialization sequence to improve DFE statistics data.
Bug	MMWAVE_DFP-191	Fixed an issue with calibration store and restore API, this was causing APLL control voltage monitor to fail.
Bug	MMWAVE_DFP-182	Fixed an issue with calibration store and restore API, this was causing API to return INVALID DATA occasionally.
Bug	MMWAVE_DFP-235	Fixed an issue with Rx gain phase monitor reporting mode 1 and 2 if RF gain target is set to 34dB and 26dB.
Bug	MMWAVE_DFP-183	Fixed an issue with PA loop back option in advance frame config API loopback burst.
Bug	MMWAVE_DFP-143	Fix for Tx phase shifter and Tx gain phase monitor phase fluctuation during temperature sweep.
Enhancement	MMWAVE_DFP-186	The cascade link budget is improvement
Enhancement	MMWAVE_DFP-184	Added –ve delta frequency dither feature in advance chirp configuration API
Enhancement	MMWAVE_DFP-240	VCO1 phase noise improvement, which limits max slope to 100MHz/us
Bug	MMWAVE_DFP-341	Reverted VCO1 phase noise improvement due to settling issue (MMWAVE_DFP-240)

3.3.3 Changes in DFP 2.1.0 release

Item type	Key	Description
Bug	MMWAVE_DFP-227	The fix for multiple monitors in AWR MONITOR RF DIG LATENTFAULT CONF SB API to improve stability.
Bug	MMWAVE_DFP-81	Fix for TX gain phase monitor non-verbose mode (report mode 1 and 2) reporting issue.
Enhancement	MMWAVE_DFP-82 MMWAVE_DFP-188	Fix for RX gain phase monitor non-verbose mode (report mode 1 and 2) reporting issue. Added more reporting fields in AE to improve interference immunity.
Bug	MMWAVE_DFP-244	Fix for periodic digital monitors.
Bug	MMWAVE_DFP-230	Fixed issues with reporting mode 1 and 2 threshold checks for all analog monitors.
Bug	MMWAVE_DFP-226 MMWAVE_DFP-225	Fixed issues with internal RX, TX, PM, LO and CLK analog signal monitors.
Bug	MMWAVE_DFP-204	Added sync out and clock out disable control option in length match master mode.
Bug	MMWAVE_DFP-263	Fix for the issues with PA and PS loopback burst configuration in advance frame config API.
Enhancement	MMWAVE_DFP-131	Added option to enable VMON monitor in analog monitor enable API

MMWAVE RadarSS Release Notes

Enhancement	MMWAVE_DFP-237	Added a redundant failure report part of AWR AE MSS RFERROR STATUS SB in case of any failure in analog and digital monitor failure in reporting mode 1 (quiet mode)
Bug	MMWAVE_DFP-264	Updated synth control voltage monitor slope and control voltage monitor
Enhancement	MMWAVE_DFP-295	Added option to disable OSC clock out in channel config API (by default OSC clock is enabled in device powerup)
Enhancement	MMWAVE_DFP-322	Updated LODIST PVT LUT bias/buffer settings as per DOE learnings
Enhancement	MMWAVE_DFP-328	Improved HPF calibration and monitoring
Enhancement	MMWAVE_DFP-360	Improved LPF calibration
Enhancement	MMWAVE_DFP-344	Updated SYNC 20G PVT LUT bias/buffer settings
Enhancement	MMWAVE_DFP-352	Added new TX Phase shifter DAC monitor part of internal TX analog DCBIST monitor
Enhancement	MMWAVE_DFP-361	Improvements to Rx gain runtime and IQMM boot calibration
Enhancement	MMWAVE_DFP-371	Improvements to BSS calibration and monitoring Scheduler
Enhancement	MMWAVE_DFP-378	Improvements to Synth VCO1 and VCO2 calibration
Bug	MMWAVE_DFP-4	Fixed an issue with TX gain phase and TX BPM monitor measurements when all RX channels are disabled.
Bug	MMWAVE_DFP-165	Fixed an issue with rampgen memory ECC monitor stability in long duration runs.
Bug	MMWAVE_DFP-318	Fixed an issue with TX PA LDO BFR setting for regulated supply
Bug	MMWAVE_DFP-369	Fix for dynamic chirp config API programming mode 1
Enhancement	MMWAVE_DFP-354	Added a new DCC self-test monitor at boot-up and in latent fault API
Enhancement	MMWAVE_DFP-415 MMWAVE_DFP-432	Added new power optimization logic to reduce inter burst/frame power consumption
Enhancement	MMWAVE_DFP-376	Added new APLL and SYNTH BW control API
Enhancement	MMWAVE_DFP-433 MMWAVE_DFP-132	Improved 20GHz cascade sync power monitor
Enhancement	MMWAVE_DFP-362	Added new API to control runtime monitors to reduce effective FTTI interval in cascade systems
Enhancement	MMWAVE_DFP-363	Added an API to override temperature bin index for run time calibration to provide Host controlled run time calibration.
Bug	MMWAVE_DFP-391	Fixed an issue with boot-up WDT self-test
Bug	MMWAVE_DFP-284	Enabled DFE statistics
Bug	MMWAVE_DFP-405	Fixed an issue with Synth monitoring threshold check
Bug	MMWAVE_DFP-368	Fixed an issue with FRC lock step error generation in Hw triggered mode
Bug	MMWAVE_DFP-269	Fixed an issue with Rx gain phase monitor error at high temperature (Improved RX PS loopback PD measurement)

Enhancement	MMWAVE_DFP-437	Improved TX power OLPC calibration
Enhancement	MMWAVE_DFP-431	Enabled and updated LPF monitor configuration and reports
Enhancement	MMWAVE_DFP-297	Added an option to disable dither in test source configuration API
Enhancement	MMWAVE_DFP-411	Added a new option in loopback burst API to disable RF front end
Enhancement	MMWAVE_DFP-392	Added a new API "AWR DIGITAL COMP EST CONTROL SB" to estimate and compensate digital corrections
Enhancement	MMWAVE_DFP-438	Updated calibration, monitoring and inter-burst timings for AWR2243
Bug	MMWAVE_DFP-469	Fixed an issue with PD trim reading which impacts TX output power and Rx gain calibration
Enhancement	MMWAVE_DFP-464	Clear all profile validity in RF init API, support to reset profile information.
Enhancement	MMWAVE_DFP-393	Enabled non-live synth frequency monitor
Enhancement	MMWAVE_DFP-486	Calibration data structure memory organization update
Bug	MMWAVE_DFP-468	Updated boot time DCC self-test issue in stability run
Bug	MMWAVE_DFP-471	Fixed an issue with RX IF Stage Monitor real mode report
Enhancement	MMWAVE_DFP-500	RX Mixer bias BFR setting update
Bug	MMWAVE_DFP-472	Fixed an issue with TX PS DAC monitor stability in long run
Bug	MMWAVE_DFP-494	Blocking the Trigger done and monitor reports once frame is stopped
Enhancement	MMWAVE_DFP-510	Improved Sync 20G signal power by 1dB
Enhancement	MMWAVE_DFP-502	Update weak corner DOE device detection in Fw
Bug	MMWAVE_DFP-529 MMWAVE_DFP-478	Improved TX OLPC calibration Power by 1dB
Bug	MMWAVE_DFP-414 MMWAVE_DFP-537	Updated Synth duty cycle sequence to fix Synth control voltage monitor failure

3.3.4 Changes in DFP 2.1.5 release

Item type	Key	Description
Enhancement	MMWAVE_DFP-377	Enabled LODIST CLPC calibration
Enhancement	MMWAVE_DFP-479	Implemented BPM feature using TX phase shifter
Enhancement	MMWAVE_DFP-481	Fixed an issue with higher INL when BPM = 1
Enhancement	MMWAVE_DFP-522	Updated TX gain phase monitor to report interference/noise data
Enhancement	MMWAVE_DFP-350	Implemented new advanced waveform chirp configuration API
Enhancement	MMWAVE_DFP-356	Added new frame stop feature in frame start/stop API

MMWAVE RadarSS Release Notes

Enhancement	MMWAVE_DFP-545	Updated inter burst/frame power saving scheme to reduce power consumption
Enhancement	MMWAVE_DFP-555	Improved minimum chirp cycle time (duration)
Enhancement	MMWAVE_DFP-353	Added new error codes in CPU fault Async-event
Bug	MMWAVE_DFP-566	Updated calibration and monitor frequency limit to avoid out of band emission
Bug	MMWAVE_DFP-537	Fixed an issue with synthesizer control voltage monitor when DFE STC runtime monitor is enabled
Enhancement	MMWAVE_DFP-558	Updated synthesizer non-live monitor to cover full RF band programmed in profile
Bug	MMWAVE_DFP-531 MMWAVE_DFP-498	Improved LPF cutoff calibration LUT
Bug	MMWAVE_DFP-508	Improved RX gain calibration accuracy and updated RF gain target
Bug	MMWAVE_DFP-493	Updated RX gain phase monitor to reduce the reported gain accuracy and updated the ICD documentation
Bug	MMWAVE_DFP-551	Fixed an issue with WDT monitor in SW triggered mode
Bug	MMWAVE_DFP-587 MMWAVE_DFP-560 MMWAVE_DFP-588	Fixed MISRA Static analysis and HIS metric warnings
Bug	MMWAVE_DFP-584	Updated PD calibration to support Strong device corner
Bug	MMWAVE_DFP-635 MMWAVE_DFP-604	Updated Synth calibration to support weak corners
Bug	MMWAVE_DFP-636	Updated inter burst power save sequence to improve stability across device corner and temperature cycle
Enhancement	MMWAVE_DFP-637	Added a new field in AWR_RF_DEVICE_CFG_SB to disable the inter burst power save, which helps to reduce the minimum inter burst blank time requirement in each burst.
Bug	MMWAVE_DFP-600	Updated internal analog PM LO CLK signal monitor threshold for 20G LDO signal
Enhancement	MMWAVE_DFP-528	Replaced TX BPM monitor with new TX phase shifter monitor. Refer ICD for new TX PS monitor configuration and report AE details
Enhancement	MMWAVE_DFP-651	Added new slope parameter in TX gain phase monitor configuration
Bug	MMWAVE_DFP-640	Fix for Synth control voltage monitor failure in (3,8) Synth BW setting
Bug	MMWAVE_DFP-493	Updated RX gain phase monitor to resolve the reported phase error
Bug	MMWAVE_DFP-633 MMWAVE_DFP-599	Improved HPF cutoff calibration
Bug	MMWAVE_DFP-649	Fixed MISRA Static analysis warnings

MMWAVE RadarSS Release Notes

3.3.5 Changes in DFP 2.2.0 release

Item type	Key	Description
Enhancement	MMWAVE_DFP- 692	Updated MAX_TX_PHASE_SHIFTER_INTERNAL_DITHER max range in AWR_ADVANCE_CHIRP_CONF_SB API
Bug	MMWAVE_DFP-513 MMWAVE_DFP-718	Updates to DCC driver to overcome IP limitation, which fixes analog clock monitor reporting issue
Bug	MMWAVE_DFP-562 MMWAVE_DFP-746	Disabled DFE parity test and self-test to overcome IP limitation
Bug	MMWAVE_DFP-516 MMWAVE_DFP-609 MMWAVE_DFP-564	Fix for an intermittent ADC DC offset fluctuations
Bug	MMWAVE_DFP-724	Fix for an issue with first monitor report in slave devices when MONITORING_MODE in AWR_CALIB_MON_TIME_UNIT_CONF_SB is 0 (autonomous mode)
Bug	MMWAVE_DFP-685	Fix for an issue with TX PS frequency compensation mode in AWR_DIGITAL_COMP_EST_CONTROL_SB
Bug	MMWAVE_DFP-730	Disabled VMON by default at RF power-up, which shall be enabled using monitor enable API
Enhancement	MMWAVE_DFP-164	TX phase shifter reset is done ahead of the knee of the ramp to improve settling behavior for calibration and monitor chirps
Enhancement	MMWAVE_DFP-749	Added new error code in TX PS restore API for invalid TX index
Bug	MMWAVE_DFP-762	Fix for VMON BFR settings
Bug	MMWAVE_DFP-780	Improved Synth Boot calibration sequence across DOE units
Bug	MMWAVE_DFP-773	Fix for TX3 inter channel phase mismatch
Bug	MMWAVE_DFP-414	Improved Synth duty cycle sequence
Bug	MMWAVE_DFP-755	Fix for boot time WDT self-test
Bug	MMWAVE_DFP-753	Updated Die-ID get API data structure to match ICD
Bug	MMWAVE_DFP-776	Fixed an issue with TX Phase shifter monitor in reporting mode 1
Enhancement	MMWAVE_DFP-785	Added a new AWR_ADVANCE_CHIRP_DYN_LUT_ADDR_OFFSET_CFG_SB API
Enhancement	MMWAVE_DFP-763	Added a new feature ADVANCE_CHIRP_ERROR_CHK_DIS in AWR_RF_MISC_CTL_SB API

3.3.6 Changes in DFP 2.2.1 release (AWR2243 ES1.1 Only)

Item type	Key	Description
Bug	MMWAVE_DFP-840	Fix for RX IFA saturation issue
Bug	MMWAVE_DFP-796	Fix for Register read-back monitor failure
Bug	MMWAVE_DFP-823	Updated few PM_LO_CLK internal signal monitor thresholds

	MMWAVE_DFP-851	
Bug	MMWAVE_DFP-777	Improvements to TX OLPC boot calibration sequence
Bug	MMWAVE_DFP-861	Fixed an issue with IQMM and Phase Shifter calibration, monitor at negative temperature
Enhancement	MMWAVE_DFP-891	Added a new option to disable PS DAC monitor in AWR_MONITOR_TX0_INTERNAL_ANALOG_SIGNALS_CONF_SB API
Enhancement	MMWAVE_DFP-893	Improvements to synthesizer over and undershoot performance
Enhancement	MMWAVE_DFP-905	Added a new feature CAL_MON_TIME_UNIT_ERROR_CHK_DIS in AWR_RF_MISC_CTL_SB API to optimize the monitoring duration in advance framing and optimized monitor and calibration duration based on ES1.1 measurement
Bug	MMWAVE_DFP-918	Fixed an issue with 20GHz Sync monitor measurement violating frame run time.
Bug	MMWAVE_DFP-925	Fixed an issue with ATCM DB error reporting in AWR2243ES1.1 silicon
Bug	MMWAVE_DFP-936	Servicing WDT every sub-frame boundary to avoid WDT expiry during advance chirp error checks in advance frame config API. Advice to disable WDT during this task, refer ICD for more details.
Bug	MMWAVE_DFP-927	Fixed issue related to synth power saving duty cycle on slave devices. The minimum inter-burst time for slave devices cannot be less than 255us. Refer INTER_BURST_POWER_SAVE_DIS option in AWR_RF_DEVICE_CFG_SB in ICD.
Bug	MMWAVE_DFP-950	Fixed issues with PMLOCLK monitor threshold checks in case of CSI2 data path
Bug	MMWAVE_DFP-951	Fixed an issue with 20G SYNC monitor in advance framing mode

3.3.7 Changes in this release (DFP 2.2.2) – AWR2243 ES1.1 Only

Item type	Key	Description
Enhancement	MMWAVE_DFP-970	Disabled SOCC module when not in use
Bug	MMWAVE_DFP-975	Fixed an issue with 20GHz monitor on slave devices in Autonomous monitoring mode.
Enhancement	MMWAVE_DFP-981	Updated Synth duty cycle performance
Bug	MMWAVE_DFP-983	Updated few internal signal monitor thresholds
Enhancement	MMWAVE_DFP-992	Supported DIG temperature sensor disable option in monitoring configuration API
Bug	MMWAVE_DFP-1009	Fixed an issue with phase shifter monitor threshold checks in

		reporting mode 1 & 2
Bug	MMWAVE_DFP-1020	Fixed an issue with phase shifter monitor increment (PH_SHIFTER_INC_VALn) logic in cascade mode when NUM_OF_CASCADED_DEV is set to > 1 in AWR_CALIB_MON_TIME_UNIT_CONF_SB

3.3.8 Changes in this release (DFP 2.2.3) – AWR2243 ES1.1 Only

Item type	Key	Description
Enhancement	MMWAVE_DFP-1101	RX Gain Phase monitor API updated to add a user programmable RF Frequency dither
Bug	MMWAVE_DFP-1090	Fix for Digital Monitor boot and latent fault API call failure
Enhancement	MMWAVE_DFP-1512	Added APLL_RZ_TRIM_ VCO field in the AWR_APLL_SYNTH_BW_CONTROL_SB for future debug use (reserved in this release)
Bug	MMWAVE_DFP-1517	Fix for PD calibration failures at -40 degC on few devices

4 Unsupported features and APIs (applicable to all DFP releases)

The following APIs and features are not validated fully at system level, it is recommended not to use these APIs in this and all previous DFP releases. This list of unsupported features is in addition to the list mentioned in known issues.

4.1 Functional APIs

API	Feature	Description
RAMPGEN 100M monitor feature in AWR_MONITOR_DUAL_CLOCK_COMP_CONF_SB	Rampgen 100MHz clock monitor	The rampgen 100MHz clock monitor is not supported and this feature has been removed from API.
PCR self-test feature in AWR MONITOR_RF_DIG_LATENTFAULT_CONF_SB	PCR self-test	The PCR self-test is not supported in latent fault configuration API and this feature has been removed from API.
AWR_INTERCHIRP_BLOCKCONTROLS_SB	Inter-chirp power saving timing configurations	This API is not validated at system level. It is recommended not to use the same.
AWR_MONITOR_RX_NOISE_FIGURE_CONF_SB	RX noise figure monitor	RX noise figure monitor is susceptible to corruption by interference from other radar sensors. The monitors may result in false alarms under the influence of interference, it is recommended to use only for debug.
AWR_MONITOR_RX_MIXER_IN_POWER_REPORT_AE_SB	Rx mixer input power monitor	The RX mixer input power monitor exhibits excessive variation over process and temperature. It is recommended to use only for debug.

RX_LO_AMP_FAULT and TX_LO_AMP_FAULT injections in AWR_ANALOG_FAULT_INJECTION_CONF_SB	Analog Fault injection API	The RX_LO_AMP_FAULT and TX_LO_AMP_FAULTs are de-featured in AWR2243 device.
The Synthesizer frequency monitor of Live chirps in AWR_MONITOR_SYNTHESIZER_FREQUENCY_CONF_SB	Synthesizer frequency monitor API	The Synthesizer frequency monitor of Live chirps is not supported in AWR2243 device.
CONST_BPM_VAL_TXn_TXOFF fields in AWR_BPM_CHIRP_CONF_SET_SB	BPM chirp config API	The TXOFF_BPM control bits of TX 0, 1, and 2 in AWR_BPM_CHIRP_CONF_SET_SB API are not supported in AWR2243 device.
TXn POWER_BACKOFF fields in AWR_CAL_MON_FREQUENCY_TX_POWER_LIMITS_SB	Calibration and Monitoring Frequency and TX Power limits API	Recommended to perform factory calibration with 0dB back-off set in AWR_CAL_MON_FREQUENCY_TX_POWER_LIMITS_SB API and, store and restore the calibration data from non-volatile memory. With this option, user can set nonzero back-off option in AWR_CAL_MON_FREQUENCY_TX_POWER_LIMITS_SB API during normal runs to back-off monitor/calibration chirps power.
'VMON circuit monitoring enable' (b3) in LDO_VMON_SC_MONITORING_EN filed in AWR_MONITOR_ANALOG_ENABLES_CONF_SB	Analog monitor configuration enable API	The VMON feature is unsupported in AWR2243 device. It is recommended to keep VMON circuit monitoring enable' (b3) disabled in this API.
Digital temperature sensor monitor in AWR_MONITOR_TEMPERATURE_CONF_SB	Temperature Monitor configuration API	The digital temperature monitor is unsupported in AWR2243 device. It is recommended to disable the same in AWR_MONITOR_TEMPERATURE_CONF_SB configuration API by programming DIG_TEMP_THRESH_MIN and DIG_TEMP_THRESH_MAX fields in API to value Zero.
LDO_VMON_SC_MONITORING_EN field in AWR_MONITOR_ANALOG_ENABLES_CONF_SB	VMON and Short Circuit Monitoring	VMON and Short circuit monitoring is unsupported. It is recommended not to use the same.

4.2   Debug APIs

API	Feature	Description
AWR_RF_PALOOPBACK_CFG_SB AWR_RF_PSLOOPBACK_CFG_SB AWR_RF_IFLOOPBACK_CFG_SB	Loopback enables	PA, PS and IF loopback APIs are not supported in functional mode, recommended to use only for debug.
AWR_CONT_STREAMING_MODE_CONF_SET_SB AWR_CONT_STREAMING_MODE_EN_SB	Continuous streaming mode	Continuous streaming mode is not supported in functional mode, recommended to use only for debug.

5   Known Issues (applicable to all DFP releases)

Key	Severity	Description

MMWAVESYS-159	S2-Major	1. The following monitors are susceptible to corruption by interference from other radar sensors. The monitors may result in false alarms under the influence of interference.
		    a. RX GAIN PHASE MONITOR
		    b. TX GAIN PHASE MISMATCH MONITOR
		    c. TX0 PHASE SHIFTER MONITOR, TX1 PHASE SHIFTER MONITOR, TX2 PHASE SHIFTER MONITOR
		2. The following boot-time calibrations are susceptible to corruption by interference. The calibrations may result in false configuration of the RF analog sections due to corruption by interference during the calibration measurements.
		    a. Enable RX gain calibration
		    b. Enable TX Phase calibration
		    c. Enable RX IQMM calibration
		3. The boot time calibrations may not operate as desired at high temperature.
		
		Workaround:
		1. Recommended to avoid use of monitor results when report indicates strong presence of interference in above mentioned monitors (Noise power is reported for these monitors) in issue #1.
		2. Recommended to perform factory calibration at **room temperature**, store and restore the calibration data from non-volatile memory to address issue #2 & #3.

MMWAVE_DFP-454	S3-Minor	The TX ball break monitor may not work if TX back off >= 10dB **Workaround**: Do not enable TX ball break monitor if TX back off is >= 10dB
MMWAVE_DFP-1141	S2-Major	The calibration store/restore API does not work if 64-bit CRC is enabled. **Workaround:** Recommend to use only 32-bit CRC option.
MMWAVE_DFP-1529	S3-Minor	If any bits in the CAL_TEMP_INDEX_OVERRIDE_ENABLE field of

		AWR_RUN_TIME_CALIBRATION_CONF_AND_TRIGGER_SB API are set, then AWR_RF_INIT_SB should not be invoked again in run time. **Workaround:** Disable CAL_TEMP_INDEX_OVERRIDE_ENABLE override and and issue AWR_RUN_TIME_CALIBRATION_CONF_AND_TRIGGER_SB API before issuing AWR_RF_INIT_SB API in runtime.
MMWAVE-DFP-1558	S2-Major	DCC Clock monitor for the RCOSC_10M can fail on some the devices due to variation higher than +/- 30% in the RCOSC clock and strict 30% threshold check in FW AWR_MONITOR_DUAL_CLOCK_COMP_REPORT_AE_SB monitor report. **Workaround:** It is recommended to implement a new threshold check of +/- 50% in host application software for RCOSC_10M frequency in case if any error in status (STATUS_CLK_PAIR4) flag in AWR_MONITOR_DUAL_CLOCK_COMP_REPORT_AE_SB monitor report.

MMWAVE RadarSS Release Notes