

MMWAVE DFP 01.02.06.03 Release Notes

1 Introduction

TI mmWave Device Firmware Package (DFP) enables the development of millimeter wave (mmWave) radar applications using AWR1243 SOC/EVM. It includes necessary components which will facilitate end users to integrate AWR1243 SOC with their choice of processor. The user is expected to use mmWaveStudio to measure RF and key system performance on TI mmWave Radar devices.

In addition, DFP provides mmWaveLink framework and example application which will serve as a guide for integrating the AWR1243 with external processor.

Note: mmWave Software Development Kit (SDK) enables the development of radar applications on AWR1443, AWR1642, IWR1443, AWR1843 and IWR1642 SOCs/EVMs. The basic components of DFP are included in mmWave SDK.

2 Release Overview

2.1 Platform and Device Support

The device and platforms supported with this release include:

Supported Devices	Release Status	Supported EVMs
AWR1243 ES3.0	Release for Production (DFP 1.2.6 contents)	AWR1243BOOST : AWR1243 ES3.0 Booster pack + DCA1000EVM

Note: DFP supports the foundation components for the device mentioned in the table above. At system level, the mmWave SOC/EVM may interface with other SOCs/EVMs and software for other devices will not be a part of the DFP

2.2 Release contents and component versions

Component	Version	Type
RadarSS Firmware	ROM: 2.0.0.1, Patch: 1.2.6.11	Binary
MSS Firmware (AWR1243 ES3.0 only)	ROM: 1.10.0.20, Patch: 1.2.6.12	Binary
mmWaveLink Framework	1.2.6.1	Source and Library
Docs	Release Notes DFP user guide Interface Control Document mmWaveLink Programmer's guide	PDF PDF PDF Doxygen HTML

2.3 Directory Structure

Directory Name	Content
Docs	mmWave-Radar-Interface-Control.pdf mmwave_dfp_release_notes.pdf mmwave_dfp_user_guide.pdf
firmware	RadarSS and Master SS firmware binary files in RPRC format metalmage binary (xwr12xx_metalmage.bin) for xWR1243 ES3.0 for boot over Flash metalmage header file (xwr12xx_metalmage.h) for xWR1243 ES3.0 for boot over SPI
ti	mmWaveLink framework and example source code
rf_eval	RF evaluation firmware

2.4 Component Descriptions

2.4.1 RadarSS Firmware

Refer to Radar SS firmware release notes in firmware\radarss folder.

2.4.2 Master SS Firmware

The main software components of the MSS firmware are

- System services – provides infrastructure services (error handling, mmWaveLink Host communication protocol manager) used by the functional firmware.
- Functional firmware – Is responsible for the external host API communication, RADAR SS API handshake, data path control.

2.4.3 mmWaveLink framework

Radar SS is a closed subsystem whose internal blocks are configurable using messages coming over mailbox.

TI mmWaveLink framework acts as driver for Radar SS and exposes services of Radar SS. It includes APIs to configure HW blocks of Radar SS and provides communication protocol for message transfer between external processor and AWR1243

- Link between application and Radar SS
- Platform and OS independent which means it can be ported into any processor which provides communication interface such as SPI and basic OS routines. The mmWaveLink framework can also run in single threaded environment
- The LDRA tool v9.7.6 with MISRA 2012 AMD1 rule is used to perform static analysis; the TI approved waiver policy is being used to take any waiver.

2.5 Licensing

Please refer to the `mmwave_dfp_manifest.html`, which outlines the licensing information for mmWave DFP package.

3 Release Contents

3.1.1 *New Additions (Compared to DFP 1.2)*

- Bug fixes related to RadarSS digital monitoring and long tracking issues
- VCO calibration improvements
- Fix for Internal analog signal GPADC monitor failures
- Bug fixes related to MSS digital monitoring and reports
- Bug fixes related to SPI message protocol retry recovery on MSS
- Bug fixes related to SPI message protocol retry recovery on mmWaveLink
- Added redundant failure report for monitors in quiet reporting mode 1
- Added new dummy chirps option at the end of frame in legacy frame config API
- Added new noise power and loopback power fields in RX gain phase monitor report
- Supported calibration store and restore APIs for factory calibration
- Handled OS Interface Error when Mutex Lock callback returns Error in mmWaveLink

3.1.2 *New Additions (Compared to DFP 1.2.5.0)*

- Updated ICD and mmWaveLink Documents
- MSS changes for SPI message timeouts due to CPU incorrectly waiting for more data and not processing received data.

3.2 Feature/Changes List by Components

3.2.1 Radar SS firmware

Refer to Radar SS firmware release notes in firmware\radarss folder

3.2.2 Master SS firmware (with respect to DFP 1.2)

Type	Key	Description
Enhancement	AUTORADAR-2017	Unmasked FRC lockstep fatal error reported to MSS ESM G1 and sent over AE.
Bug	AUTORADAR-1999	Updates to the code to handle additional trigger2 safety tests.
Bug	AUTORADAR-1947	Fix for initializing the reserved bits in MSS ESM Error report
Bug	AUTORADAR-2068 AUTORADAR-2070	Fixed bugs in handling retry command received from host
Bug	AUTORADAR-2035 AUTORADAR-2048	Fix for EDMA and RTI latent fault digital monitoring API
Bug	AUTORADAR-2088	Fixed an issue in MSS message parsing related to message direction
Enhancement	AUTORADAR-2130	Added redundant N-Error failure report in addition to failure AE report in case of any failure in periodic digital monitor.

3.2.3 Master SS firmware (with respect to DFP 1.2.5.0)

Type	Key	Description
Bug	AUTORADAR-2164	Fix for CPU incorrectly waiting for more data and not processing received data, depending on Host processor speed and SPI rate.
Bug	AUTORADAR-2146	Fix for occasional MSS register write-read-back failures.
Bug	AUTORADAR-2183	Fix for CPU fault with failure on register read-back at address 0Xfff7f4dc is observed at patch download.
Bug	AUTORADAR-2232	Fix for Issue identified when multiple ASYNC events are generated within the device back to back.
Bug	AUTORADAR-2230	Fix for issues identified with missing events when generated internally.
Bug	AUTORADAR-2231	Fix for occasional failures of RTI self-test during latent fault monitoring.
Bug	AUTORADAR-2226	Switching the order of DMA setup for SPI and updating the protocol state before raising HOST IRQ to avoid misses for Faster HOSTs

Bug	AUTORADAR-2223	Fix for occasional failures of DMA MPU test during Latent Fault monitoring.
Bug	AUTORADAR-2221 AUTORADAR-2219 AUTORADAR-2220 AUTORADAR-2224	Fix for Register read-back failures CLR_CBUFF_REG1 DSI_TIMING1 DMPAR
Bug	AUTORADAR-2203	Fix for issue with acknowledging the BSS mailbox in faster HOSTs.
Bug	AUTORADAR-2216	Updates to the masks for propagating RadarSS ESM G2 errors and masking the same until RadarSS power up.
Bug	AUTORADAR-2272	Fix for the FW download ASYNC event message generation not sent due to the last SPI chunk split across 2 parsing buffers.

3.2.4 mmWaveLink framework (with respect to DFP 1.2)

Type	Key	Description
Bug	MMWL-150	Fixed an issue with No fault reported even after a CRC is corrupted
Bug	MMWL-153	Fixed MSS monitor latent fault report documentation to match with ICD
Enhancement	MMWL-155	Updated mmWaveLink Doxygen documentation as per ICD update
Bug	MMWL-166	Fixed bug in handling retry in case of NACK
Enhancement	MMWL-168	Added a new feature to report CRC failure in Async-event message to Application.
Bug	MMWL-173	Added a logic to recover from CNYS corruption scenario
Bug	MMWL-169	Fix for AE length info being reported to application upon CRC failure.
Bug	MMWL-178	Added an API to control number of retry for command
Bug	MMWL-177	Added max retry count limit in case of NACK retry
Bug	MMWL-180	Added a return in case of OS Interface Error when Mutex Lock callback returns Error.
Enhancement	MMWL-188	Provided an option to program dummy chirps in the end of frame in frame config API. This is an option to mask ADC data for few chirps in the end of frame.
Enhancement	MMWL-189 MMWL-190	RX Gain Phase Monitoring – Added more reporting fields in AE to improve interference immunity.
Enhancement	MMWL-184	Added GET API for CPU and ESM fault errors
Bug	MMWL-193	Updated doxygen comments and incorporated code inspection review comments

Enhancement	MMWL-192	Notify Host through Async-event if mutex lock fails.
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3.2.5 mmWaveLink framework (with respect to DFP 1.2.5.0)

Type	Key	Description
Bug	MMWL-217	mmWaveLink update for flushing 256 + CRC Size bytes instead of 256 + CRC Size + SYNC bytes in case of ACK SYNC corrupted
Bug	MMWL-215	Test Source configuration structure changed to match the ICD definition.
Bug	MMWL-199	Updated doxygen comments and incorporated code inspection review comments
Bug	MMWL-202	Fixes for LDRA violations.
Bug	MMWL-294	Fixed GPADC structure to march with ICD definition.
Enhancement	MMWL-295 MMWL-292 MMWL-306 MMWL-304 MMWL-290	Updated doxygen comments and incorporated code inspection review comments. Fixed LDRA violations.
Enhancement	MMWL-291	Added check for sequence number of Rx ACK to match with the sequence number of last cmd sent.
Enhancement	MMWL-303	Added Power saving API
Bug	MMWL-298	Changed 64 bit fields into two 32 bit fields in MSS Power up status and MSS Boot error status
Enhancement	MMWL-289 MMWL-302	Added support for TX phase shifter DAC monitor (only applicable in 1843 and 6843) Added support for Synth frequency non-live monitor (only applicable in 6843) Added APLL Synth Bandwidth control API (only applicable in 6843)

3.3 Unsupported features and APIs (applicable to all DFP)

Refer to Radar SS firmware release notes in '*firmware\radarss*' folder for radarSS APIs.

The following device MSS 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.

API	Feature	Description
AWR DEV PMICCLOCK CONF SET SB	PMIC clock configuration	This API is not validated at system level. It is recommended not to use the same.
The SPI transfer (option 2) in DATA INTF SEL in AWR DEV	ADC data transfer over SPI	This API is not validated at system level. It is recommended not to use the same.

RX DATA PATH CONF SET SB		
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3.4 Debug APIs (applicable to all DFP)

API	Feature	Description
AWR DEV RX CONTSTREAMING MODE CONF SET SB	Continuous streaming mode	Continuous streaming mode is not supported in functional mode, recommended to use only for debug.
AWR DEV TESTPATTERN GEN SET SB	Data path test pattern generation	Pattern generation is not supported in functional mode, recommended to use only for debug.

3.5 Known issues (applicable to all DFP)

The following known issues are applicable to this and all previous DFP releases.

Refer to Radar SS firmware release notes in '*firmware\radarss*' folder.

3.5.1 Master SS firmware

Key	Severity	Description
AUTORADAR-2064	S2-Major	The MSS Transmit SPI buffer access issue due to stall in DMA access, if BSS/RadarSS PCR self-test is performed in parallel through latent fault API. Workaround: Disable BSS PCR test in AWR_MONITOR_RF_DIG_LATENTFAULT_CONF_SB API (Boot time BSS PCR test is always done).
AUTORADAR-2071	S2-Major	In case of checksum failure for the command received by MSS, the SPI buffer DMA synchronization will be lost with HOST/mmWaveLink. Workaround: Use 4 bytes CRC for commands and AE messages.
AUTORADAR-2066	S3-Minor	MSS DMA ESM G1 error is observed at times due to stall in DMA access, if BSS/RadarSS PCR self-test is performed in parallel through latent fault API. Workaround: Disable BSS PCR test in AWR_MONITOR_RF_DIG_LATENTFAULT_CONF_SB API (Boot time BSS PCR test is always done).
AUTORADAR-2078	S3-Minor	Occasionally MSS PCR self -test generating a data abort in a long tracking stress test, which is looping Latent fault API infinite times with all digital monitoring tests enabled. Workaround: Disable MSS PCR test in AWR_MSS_LATENTFAULT_TEST_CONF_SB API (Boot time MSS PCR test is always done).

AUTORADAR-2131	S3-Minor	<p>Occasionally MSS ATCM and BTCM self -tests generating a data abort in a long tracking stress test, which is looping Latent fault API infinite times with all digital monitoring tests enabled.</p> <p>Workaround: Disable MSS ATCM and BTCM parity, Single bit (SB) and Double Bit (DB) ECC self-tests in AWR_MSS_LATENTFAULT_TEST_CONF_SB API (Boot time MSS ATCM and BTCM parity, SB and DB ECC self-tests are always done).</p> <p>The MSS latent self-tests are destructive tests, which would cause corruption in ongoing SPI/mailbox transactions and may generate N-Error signals while performing ESM G2 error checks. It is recommended not to run these self-tests in functional mode of operation.</p>
AUTORADAR-2270	S3-Minor	<p>Occasional failures observed when the FW is downloaded over SPI with SFLASH in path, on a slower HOST, there is a chance for the FW misses sending out the ACK for the last chunk.</p> <p>Workaround: It is recommended to use SPI FW download only when the SFLASH is not in path.</p>

4 Migration Guide

This section explains the steps to migrate from DFP 1.2.0 release to this package

Impact	Change list
MEDIUM	The ESM_MONITORING_EN flag in rIDigMonPeriodicConf_t structure have been made reserved. Application should ignore the reserved flag.
HIGH	The bit 22nd of esmGrp1Err field in rIMssEsmFault_t structure is updated with FRC lockstep error indication. Application should handle this error as a fatal error from the mmWave Device.
HIGH	The bit 14 and 25 of esmGrp1Err field in rIBssEsmFault_t structure is updated with programmable filter parity and ECC DB fatal error indications respectively. Application should handle this error as a fatal error from the mmWave Device.
MEDIUM	The ESM_MONITORING flag in rIDigPeriodicReportData_t structure have been made reserved. Application should ignore the reserved status flags.
MEDIUM	The bit 2 of statusFlags field in rIMonTxBpmRep_t structure is updated with phase shifter monitoring status. Application should handle this status report if device supports phase shifter.
MEDIUM	New asynchronous event message ID has been added for notification of CRC/Checksum failure in the received message (Async-event) from the device. Application needs to handle this msgID RL_MMWL_ASYNC_EVENT_MSG and SBID-RL_MMWL_AE_MISMATCH_REPORT in the 'rIAsyncEvent' callback implementation.
MEDIUM	New API rIDeviceSetRetryCount has been added, where application can set retry

	count to zero to skip the command retry step at mmWaveLink level. This API provides an option to change the retry count from default value to customizable value which should be <=RL_API_CMD_RETRY_COUNT.
MEDIUM	Value option '0x2' for rItestPattern_t-> testPatGenCtrl is not validated and removed. So application should not use this option to generate the test pattern.
HIGH	One of reserved field of rIframeCfg_t structure is now used as 'numDummyChirpsAtEnd' parameter to configure the dummy chirp at the end of frame. Application should aware of this parameter change while using rIsetFrameConfig/rIgetFrameConfig API.
MEDIUM	In case MutexLock callback returns non-zero value in the interrupt context (reading async-event) then mmWaveLink generates internal Async-event with error code to notify the Host about this failure. Application should able to handle this error Async-event message and take appropriate action.
HIGH	Added new bit 34 in bootTestStatus in rIInitComplete_t structure to report boot time PCR self-test of MSS in AWR1243 devices
HIGH	The bits [11:8] STATUS_PWRDET_RXn in statusFlags in rIMonRxIntAnaSigRep_t structure have been made reserved as RX power detector monitoring has been disabled.
HIGH	The bit 26 PCR test enable in enMask in rIMonAnaEnables_t is made reserved as this test has been de-featured.
MEDIUM	Added a missing 4 bytes reserved field reserved1 in rIMssEsmFault_t.
HIGH	The bit 2 PCR test status in testStatusFlg2 in rIMssLatentFaultReport_t as this test has been de-featured.
HIGH	A new status 0x7 has been added errStatusFlg in rIMssRfErrStatus_t.
HIGH	The bit 26 PCR test status in digMonLatentFault in rIDigLatentFaultReportData_t is made reserved as this test has been de-featured.
HIGH	The bit 2 PCR test enable in testEn2 in rIperiodicTest_t as this test has been de-featured.
HIGH	Added new fields loopbackPowerRF1, loopbackPowerRF2, loopbackPowerRF3, rxNoisePower1 and rxNoisePower2 in rIMonRxGainPhRep_t structure.
MEDIUM	Added reportMode field in rIRxGainPhaseMonConf_t structure.
MEDIUM	Added reportMode field in rITxGainPhaseMismatchMonConf_t structure.
MEDIUM	Moved rIRfTempData_t structure from mmwavelink.h to rI_sensor.h
MEDIUM	All reserved bytes in reports are to be masked, as the values can be non-zero.
MEDIUM	Added field testStatusFlg2 in rIMssLatentFaultReport_t to match with ICD
MEDIUM	anaTxPos filed in rITestSource_t is reserved. Application should ignore the reserved field.
HIGH	Report mode 0 is not supported for the following monitoring APIs: rIRfTxIntAnaSignalsMonConfig rIRfRxIntAnaSignalsMonConfig, rIRfPmClkLoIntAnaSignalsMonConfig, rIRfGpadcIntAnaSignalsMonConfig, rIRfPllContrlVoltMonConfig, rIRfDualClkCompMonConfig.
MEDIUM	Bit3 - VIM Test of rIStartComplete_t status field has been de-featured.
MEDIUM	Bit3 - VIM Test of rIMonDigEnables_t enMask field has been de-featured.
MEDIUM	Bit0 - SYNTH_VCO_OPENLOOP fault injection in synthFault in rIAnaFaultInj_t has been de-featured
MEDIUM	In rIMonPllConVoltRep_t statusFlags, Bit3 - VC01 and bit6 - VC02 slope monitors have been de-featured
MEDIUM	Bit3 in statusFlags in rIMonPmclkoIntAnaSigRep_t is now STATUS_LVDS_PMCLKLO to match with ICD.
MEDIUM	Bit 2 in statusFlags in rIMonGpadcIntAnaSigRep_t is now STATUS_GPADC_REF2 to match with ICD
MEDIUM	Added new field txPhShiftDacMonThresh in rITxIntAnaSignalsMonConf_t structure. Added new fields in rIMonTxIntAnaSigRep_t structure.

MEDIUM	Added new API <code>riRfApIISynthBwCtlConfig</code> to control the bandwidth of the APLL and the Synthesizer.
MEDIUM	Added new API <code>riSetPowerSaveModeConfig</code> to define the power saving modes configuration
MEDIUM	Added new error code 296 – 20G monitor is not supported in single chip configuration. Added new error code 297 – Monitor config mode is invalid Added new error code 298 – Both live and non-live synth frequency monitors cannot be enabled together. Added new error code -18 -> ACK sequence number is not matching with CMD sequence number.
HIGH	Changed 64 bit field (powerUpStatus, bootTestStatus) into two 32 bit fields (powerUpStatus1, powerUpStatus2, bootTestStatus1, bootTestStatus2) in <code>riInitComplete_t</code> and <code>riMssBootErrStatus_t</code> .
MEDIUM	Added new asynchronous event 0x1033 - <code>RL_RF_AE_MON_SYNTH_FREQ_NONLIVE_REPORT</code> (<code>riMonSynthFreqNonLiveRep_t</code>). This is a Non live Monitoring report which device sends to the host, containing information related to measured frequency error during the monitoring chirp for two profiles configurations.
HIGH	Bit 28 in <code>enMask</code> in <code>riMonAnaEnables_t</code> is now “ <code>SYNTH_FREQ_MONITOR_NON_LIVE_EN</code> ” to match with the ICD.
HIGH	Added new fields in <code>riSynthFreqMonConf_t</code> .
MEDIUM	Support for “ <code>rxLoAmpFault</code> ” and “ <code>txLoAmpFault</code> ” fields in <code>riAnaFaultInj_t</code> is de-featured.
MEDIUM	Updated RF gain target in <code>riProfileCfg_t</code> , <code>riContModeCfg_t</code> and <code>riLoopbackBurst_t</code> .
MEDIUM	Removed support for <code>phaseShifterMonCnfg</code> in <code>riTxBpmMonConf_t</code> . Removed support for 20G sync in <code>sync20GSigSe</code> in <code>riPmClkLoIntAnaSignalsMonConf_t</code> .
LOW	Bits 0 and 4 in <code>testEn1</code> in <code>riLatentFault_t</code> structure have been made reserved. Bits 10 and 11 in <code>testEn1</code> in <code>riLatentFault_t</code> structure have been made reserved. Bits 16 to 21 in <code>testEn1</code> in <code>riLatentFault_t</code> structure are not supported. Bits 0 and 1 in <code>testEn2</code> in <code>riLatentFault_t</code> structure have been made reserved.
LOW	Value of 2 in <code>intfSel</code> field of <code>riDevDataPathCfg_t</code> structure is not supported.
LOW	Value of 0 in <code>dataRate</code> field of <code>riDevDataPathClkCfg_t</code> structure is not supported.
LOW	Bit 5 in <code>dccPairEnables</code> in <code>riDualClkCompMonConf_t</code> have been made reserved.
LOW	Bit 5 in <code>statusFlags</code> and Bits 10 and 11 in <code>freqMeasVal</code> in <code>riMonDccClkFreqRep_t</code> structure have been made reserved.
LOW	Bits 3 and 6 in <code>statusFlags</code> in <code>riMonPllConVoltRep_t</code> structure have been made reserved.
LOW	Bit 3 in <code>statusFlags</code> in <code>riMonPmclkLoIntAnaSigRep_t</code> structure have been made reserved.
LOW	Bit 2 in <code>statusFlags</code> in <code>riMonTxBpmRept_t</code> structure have been made reserved.
LOW	Bit 1 in <code>statusFlags</code> in <code>riMonRxlfStageRep_t</code> structure have been made reserved.
LOW	Bits 0, 4, 10 and 11 in <code>testStatusFlg1</code> in <code>riMssLatentFaultReport_t</code> have been made reserved. Bits 16 to 21 in <code>testStatusFlg1</code> in <code>riMssLatentFaultReport_t</code> are not supported Bits 0 and 1 in <code>testStatusFlg2</code> in <code>riMssLatentFaultReport_t</code> have been made reserved.
LOW	Added new fields (bits 31-63) in <code>powerUpStatus</code> in <code>riMssBootErrStatus_t</code> . Bits 2, 10, 11, 12, 16 – 21, 31, 32 and 33 in <code>bootTestStatus</code> in <code>riMssBootErrStatus_t</code> structure have been made reserved. Bits 34, 35 and 36 in <code>bootTestStatus</code> in <code>riMssBootErrStatus_t</code> have been changed from reserved to PCR test, VIM RAM parity test and SCI boot time test respectively.
LOW	Changed description of bits 6-9, 18, 26, 28-29 in <code>esmGrp1Err</code> in <code>riMssEsmFault_t</code> . Changed description of bit 3 in <code>esmGrp2Err</code> in <code>riMssEsmFault_t</code> . Bit 12 in <code>esmGrp2Err</code> in <code>riMssEsmFault_t</code> have been made reserved.

	Bit 4 and 25 in esmGrp2Err in rIMssEsmFault_t have been changed from reserved to DSS TPTC1 write MPU error and radarSS to MSS ESM G2 Trigger respectively.
LOW	Added new fields (bits 31-63) in powerUpStatus in rInitComplete_t. Bits 2, 10, 11, 12, 16 – 21, 31, 32 and 33 in bootTestStatus in rInitComplete_t structure have been made reserved. Bits 35 and 36 in bootTestStatus in rInitComplete_t have been changed from reserved to VIM RAM parity test and SCI boot time test respectively.
MEDIUM	Changed macro RL_MAX_GPADC_SENSORS to 6. Added new reserved fields of 12 bytes in rIGpAdcCfg_t structure. Added new reserved fields of 36 bytes in rIRecvdGpAdcData_t structure.
LOW	Bits 16 and 17 in bootTestStatus in rInitComplete_t structure have been changed from reserved to TCMA single bit error test and TCMB single bit error test respectively. Bits 16 and 17 in bootTestStatus in rIMssBootErrStatus_t structure have been changed from reserved to TCMA single bit error test and TCMB single bit error test respectively.

5 Notes

5.1 File Formats

On xWR1243/xWR1443 ES3.0 devices onwards, the file format of the image downloaded/loaded, to the SFLASH/over the SPI, has been updated and unified with the entire range of mmWave sensors (similar to the xWR1642 range of sensors). Hence, a multicore image (metalmage) needs to be downloaded to the SFLASH or loaded over the SPI interface.

Device	File Format	
xWR1243 ES 3.0 device	Multicore image to be downloaded over SFLASH/SPI	
	SFLASH	mmwave_dfp_01_02_06_03\firmware\xwr12xx_metalmage.bin
	SPI	mmwave_dfp_01_02_06_03\firmware\xwr12xx_metalmage.h

5.2 Serial Data FLASH Supported

AWR1243 ES1.0 and ES2.0 devices

The AWR1243/xWR1443 ES1.0 and ES2.0 devices work only with Spansion and Macronix devices. In particular, the Flash variants that have been tested to work with the ROM bootloader are

Spansion S25FL256S
 Spansion S25FL132K0XNFB010
 Macronix MX25L3233F
 Macronix MX25R1635FZNIH0 (wide voltage part variants)

For further information on supported SFLASH variants, please refer [SPRACH9](#).