

MPEG-4 HE-AAC V2 STEREO DECODER (WITH DAB SUPPORT) FOR BLACKFIN RELEASE NOTES

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KT-336 (REV. 0.2, 2007-10-08)

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1 Introduction

This document is intended to provide customers with information specific to Version 3.x.x of the MPEG-4 HE-AAC v2 Stereo Decoder (with DAB support) Library. Please ensure you replace both the library and header file in any existing application, when upgrading from an older version of the library.

1.1 Acronyms

ADI	Analog Devices Inc.
API	Application Program Interface

1.2 References

- [1] *AAC Decoder Developer's Guide*, Analog Devices Inc., KT-41, 2007.
- [2] *Silicon anomaly workaround guide for developers*, Analog Devices Inc., KT-68, 2007.

1.3 Overview

The customer should refer to the supplied developer's guides (reference [1]) for detailed information on how to use the library. This release note only documents any differences relative to this version of the Developer's Guide.

1.4 Additional Information

For more information on the latest ADI processors, silicon errata, code examples, development tools, system services and devices drivers, technical support and any other additional information, please visit our website at www.analog.com/processors.

2 Summary of Known Issues

The following table provides a summary of known issues affecting the HE-AAC v2 Decoder library, and the affected versions of the library for each issue.

ID	Description	2.2.3	3.0.0
17-05-0004	Noise bursts may corrupt the right channel for bitstreams that are encoded using the PNS tool	x	.
17-05-0005	a loud crackling noise can be heard at the beginning of the output audio for some bitstreams	x	.
17-05-0006	corrupted bitstream causes decoder to crash during fast forward	x	.
17-05-0007	Extra harmonic in right channel output from decoder	x	x

Key: x = Issue exists in this version
 . = Not applicable

3 Version 3.0.x Release Notes

Instructions for users upgrading from version 2.x.x

Mandatory changes required in the user's application to migrate to the new library involve the following (see the developer's guide for more usage details):

1. in the application LDF, change the following linker input section names:

old name	new name
adi_aacd_fast_prio0_code	adi_fast_prio0_code
adi_aacd_fast_prio1_code	adi_fast_prio1_code
adi_aacd_fast_prio2_code	adi_fast_prio2_code
adi_aacd_slow_noprio_code	adi_slow_noprio_code
adi_aacd_fastb0_prio5_r	adi_fastb0_prio5_r
adi_aacd_fastb1_prio8_r	adi_fastb1_prio8_r
adi_aacd_slow_noprio_r	adi_slow_noprio_r

2. extra container information is now required:
 - **num_side_channel_elements**
 - **num_back_channel_elements**
 - **num_lfe_channel_elements**
3. the deprecated container information field "**num_valid_cc_elements**" is now replaced by "**num_coupled_channel_elements**"
4. the deprecated configuration parameter "**check_enough_input_data**" has been removed. Code accessing this value can be safely deleted without affecting decoder functionality. Similarly, remove calls to **adi_aacd_reconfigure()** in which the config_item parameter was set to **ADI_AACD_CHECK_ENOUGH_INPUT_DATA**.
5. the use of the configuration parameter "**enable_sbr**" is now replaced by "**decoding_mode**".
6. the deprecated audio configuration parameter "**enable_sbr**" has been removed. If this was previously used in the application, replace it by the configuration parameter "**decoding_mode**".
7. the deprecated stream format option "**ADI_AACD_ISO_FF**" has been removed. If this was previously used in the application, replace it by using the "**ADI_AACD_RAW**" option instead.
8. the function "**adi_aacd_isready_to_decode**" has been removed. If this was previously used in the application, replace it by testing whether the number of input buffer bytes to be passed to the decoder is greater than or equal to **ADI_AACD_MIN_BITSTREAM_BUFFER_NUMBYTES**.
9. the deprecated return code "**ADI_AACD_STREAM_COMPLETE**" has been removed. Code checking for this value can be safely deleted without affecting decoder functionality.

Summary of API changes

Bitstreams containing 960 sample frames are now supported.

API Namespace changed:

- o New macro defined - ADI_AACD_HEAACv2_BUILD
- o Removed definition ADI_AACD_ISO_FF
- o Linker input section names changed

Added a global data struct **adi_aacd_module_info** containing module information.

Scratch buffer size changed:

- o Priority 2: changed from 3248 Bytes to 4576 Bytes

Return codes changed:

- o Removed ADI_AACD_STREAM_COMPLETE
- o Added ADI_AACD_INVALID_POINTER

Changes in configuration parameters.

- o “**enable_sbr**” is now replaced by “**decoding_mode**”
- o Added ADI_AACD_INVALID_POINTER

Deprecated options removed.

3.1 Version 3.0.0

Fixes

- o *Issues 17-05-0004, 17-05-0005, 17-05-0006*

Silicon Anomaly Workarounds

This library implements a number of silicon processor anomaly workarounds relevant for BF533 rev 0.3, as detailed in [2], which also recommends a set of system workarounds which the user will have to implement in order to avoid other silicon anomalies affecting correct operation of this software library. This library is also suitable for use on other silicon revisions as listed in [2].

Known bugs

- o *Issue 17-05-0007:* If a HEAAC v2 bitstream contains an audio signal that has a strength more than 80 % full scale (FS) then output of the decoder is corrupted where the right channel has an extra harmonic signal.

Workaround: No workaround is available. This will be fixed in a future release.

Other issues

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- o This version does not yet fully support DAB systems – error concealment and DRC processing will be added in a future release.

4 Frequently Asked Questions

4.1 Input Sections have no destination

Error Message

```
[Warning li2060] The following input section(s) that contain program code
and/or data have not been placed into the executable for processor 'P0'
as there are no relevant commands specified in the LDF:
```

```
..\..\lib\libaace_bf533_03.dlb[abcd.doj](adi_aace_fastb1_prio8_r)
..\..\lib\libaace_bf533_03.dlb[efgh.doj](adi_aace_fastb1_prio8_r)
```

...etc

Probable Cause

This message indicates that the ldf file does not contain instructions to accommodate the specified section. When encountered in the example application it generally indicates that the library version in use is different to the ldf file for the project and can be fixed by upgrading the ldf file to that distributed with the library.

4.2 Cannot resolve “adi_aacd_create*”

Error Message

```
[Error li1021] The following symbols referenced in processor 'P0' could not be resolved:
'adi_aacd_create_0_1 [_adi_aacd_create_0_1]' referenced from 'VDSPiO\simple_file_io.doj'
```

Probable Cause

This error is caused by using a mismatched version of the library and header file. Please ensure that you replace both the library file and the header file when upgrading to a new release.

4.3 Incompatible si-revision

Error Message

```
[Warning li2152] The following input file(s) 'si-revision' is incompatible with 0.0 [ADSP-BF537]
0.3 [ADSP-BF533] .....\lib\libaace_bf533_03.dlb[sinmod_asm.doj]
0.3 [ADSP-BF533] .....\lib\libaace_bf533_03.dlb[synthesisPoly_asm.doj]
```

...etc

Probable Cause

The library has been built and tested on the BF533 processor of the Blackfin family. As our library is confined to use resources within the core of the processor, it is bit compatible with all other members of the Blackfin family, **except** the BF535.

This message may still appear when the target processor is the same (BF533). When building our libraries for release, they are targeted at a specific silicon revision of the BF533, ensuring that workarounds are in place for all silicon anomalies within the set of supported Blackfin processors (see [2]). This message cannot be removed, but can safely be ignored