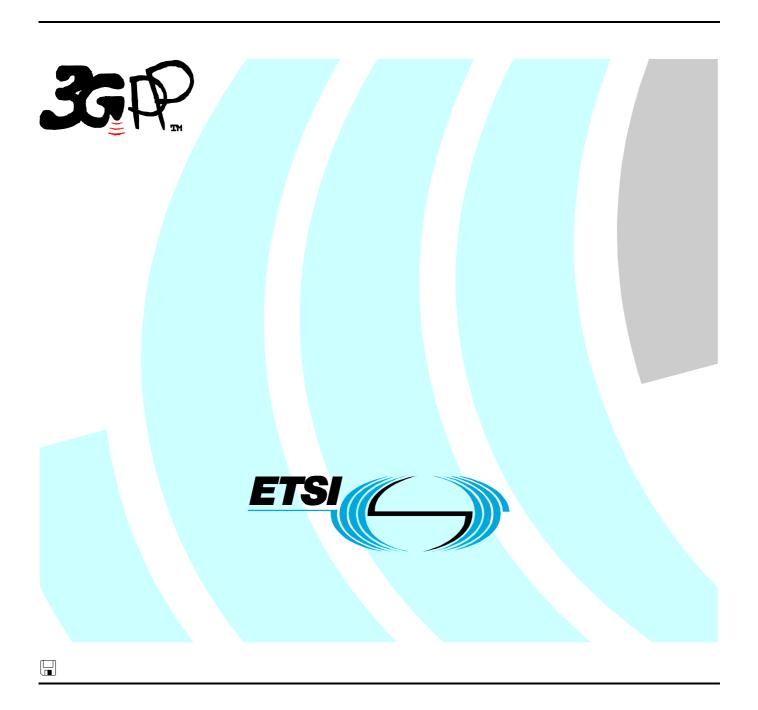
ETSI TS 126 410 V6.1.1 (2005-01)

Technical Specification

Universal Mobile Telecommunications System (UMTS); General audio codec audio processing functions; Enhanced aacPlus general audio codec; Floating-point ANSI-C code (3GPP TS 26.410 version 6.1.1 Release 6)



Reference
DTS/TSGS-0426410v611

Keywords
UMTS

ETSI

650 Route des Lucioles F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C Association à but non lucratif enregistrée à la Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from: <u>http://www.etsi.org</u>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

http://portal.etsi.org/tb/status/status.asp

Copyright Notification

No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2005.
All rights reserved.

DECTTM, **PLUGTESTS**TM and **UMTS**TM are Trade Marks of ETSI registered for the benefit of its Members. **TIPHON**TM and the **TIPHON logo** are Trade Marks currently being registered by ETSI for the benefit of its Members. **3GPP**TM is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://webapp.etsi.org/IPR/home.asp).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

Contents

Intell	lectual Property Rights	2
Forev	word	2
Forev	word	4
1	Scope	5
2	References	5
3	Definitions and abbreviations	5
3.1	Definitions	5
3.2	Abbreviations	5
4	Floating point ANSI-C code structure	6
4.1	Contents of the floating point ANSI-C source code	
4.2	Program execution	
4.3	Memory requirements	
4.3.1	Constants and tables	9
4.3.2	Static memory	14
4.3.3	Dynamic memory	15
4.3.4	Maximum stack size	16
4.4	Weighted MOPS and PROM	20
5	File formats	20
5.1	Audio input file (encoder input/decoder output)	
5.2	Bitstream file format (encoder output/decoder input)	
5.3	Error pattern file (decoder input)	
Anne	ex A (informative): Change history	21
Histo		22

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document contains an electronic copy of the ANSI-C code for the Floating-point Enhanced aacPlus codec [1].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.
- [1] 3GPP TS 26.401: "Enhanced aacPlus general audio codec; General Description". [2] 3GPP TS 26.403: "Enhanced aacPlus general audio codec; Encoder Specification AAC part". 3GPP TS 26.404: "Enhanced aacPlus general audio codec; Encoder Specification SBR part". [3] [4] 3GPP TS 26.405: "Enhanced aacPlus general audio codec; Encoder Specification Parametric Stereo part". [5] ISO/IEC 14496-3:2001: "Information technology - Coding of audio-visual objects - Part 3: Audio". [6] ISO/IEC 14496-3:2001/Amd.1:2003: "Bandwidth Extension". [7] ISO/IEC 14496-3:2001/Amd.1:2003/DCOR1". [8] ISO/IEC 14496-3:2001/ Amd.2:2004: "Parametric Coding for High Quality Audio. [9] 3GPP TS 26.402: Enhanced aacPlus general audio codec; Additional Decoder Tools".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 26.401 [1], TS 26.403 [2], TS 26.404 [3], TS 26.405 [4] and TS 26.402 [9] apply.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AAC Advanced Audio Coding

aacPlus Combination of MPEG-4 AAC and MPEG-4 Bandwidth extension (SBR)

Enhanced aacPlus Combination of MPEG-4 AAC, MPEG-4 Bandwidth extension (SBR) and MPEG-4

Parametric Stereo

MDCT Modified Discrete Cosine Transform

QMF Quadrature Mirror Filter SBR Spectral Band Replication

ANSI	American National Standards Institute
GSM	Global System for Mobile communications

I/O Input/Output

RAM Random Access Memory ROM Read Only Memory

4 Floating point ANSI-C code structure

This clause gives an overview of the structure of the floating point ANSI-C code and provides an overview of the contents and organization of the C code attached to the present document.

The C code has been verified on the following systems:

- IBM PC/AT compatible computers with Windows XP, 2000 and Microsoft Visual C++ v.6.0 compiler.
- IBM PC/AT compatible computers with Linux OS and GCC v.3.3 compiler.

ANSI-C was selected as the programming language because portability was desirable.

4.1 Contents of the floating point ANSI-C source code

The C code distribution is organised in two directories for encoder and decoder and further into several subdirectories, reflecting the major building blocks of the Enhanced aacPlus codec. The file descriptions on root level as well as the directory structure is given as follows:

Table 1: Source code directory structure for the encoder (FloatFR_aacPlusenc)

Directory	Description
README.txt	information on how to compile
Makefile	UNIX style encoder Makefile
FloatFR_aacPlusEnc.dsw	Win32 MSVC 6.0 encoder workspace
FloatFR_aacPlusEnc.dsp	Win32 MSVC 6.0 encoder makefile
src/	directory for the encoder frontend
	·
FloatFR_fastaacenc/	AAC encoder library
FloatFR_resamplib/	resampler library
FloatFR_sbrenclib/	SBR encoder library

Table 2: Source code directory structure for the decoder (FloatFR_aacPlusdec)

Directory	Description
README.txt	information on how to compile
Makefile	UNIX style encoder Makefile
FloatFR_aacPlusdec_mp eg4.dsw	Win32 MSVC 6.0 decoder workspace
FloatFR_aacPlusdec_mp eg4.dsp	Win32 MSVC 6.0 decodec makefile
src/	directory for the decoder frontend
FloatFR_aacdec	AAC decoder library
FloatFR_sbrdeclib/	SBR decoder library

Table 3: Source code directory structure common for encoder and decoder

Directory	Description
FloatFR_bitbuflib/	bitstream reading/writing library
FloatFRlib/	general purpose functionalities
lib/	precompiled libraries for audio and bitstream
	file format handling

The distributed files with suffix "c" contain the source code and the files with suffix "h" are the header files. Within the respective libraries, the RAM data is contained in "xxx_ram" files with suffix "c", the ROM data is contained in "xxx_rom" files with suffix "c". Makefiles are provided for the platforms in which the C code has been verified (listed above).

Note that the FloatFRlib/, FloatFR_bitbuflib/ and lib/ directory are identical for encoder and decoder. A list of source code files with the respective lines of code (pure C instructions) is given below:

Table 4: Encoder source code files and lines of code

Directory	Module	Lines of code
src/	main.c	332
SIC/	mp4file.c	255
FloatFR_fastaacenclib/	qc_main.c	233
FloatFR_tastaaceficiib/	aacenc.c	136
	ms_stereo.c	50
	spreading.c	10
	interface.c	44
	bit_cnt.c	588
	adj_thr.c	592
	quantize.c	56
	psy_configuration.c	175
	sf_estim.c	508
	tns_param.c	45
	grp_data.c	114
	pre_echo_control.c	22
	stprepro.c	149
	tns.c	358
	dyn_bits.c	281
	psy_main.c	232
	channel_map.c	52
	block_switch.c	201
	band_nrg.c	34
	transform.c	151
	bitenc.c	262
	line_pe.c	55
	stat_bits.c	107
FloatFR_sbrenclib/	qmf_enc.c	565
	ton_corr.c	287
	fram_gen.c	688
	env_bit.c	56
	env est.c	630
	mh_det.c	515
	hybrid.c	139
	bit_sbr.c	375
	ps_bitenc.c	225
	sbr_main.c	355
	tran_det.c	183
	sbr_misc.c	49
	code_env.c	290
	nf_est.c	195
	freq_sca.c	309
	invf_est.c	140
	1	299
FloatED recomplib/	ps_enc.c	
FloatFR_resamplib/	iir32resample.c	71
	resampler.c	68

Table 5: Decoder source code files and lines of code

Directory	Module	Lines of code
src/	main.c	299
	fileifc.c	173
	spline_resampler.c	172
FloatFR_aacdec/	aacdecoder.c	168
	streaminfo.c	10
	channelinfo.c	102
	stereo.c	78
	longblock.c	234
	shortblock.c	241
	pulsedata.c	24
	block.c	163
	pns.c	96
	imdct.c	50
	tns.c	137
	bitstream.c	15
	channel.c	92
	conceal.c	245
FloatFR_sbrdeclib/	env_dec.c	370
	FFR_aacPLUScheck.c	32
	sbr_bitb.c	37
	env_calc.c	775
	lpp_tran.c	504
	sbrdecoder.c	514
	sbr_dec.c	218
	sbr_crc.c	45
	sbr_fft.c	615
	hybrid.c	140
	ps_bitdec.c	223
	huff_dec.c	9
	env_extr.c	655
	freq_sca.c	337
	ps_dec.c	317
	qmf_dec.c	526

Table 6: Common source code files and lines of code

Directory	Module	Lines of code	
FloatFR_bitbuflib/	bitbuffer.c	111	
FloatFRlib/	cfftn.c	649	
	transcendent.c	15	

4.2 Program execution

The Enhanced aacPlus codec is implemented in two programs:

- enhAacPlusEnc.exe
- enhAacPlusDec.exe

The programs should be called like:

- enhAacPlusEnc.exe <wav_file> <bitstream_file> <bitrate> <(m)ono/(s)tereo>
- enhAacPlusDec.exe
bitstream_file> <wav_file> <mode> [error_pattern_file]

The audio files contain 16-bit linear encoded PCM samples with wav header, the bitstream files are of 3GPP type an the error patter file is a ASCII file, see section 5.

The encoder and decoder command line handling is also explained by running the applications without input arguments.

4.3 Memory requirements

The data types of variables and tables used in the floating-point implementation are plain ANSI-C data types, the following types are used:

- char
- unsigned char
- short
- int
- unsigned int
- float

4.3.1 Constants and tables

This clause contains a listing of all constants and tables contributing to the ROM requirements of the encoder and decoder.

Table 7: Encoder constants and tables

LongWindowSine float 1024 aac.com.c. Window coefficients	Name	Data type	Size [word]	Allocated in Source File	Description
Long/WindowKBD	LongWindowSine	float	1024	aac_rom.c	Window coefficients
filt Widdle Tab		float		aac_rom.c	Window coefficients
quantTableQ float float 16 aac_rom.c Quantzer table, used for efficient pow () implementation im	·	float		aac_rom.c	
quantTableE float 17 aac_rom.c Quantizer table, used for efficient pow () implementation imQuantTableQ float 16 aac_rom.c Quantizer table, used for efficient pow () implementation imQuantTableE float 17 aac_rom.c Quantizer table, used for efficient pow () implementation implementation implementation page for efficient pow () page for				aac_rom.c	
quantTableE float 17 aac_rom.c Quantizer table, used for efficient pow () implementation implement	quantTableQ	float	16	aac_rom.c	
invQuantTableQ float flo	quantTableE	float	17	aac_rom.c	Quantizer table, used for efficient pow ()
Pow4_3_tab	invQuantTableQ	float	16	aac_rom.c	Quantizer table, used for efficient pow ()
pow4_3_tab	invQuantTableE	float	17	aac_rom.c	
p. 8000, mono_long float 4 aac_romc. TNS tuning parameters p. 8000_stereo_long float 4 aac_romc. TNS tuning parameters p. 8000_stereo_long float 4 aac_romc. TNS tuning parameters p. 16000_mono_long float 4 aac_romc. TNS tuning parameters p. 24000_mono_long float 4 aac_romc. TNS tuning parameters p. 24000_mono_short float 4 aac_romc. TNS tuning parameters p. 32000_mono_short float	pow4_3_tab	float	64	aac_rom.c	Quantizer table, used for efficient pow ()
p. 8000_mono_short float 4 aac_rom.c TNS tuning parameters p. 8000_stereo_short float 4 aac_rom.c TNS tuning parameters p. 16000_mono_long float 4 aac_rom.c TNS tuning parameters p. 16000_mono_short float 4 aac_rom.c TNS tuning parameters p. 16000_mono_long float 4 aac_rom.c TNS tuning parameters p. 24000_mono_long float 4 aac_rom.c TNS tuning parameters p. 24000_mono_short float 4 aac_rom.c TNS tuning parameters p. 24000_mono_short float 4 aac_rom.c TNS tuning parameters p. 24000_mono_long float 4 aac_rom.c TNS tuning parameters p. 32000_mono_short float <t< td=""><td>p_8000_mono_long</td><td>float</td><td>4</td><td>aac_rom.c</td><td>TNS tuning parameters</td></t<>	p_8000_mono_long	float	4	aac_rom.c	TNS tuning parameters
p. 8000 stereo short float 4 aac_rom.c TNS tuning parameters p. 16000 mono long float 4 aac_rom.c TNS tuning parameters p. 16000 stereo_long float 4 aac_rom.c TNS tuning parameters p. 16000 stereo_short float 4 aac_rom.c TNS tuning parameters p. 24000 mono_short float 4 aac_rom.c TNS tuning parameters p. 24000 stereo_short float 4 aac_rom.c TNS tuning parameters p. 24000 stereo_short float 4 aac_rom.c TNS tuning parameters p. 24000 stereo_short float 4 aac_rom.c TNS tuning parameters p. 32000 mono_short float 4 aac_rom.c TNS tuning parameters p. 32000 mono_short float 4 aac_rom.c TNS tuning parameters p. 32000 mono_short float 4 aac_rom.c TNS tuning parameters p. 32000 stereo_short float 4 aac_rom.c TNS tuning parameters p. 32000 stereo_short floa	p_8000_stereo_long	float	4	aac_rom.c	TNS tuning parameters
p. 16000_mono_long float 4 aac_rom.c TNS tuning parameters p. 16000_stereo_short float 4 aac_rom.c TNS tuning parameters p. 16000_mono_short float 4 aac_rom.c TNS tuning parameters p. 24000_mono_long float 4 aac_rom.c TNS tuning parameters p. 24000_stereo_long float 4 aac_rom.c TNS tuning parameters p. 24000_mono_short float 4 aac_rom.c TNS tuning parameters p. 24000_mono_short float 4 aac_rom.c TNS tuning parameters p. 32000_mono_long float 4 aac_rom.c TNS tuning parameters p. 32000_mono_short float 4 aac_rom.c TNS tuning parameters p. 32000_stereo_short float 4 aac_rom.c TNS tuning parameters p. 32000_stereo_short float 4 aac_rom.c TNS filter borders tnsCoeff3Sorders float 8 aac_rom.c TNS filter borders tnsCoeff4Borders float 16	p_8000_mono_short	float	4	aac_rom.c	
p 16000 stereo_long float 4 aac_rom.c TNS tuning parameters p 16000 mono_short float 4 aac_rom.c TNS tuning parameters p 24000_mono_long float 4 aac_rom.c TNS tuning parameters p 24000_mono_long float 4 aac_rom.c TNS tuning parameters p 24000_mono_short float 4 aac_rom.c TNS tuning parameters p 24000_mono_long float 4 aac_rom.c TNS tuning parameters p 24000_stereo_short float 4 aac_rom.c TNS tuning parameters p 32000_stereo_long float 4 aac_rom.c TNS tuning parameters p 32000_stereo_short float 4 aac_rom.c TNS tuning parameters p 32000_stereo_short float 8 aac_rom.c TNS tuning parameters p 32000_stereo_short float 8 aac_rom.c TNS tuning parameters tnsCoeff3 float 8 aac_rom.c TNS tuning parameters tnsCoeff4Borders float 16	p_8000_stereo_short	float	4	aac_rom.c	
p 16000 mono short float 4 asc rom.c TNS tuning parameters p 16000 stereo short float 4 aac rom.c TNS tuning parameters p 24000 mono long float 4 aac rom.c TNS tuning parameters p 24000 stereo long float 4 aac rom.c TNS tuning parameters p 24000 stereo long float 4 aac rom.c TNS tuning parameters p 24000 stereo short float 4 aac rom.c TNS tuning parameters p 32000 mono long float 4 aac rom.c TNS tuning parameters p 32000 mono short float 4 aac rom.c TNS tuning parameters p 32000 mono short float 4 aac rom.c TNS tuning parameters p 32000 stereo short float 4 aac rom.c TNS tuning parameters p 32000 stereo short float 4 aac rom.c TNS filter borders tnsCoeff3 float 8 aac rom.c TNS filter borders tnsCoeff4 float 16 aac rom.c TNS filter borders tnsfCoeff44brders float 16 aac rom.c HNS filter borders <td< td=""><td></td><td>float</td><td></td><td>aac_rom.c</td><td>TNS tuning parameters</td></td<>		float		aac_rom.c	TNS tuning parameters
p 16000_stereo_short float 4_aac_rom.c TNS tuning parameters p 24000_mono_long float 4_aac_rom.c TNS tuning parameters p 24000_mono_short float 4_aac_rom.c TNS tuning parameters p 24000_mono_short float 4_aac_rom.c TNS tuning parameters p 32000_mono_long float 4_aac_rom.c TNS tuning parameters p 32000_mono_long float 4_aac_rom.c TNS tuning parameters p 32000_stereo_long float 4_aac_rom.c TNS tuning parameters p 32000_stereo_short float 4_aac_rom.c TNS tuning parameters p 32000_stereo_short float 4_aac_rom.c TNS tuning parameters p 32000_stereo_short float 4_aac_rom.c TNS filter coefficients tnsCoeff3 float 8_aac_rom.c TNS filter coefficients tnsCoeff3 float 16_aac_rom.c TNS filter coefficients tnsCoeff3 float 16_aac_rom.c TNS filter coefficients tnsCoeff3 float 16_aac_rom.c TNS filter borders t			4	aac_rom.c	
p. 24000_mono_long float 4_aac_rom.c TNS tuning parameters p. 24000_stereo_long float 4_aac_rom.c TNS tuning parameters p. 24000_mono_short float 4_aac_rom.c TNS tuning parameters p. 24000_stereo_short float 4_aac_rom.c TNS tuning parameters p. 32000_mono_long float 4_aac_rom.c TNS tuning parameters p. 32000_stereo_short float 4_aac_rom.c TNS tuning parameters p. 32000_stereo_short float 4_aac_rom.c TNS tuning parameters p. 32000_stereo_short float 8_aac_rom.c TNS tuning parameters p. 32000_stereo_short float 8_aac_rom.c TNS filter borders tnsCoeff3 float 8_aac_rom.c TNS filter borders tnsCoeff4 float 16_aac_rom.c TNS filter borders tnsCoeff4Borders float 16_aac_rom.c TNS filter borders tnsSCoeff4Borders float 16_aac_rom.c TNS filter borders tnsInfoTab int 24_aac_rom.c TNS filter borders tnsSCo		float	4	aac_rom.c	
p. 24000 stereo_long float 4 aac_rom.c TNS tuning parameters p. 24000_mono_short float 4 aac_rom.c TNS tuning parameters p. 32000_mono_long float 4 aac_rom.c TNS tuning parameters p. 32000_mono_long float 4 aac_rom.c TNS tuning parameters p. 32000_mono_short float 4 aac_rom.c TNS tuning parameters p. 32000_stereo_short float 4 aac_rom.c TNS tuning parameters p. 32000_stereo_short float 4 aac_rom.c TNS tuning parameters p. 32000_stereo_short float 4 aac_rom.c TNS filter coefficients tnsCoeff3Borders float 8 aac_rom.c TNS filter coefficients tnsCoeff4Borders float 16 aac_rom.c TNS filter borders tnsInfoTab int 24 aac_rom.c TNS bitrate to tuning mapping table tnsMaxBandSTab int 27 aac_rom.c Huffman codeword table AAC huff_ltab3_4 short <				aac_rom.c	
p_24000_mono_short		_		-	
p_24000_stereo_short float 4 aac_rom.c TNS tuning parameters p_32000_mono_long float 4 aac_rom.c TNS tuning parameters p_32000_stereo_long float 4 aac_rom.c TNS tuning parameters p_32000_mono_short float 4 aac_rom.c TNS tuning parameters p_32000_stereo_short float 4 aac_rom.c TNS tuning parameters TNS coeff3 float 8 aac_rom.c TNS tuning parameters TNS coeff3 float 8 aac_rom.c TNS filter coefficients tnsCoeff4 float f		_		aac_rom.c	
p_32000_mono_long float 4 aac_rom.c TNS tuning parameters p_32000_mono_short float 4 aac_rom.c TNS tuning parameters p_32000_stereo_short float 4 aac_rom.c TNS tuning parameters tnsCoeff3 float 8 aac_rom.c TNS tuning parameters tnsCoeff3Borders float 8 aac_rom.c TNS filter coefficients tnsCoeff3Borders float fl				aac_rom.c	
p_32000_stereo_long float 4 aac_rom.c TNS tuning parameters p_32000_mono_short float 4 aac_rom.c TNS tuning parameters tnsCoeff3 float 4 aac_rom.c TNS tuning parameters tnsCoeff3 float 8 aac_rom.c TNS tuning parameters tnsCoeff3 float 8 aac_rom.c TNS fliter coefficients tnsCoeff4 float 16 aac_rom.c TNS fliter coefficients tnsCoeff4 float 16 aac_rom.c TNS fliter borders tnsInfoTab int 24 aac_rom.c TNS fliter borders tnsInfoTab int 27 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 64 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 168 aac_rom.c Huffman codeword table AAC huff_ltab5_1 short 120 aac_rom.c Huffman codeword table AAC huff_ctab1 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword ta				aac_rom.c	
p_32000_mono_short float 4 aac_rom.c TNS tuning parameters p_32000_stereo_short float 4 aac_rom.c TNS tuning parameters tnsCoeff3 float 8 aac_rom.c TNS filter coefficients tnsCoeff3Borders float 16 aac_rom.c TNS filter coefficients tnsCoeff4Borders float 16 aac_rom.c TNS filter borders tnsInfoTab int 24 aac_rom.c TNS filter borders tnsInfoTab int 27 aac_rom.c TNS bitrate to tuning mapping table tnsMaxBandsTab int 27 aac_rom.c max. TNS bands per sampling rate table huff_ltab1_2 short 80 aac_rom.c Huffman codeword table AAC huff_ltab5_4 short 80 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_ltab9_10 short 168 aac_rom.c Huffman codeword table AAC huff_ltab9_10 short 168 aac_rom.c Huffman codeword table AAC huff_ltab5 short short 288 aac_rom.c Huffman codeword table AAC huff_ctab1 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC h		_			
p_32000_stereo_short float 4 aac_rom.c TNS tuning parameters tnsCoeff3Borders float 8 aac_rom.c TNS filter coefficients tnsCoeff4Borders float 16 aac_rom.c TNS filter coefficients tnsCoeff4Borders float 16 aac_rom.c TNS filter borders tnsInfoTab int 24 aac_rom.c TNS filter borders tnsMaxBandsTab int 27 aac_rom.c TNS bitrate to tuning mapping table tnsMaxBandsTab int 27 aac_rom.c Huffman codeword table AAC huff_ltab1_2 short 80 aac_rom.c Huffman codeword table AAC huff_ltab3_4 short 80 aac_rom.c Huffman codeword table AAC huff_ltab3_5 short 80 aac_rom.c Huffman codeword table AAC huff_ltab1_7 short 168 aac_rom.c Huffman codeword table AAC huff_ltab1_1 short 288 aac_rom.c Huffman codeword table AAC huff_ctab1 short 80 <t< td=""><td></td><td>_</td><td></td><td></td><td></td></t<>		_			
InsCoeff3 float 8 aac_rom.c TNS filter coefficients InsCoeff4 float 16 aac_rom.c TNS filter borders InsCoeff4 float 16 aac_rom.c TNS filter borders InsCoeff4Borders float 16 aac_rom.c TNS filter borders InsInfoTab int 24 aac_rom.c TNS bitrate to tuning mapping table InsMaxBandsTab int 27 aac_rom.c TNS bitrate to tuning mapping table InsMaxBandsTab int 27 aac_rom.c TNS bitrate to tuning mapping table InsMaxBandsTab int 27 aac_rom.c Huffman bass per sampling rate table InsMaxBandsTab int 27 aac_rom.c Huffman codeword table AAC Inuff_Itab3_2 short 80 aac_rom.c Huffman codeword table AAC Inuff_Itab7_8 short 64 aac_rom.c Huffman codeword table AAC Inuff_Itab7_8 short 168 aac_rom.c Huffman codeword table AAC Inuff_Itab1 short 80				aac_rom.c	
tnsCoeff3Borders float 16 aac_rom.c TNS filter borders tnsCoeff4 float 16 aac_rom.c TNS filter coefficients tnsCoeff4Borders float 16 aac_rom.c TNS filter coefficients tnsCoeff4Borders float 16 aac_rom.c TNS filter borders tnsInfoTab int 24 aac_rom.c TNS filter borders tnsInfoTab int 24 aac_rom.c TNS bitrate to tuning mapping table tnsMaxBandsTab int 27 aac_rom.c max. TNS bands per sampling rate table huff_ltab1_2 short 80 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_ltab7_8 short 64 aac_rom.c Huffman codeword table AAC huff_ltab7_8 short 168 aac_rom.c Huffman codeword table AAC huff_ltab11 short 288 aac_rom.c Huffman codeword table AAC huff_ltab11 short 288 aac_rom.c Huffman codeword table AAC huff_ltab11 short 80 aac_rom.c Huffman codeword table AAC huff_ctab1 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab3 short 80 aac_rom.c Huffman codeword table AAC huff_ctab3 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 64 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Scalefactor band table sfb_11025_short_128 char 15 aac_rom.c Scalefactor band table sfb_11000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_11000_long				-	
tnsCoeff4 float 16 aac_rom.c TNS filter coefficients tnsCoeff4Borders float 16 aac_rom.c TNS filter borders tnsInfoTab int 24 aac_rom.c TNS filter borders tnsMaxBandsTab int 27 aac_rom.c max. TNS bands per sampling rate table tnsMaxBandsTab int 27 aac_rom.c max. TNS bands per sampling rate table huff_ltab1_2 short 80 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 168 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 128 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 120 aac_rom.c Huffman codeword table AAC huff_ltab11 short 120 aac_rom.c Huffman codeword table AAC huff_ltab11 short 80 aac_rom.c Huffman codeword table AAC huff_ctab1 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab3 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Scalefactor band table sfb_11025_long_1024 char 43 aac_rom.c Scalefactor band table sfb_11020_long_1024 char 43 aac_rom.c Scalefactor band table sfb_11000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table					
tnsCoeff4Borders tnsInfoTab int 24 aac_rom.c TNS bitrate to tuning mapping table tnsMaxBandsTab int 27 aac_rom.c TNS bitrate to tuning mapping table tnsMaxBandsTab int 27 aac_rom.c Huffman codeword table AAC huff_ltab1_2 short 80 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_ltab9_10 short 168 aac_rom.c Huffman codeword table AAC huff_ltab9_11 short 188 aac_rom.c Huffman codeword table AAC huff_ltab9_11 short 188 aac_rom.c Huffman codeword table AAC huff_ltab11 short 180 aac_rom.c Huffman codeword table AAC huff_ltab2 short 80 aac_rom.c Huffman codeword table AAC huff_tab11 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 80 aac_rom.c Huffman codeword table AAC huff_ctab8 short 80 aac_rom.c Huffman codeword table AAC huff_ctab9 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Scalefactor band table sfb_11025_short_128 char 15 aac_rom.c Scalefactor band table sfb_12000_short_128 char 15 aac_rom.c Scalefactor band table					
tnsInfoTab int 24 aac_rom.c TNS bitrate to tuning mapping table tnsMaxBandsTab int 27 aac_rom.c max. TNS bands per sampling rate table huff_ltab1_2 short 80 aac_rom.c Huffman codeword table AAC huff_ltab3_4 short 80 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_ltab7_8 short 64 aac_rom.c Huffman codeword table AAC huff_ltab9_10 short 168 aac_rom.c Huffman codeword table AAC huff_ltab11 short 288 aac_rom.c Huffman codeword table AAC huff_ltab11 short 120 aac_rom.c Huffman codeword table AAC huff_ltab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab1 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 80 aac_rom.c Huffman codeword table AAC huff_ctab8 short 80 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 168 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctab5 short 288 aac_rom.c Scalefactor band table sfb_11025_long_1024 char 43 aac_rom.c Scalefactor band table sfb_11025_long_1024 char 43 aac_rom.c Scalefactor band table sfb_11020_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_long_1024 char 43 aac_rom.c Scalefactor band table					
tnsMaxBandsTab int 27 aac_rom.c max. TNS bands per sampling rate table huff_tab1 2 short 80 aac_rom.c Huffman codeword table AAC huff_tab3_4 short 80 aac_rom.c Huffman codeword table AAC huff_tab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_tab5_6 short 64 aac_rom.c Huffman codeword table AAC huff_tab9_10 short 168 aac_rom.c Huffman codeword table AAC huff_tab9_10 short 120 aac_rom.c Huffman codeword table AAC huff_tab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_tab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_cab1 short 80 aac_rom.c Huffman codeword table AAC huff_cab2 short 80 aac_rom.c Huffman codeword table AAC huff_cab4 short 80 aac_rom.c Huffman codeword table AAC huff_cab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctab12 short_128 char 15 aac_rom.c Scalefactor band table sfb_11025_short_128 char 15 aac_rom.c Scalefactor band table sfb_12000_short_128 char 15 aac_rom.c Scalefactor band table sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table					
huff_ltab1_2 short 80 aac_rom.c Huffman codeword table AAC huff_ltab3_4 short 80 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_ltab9_10 short 168 aac_rom.c Huffman codeword table AAC huff_ltab9_11 short 288 aac_rom.c Huffman codeword table AAC huff_ltab11 short 288 aac_rom.c Huffman codeword table AAC huff_ltab5cf short 120 aac_rom.c Huffman codeword table AAC huff_ltab5cf short 80 aac_rom.c Huffman codeword table AAC huff_ctab1 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab3 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctab50 short 168 aac_rom.c Scalefactor band table Sfb_11025_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_long_1024 char 43 aac_rom.c Scalefactor band table					
huff_ltab3_4 short 80 aac_rom.c Huffman codeword table AAC huff_ltab5_6 short 64 aac_rom.c Huffman codeword table AAC huff_ltab9_10 short 168 aac_rom.c Huffman codeword table AAC huff_ltab11 short 288 aac_rom.c Huffman codeword table AAC huff_ltab11 short 120 aac_rom.c Huffman codeword table AAC huff_ltab11 short 120 aac_rom.c Huffman codeword table AAC huff_ltab11 short 120 aac_rom.c Huffman codeword table AAC huff_ltab2 short 120 aac_rom.c Huffman codeword table AAC huff_ctab1 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab3 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Scalefactor band table Sfb_11025_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table					
huff_ttab5_6 short 80 aac_rom.c Huffman codeword table AAC huff_ttab9_10 short 168 aac_rom.c Huffman codeword table AAC huff_ttab11 short 288 aac_rom.c Huffman codeword table AAC huff_ttabscf short 120 aac_rom.c Huffman codeword table AAC huff_ttab11 short 80 aac_rom.c Huffman codeword table AAC huff_ctab1 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab3 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctab12 short 128 char 43 aac_rom.c Scalefactor band table sfb_11025_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table				-	
huff_ltab7_8short64aac_rom.cHuffman codeword table AAChuff_ltab9_10short168aac_rom.cHuffman codeword table AAChuff_ltab11short288aac_rom.cHuffman codeword table AAChuff_ltabscfshort120aac_rom.cHuffman codeword table AAChuff_ctab1short80aac_rom.cHuffman codeword table AAChuff_ctab2short80aac_rom.cHuffman codeword table AAChuff_ctab3short80aac_rom.cHuffman codeword table AAChuff_ctab4short80aac_rom.cHuffman codeword table AAChuff_ctab5short80aac_rom.cHuffman codeword table AAChuff_ctab6short80aac_rom.cHuffman codeword table AAChuff_ctab7short64aac_rom.cHuffman codeword table AAChuff_ctab8short64aac_rom.cHuffman codeword table AAChuff_ctab9short168aac_rom.cHuffman codeword table AAChuff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cScalefactor band tablesfb_11025_short_128char43aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band table<					
huff_tab9_10short168aac_rom.cHuffman codeword table AAChuff_tab11short288aac_rom.cHuffman codeword table AAChuff_tab5cfshort120aac_rom.cHuffman codeword table AAChuff_ctab1short80aac_rom.cHuffman codeword table AAChuff_ctab2short80aac_rom.cHuffman codeword table AAChuff_ctab3short80aac_rom.cHuffman codeword table AAChuff_ctab4short80aac_rom.cHuffman codeword table AAChuff_ctab5short80aac_rom.cHuffman codeword table AAChuff_ctab6short80aac_rom.cHuffman codeword table AAChuff_ctab7short64aac_rom.cHuffman codeword table AAChuff_ctab8short64aac_rom.cHuffman codeword table AAChuff_ctab9short168aac_rom.cHuffman codeword table AAChuff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cScalefactor band tablesfb_11025_short_128char43aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char43aac_rom.cScalefactor band table <td></td> <td></td> <td></td> <td></td> <td></td>					
huff_Itab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctab1 short 80 aac_rom.c Huffman codeword table AAC huff_ctab2 short 80 aac_rom.c Huffman codeword table AAC huff_ctab3 short 80 aac_rom.c Huffman codeword table AAC huff_ctab3 short 80 aac_rom.c Huffman codeword table AAC huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctab5cf short 242 aac_rom.c Huffman codeword table AAC huff_ctab5cf short 242 aac_rom.c Scalefactor band table sfb_11025_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_long_1024 char 43 aac_rom.c Scalefactor band table					
huff_tabscfshort120aac_rom.cHuffman codeword table AAChuff_ctab1short80aac_rom.cHuffman codeword table AAChuff_ctab2short80aac_rom.cHuffman codeword table AAChuff_ctab3short80aac_rom.cHuffman codeword table AAChuff_ctab4short80aac_rom.cHuffman codeword table AAChuff_ctab5short80aac_rom.cHuffman codeword table AAChuff_ctab6short80aac_rom.cHuffman codeword table AAChuff_ctab7short64aac_rom.cHuffman codeword table AAChuff_ctab8short64aac_rom.cHuffman codeword table AAChuff_ctab9short168aac_rom.cHuffman codeword table AAChuff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cScalefactor band tablesfb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band table				-	
huff_ctab1short80aac_rom.cHuffman codeword table AAChuff_ctab2short80aac_rom.cHuffman codeword table AAChuff_ctab3short80aac_rom.cHuffman codeword table AAChuff_ctab4short80aac_rom.cHuffman codeword table AAChuff_ctab5short80aac_rom.cHuffman codeword table AAChuff_ctab6short80aac_rom.cHuffman codeword table AAChuff_ctab7short64aac_rom.cHuffman codeword table AAChuff_ctab8short64aac_rom.cHuffman codeword table AAChuff_ctab9short168aac_rom.cHuffman codeword table AAChuff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AACsfb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_11025_short_128char15aac_rom.cScalefactor band tablesfb_12000_short_128char43aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char43aac_rom.cScalefactor band tablesfb_16000_short_128char43aac_rom.cScalefactor band table					
huff_ctab2short80aac_rom.cHuffman codeword table AAChuff_ctab3short80aac_rom.cHuffman codeword table AAChuff_ctab4short80aac_rom.cHuffman codeword table AAChuff_ctab5short80aac_rom.cHuffman codeword table AAChuff_ctab6short80aac_rom.cHuffman codeword table AAChuff_ctab7short64aac_rom.cHuffman codeword table AAChuff_ctab8short64aac_rom.cHuffman codeword table AAChuff_ctab9short168aac_rom.cHuffman codeword table AAChuff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AACsfb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table					
huff_ctab3short80aac_rom.cHuffman codeword table AAChuff_ctab4short80aac_rom.cHuffman codeword table AAChuff_ctab5short80aac_rom.cHuffman codeword table AAChuff_ctab6short80aac_rom.cHuffman codeword table AAChuff_ctab7short64aac_rom.cHuffman codeword table AAChuff_ctab8short64aac_rom.cHuffman codeword table AAChuff_ctab9short168aac_rom.cHuffman codeword table AAChuff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AACsfb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table				_	
huff_ctab4 short 80 aac_rom.c Huffman codeword table AAC huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctabscf short 242 aac_rom.c Huffman codeword table AAC sfb_11025_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_short_128 char 15 aac_rom.c Scalefactor band table sfb_16000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table				-	
huff_ctab5 short 80 aac_rom.c Huffman codeword table AAC huff_ctab6 short 80 aac_rom.c Huffman codeword table AAC huff_ctab7 short 64 aac_rom.c Huffman codeword table AAC huff_ctab8 short 64 aac_rom.c Huffman codeword table AAC huff_ctab9 short 168 aac_rom.c Huffman codeword table AAC huff_ctab10 short 168 aac_rom.c Huffman codeword table AAC huff_ctab11 short 288 aac_rom.c Huffman codeword table AAC huff_ctabscf short 242 aac_rom.c Huffman codeword table AAC sfb_11025_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_12000_short_128 char 15 aac_rom.c Scalefactor band table sfb_16000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_long_1024 char 43 aac_rom.c Scalefactor band table sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table				_	
huff_ctab6short80aac_rom.cHuffman codeword table AAChuff_ctab7short64aac_rom.cHuffman codeword table AAChuff_ctab8short64aac_rom.cHuffman codeword table AAChuff_ctab9short168aac_rom.cHuffman codeword table AAChuff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AACsfb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char43aac_rom.cScalefactor band tablesfb_16000_short_128char43aac_rom.cScalefactor band table					
huff_ctab7short64aac_rom.cHuffman codeword table AAChuff_ctab8short64aac_rom.cHuffman codeword table AAChuff_ctab9short168aac_rom.cHuffman codeword table AAChuff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AACsb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_11025_short_128char15aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table	_			_	
huff_ctab8short64aac_rom.cHuffman codeword table AAChuff_ctab9short168aac_rom.cHuffman codeword table AAChuff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AACsb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_11025_short_128char15aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table					
huff_ctab9short168aac_rom.cHuffman codeword table AAChuff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AACsfb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_11025_short_128char15aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table					
huff_ctab10short168aac_rom.cHuffman codeword table AAChuff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AACsfb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_11025_short_128char15aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table	_				
huff_ctab11short288aac_rom.cHuffman codeword table AAChuff_ctabscfshort242aac_rom.cHuffman codeword table AACsfb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_11025_short_128char15aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table					
huff_ctabscfshort242aac_rom.cHuffman codeword table AACsfb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_11025_short_128char15aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table					
sfb_11025_long_1024char43aac_rom.cScalefactor band tablesfb_11025_short_128char15aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table					
sfb_11025_short_128char15aac_rom.cScalefactor band tablesfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table		+		_	
sfb_12000_long_1024char43aac_rom.cScalefactor band tablesfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table				_	
sfb_12000_short_128char15aac_rom.cScalefactor band tablesfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table				-	
sfb_16000_long_1024char43aac_rom.cScalefactor band tablesfb_16000_short_128char15aac_rom.cScalefactor band table					
sfb_16000_short_128 char 15 aac_rom.c Scalefactor band table		+		_	
				_	
				-	

coeffNum coeffDen tuningTable	float float tuningT able	8 8 121	iir32resample.c sbr_main.c	IIR filter coefficients for 3:2 resampling SBR tuning parameters
coeffNum coeffDen	float	8	iir32resample.c	IIR filter coefficients for 3:2 resampling
coeffNum				
		U	iir32resample.c	IIR filter coefficients for 3:2 resampling
set3	float	5	resampler.c	IIR filter coefficients for 2:1 resampling
set3_b	float	18	resampler.c	IIR filter coefficients for 2:1 resampling
set3_a	float	18	resampler.c	IIR filter coefficients for 2:1 resampling
set2	float	5	resampler.c	IIR filter coefficients for 2:1 resampling
set2_b	float	21	resampler.c	IIR filter coefficients for 2:1 resampling
set2_a	float	21	resampler.c	IIR filter coefficients for 2:1 resampling
set1	float	5	resampler.c	IIR filter coefficients for 2:1 resampling
set1_b	float	14	resampler.c	IIR filter coefficients for 2:1 resampling
set1_a	float	14	resampler.c	IIR filter coefficients for 2:1 resampling
logDualisTable	float	65	transcendent.c	Lookup table for efficient log() implementation
aBookPsIccTimeCode;	short	15	sbr_rom.c	Huffman codeword table Parametric Stereo
aBookPsIccFreqCode	short	15	sbr_rom.c	Huffman codeword table Parametric Stereo
bookSbrEnvBalanceL11F	char	25	sbr_rom.c	Huffman codeword table SBR
v_Huff_envelopeLevelL11F	char	63	sbr_rom.c	Huffman codeword table SBR
bookSbrNoiseBalanceL11T	char	25	sbr_rom.c	Huffman codeword table SBR
v_Huff_NoiseLevelL11T	char	63	sbr_rom.c	Huffman codeword table SBR
bookSbrEnvBalanceL11T	char	25	sbr_rom.c	Huffman codeword table SBR
v_Huff_envelopeLevelL11T	char	63	sbr_rom.c	Huffman codeword table SBR
bookSbrEnvBalanceL10T	char	49	sbr_rom.c	Huffman codeword table SBR
bookSbrEnvBalanceL10F	char	49	sbr_rom.c	Huffman codeword table SBR
v_Huff_envelopeLevelL10F	char	121	sbr_rom.c	Huffman codeword table SBR
v_Huff_envelopeLevelL10T	char	121	sbr_rom.c	Huffman codeword table SBR
aBookPslccTimeLength	char	15	sbr_rom.c	Huffman codeword table Parametric Stereo
aBookPslccFreqLength	char	15	sbr_rom.c	Huffman codeword table Parametric Stereo
aBookPslidFreqLength	char	29	sbr_rom.c	Huffman codeword table Parametric Stereo
aBookPslidTimeLength	char	29	sbr_rom.c	Huffman codeword table Parametric Stereo
bookSbrEnvBalanceC11F	int	25	sbr_rom.c	Huffman codeword table SBR
v_Huff_envelopeLevelC11F	int	63	sbr_rom.c	Huffman codeword table SBR
bookSbrNoiseBalanceC11T	int	25	sbr_rom.c	Huffman codeword table SBR
bookSbrEnvBalanceC11T	int	25	sbr_rom.c	Huffman codeword table SBR
v_Huff_NoiseLevelC11T	int	63	sbr_rom.c sbr_rom.c	Huffman codeword table SBR
bookSbrEnvBalanceC10T v_Huff_envelopeLevelC11T	int int	49 63	sbr_rom.c	Huffman codeword table SBR Huffman codeword table SBR
	int	49	sbr_rom.c	Huffman codeword table SBR
v_Huff_envelopeLevelC10F bookSbrEnvBalanceC10F	int	121	sbr_rom.c	Huffman codeword table SBR Huffman codeword table SBR
	int	121	sbr_rom.c	
v_Huff_envelopeLevelC10T	int	121	ohr rom o	Stereo groups Huffman codeword table SBR
o⊪s∠groupiviap	int	29	sbr_rom.c	
bins2groupMap	_	29 29		Mapping of Parametric Stereo groups Mapping of Parametric Stereo bins to Parametric
groupBordersMix	int		sbr_rom.c	Borders of Parametric Stereo bins Borders of Parametric Stereo groups
hiResBandBorders	int	21	sbr_rom.c	Borders of Parametric Stereo bins
aHybridResolution	int	3	sbr_rom.c	Number of hybrid bands in each QMF band
aBookPslidTimeCode aBookPslidFreqCode	int int	29 29	sbr_rom.c sbr_rom.c	Huffman codeword table Parametric Stereo Huffman codeword table Parametric Stereo
trigData_fct4_8	float	8	sbr_rom.c	
trigData_fct4_16	float	16	sbr_rom.c	FFT twiddle table FFT twiddle table
trigData_fct4_32	float	32	sbr_rom.c	FFT twiddle table
· · · · · · · · · · · · · · ·	0 .			obsolete)
p_64_640_qmf	float	640	sbr_rom.c	QMF window coefficients (Note: could be made
sbr_qmf_64_640	float	325	sbr_rom.c	QMF window coefficients
sbr_alt_sin_twiddle	float	17	sbr_rom.c	QMF filterbank twiddle table
sbr_sin_twiddle	float	16	sbr_rom.c	QMF filterbank twiddle table
sbr_cos_twiddle	float	16	sbr_rom.c	QMF filterbank twiddle table
p8_13	float	13	sbr_rom.c	Hybrid filterbank coefficients
p4_13	float	13	sbr_rom.c	Hybrid filterbank coefficients
saClass	float	7	sbr_rom.c	Parametric Stereo quantization table
panClass	float	7	sbr_rom.c	Parametric Stereo quantization table
sfb_24000_short_128	char	15	aac_rom.c	Scalefactor band table
sfb_24000_long_1024	char	47	aac_rom.c	Scalefactor band table
sfb_22050_short_128	char	15	aac_rom.c	Scalefactor band table

Table 8: Decoder constants and tables

Name	Data	Size	Allocated in	Description
Name	type	[word]	Source File	Description
tnsCoeff3	float	8	aac_rom.c	TNS filter coefficients
tnsCoeff4	float	16	aac_rom.c	TNS filter coefficients
trigData	float	513	aac_rom.c	Sine table, used for efficient sin(), cos()
OnlyLongWindowKBD	float	1024	aac_rom.c	Window coefficients
OnlyShortWindowKBD	float	128	aac_rom.c	Window coefficients
OnlyLongWindowSine	float	1024	aac_rom.c	Window coefficients
OnlyShortWindowSine	float	128	aac_rom.c	Window coefficients
sfb_48_1024	short	50	aac_rom.c	Scalefactor band table
sfb_48_128	short	15	aac_rom.c	Scalefactor band table
sfb_32_1024	short	51	aac_rom.c	Scalefactor band table
sfb_24_1024	short	49	aac_rom.c	Scalefactor band table
sfb_24_128	short	16	aac_rom.c	Scalefactor band table
sfb_16_1024	short	44	aac_rom.c	Scalefactor band table
sfb_16_128	short	16	aac_rom.c	Scalefactor band table
sfb_8_1024	short	41	aac_rom.c	Scalefactor band table
sfb_8_128	short	16	aac_rom.c	Scalefactor band table
HuffmanCodeBook_1	short	204	aac_rom.c	Huffman codeword table AAC
HuffmanCodeBook_2	short	156	aac_rom.c	Huffman codeword table AAC
HuffmanCodeBook_3	short	156	aac_rom.c	Huffman codeword table AAC
HuffmanCodeBook_4	short	152	aac_rom.c	Huffman codeword table AAC
HuffmanCodeBook_5	short	164 160	aac_rom.c	Huffman codeword table AAC
HuffmanCodeBook_6	short	124	aac_rom.c	Huffman codeword table AAC
HuffmanCodeBook_7 HuffmanCodeBook_8	short short	124	aac_rom.c	Huffman codeword table AAC Huffman codeword table AAC
HuffmanCodeBook_9	short	336	aac_rom.c	Huffman codeword table AAC
HuffmanCodeBook_9 HuffmanCodeBook_10	short	328	aac_rom.c aac_rom.c	Huffman codeword table AAC
HuffmanCodeBook_11	short	544	aac_rom.c	Huffman codeword table AAC
HuffmanCodeBook_SCL	short	260	aac_rom.c	Huffman codeword table AAC
SamplingRateInfoTable	mixed	45	aac_rom.c	Sampling rate to scalefactor mapping
Samplingitatenno rabie	IIIIXGU	75	aac_loni.c	table AAC
HuffmanCodeBooks	mixed	52	aac_rom.c	Huffman codeword table AAC
tns_max_bands_tbl	char	18	aac_rom.c	max. TNS bands per sampling rate table
sbr_limGains	float	4	sbr_rom.c	SBR limiter gain values
sbr_limiterBandsPerOctave	float	4	sbr_rom.c	Number of SBR limiter bands
sbr_smoothFilter	float	4	sbr_rom.c	Smoothing filter for gain values
sbr_invIntTable	float	55	sbr_rom.c	Table of 1/x function
sbr_randomPhase	float	1024	sbr_rom.c	Random numbers for SBR noise addition
1 (01 010		205		and PNS
sbr_qmf_64_640	float	325	sbr_rom.c	QMF window coefficients
sbr_cos_twiddle_L04	float	2	sbr_rom.c	FFT twiddle table
sbr_cos_twiddle_L08	float	4	sbr_rom.c	FFT twiddle table
sbr_cos_twiddle_L16	float	8	sbr_rom.c	FFT twiddle table
sbr_cos_twiddle_L32	float	16	sbr_rom.c	FFT twiddle table
sbr_sin_twiddle_L04	float	2	sbr_rom.c	FFT twiddle table
sbr_sin_twiddle_L08	float	4	sbr_rom.c	FFT twiddle table
sbr_sin_twiddle_L16	float	8	sbr_rom.c	FFT twiddle table
sbr_sin_twiddle_L32	float	16	sbr_rom.c	FFT twiddle table
sbr_alt_sin_twiddle_L04 sbr_alt_sin_twiddle_L08	float float	3 5	sbr_rom.c	FFT twiddle table FFT twiddle table
sbr_alt_sin_twiddle_L06	float	9	sbr_rom.c sbr_rom.c	
sbr_alt_sin_twiddle_L16	float	17	sbr_rom.c	FFT twiddle table FFT twiddle table
sbr_cos_twiddle_ds_L32	float	32	sbr_rom.c	FFT twiddle table, obsolete for mono only
SDI_COS_tWIddle_dS_LOZ	lioat	32	301_10111.0	decoder
sbr_sin_twiddle_ds_L32	float	32	sbr_rom.c	FFT twiddle table, obsolete for mono only
		<u> </u>		decoder
sbr_cos_twiddle_L64	float	32	sbr_rom.c	FFT twiddle table, obsolete for mono only
				decoder
sbr_sin_twiddle_L64	float	32	sbr_rom.c	FFT twiddle table, obsolete for mono only
			-	decoder
sbr_alt_sin_twiddle_L64	float	33	sbr_rom.c	FFT twiddle table, obsolete for mono only
				decoder
sbr_t_cos_L32	float	32	sbr_rom.c	FFT twiddle table

sbr_t_sin_L32	float	32	sbr_rom.c	FFT twiddle table
aRevLinkDecaySer	float	3	sbr_rom.c	Parametric Stereo all-pass filter
artovenik Boody Gor	noat		051_10111.0	coefficients
aFractDelayPhaseFactorReQmf	float	20	sbr_rom.c	Parametric Stereo phase rotation factor
aFractDelayPhaseFactorImQmf	float	20	sbr_rom.c	Parametric Stereo phase rotation factor
aFractDelayPhaseFactorReSubQmf	float	10	sbr_rom.c	Parametric Stereo phase rotation factor
aFractDelayPhaseFactorImSubQmf	float	10	sbr_rom.c	Parametric Stereo phase rotation factor
aaFractDelayPhaseFactorSerReQmf	float	3	sbr_rom.c	Parametric Stereo phase rotation factor
aaFractDelayPhaseFactorSerImQmf	float	3	sbr_rom.c	Parametric Stereo phase rotation factor
aaFractDelayPhaseFactorSerReSubQmf	float	3	sbr_rom.c	Parametric Stereo phase rotation factor
aaFractDelayPhaseFactorSerImSubQmf	float	3	sbr_rom.c	Parametric Stereo phase rotation factor
scaleFactors	float	15	sbr_rom.c	Parametric Stereo quantization table
scaleFactorsFine	float	41	sbr_rom.c	Parametric Stereo quantization table
alphas	float	8	sbr_rom.c	Parametric Stereo quantization table
p2_6	float	6	sbr_rom.c	Hybrid filterbank coefficients
p8_13	float	14	sbr_rom.c	Hybrid filterbank coefficients
sbr_whFactorsTable bins2groupMap	float short	54 22	sbr_rom.c sbr_rom.c	Tuning parameters for inverse filtering Mapping of Parametric Stereo bins to
				Parametric Stereo groups
sbr_whFactorsIndex	short	9	sbr_rom.c	Tuning parameter index for inverse
		4.0		filtering
sbr_start_freq_16	char	16	sbr_rom.c	SBR frequency scale index
sbr_start_freq_22	char	16	sbr_rom.c	SBR frequency scale index
sbr_start_freq_24 sbr_start_freq_32	char char	16 16	sbr_rom.c	SBR frequency scale index SBR frequency scale index
sbr_start_freq_44	char	16	sbr_rom.c sbr_rom.c	SBR frequency scale index
sbr_start_freq_44	char	16	sbr_rom.c	SBR frequency scale index
sbr_frame_info1_16	char	18	sbr_rom.c	SBR frequency scale index
sbr_frame_info2_16	char	18	sbr_rom.c	SBR frequency scale index
sbr_frame_info4_16	char	18	sbr_rom.c	SBR frequency scale index
sbr_huffBook_EnvLevel10T	char	240	sbr_rom.c	Huffman codeword table SBR
sbr_huffBook_EnvLevel10F	char	240	sbr_rom.c	Huffman codeword table SBR
sbr_huffBook_EnvBalance10T	char	96	sbr_rom.c	Huffman codeword table SBR
sbr_huffBook_EnvBalance10F	char	96	sbr_rom.c	Huffman codeword table SBR
sbr_huffBook_EnvLevel11T	char	124	sbr_rom.c	Huffman codeword table SBR
sbr_huffBook_EnvLevel11F	char	124	sbr_rom.c	Huffman codeword table SBR
sbr_huffBook_EnvBalance11T	char	48	sbr_rom.c	Huffman codeword table SBR
sbr_huffBook_EnvBalance11F	char	48	sbr_rom.c	Huffman codeword table SBR
sbr_huffBook_NoiseLevel11T	char	124	sbr_rom.c	Huffman codeword table SBR
sbr_huffBook_NoiseBalance11T	char	48	sbr_rom.c	Huffman codeword table SBR
aRevLinkDelaySer	char	3	sbr_rom.c	Parametric Stereo all-pass delay line lengths
groupBorders	char	23	sbr_rom.c	Borders of Parametric Stereo groups
aBookPslidTimeDecode	char	56	sbr_rom.c	Huffman codeword table Parametric Stereo
aBookPslidFreqDecode	char	56	sbr_rom.c	Huffman codeword table Parametric Stereo
aBookPslccTimeDecode	char	28	sbr_rom.c	Huffman codeword table Parametric Stereo
aBookPslccFreqDecode	char	28	sbr_rom.c	Huffman codeword table Parametric Stereo
aBookPslidFineTimeDecode	char	120	sbr_rom.c	Huffman codeword table Parametric Stereo
aBookPslidFineFreqDecode	char	120	sbr_rom.c	Huffman codeword table Parametric Stereo
sbr_defaultHeader	char	32	sbr_rom.c	Default SBR header data
logDualisTable	float	65	transcendent.c	Lookup table for efficient log() implementation
Sum		9866		- Implomonation
····				<u> </u>

4.3.2 Static memory

This clause contains a listing of all static buffers contributing to the RAM requirements of the encoder and decoder.

Table 9: Encoder static memory

Name	me Data type		Allocated in Source File	Description	
mdctDelayBuffer	float	[word] 3200	aac_ram.c	Time domain input signal delay	
sideInfoTabLong	int	52	aac_ram.c	Table lookup for side information, long blocks	
sideInfoTabShort	int	16	aac_ram.c	Table lookup for side information, short blocks	
aacEncoder	AAC_ENCODER	3554	aacenc.c	AAC encoder instance	
sbr_QmfStatesAnalysis	float	1280	sbr_ram.c	QMF filterbank states buffer	
sbr_envYBuffer	float	4096	sbr_ram.c	QMF band energy buffer	
sbr_quotaMatrix	float	512	sbr_ram.c	Tonality values	
sbr_thresholds	float	128	sbr_ram.c	Detector parameters	
sbr_toncorrBuff	float	1256	sbr_ram.c	Detector value buffer	
EnvChannel[nChan]	ENV_CHANNEL	1794	sbr_main.c	SBR channel instance, only half the size for mono only encoder	
sbrEncoder	SBR_ENCODER	200	sbr_main.c	SBR encoder instance	
SynthesisQmfBank	SBR_QMF_FILTE R_BANK	7	sbr_main.c	QMF synthesis filterbank instance	
psEncoder	PS_ENC	281	sbr_main.c	Parametric Stereo encoder instance	
sbr_freqBandTableLO	char	14	sbr_ram.c	SBR frequency band table, low resolution	
sbr_freqBandTableHI	char	28	sbr_ram.c	SBR frequency band table, high resolution	
sbr_v_k_master	char	28	sbr_ram.c	SBR frequency band table index	
sbr_guideScfb	char	54	sbr_ram.c	Additional sine detection parameter	
sbr_detectionVectors	char	216	sbr_ram.c	Additional sine detection parameter	
sbr_prevEnvelopeCompensa tion	char	54	sbr_ram.c	Additional sine detection parameter	
sbr_guideVectorDetected	char	216	sbr_ram.c	Additional sine detection parameter	
outputBuffer	int	384	main.c	Bitstream output buffer	
inputBuffer[nChan]	float	7202	main.c	Time domain input signal buffer, only half the size for mono only encoder	
IIR21_resampler[nChan]	float	144	main.c	2:1 IIR resampler instance (includes states) , only half the size for mono only encoder	
statesIIR	float	16	iir32resample .c	3:2 IIR resampler states buffer	
Sum		24732			

Table 10: Decoder static memory

Name	Data type	Size [word]	Allocated in Source File	Description
OverlapBuffer[nChan]	float	1024	aac_ram.c	Delay buffer for overlap and add, only half the size for mono only decoder
AacDecoderInstance	AAC_DECODER_INS TANCE	11	aacdecoder.c	AAC decoder instance
StreamInfo	CStreamInfo	7	aac_ram.c	Bitstream information
AacDecoderStaticChannelInfo[nChan]	CaacDecoderStaticCh annelInfo	14	aac_ram.c	Channel information, only half the size for mono only decoder
sbr_CodecQmfStatesAnalysis	float	640	sbr_ram.c	QMF analysis filter bank states
sbr_GainSmooth	float	96	sbr_ram.c	Gain smoothing filter states
sbr_NoiseSmooth	float	96	sbr_ram.c	Noise level smoothing filter states
sbr_QmfStatesSynthesis	float	1280	sbr_ram.c	QMF synthesis filter bank states
sbr_OverlapBuffer	float	1536	sbr_ram.c	SBR delay buffer, only half the size for mono only decoder
sbr_LpcFilterStatesReal	float	128	sbr_ram.c	LPC filter states
sbr_LpcFilterStatesImag	float	128	sbr_ram.c	LPC filter states, obsolete for mono only decoder
sbr_TransposerSettings	float	18	sbr_ram.c	Transposer configuration parameters
FreqBandData	FREQ_BAND_DATA	164	sbr_ram.c	SBR Frequency band information
PrevFrameData[nChan]	SBR_PREV_FRAME_ DATA	120	sbr_ram.c	SBR previous frame data, only half the size for mono only decoder
sbr_PrevBitstream	SBRBITSTREAM	584	sbr_ram.c	SBR previous frame bitstream
sbrDecoderInstance	SBR_DECODER_INS TANCE	797	sbrdecoder.c	SBR decoder instance
TimeDataFloat[nChan]	float	4096	main.c	Output buffer for time-domain signal, only half the size for mono only decoder
inBuffer	int	384	main.c	Input buffer for bitstream
splineResamplerInstance	SPLINE_RESAMPLE R	21	spline_resam pler.c	Spline resampler instance
Sum		11161		

4.3.3 Dynamic memory

This clause contains a listing of all dynamic buffers contributing to the RAM requirements of the encoder and decoder. Dynamic memory can be re-used outside of the encoder or decoder application.

Table 11: Encoder dynamic memory

Name	Data	Size	Allocated in	Description
	type	[word]	Source File	·
PsBuf3	float	1024	sbr_ram.c	Note: reused in AAC encoder
sbr_envRBuffer	float	4096	sbr_ram.c	Note: reused in AAC encoder
sbr_envlBuffer	float	4096	sbr_ram.c	Note: reused in AAC encoder
sbr_transients	float	192	sbr_ram.c	Note: reused in AAC encoder
Sum		9408		

Table 12: Decoder dynamic memory

Name	Data	Size	Allocated in	Description
	type	[word]	Source File	
WorkBufferCore	float	2048	aac_ram.c	Note: reused in SBR decoder
InterimResult	float	1024	sbr_ram.c	
Sum		3072		

4.3.4 Maximum stack size

This clause contains tables for the encoder and the decoder which describe the call stack that results in the maximum stack size usage.

Table 13: Encoder call stack

Function	Local variables	Stack
		used
		[bytes]
main	struct config;	20
	int error;	4
	int bEncodeMono;	4
	int bitrate;	4
	int nChannelsAAC, nChannelsSBR;	8
	int sampleRateAAC;	4
	int bandwidth;	4
	unsigned int numAncDataBytes;	4
	unsigned char ancDataBytes[256];	256
	unsigned int ancDataLength;	4
	int numSamplesRead;	4
	int bDollR2Downsample;	4
	int bDingleRate; int useParametricStereo;	4 4
	int coreWriteOffset;	4
	int coreReadOffset;	4
	int en/WriteOffset;	4
	int enventeonset,	4
	int writeOffset:	4
	struct *aacEnc;	4
	int bDoUpsample;	4
	int upsampleReadOffset;	4
	int inSamples;	4
	int bDollR32Resample;	4
	int nSamplesPerChannel;	4
	const int nRuns;	4
	float *resamplerScratch;	4
	struct *hEnvEnc;	4
	int i, ch, outSamples, numOutBytes;	16
		= 400
EnvEncodeFrame	struct *hEnvEncoder;	4
	float *samples;	4
	float *pCoreBuffer;	4
	unsigned int timeInStride;	4
	unsigned int *numAncBytes;	4
	unsigned char *ancData;	4
	struct *sbrBitstreamData;	4
		= 28
extractSbrEnvelope	float *timeInPtr;	4
	float *pCoreBuffer;	4
	unsigned int timeInStride;	4
	struct *h_con;	4
	struct *sbrHeaderData;	4
	struct *sbrBitstreamData;	4
	struct *h_envChan[];	4
	struct *h_ps_e;	4
	struct *hSynthesisQmfBank; struct *hCmonData;	4 4
	int ch, i, j, c;	16
	int cn, i, j, c, int nEnvelopes[2];	8
	int transient_info[2][2];	16
	const struct *frame_info[2];	8
	int nChannels, nInChannels;	8
	enum stereoMode;	4
	enum res[10];	40
	int v_tuning[6];	24
	int v_taining[0], int sfb_nrg [2][135];	1080
	float noiseFloor[2][10];	80

	T	
	int noise_level[2][10];	80
	int sfb_nrg_coupling[2][135];	1080
	int noise_level_coupling[2][10];	80
	int maxQuantError;	4
	The Have deliter of	= 2568
EncodePsFrame	struct *pms;	4
	float **iBufferLeft,	4
	float **rBufferLeft,	4
	float **iBufferRight,	4
	float **rBufferRight	4
	int env, i, bin, subband, maxSubband, startSample, stopSample;	28
	float **hybrLeftImag, **hybrLeftReal, **hybrRightImag, **hybrRightReal;	16
		= 64
HybridAnalysis	const float **mQmfReal;	4
	const float **mQmflmag;	4
	float **mHybridReal;	4
	float **mHybridImag;	4
	struct *hHybrid;	4
	int n, band;	8
	enum hybridRes;	4
	int chOffset;	4
	This choise,	= 36
- i - l- + Ol Filt i		
eightChannelFiltering	const float *pQmfReal;	4
	const float *pQmflmag;	4
	float **mHybridReal;	4
	float **mHybridImag;	4
	int i, n;	8
	float real, imag;	8
	int midTap;	4
	float cum[16];	64
		= 100
CFFTN	float *afftData;	4
	int len;	4
	int isign;	4
		= 12
cfftn	float Re[];	4
Situ 1	float Im[];	4
	int nTotal;	4
	int nPass;	4
	int nSpan;	4
	int iSign;	4
	int ii, mfactor, kspan, ispan, inc, j, jc, jf, jj, k, k1, k2, k3, k4, kk, kt, nn, ns, nt;	76
	double radf, c1, c2, c3, cd, s1, s2, s3, sd;	72
	float ak, bk, akp, bkp, ajp, bjp, ajm, bjm, akm, bkm, aj, bj, aa, bb;	56
	float Rtmp[23], Itmp[23];	184
	double Cos[23], Sin[23];	368
	int Perm[209];	836
	int factor [11];	44
	double s60, c72, s72, pi2;	32
	, , , , , , , , , , , , , , , , , , , ,	= 1692
	Sum	4900
	Vaiii vaiii	7500

Table 14: Decoder call stack

main() int endOfFile; char frameOk; int i; int written16; char frameOk; int i; int written16; char channelMode; 1 struct "histBut, struct "acaDecoderInfo; 4 struct "struct	Function	Local variables	Stack
main()			
char frameOk; int ti; int written16; int written16; int written16; int written16; int written16; int written16; struct *hilbuf; struct *aacDecoderinfo; 4 struct *struct	main()	int endOfFile;	
int written16; char channelMode; struct *hBitBuf; struct *aacDecoderInfo; struct *raacDecoderInfo; struct *struct *str	V	char frameOk;	1
char channelMode; 1 1 1 1 1 1 1 1 1			
struct *hBiBuf; struct *struct *steamSBR; struct *steamSBR; struct *struct *		· ·	
struct *acDecoderInfo; struct *struct *struc			
struct *streamSBR; struct *strDecoderInfo; struct *splineResampler; int frameSize; int frameSize; int sampleRate, outputSampleRate; int sampleRate; and int numChannels; int numChannels; int numChannels; int bibownSample; 4 int bownSample; 5 int bibitstreamDownMix; 5 int bibitstreamDownMix; 6 int bibitstreamDownMix; 7 int bownSample; 7 int bibitstreamDownMix; 7 int stereo, CRCLen, crcEnable, readHeader, err; 5 int stereo, CRCLen, crcEnable, readHeader, err; 5 int struct *sbrChannel; 5 int int stereo, CRCLen, crcEnable, readHeader, err; 6 int int stereo, CRCLen, crcEnable, readHeader, err; 7 int int stereo, CRCLen, crcEnable, readHeader, err; 8 int int codecFrameSize; 9 int int odecFrameSize; 9 int		·	
struct *spineResampler;			
int frameSize; int sampleRate, outputSampleRate; int sampleRate, outputSampleRate; int numChannels; int numOutSamples; 44 int bDownSample; 44 int fosr16, fosr8; 88 int bBitstreamDownMix; 44 int bOwnSample; 44 int fosr16, fosr8; 88 int bBitstreamDownMix; 44 int volution of the struct "self; 45 struct "slistr; 44 float "timeData; 45 int SbrFrameOK; 46 int bDownSample; 47 int bDownSample; 48 int bDownSample; 49 int bBitstreamDownMix; 49 int bBitstreamDownMix; 40 unsigned char i, dualMono; 20 int stereo, CRCLen, crcEnable, readHeader, err; 20 struct "SbrChannel; 40 struct bitBuf; 16 struct hHeaderData; 41 enum headerStatus; 42 enum headerStatus; 43 int codecFrameSize; 44 enum initialSyncState; 45 struct "hConcealData; 46 struct "hFrameDataLeft; 51 struct "hFrameData; 51 struct "hF			4
int sampleRate, outputSampleRate; int numChannels; int numChannels; int numCutSamples; int bDownSample; int fosr16, fosr8; int bBitistreamDownMix; int bVallidMode; applySBR() struct *self; struct *Bitstr; float *timeData; int *numChannels; int *SbrFameOK; int bBitstreamDownMix; int bDownSample; int bBitstreamDownMix; unsigned char i, dualMono; int stereo, CRCLen, crcEnable, readHeader, err; 20 struct *SbrChannel; struct bitBuf; struct bitBuf; struct bitBuf; struct bitBuf; struct hitBuf; struct *hHeaderData; enum headerStatus; int codecFrameSize; enum initialSyncState; struct *fConcealData; float *pWorkBuffer1; struct *hFrameDataLeft; struct *hFrameDataRight; struct hiteRif; struct *hFrameDataRight; struct *hFrameDataLeft; struct *hFrameDataLeft; struct *hFrameDataLeft; struct *hFrameDataRight; applyProcessing; struct *hFrameData; int applyProcessing; struct *hFreameData; int applyProcessing; struct *hSynthesisQmfBankRight; int nChannels; int i, k, slot, oy-len, bUseLP; float *QmfBufferReal(38); 152		struct * splineResampler;	
int numChannels; int numOutSamples; int bDownSample; 4 int bDownSample; 4 int fosr16, fosr8; 8 int bBitstreamDownMix; 4 int bValidMode; 44 applySBR() struct *self; 4 struct *slistr; 4 float *timeData; 1 int numChannels; 4 int bDwnSample; 4 int bBitstreamDownMix; 4 int bDwnSample; 4 int bBitstreamDownMix; 4 int bDwnSample; 4 int bBitstreamDownMix; 4 unsigned char i, dualiMono; 2 int stereo, CRCLen, crcEnable, readHeader, err; 20 struct *SbrChannel; 4 struct bitBuf; 16 struct *hHeaderData; 4 enum headerStatus; 4 int codecFrameSize; 4 enum initialSyncState; 4 struct *hCnocealData; 4 float *pWorkBuffer1; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; 4 struc			
int numOutSamples; int bownSample; int fosr16, fosr8; 8 8 int bBitstreamDownMix; 4 4 int bValidMode; 4 4 5 4 5 5 5 5 5 6 5 6 5 6 5 6 5 6 5 6			
Int bDownSample;			
int fosr16, fosr8; int bBitstreamDownMix; int bValidMode; 4 applySBR() struct *self; 4 struct *Bitstr; 4 float *timeData; 1 int *numChannels; 1 int bDrampownMix; 4 int bDrwnSample; 4 int bBitstreamDownMix; 4 int bDownSample; 2 int bBitstreamDownMix; 4 unsigned char i, dualMono; 2 int stereo, CRCLen, crcEnable, readHeader, err; 20 struct *SbrChannel; 4 struct bitBuf; 16 struct *hHeaderData; 4 enum headerStatus; 4 int codecFrameSize; 4 enum initialSyncState; 4 struct *hConcealData; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; 4 struct *hFrameData; 4 struct *hFrameData		·	
int bBitstreamDownMix;			
int bValidMode;			
applySBR() struct *self; struct *flistr; 4 float *timeData; 4 int *numChannels; 4 int *DurnSample; 4 int bBitstreamDownMix; 4 unsigned char i, dualMono; 2 int stereo, CRCLen, crcEnable, readHeader, err; 20 struct *SbrChannel; 4 struct *bltBuf; 5 16 struct *hHeaderData; 4 enum initialSyncState; 4 enum initialSyncState; 4 struct *hFrameDataLeft; 5 4 struct *hFrameDataRight; 5 6 5 5 6 6 5 6 6 6			4
struct *Bitstr; 4 float *timeData; 4 int *mmChannels; 4 int SbrFrameOK; 4 int SbrFrameOK; 4 int bBitstreamDownMix; 4 int bBitstreamCownMix; 2 2 2 2 3 4 4 4 4 4 4 4 4 4			
float *timeData; int *numChannels; int *sbrFrameOK; int SbrFrameOK; int bDownSample; int bBitstreamDownMix; unsigned char i, dualMono; int stereo, CRCLen, crcEnable, readHeader, err; 20 struct *SbrChannel; 16 struct *hHeaderData; 4 enum headerStatus; int codecFrameSize; 4 enum initialSyncState; 4 struct *hConcealData; 4 struct *hFrameDataLeft; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; 5 struct *hFrameDataRight; 6 struct *hFrameDataRight; 7 struct *hFrameDataRight; 8 struct *hFrameDataRight	applySBR()		
int *numChannels; 4 int bDrynSample; 4 int bDownSample; 4 int bBitstreamDownMix; 4 unsigned char i, dualMono; 2 int stereo, CRCLen, crcEnable, readHeader, err; 20 struct *SbrChannel; 4 struct bitBuf; 16 struct bitBuf; 4 enum headerStatus; 4 int codecFrameSize; 4 enum initialSyncState; 4 struct *hConcealData; 4 float *pWorkBuffer1; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; 4 struct *hSbrDec; 4 float *timeIn; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hPrevFrameData; 4 struct *hPrevFrameData; 4 struct *hPyProcessing; 4 struct *hSynthesisQmfBankRight; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
int SbrFrameOK; int bDownSample; int bBitstreamDownMix; unsigned char i, dualMono; int stereo, CRCLen, crcEnable, readHeader, err; 20 struct *SbrChannel; struct bitBuf; struct bitBuf; struct bitBuf; int codecFrameSize; enum headerStatus; int codecFrameSize; 4 enum initialSyncState; struct *hConcealData; float *pWorkBuffer1; struct *hFrameDataLeft; struct *hFrameDataLeft; struct *hFrameDataRight; = 102 sbr_dec() struct *hSbrDec; float *timeOut; float *intenimResult; struct *hHeaderData; struct *hFrameData; struct *hFrameData; struct *hPrewFrameData; struct *hPrewFrameData; int applyProcessing; struct *hSynthesisQmfBankRight; int i, k, slot, ov_len, bUseLP; float *QmfBufferReal[38]; 152			
int bDownSample; int bBitstreamDownMix; unsigned char i, dualMono; int stereo, CRCLen, crcEnable, readHeader, err; 20 struct *SbrChannel; struct bitBuf; struct *hHeaderData; enum headerStatus; int codecFrameSize; enum initialSyncState; struct *hConcealData; float *pWorkBuffer1; struct *hFrameDataLeft; struct *hFrameDataLeft; struct *hFrameDataRight; sbr_dec() struct *hSbrDec; float *timeOut; float *timeOut; float *interimResult; struct *hFrameData; int applyProcessing; struct *hPrevFrameData; int applyProcessing; struct *hSynthesisQmfBankRight; int in, k, slot, ov_len, bUseLP; float *QmfBufferReal[38]; 4 4 4 4 4 4 4 4 4 4 4 4 4			
unsigned char i, dualMono; 2 int stereo, CRCLen, crcEnable, readHeader, err; 20 struct *SbrChannel; 4 struct bitBuf; 16 struct *HeaderData; 4 enum headerStatus; 4 int codecFrameSize; 4 enum initialSyncState; 4 struct *hConcealData; 4 float *pWorkBuffer1; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; 4 struct *hSbrDec; 4 float *timeIn; 4 float *timeOut; 4 float *interimResult; 4 struct *hPrevBrameData; 4 struct *hPrevFrameData; 4 struct *hPrevFrameData; 4 struct *hPrevFrameData; 4 struct *hSynthesisQmfBankRight; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
int stereo, CRCLen, crcEnable, readHeader, err; struct *SbrChannel; struct bitBuf; 16 struct *hHeaderData; enum headerStatus; int codecFrameSize; enum initialSyncState; struct *hConcealData; float *pWorkBuffer1; struct *hFrameDataLeft; struct *hFrameDataLeft; struct *hFrameDataRight; = 102 sbr_dec() struct *hSbrDec; float *timeIn; float *timeOut; float *timeOut; float *interimResult; struct *hPrevFrameData; int applyProcessing; struct *h_ps_d; struct *h_ps_d; struct *hSynthesisQmfBankRight; int nChannels; int i, k, slot, ov_len, bUseLP; float *QmfBufferReal[38];			
struct *SbrChannel; 4 struct bitBuf; 16 struct *hHeaderData; 4 enum headerStatus; 4 int codecFrameSize; 4 enum initialSyncState; 4 struct *hConcealData; 4 float *pWorkBuffer1; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; 4 = 102 sbr_dec() struct *hSbrDec; float *timeln; 4 float *timeOut; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
struct bitBuf; 16 struct *hHeaderData; 4 enum headerStatus; 4 int codecFrameSize; 4 enum initialSyncState; 4 struct *hConcealData; 4 float *pWorkBuffer1; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; = 102 sbr_dec() struct *hSbrDec; 4 float *timeIn; 4 float *timeOut; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
struct *hHeaderData; 4 enum headerStatus; 4 int codecFrameSize; 4 enum initialSyncState; 4 struct *hConcealData; 4 float *pWorkBuffer1; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; 4 struct *hSbrDec; 4 float *timeln; 4 float *timeOut; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152		, ,	
enum headerStatus; 4 int codecFrameSize; 4 enum initialSyncState; 4 struct *hConcealData; 4 float *pWorkBuffer1; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; 4 sbr_dec() struct *hSbrDec; float *timeIn; 4 float *timeOut; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
int codecFrameSize; 4 enum initialSyncState; 4 struct *hConcealData; 4 float *pWorkBuffer1; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; 4 struct *hSbrDec; 4 float *timeIn; 4 float *timeOut; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 struct *hFrevFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *hSp.d; 5 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152		· ·	
enum initialSyncState;		,	
float *pWorkBuffer1; 4 struct *hFrameDataLeft; 4 struct *hFrameDataRight; 4 sbr_dec() struct *hSbrDec; 4 float *timeIn; 4 float *timeOut; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			4
struct *hFrameDataLeft; 4 struct *hFrameDataRight; 4 sbr_dec() struct *hSbrDec; 4 float *timeIn; 4 float *timeOut; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			4
struct *hFrameDataRight; 4 sbr_dec() struct *hSbrDec; 4 float *timeIn; 4 float *timeOut; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
= 102			
sbr_dec() struct *hSbrDec; 4 float *timeIn; 4 float *timeOut; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152		struct *nFrameDataRignt;	- I
float *timeIn; 4 float *timeOut; 4 float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152	sbr_dec()	struct *hSbrDec;	
float *interimResult; 4 struct *hHeaderData; 4 struct *hFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
struct *hHeaderData; 4 struct *hFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
struct *hFrameData; 4 struct *hPrevFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152		,	
struct *hPrevFrameData; 4 int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
int applyProcessing; 4 struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
struct *h_ps_d; 4 struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
struct *hSynthesisQmfBankRight; 4 int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
int nChannels; 4 int i, k, slot, ov_len, bUseLP; 20 float *QmfBufferReal[38]; 152			
float *QmfBufferReal[38]; 152		int nChannels;	4
float *OmfRufferImagi381: 450			
		float *QmfBufferImag[38];	152
float *ptr; 4 int noCols, halflen, islots; 12			
= 384		int noods, namen, islots,	

		1
cplxSynthesisQmfFiltering()	float **qmfReal;	4
	float **qmflmag;	4
	float *timeout;	4
	struct *synQmf;	4
	int bUseLP;	4
	struct *h_ps_dec;	4
	int active;	4
	int i, j;	8
	float *ptr_time_out, *filterStates;	8
	float accu;	4
	int p;	4
	float qmfReal2[64];	256
	float *imagSlot;	4
	int no_synthesis_channels;	4
	int qmf_filter_state_syn_size;	4
	float mfRealTmp[64];	256
	float qmflmagTmp[64];	256
	int env;	4
	const float *p_filter;	4
		= 840
ApplyPsSlot()	struct *h_ps_dec;	4
77.7. 33.34()	float **rIntBufferLeft;	4
	float **iIntBufferLeft;	
		4
	float *rIntBufferRight;	4
	float *iIntBufferRight;	4
		= 20
HybridAnalysis()	const float **mQmfReal;	4
	const float **mQmflmag;	4
	float **mHybridReal;	4
	float **mHybridImag;	4
	struct *hHybrid;	4
	int n, band;	8
	enum hybridRes;	4
	int chOffset;	4
		= 36
eightChannelFiltering()	const float *pQmfReal;	4
30	const float *pQmflmag;	4
	float **mHybridReal;	4
	float **mHybridImag;	4
	int i, n;	8
	float real, imag;	8
	int midTap;	4
	float cum[16];	64
		= 100
CFFTN()	float *afftData;	4
011 114()	int len;	4
	int isign;	4
		= 12
cfftn()	float Re[];	4
	float Im[];	4
	int nTotal;	4
	int nPass;	4
	int nSpan;	4
	int lisign;	4
	int ii, mfactor, kspan, ispan, inc, j, jc, jf, jj, k, k1, k2, k3, k4, kk, kt, nn,	76
	ns, nt;	72
	double radf, c1, c2, c3, cd, s1, s2, s3, sd;	56
	float ak, bk, akp, bkp, ajp, bjp, ajm, bjm, akm, bkm, aj, bj, aa, bb;	184
	float Rtmp[23], ltmp[23];	368
	double Cos[23], Sin[23];	836
	int Perm[209];	44
	int Ferril [209],	32
	double s60, c72, s72, pi2;	= 1692
1	Sum	3260

4.4 Weighted MOPS and PROM

The complexity numbers for the Enhanced aacPlus audio codec can be found in the following table, the numbers have been derived using the "allcat.wav" item, which holds all the material from the selection test concatenated in one single item. For every test case the average and worst frame weighted MOPS figure has been derived. The worst case wMOPS figure over all test cases has been marked in **blue**.

Decoder, mono **Test Case** Mono Encoder Stereo Encoder Decoder only 15.23 / 16.98 9.38 / 10.07 14m 15.36 / 17.21 8.07 / 8.78 19.48 / 20.35 25.79 / 28.36 8.31 / 9.17 18s 24m 16.72 / 18.93 16.86 / 19.14 10.30 / 11.39 8.89 / 9.94 24s 27.01 / 29.85 20.45 / 21.63 8.82 / 9.93 **wMOPS** 32s 27.49 / 29.97 21.08 / 22.42 9.28 / 10.58 [average / 48s 35.22 / 42.22 17.96 / 20.26 12.42 / 14.32 worst frame] 15.42 / 18.41 15.47 / 18.46 7.85 / 8.60 14m, 16 kHz 7.85 / 8.61 9.38 / 10.07 8.07 / 8.78 14m, 3% FER 24s, 3% FER 20.45 / 21.63 8.81 / 9.93 32s, 1%FER 21.08 / 22.42 9.28 / 10.58 9.27 / 10.58 32s, 3%FER 21.08 / 22.38 Program ROM [ops] 12540 14365 8048 6209

Table 15: Weighted MOPS and PROM figures

5 File formats

This clause describes the file formats used by the encoder and decoder programs.

5.1 Audio input file (encoder input/decoder output)

The audio input files read by the encoder and written by the decoder are 16-bit PCM wave files. For convenient handling of wave files a precompiled audio-fileformat library is used.

5.2 Bitstream file format (encoder output/decoder input)

The encoder program writes and the decoder program reads raw frames packetized in access units as described by 3GPP TS 26.244. For packetization the ISO media library is used. A precompiled library is used.

5.3 Error pattern file (decoder input)

The decoder program can optionally process an additional input file which describes an error pattern. The format of the error pattern file is 1 character per line. Each line corresponds to one frame, where a "0" indicates that the respective frame has been transmitted without errors, while a "1" indicates that the corresponding frame has been lost and error concealment shall be applied by the decoder.

Annex A (informative): Change history

	Change history						
Date	TSG SA#	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2004-09	25	SP-040638			Approved at SA#25	2.0.0	6.0.0
2004-12	26	SP-040840	001		Correction to C-code to increase error robustness	6.0.0	6.1.0
2004-12	26	SP-040840	002		Correction to C-code: Missing memory re-initialization	6.0.0	6.1.0
2004-12	26	SP-040840	003		Correction to C-code: Memory initialization added	6.0.0	6.1.0
2004-12	26	SP-040840	004		Correction to C-code: Wrong calculation of sine levels	6.0.0	6.1.0
2004-12	26	SP-040840	005		Correction to C-code: Prevent multiple reading of bitstream elements	6.0.0	6.1.0
2004-12	26	SP-040840	006	2	Correction to C-code: Corrected wrong table values	6.0.0	6.1.0
2004-12	26	SP-040840	007		Correction to C-code: Modify instrumentation	6.0.0	6.1.0
2004-12	26	SP-040840	800	1	Correction of C-code: Output data was copied into wrong array	6.0.0	6.1.0
2004-12	26	SP-040840	009	1	Correction to C-code: Bug in resampler	6.0.0	6.1.0
2004-12	26	SP-040840	010	1	Correction to C-code: Modify data types for FFT	6.0.0	6.1.0
2004-12	26	SP-040840	011	1	Correction to decoder C-Code: Alignment with MPEG specification	6.0.0	6.1.0
2004-12	26	SP-040840	012		Correction to C-code: Reset of Missing Harmonics flags during concealment added	6.0.0	6.1.0
2004-12	26	SP-040840	013		Removal of Complexity counters	6.0.0	6.1.0
2005-01					File "env_calc.c" replaced in the attached ANSI-C code	6.1.0	6.1.1

History

	Document history				
V6.1.1	January 2005	Publication			