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Information technology — MPEG video technologies —

Part 5: Reconfigurable media coding conformance and reference software

Technologies de l'information — Technologies vidéo MPEG —

Partie 5: Conformité du codage média reconfigurable et logiciels de référence

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 23002-5 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

ISO/IEC 23002 consists of the following parts, under the general title *Information technology — MPEG video technologies*:

— *Part 1: Accuracy requirements for implementation of integer-output 8×8 inverse discrete cosine transform*

— *Part 2: Fixed-point 8×8 inverse discrete cosine transform and discrete cosine transform*

— *Part 3: Representation of auxiliary video and supplemental information*

— *Part 4: Video tool library*

— *Part 5: Reconfigurable media coding conformance and reference software*

Introduction

Two International Standards define the Reconfigurable Media Coding (RMC) framework: ISO/IEC 23001-4 and ISO/IEC 23002-4.

ISO/IEC 23001-4 defines the overall framework as well as the standard languages that are used to specify a codec configuration of an RMC decoder. The Abstract Decoder Model (ADM) is an executable description that uses the modular data flow computation model and constitutes the only necessary specification for defining a codec configuration.

ISO/IEC 23002-4 specifies, in the form of a unified library of video coding algorithms, the modular components called Functional Units (FUs) that in given configurations build the ADM of some profile and levels of the current existing decoding standards.

Information technology — MPEG video technologies —

Part 5:
Reconfigurable media coding conformance and reference software

1 Scope

This part of ISO/IEC 23002 describes:

— what is meant by conformance of what is specified in ISO/IEC 23002-4,

— the structure of the reference software related to what is specified in ISO/IEC 23002-4.

Currently the following standards/profiles are included in ISO/IEC 23002-4 and in this part of ISO/IEC 23002 as reference software:

— ISO/IEC 14496-2 Simple Profile,

— ISO/IEC 14496-10 Constrained Baseline Profile,

— ISO/IEC 14496-10 Progressive High Profile.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 23001-4, *Information technology — MPEG systems technologies — Part 4: Codec configuration representation*

ISO/IEC 23002-4, *Information technology — MPEG video technologies — Part 4: Video tool library*

ISO/IEC 14496-2, *Information technology — Coding of audio-visual objects — Part 2: Visual*

ISO/IEC 14496-4, *Information technology — Coding of audio-visual objects — Part 4: Conformance testing*

ISO/IEC 14496-10, *Information technology — Coding of audio-visual objects — Part 10: Advanced Video Coding*

3 Terms and definitions

For the purposes of this document, terms and definitions given in ISO/IEC 23001-4 and the following terms and definitions apply.

3.1
CBP
Constrained Baseline Profile
profile of the Advanced Video Coding standard defined in ISO/IEC 14496-10

3.2
PHP
Progressive High Profile
profile of the Advanced Video Coding standard defined in ISO/IEC 14496-10

3.3
RMC
Reconfigurable Media Coding
framework defined by MPEG to promote media coding standards at tool level

3.4
SP
Simple Profile
profile of the MPEG-4 Part 2 standard defined in ISO/IEC 14496-2

4 Conformance testing of ISO/IEC 23002-4 Media tool library

A decoder in RMC is specified as a network (i.e. configuration) of FUs instantiated from the Media tool library. The conformance testing of an instantiated RMC decoder shall undergo the same procedure established for testing conformance to a given standard.

Therefore, the conformance tests for the Media tool library and the standard configurations specified in ISO/IEC 23002-4 consist of giving as input to the instantiated RMC decoder configurations the corresponding set of conformance bitstreams provided in ISO/IEC 14496-4 and of verifying that the generated outputs result identical to the set of uncompressed video sequences decoded as specified in ISO/IEC 14496-4.

Figure 1 illustrates the conformance concept and procedure. Functional units instantiated from the Media Tool Library specified in ISO/IEC 23002-4 and configured with the network configurations specified in ISO/IEC 23002-4 builds an ADM that decodes a bitstream and generates a video sequence that is compared to the one decoded by a reference software.

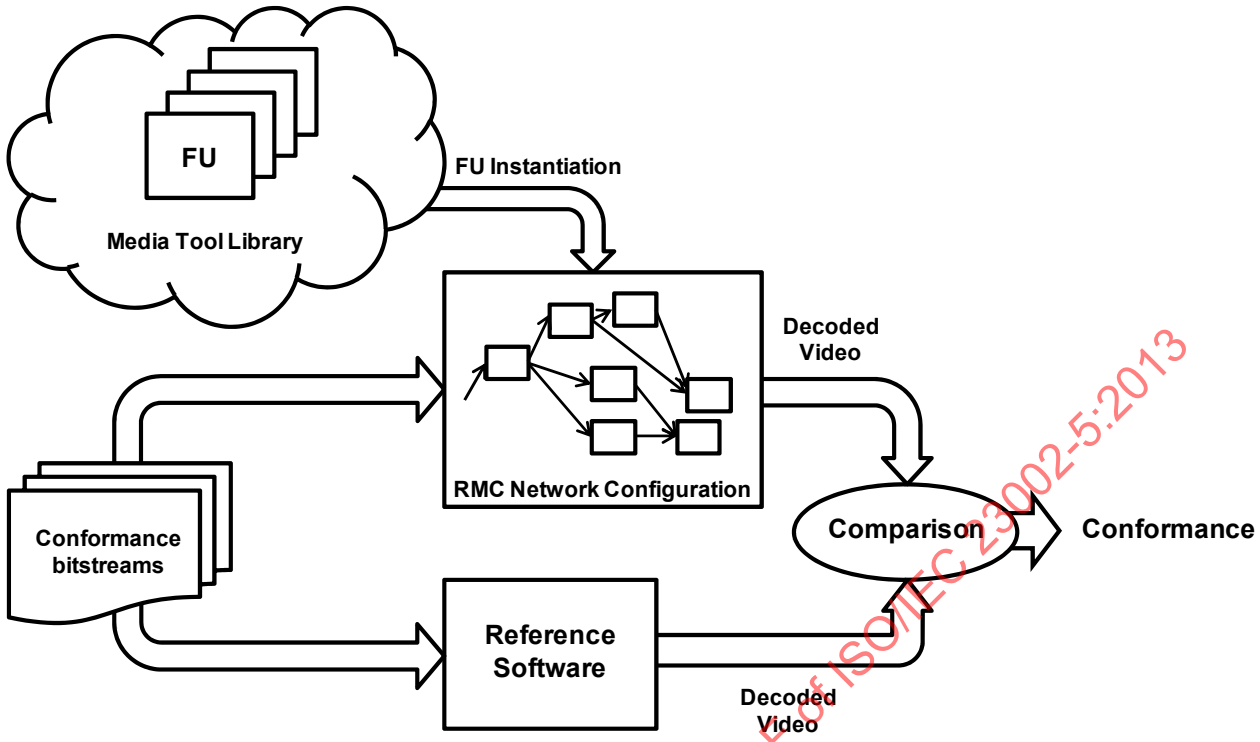

Figure 1 — Concept of RMC decoder level conformance testing

5 Conformance to ISO/IEC 14496-2 Simple Profile

The following conformance bitstreams, part of ISO/IEC 14496-4, have been used to verify the conformance of the RMC decoder configuration called:

- Top_mpeg4_part2_SP_decoder

and specified in ISO/IEC 23002-4, to the standard ISO/IEC 14496-2 Simple Profile.

MPEG-4 Part 2 Simple Profile bitstreams
hit000.m4v
jvc000.m4v
san000.m4v
san001.m4v
hit001.m4v
hit002.m4v
hit003.m4v
hit004.m4v
hit005.m4v
hit006.m4v
hit007.m4v
hit008.m4v
hit009.m4v

MPEG-4 Part 2 Simple Profile bitstreams
hit010.m4v
hit011.m4v
hit013.m4v
hit014.m4v
jvc001.m4v
jvc002.m4v
jvc003.m4v
jvc004.m4v
jvc005.m4v
jvc007.m4v
jvc008.m4v
jvc009.m4v
jvc010.m4v
jvc011.m4v
jvc012.m4v
jvc013.m4v
jvc014.m4v
jvc015.m4v
jvc016.m4v
jvc017.m4v
jvc018.m4v
jvc019.m4v
jvc020.m4v
jvc021.m4v
san002.m4v
san003.m4v
san004.m4v
san005.m4v
san006.m4v
san007.m4v
san009.m4v
san010.m4v
san011.m4v
san012.m4v
hit016.m4v
hit017.m4v
hit018.m4v

MPEG-4 Part 2 Simple Profile bitstreams
hit019.m4v
hit020.m4v
hit021.m4v
hit022.m4v
hit023.m4v
hit024.m4v
mat001.m4v
mat004.m4v
mat005.m4v
mat006.m4v
mat007.m4v
mat008.m4v
mat009.m4v
mat010.m4v
mat013.m4v
mat014.m4v
mat015.m4v
mat016.m4v
vcon-scs1.bits
vcon-scs2.bits
vcon-scs3.bits
vcon-scs4.cmp
vcon-scs5. cmp
vcon-scs6. cmp
vcon-scs7. cmp
vcon-scs8. bits
vcon-scs9. bits
vcon-scs10. cmp
vcon-scs11.cmp
jvc013.m4v
hit012.m4v
san008.m4v
san014.m4v
jvc012.m4v
san013.m4v
san015.m4v
san016.m4v

MPEG-4 Part 2 Simple Profile bitstreams
san017.m4v
san018.m4v
san019.m4v
san020.m4v

6 Conformance to ISO/IEC 14496-10 Constrained Baseline Profile

The following conformance bitstreams, part of ISO/IEC 14496-4 have been used to verify the conformance of the RMC decoder configurations called:

- Top_mpeg4_part10_CBP_decoder
- Top_mpeg4_part10_PHP_decoder

and specified in 23002-4, to ISO/IEC 14496-10 Constrained Baseline Profile (CBP).

NL sequences:

AVC CBP conformance bitstreams
NL1_Sony_D
SVA_NL1_B
NL2_Sony_H
SVA_NL2_E

BA sequences:

AVC CBP conformance bitstreams
BA1_Sony_D
SVA_BA1_B
BA2_Sony_F
SVA_BA2_D
BA_MW_D
BANM_MW_D
BA1_FT_C

MQ sequences:

AVC CBP conformance bitstreams
NLMQ1_JVC_C
NLMQ2_JVC_C
BAMQ1_JVC_C
BAMQ2_JVC_C

SL sequences:

AVC CBP conformance bitstreams
SVA_Base_B
SVA_FM1_E

SQ sequences:

AVC CBP conformance bitstream
BASQP1_Sony_C

CI sequences:

AVC CBP conformance bitstreams
CI_MW_D
SVA_CL1_E
CI1_FT_B

FC sequences:

AVC CBP conformance bitstream
CVFC1_Sony_C

AUD sequences:

AVC CBP conformance bitstream
AUD_MW_E

MIDR sequences:

AVC CBP conformance bitstream
MIDR_MW_D

NRF sequences:

AVC CBP conformance bitstream
NRF_MW_E

MPS sequences:

AVC CBP conformance bitstream
MPS_MW_A

PCM sequences:

AVC CBP conformance bitstream
CVPCMNL1_SVA_C
CVPCMNL2_SVA_C

MR sequences:

AVC CBP conformance bitstreams
MR1_BT_A
MR1_MW_A
MR2_MW_A
HCBP1_HHI_A
HCBP2_HHI_A

LS sequences:

AVC CBP conformance bitstream
LS_SVA_D

7 Conformance to ISO/IEC 14496-10 Progressive High Profile

The following conformance bitstreams, part of ISO/IEC 14496-4 have been used to verify the conformance of the RMC decoder configuration called:

- Top_mpeg4_part10_PHP_decoder

and specified in ISO/IEC 23002-4, to ISO/IEC 14496-10 Progressive High Profile.

BS sequences:

AVC PHP conformance bitstreams
CVBS3_Sony_C
BA3_SVA_C
SL1_SVA_B
NL3_SVA_E
cavlc_mot_frm0_full_B

WP sequences:

AVC PHP conformance bitstreams
CVWP5_TOSHIBA_E
CVWP1_TOSHIBA_E
CVWP2_TOSHIBA_E
CVWP3_TOSHIBA_E

SE sequences:

AVC PHP conformance bitstreams
CVSE2_Sony_B
CVSE3_Sony_H
CVSEFDFT3_Sony_E

NL sequences:

AVC PHP conformance bitstreams
CANL1_TOSHIBA_G
CANL1_Sony_E
CANL2_Sony_E
CANL3_Sony_C
CANL1_SVA_B
CANL2_SVA_B
CANL3_SVA_B
CANL4_SVA_B

BA sequences:

AVC PHP conformance bitstreams
CABA1_Sony_D
CABA2_Sony_E
CABA3_TOSHIBA_E
CABA1_SVA_B
CABA2_SVA_B
CABA3_SVA_B
cabac_mot_frm0_full

CAIN sequences:

AVC PHP conformance bitstreams
CABACI3_Sony_B

QP sequences:

AVC PHP conformance bitstreams
CAQP1_Sony_B
CACQP3_Sony_D

SL sequences:

AVC PHP conformance bitstreams
CABAST3_Sony_E
CABASTBR3_Sony_B

CAPCM sequences:

AVC PHP conformance bitstreams
CAPCMNL1_Sand_E
CAPCM1_Sand_E
CAPM3_Sony_D

CAMR sequences:

AVC PHP conformance bitstreams
HCMP1_HHI_A