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Information technology — Multimedia application format (MPEG-A) —

Part 11:
Stereoscopic video application format

AMENDMENT 1: Stereoscopic video application format conformance and reference software

Technologies de l'information — Format pour application multimédia (MPEG-A) —

Partie 11: Format pour application vidéo stéréoscopique

AMENDEMENT 1: Conformité du format pour application vidéo stéréoscopique et logiciel de référence

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Foreword

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Part 11:
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AMENDMENT 1: Stereoscopic video application format conformance and reference software

After Clause 8, add Clauses 9 and 10:

9 Conformance points and conforming files

9.1 Conformance points

Stereoscopic Video AF(SVAF) defines three conformance points.

– Conformance point 1 provides basic capability to play stereoscopic contents on the basis of the Stereoscopic Video AF. A SVAF file that satisfies this conformance point shall have one of the brands defined in clause 8 inside its 'ftyp', the track reference type 'svdp' inside its 'tref' box, the stereoscopic video media information ('svmi'), the stereoscopic camera and display information ('scdi'). Files that satisfies this conformance point shall contain the following supported components:

> o Stereoscopic Video AF
>
> And one of the following supported components:
> > o MPEG-4 Video Simple profile
> > o MPEG-4 AVC Baseline profile

– Conformance point 2 provides capability to play stereoscopic contents with audio components on the basis of the conformance point 1. Files that satisfies this conformance point shall contain following supported components:

> o The components specified for conformance point 1
>
> And one of the following supported components:
> > o MPEG-4 Audio AAC profile
> > o MPEG-4 Audio HE-AAC profile

– Conformance point 3 provides capability to play stereoscopic contents with image, voice, and scene description on the basis of the conformance point 1. Files that satisfies this conformance point shall contain the following supported components:
> > o The components specified for conformance point 1
> > o JPEG
> > o PNG
> > o MPEG-4 LASeR
>
> And one of following supported components:
> > o AMR
> > o EVRC

9.2   Conforming files

Conforming files shall be readable by the Stereoscopic Video AF Ref.SW. The general structure of a conforming file shall conform to the normative file structure defined in Table 2 of 7.1. Conforming files shall be used to verify some possible combinations of components defined by the specification of the Stereoscopic Video AF. Tables 8 and 9 show the list of conforming files with conformance points and the description, respectively.

Table 8 — Conforming files with conformance points

No.	Stereoscopic Video AF					Video		Audio		Voice		Data		
	ISO base media FF	Brand	'svmi'	'svdp'	'scdi'	MPEG-4 Video	AVC	AAC	HE-AAC	AMR	EVRC	JPEG	PNG	LASeR
1	○	○	○				○							
2	○	○	○	○	○		○	■						
3	○	○	○			○			■					
4	○	○	○				○			▲	▲	▲	▲	▲

○   Conformance point 1
■   Conformance point 2
▲   Conformance point 3

Table 9 — Description of conforming files

No.	File name	Brand	Components	Description
1	Conforming_File_01.svf	SS01	• Stereoscopic Video AF • AVC	This conforming file contains one stereoscopic video track which contains the 'svmi' box.
2	Conforming_File_02.svf	SS02	• Stereoscopic Video AF • AVC • AAC	This conforming file contains stereoscopic two video tracks which contains the 'svmi' box, 'scdi' box and the 'tref box of 'svdp' reference type. This conforming file also contains one audio track.
3	Conforming_File_03.svf	SS01	• Stereoscopic Video AF • MPEG-4 Video • HE AAC	This conforming file contains one stereoscopic video track which contains the 'svmi' box, and one audio track.
4	Conforming_File_04.svf	SS01	• Stereoscopic Video AF • AVC • EVRC • JPEG • PNG • LASeR	This conforming file contains one stereoscopic video track which contains 'svmi' box, voice tracks, and JPEG/PNG/LASeR tracks.

10 Reference Software

10.1 Introduction

The reference software consists of the Stereoscopic Video AF Player and conforming files. The Stereoscopic Video AF Player is an application for playing SVAF files.

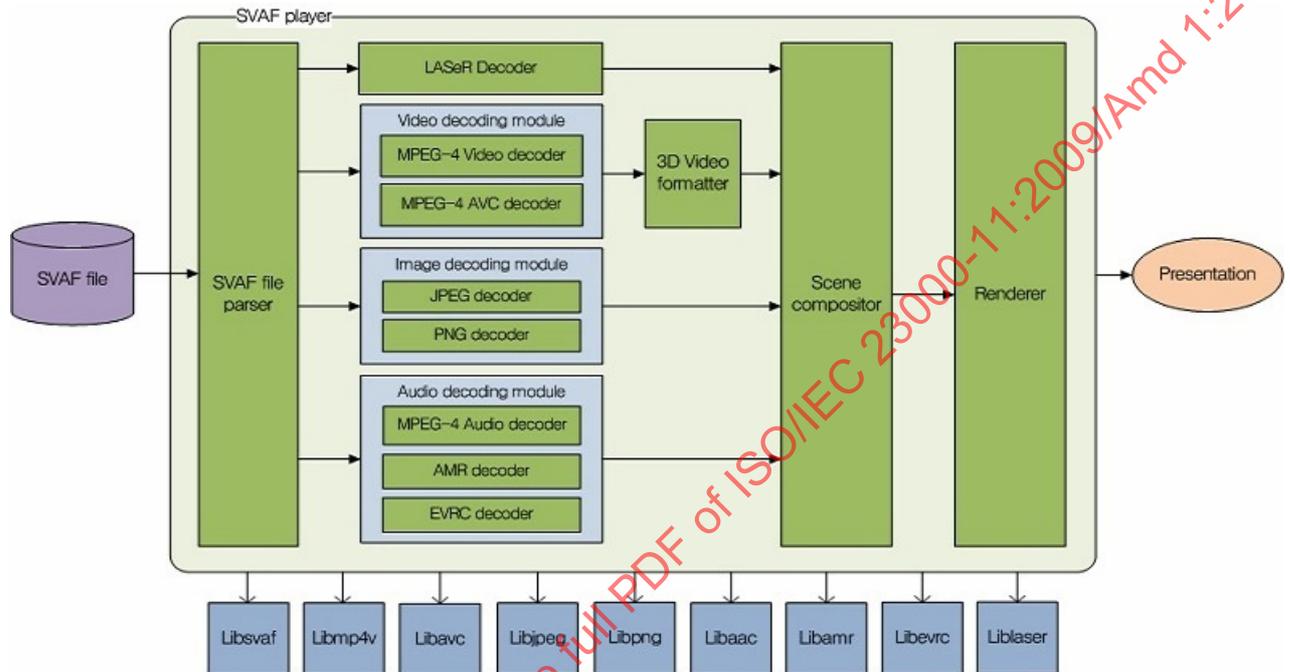## 10.2 Architecture of Stereoscopic Video AF Player

Figure 11 — The architecture of Stereoscopic Video AF Player

Figure 11 shows the architecture of Stereoscopic Video AF Player. The SVAF file conforming to the 'ss01' or the 'ss02' brand is inputted to the Stereoscopic Video AF Player. It renders stereoscopic video contents based on the stereoscopic video media information described in the 'svmi' box with or without the stereoscopic camera and display information of the 'scdi' box. The Stereoscopic Video AF Player consists of eight modules (SVAF file parser, LASeR decoder, video decoding module, image decoding module, audio decoding module, 3D video formatter, scene compositor, and renderer) and also includes nine external libraries (libsvaf, libmp4v, libavc, libaac, libjpeg, libpng, libamr, libevrc, and liblaser) to support each module.

10.2.1 SVAF file parser

The SVAF file parser analyzes a SVAF file by using the libsvaf, and it transmits extracted samples of video, audio, image, voice and LASeR bitstreams to the relevant decoding modules.

10.2.2 Video decoding module

The video decoding module consists of the MPEG-4 Video and the MPEG-4 AVC decoders, and each decoder executes a decoding by using the libmp4v and the libavc, respectively.

10.2.3 Image decoding module

The image decoding module consists of JPEG and PNG decoders, and each decoder executes a decoding by using the libjpeg and the libpng, respectively.

10.2.4 Audio decoding module

The audio decoding module consists of MPEG-4 Audio, AMR and EVRC decoders, and each decoder executes a decoding by using the libaac, the libamr and the libevrc, respectively.

10.2.5 LASeR decoder

The LASeR decoder executes decoding of LASeR streams by using the liblaser.

10.2.6 3D video formatter

The 3D video formatter generates a specified 3D video using the stereoscopic visual type information described in the 'svmi' box with or without the 3D display type information of the 'scdi' box.

10.2.7 Scene compositor

The scene compositor generates a scene by using the LASeR.

10.2.8 Renderer

The renderer presents stereoscopic contents with or without scene description.

10.2.9 External libraries

The description for the external libraries used in operating the reference software is provided in Table 10.

Table 10 — External libraries

External library	Description
Libsvaf	Libsvaf provides forms of boxes to parse a SVAF file. The library contains all information of boxes in ISO base media file format and additional boxes for the Stereoscopic Video AF
Libmp4v	Libmp4v provides tools to decode MPEG-4 Video stream
Libavc	Libavc provides tools to decode MPEG-4 AVC stream
Libaac	Libaac provides tools to decode MPEG-4 Audio stream
Libjpeg	Libjpeg provides tools to decode JPEG stream
Libpng	Libpng provides tools to decode PNG stream
Libamr	Libamr provides tools to decode AMR stream
Libevrc	Libevrc provides tools to decode EVRC stream
Liblaser	Liblaser provides tools to decode LASeR stream

After Annex A, add Annex B:

Annex B
(informative)

Implementation of Stereoscopic Video AF player

B.1 General

This Annex provides an implementation method of Stereoscopic Video AF player.

Software platform:
Microsoft Visual C++ 2008 Service Pack 1, Windows XP or Windows 7 OS.

Installation:
1. Extract the source code into the desired directory. The directories will be created as described in Table B.1.

Table B.1 — Directory structure

Folder name	Description
bin	Executable binary files
build	Project files
conforming files	Conforming files described in clause 9
include	Additional header files
lib	External library files
src	Internal library sources
SVAFPlayer	Source for the UI

2. Open the "SVAFPlayer.sln" file in the build folder
3. Rebuild all and run the application

B.2 Implementation of Stereoscopic Video AF player

The SVAF Player provides the user interface to play the conforming file as being shown in Figure B.1. To open the SVAF file, simply press "File" tap and open a SVAF file.