SMPTE STANDARD

VC-5 Video Essence – Part 6: Sections

Table of Contents

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Foreword

SMPTE (the Society of Motion Picture and Television Engineers) is an internationally-recognized standards developing organization. Headquartered and incorporated in the United States of America, SMPTE has members in over 80 countries on six continents. SMPTE's Engineering Documents, including Standards, Recommended Practices, and Engineering Guidelines, are prepared by SMPTE's Technology Committees. Participation in these Committees is open to all with a bona fide interest in their work. SMPTE cooperates closely with other standards-developing organizations, including ISO, IEC and ITU.

SMPTE Engineering Documents are drafted in accordance with the rules given in its Standards Operations Manual. This SMPTE Engineering Document was prepared by Technology Committee 10E.

Intellectual Property

At the time of publication no notice had been received by SMPTE claiming patent rights essential to the implementation of this Engineering Document. However, attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. SMPTE shall not be held responsible for identifying any or all such patent rights.

Introduction

This section is entirely informative and does not form an integral part of this Engineering Document.

This document defines how to subdivide a bitstream into sections.

Sections can enable more sophisticated processing by a decoder, including skipping a portion of the bitstream that does not need to be decoded, detecting and correcting errors in the bitstream by application-defined algorithms, or concurrently decoding portions of the bitstream.

Sections are backward compatible with decoders that do not support sections.

1 Scope

This standard defines extensions to SMPTE ST 2073-1, ST 2073-3, and ST 2073-4 to support sections in a VC-5 bitstream.

Sections subdivide the bitstream to enable advanced decoder features such as fast seeking within the bitstream, error detection and correction, multi-resolution decoding, and concurrent decoding.

2 Conformance Notation

Normative text is text that describes elements of the design that are indispensable or contains the conformance language keywords: "shall", "should", or "may". Informative text is text that is potentially helpful to the user, but not indispensable, and can be removed, changed, or added editorially without affecting interoperability. Informative text does not contain any conformance keywords.

All text in this document is, by default, normative, except: the Introduction, any section explicitly labeled as "Informative" or individual paragraphs that start with "Note:"

The keywords "shall" and "shall not" indicate requirements strictly to be followed in order to conform to the document and from which no deviation is permitted.

The keywords, "should" and "should not" indicate that, among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required; or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

The keywords "may" and "need not" indicate courses of action permissible within the limits of the document.

The keyword “reserved” indicates a provision that is not defined at this time, shall not be used, and may be defined in the future. The keyword “forbidden” indicates “reserved” and in addition indicates that the provision will never be defined in the future.

A conformant implementation according to this document is one that includes all mandatory provisions ("shall") and, if implemented, all recommended provisions ("should") as described. A conformant implementation need not implement optional provisions ("may") and need not implement them as described.

Unless otherwise specified, the order of precedence of the types of normative information in this document shall be as follows: Normative prose shall be the authoritative definition; Tables shall be next; then formal languages; then figures; and then any other language forms.

3 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this engineering document. At the time of publication, the editions indicated were valid. All standards are subject

to revision, and parties to agreements based on this engineering document are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

SMPTE ST 2073-1:2014 VC-5 Video Essence. Part 1: Elementary Bitstream.

SMPTE ST 2073-3:2015 VC-5 Video Essence. Part 3: Image Formats.

SMPTE ST 2073-4:2015 VC-5 Video Essence. Part 4: Subsampled Color Difference Components.

SMPTE ST 2073-5:201x VC-5 Video Essence. Part 5: Layers.

4 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

4.1 Image Bitstream

bitstream that is compliant with SMPTE ST 2073-1, ST 2073-3, ST 2073-4, and ST 2073-5, excluding the **StartMarkerSegment**

4.2 VC-5 Standard

SMPTE standards designated ST 2073

5 Section Syntax and Semantics

5.1 Section Syntax

A section element shall be the contiguous portion of the bitstream that comprises the section header and the section body.

The section header shall consist of one segment that comprises an 8-bit integer tag followed by three bytes that are used to compute the length of the section body. The first two bytes of the section header shall comprise a negative 16-bit two's complement integer. The two's complement negation of that 16-bit integer shall comprise:

(1) A one byte tag that identifies the type of section element as defined in Annex A,

(2) The most significant byte in the three bytes (including the last two bytes in the section header) that comprise a 24-bit unsigned integer that is the length of the section body in segments.

The section body shall consist of the contiguous sequence of segments that immediately follow the section header.

The syntax of a section element is shown in Figure 1.