
**Information technology — MPEG video
technologies —**

**Part 4:
Video tool library**

*Technologies de l'information — Technologies vidéo MPEG —
Partie 4: Bibliothèque d'outils vidéo*

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Contents

Page

Foreword	vi
Introduction.....	vii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 FU description convention	2
4.1 FU interfaces	2
4.2 FU IDs	2
4.3 Token Pool	5
5 General-Purpose FUs	8
5.1 Syntax Parsing	8
5.1.1 Generic Syntax Parser	8
5.1.2 Algo_Byte2bit	8
5.1.3 Mgnt_Select_MB_4	8
5.1.4 Mgnt_Merger420	9
5.1.5 Mgnt_Select_MB_8	9
6 FUs for MPEG-4 Simple Profile	10
6.1 Syntax Parsing	10
6.1.1 Algo_SynP	10
6.1.2 Mgnt_BlockExpand	10
6.1.3 Mgnt_Splitter420B	11
6.1.4 Mgnt_Splitter420MV	11
6.1.5 Algo_MVR_MedianOfThreeLeftAndTopAndTopRight	12
6.1.6 Mgnt_Splitter_420_TYPE	12
6.1.7 Algo_VLDtableB6_MPEG4Part2	13
6.1.8 Algo_VLDtableB7_MPEG4Part2	13
6.1.9 Algo_VLDtableB8_MPEG4Part2	14
6.1.10 Algo_VLDtableB12_MPEG4Part2	14
6.1.11 Algo_VLDtableB13_MPEG4Part2	14
6.1.12 Algo_VLDtableB14_MPEG4Part2	15
6.1.13 Algo_VLDtableB15_MPEG4Part2	15
6.1.14 Algo_VLDtableB16_MPEG4Part2	16
6.1.15 Algo_VLDtableB17_MPEG4Part2	16
6.2 Texture Decoding	17
6.2.1 Algo_IQ_QSAndQmatrixMp4vOrH263Scaler	17
6.2.2 Algo_DCRAAddr_ThreeLeftTop_8x8	17
6.2.3 Algo_DCRAAddr_ThreeLeftTop_16x16	18
6.2.4 Algo_DCRIInvPred_CHROMA_8x8	18
6.2.5 Algo_DCRIInvPred_LUMA_16x16	19
6.2.6 Algo_IS_ZigzagOrAlternateHorizontalVertical_8x8	20
6.2.7 Algo_IAP_AdaptiveHorizontalOrVerticalPred_8x8	20
6.2.8 Algo_IAP_AdaptiveHorizontalOrVerticalPred_16x16	21
6.2.9 Algo_IDCT2D_ISOIEC_23002_1	22
6.2.10 Mgnt_DCSplit	22
6.3 Motion Compensation	23
6.3.1 Mgnt_FB_w_Address_8x8	23
6.3.2 Mgnt_FB_w_Address_16x16	23
6.3.3 Algo_PictureReconstruction_Saturation	24
6.3.4 Algo_Interp_HalfpelBilinearRoundingControl	24

7	FUs for MPEG-4 AVC Constrained Baseline Profile.....	25
7.1	Syntax Parsing.....	25
7.1.1	Algo_NALU.....	25
7.1.2	Algo_SynP.....	25
7.1.3	Algo_BlockExpand.....	26
7.1.4	Algo_BlockSplit.....	27
7.1.5	Algo_IntraPred_Split.....	27
7.1.6	Algo_ParseI_PCM.....	28
7.1.7	Algo_DemuxParserInfoForBlocks_Chroma.....	28
7.1.8	Algo_DemuxParserInfoForBlocks_Luma.....	28
7.2	Texture Decoding.....	29
7.2.1	Algo_IS_Zigzag_4x4.....	29
7.2.2	Algo_DCR_Hadamard_LUMA_IHT1d.....	29
7.2.3	Algo_Transpose4x4.....	30
7.2.4	Algo_DCR_Hadamard_LUMA_Reordering.....	30
7.2.5	Algo_DCR_Hadamard_LUMA_Scaling.....	31
7.2.6	Algo_DCR_Hadamard_CHROMA.....	31
7.2.7	Algo_IT4x4_1d.....	31
7.2.8	Algo_IT4x4_Addshift.....	32
7.2.9	Algo_IntraPred_LUMA_16x16.....	32
7.2.10	Algo_IntraPred_LUMA_4x4.....	33
7.2.11	Algo_Merge_4x4_to_16x16.....	33
7.2.12	Algo_IQ_QSAndSLAndIDCTScaler_4x4.....	33
7.2.13	Mgmt_IQ_INTRA16x16.....	34
7.2.14	Algo_IntraPred_4x4_to_8x8.....	34
7.2.15	Algo_IntraPred_CHROMA.....	35
7.2.16	Mgmt_Intra16x16.....	35
7.2.17	Mgmt_Intra4x4.....	36
7.2.18	Mgmt_IQ_Chroma.....	36
7.2.19	Mgmt_Buffer_Neighbour_FullMb.....	36
7.2.20	Mgmt_Buffer_Neighbour_YxY.....	37
7.2.21	Algo_Merge_4x4_to_16x16_norasterscan.....	37
7.2.22	Algo_Split_16x16_to_4x4_norasterscan.....	38
7.3	Motion Compensation.....	38
7.3.1	Algo_Interp_EighthPelBilinear.....	38
7.3.2	Algo_Interp_SeparableSixTapQuarterPel.....	39
7.3.3	Algo_Interp_Reord.....	39
7.3.4	Algo_MvLXReconstr.....	39
7.3.5	Mgmt_DPB.....	40
7.3.6	Algo_MMCO.....	41
7.3.7	AlgoRefList.....	41
7.3.8	Mgmt_InterPred.....	42
7.3.9	Algo_RefIdxtoFrameNum.....	42
7.4	Filtering.....	42
7.4.1	Mgmt_DBF_AdaptiveFilter.....	42
7.4.2	Algo_DBF_AdaptiveFilter.....	43
7.4.3	Algo_MvComponentReorder.....	43
7.5	Renderer.....	44
7.5.1	Mgmt_POC.....	44
7.5.2	Mgmt_BufferRender.....	44
7.5.3	Mgmt_Merger420_AVC.....	45
8	FUs for MPEG-4 AVC Progressive High Profile.....	45
8.1.1	Algo_SynP.....	45
8.1.2	Algo_BlockExpand.....	46
8.1.3	Algo_DemuxParserInfoForBlocks_Luma.....	47
8.2	Texture Decoding.....	47
8.2.1	Algo_IS_Zigzag_8x8.....	47
8.2.2	Algo_IQ_QSAndSLAndIDCTScaler_8x8.....	48
8.2.3	Algo_IIT_8x8.....	48

8.2.4	Algo_IntraPred_LUMA_8x8	49
8.2.5	Mgnt_Intra_8x8	49
8.2.6	Algo_Merge_8x8_to_16x16.....	50
8.2.7	Algo_DCR_Hadamard_CHROMA.....	50
8.2.8	Algo_DCR_Hadamard_LUMA_Scaling.....	50
8.2.9	Algo_IQ_QSAndSLAndIDCTScaler_4x4.....	51
8.2.10	Algo_Merge_8x8_to_16x16_norasterscan.....	51
8.2.11	Algo_Split_16x16_to_8x8_norasterscan.....	52
8.2.12	Mgnt_I4x4_I8x8_demux	52
8.2.13	Mgnt_I4x4_I8x8_mux.....	52
8.3	Motion Compensation.....	53
8.3.1	Algo_GeneratePredWeight.....	53
8.3.2	Mgnt_SelectMvpLX.....	53
8.3.3	Algo_MvLXReconstr	54
8.3.4	Algo_MvBuffer	55
8.3.5	Mgnt_SelectMvpLX.....	55
8.3.6	Algo_FrameNumToPocList	56
8.4	Filtering.....	56
8.4.1	Algo_DBF_AdaptiveFilter	56
8.4.2	Algo_MvComponentReorder.....	57
Annex A	(normative) Naming Convention of FU	58
A.1	Simple Functional Units name convention.....	58
A.2	Description of the fields.....	58
Annex B	(informative) FU Network Examples	60
B.1	Value of the RVC descriptions	60
B.2	FNL of MPEG-4 Simple Profile	60
B.3	FNL of MPEG-4 AVC Constrained Baseline Profile decoder	66
Annex C	(normative) FNL of MPEG-4 AVC Progressive High Profile decoder.....	81
Bibliography		104

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 23002-4 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This second edition cancels and replaces the first edition (ISO/IEC 23002-4:2010), which has been technically revised. It also incorporates the Amendment ISO/IEC 23002-4:2010/Amd.1:2011.

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

This part of ISO/IEC 23002 defines the MPEG video tool library, which contains tools drawn from existing MPEG coding standards, such as ISO/IEC 14496-2 and ISO/IEC 14496-10, and ISO/IEC 23001-4 defines the methods capable of describing codec configurations in the reconfigurable video coding (RVC) framework.

This part of ISO/IEC 23002 primarily addresses reconfigurable video aspects and will only focus on the description of representation of video codec configurations under the RVC framework, but could be extended to a more generic reconfigurable media coding (RMC) framework.

The objective of RVC is to offer a framework that is capable of configuring and specifying video codecs as a collection of “higher level” modules by using video coding tools. The video coding tools are defined in video tool libraries. This part of ISO/IEC 23002 defines the MPEG video tool library. The RVC framework principle could also support non-MPEG tool libraries, provided that their developers have taken care to obey the appropriate rules of operation.

For the purpose of framework deployment, an appropriate description is needed to describe configurations of decoders composed of or instantiated from a subset of video tools from either one or more libraries. As illustrated in Figure 1, the configuration information consists of

- bitstream syntax description, and
- network of functional units (FUs) description (also referred to as the decoder configuration)

that together constitute the entire decoder description.

Bitstreams of existing MPEG standards are specified by specific syntax structures and decoders are composed of various coding tools. Therefore, RVC includes support for bitstream syntax descriptions as well as video coding tools. As depicted in Figure 1, a typical RVC decoder requires two types of information, namely the decoder description and the encoded media (e.g. video bitstreams) data.

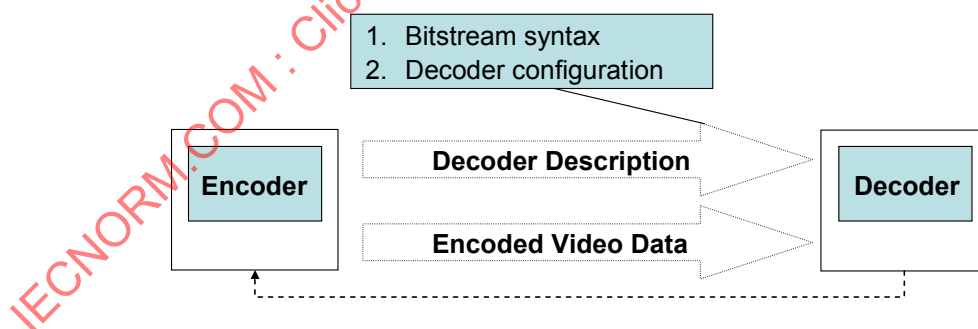


Figure 1 — Conceptual diagram of RVC

A more detailed description of the RVC decoder is illustrated in Figure 2. As shown in Figure 2, the decoder description is required for the configuration of a RVC decoder. The Bitstream Syntax Description (BSD) and FU Network Description (FND) (which compose the Decoder Description) are used to configure or compose an abstract decoder model (ADM) which is instantiated through the selection of FUs from tool libraries optionally with proper parameter assignment. Such ADM constitutes the behavioral reference model used in setting up a decoding solution under the RVC framework. The process of yielding a decoding solution may vary depending on the technologies used for the desired implementations. Examples of the instantiation of an ADM and generation of proprietary decoding solutions can be found in ISO/IEC 23001-4.

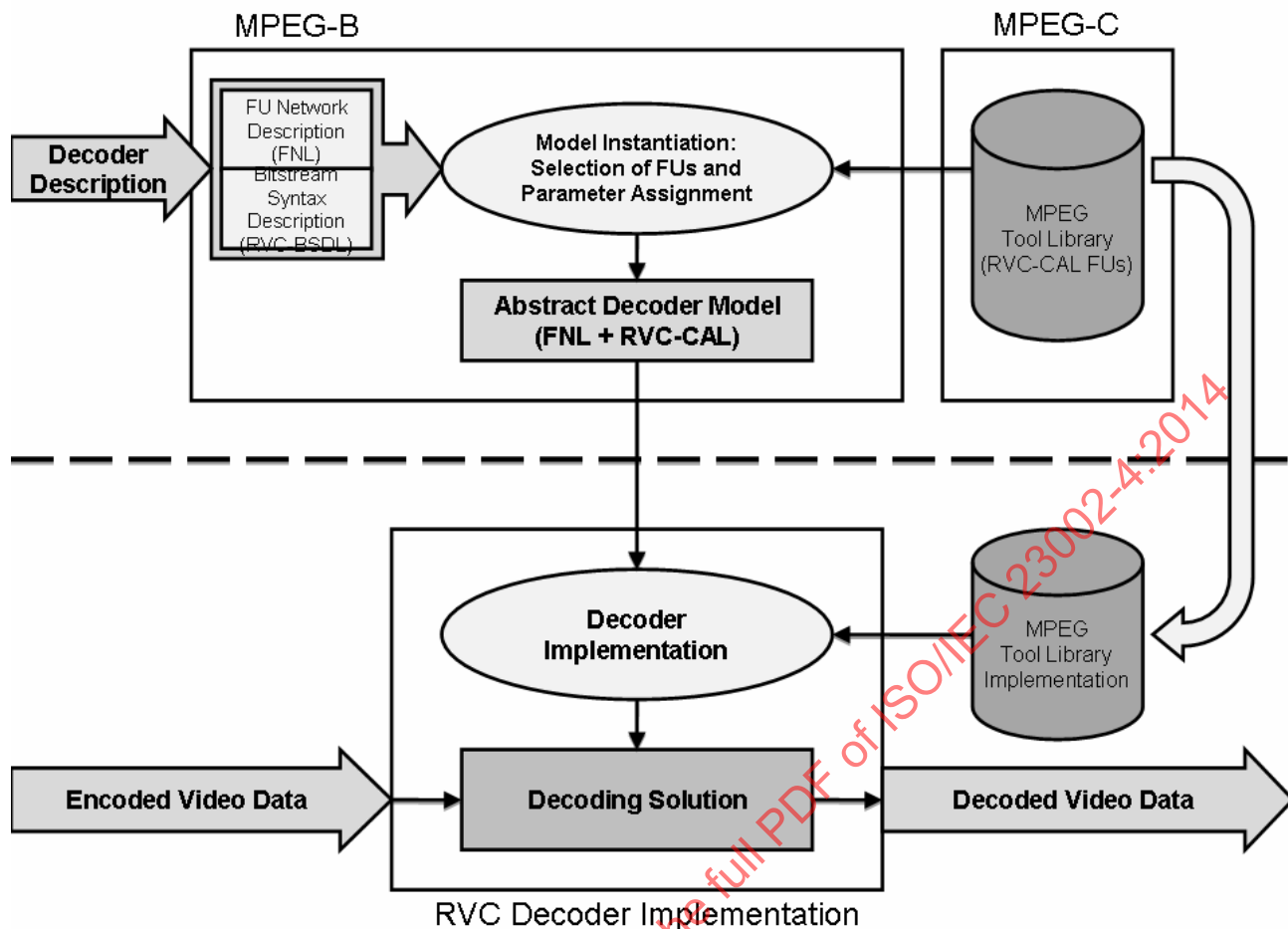


Figure 2 — Graphical representation of the process for setting up a decoding solution under the RVC framework

Within the RVC framework, the decoder description describes a particular decoder configuration and consists of the FND and the BSD. The FND describes the connectivity of the network of FUs used to form a decoder whereas the parsing process for the bitstream syntax is implicitly described by the BSD. These two descriptions are specified using two standard XML-based languages or dialects:

- Functional unit network language (FNL) is a language that describes the FND, known also as “network of FUs”. The FNL specified normatively within the scope of the RVC framework is provided in ISO/IEC 23001-4.
- Bitstream syntax description language (BSL), standardized in ISO/IEC 23001-5 (MPEG-B Part 5), describes the bitstream syntax and the parsing rules. A pertinent subset of this BSL named RVC-BSL is defined within the scope of the current RVC framework. This RVC-BSL also includes possibilities for further extensions, which are necessary to provide complete description of video bitstreams. RVC-BSL specified normatively within the scope of the RVC framework is provided in ISO/IEC 23001-4.

The decoder configuration specified using FNL, together with the specification of the bitstream syntax using RVC-BSL fully specifies the ADM and provides an “executable” model of the RVC decoder description.

The instantiated ADM includes the information about the selected FUs and how they should be connected. As already mentioned, the FND with the network connection information is expressed by using FNL. Furthermore, the RVC framework specifies and uses a dataflow-oriented language called RVC-CAL for describing FUs' behavior. The normative specification of RVC-CAL is provided in ISO/IEC 23001-4. The ADM is the behavioral model that should be referred to in order to implement any RVC conformant decoder. Any RVC compliant

decoding solution/implementation can be achieved by using proprietary non-normative tools and mechanisms that yield decoders that behave equivalent to the RVC ADM.

The decoder description, the MPEG tool library, and the associated instantiation of an ADM are normative. More precisely, the ADM is intended to be normative in terms of a behavioral model. In other words what is normative is the input/output behavior of the complete ADM as well as the input/output behavior of all the FUs that are included in the ADM.

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Information technology — MPEG video technologies —

Part 4: Video tool library

1 Scope

This part of ISO/IEC 23002 defines the description of the MPEG video tool library (VTL) based on the decoder description specified in ISO/IEC 23001-4. This tool library defines the specification of FUs, which are sufficient to build complete decoding solutions according to the following coding standards:

- ISO/IEC 14496-2 (MPEG-4 Simple Profile), and
- ISO/IEC 14496-10 (MPEG-4 AVC Constrained Baseline Profile).

The objective of ISO/IEC 23001-4 is to define the general framework principles, and this part of ISO/IEC 23002 defines the MPEG VTL that includes relevant tools (or FUs) from the existing MPEG coding standards. Each FU is defined in the form of a textual description, which can be found in 4.1. The input and output behavior follows the conventions described in Clause 5 (general-purpose FUs), Clause 6 (MPEG-4 FUs), and Clause 7 (MPEG-4 AVC FUs).

This part of ISO/IEC 23002 compliant implementations can be designed using any software or hardware language and components. The reference software for the textual specification of FUs is written in RVC-CAL language of which a formal syntax is provided in ISO/IEC 23001-4, and which will be defined in Amendment 1 to ISO/IEC 23002-4.

2 Normative references

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

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

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

3 Terms and definitions

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

4 FU description convention

4.1 FU interfaces

As shown in Table 1, each FU is described with the following elements:

- **FU Name:** Name to represent the functional unit in this specification. The name of the FU is normative and follows the naming convention described in Annex A.1.
- **Description:** Textual explanation to describe the functionality of the FU. The description must be concise. The precise normative behaviour of the algorithm (input/output, timing etc.) is specified by the the RVC-CAL reference code in Amendment 1.
- **Profiles@levels supported:** The profiles@level supported for this functional unit. It may append that a given range of values makes the FU behave for a given profile@level and another range of values makes the FU behave for another profile@level.
- **Input:** A token that is entering the FU through the designated input port. The token type refers to the token pool described in 4.3. The 'name' field indicates the input port.
- **Output:** A token that is coming out of the FU through the designated output port. The 'name' field indicates the output port.
- **Parameter (optional):** Parameters are optionally described to adjust the behavior of the FU. All the parameters must be specified with name, description and range.

Table 1 — Template of description of an FU (example)

FU Name	e.g. Algo_IDCT2D_ISOIEC_23002_1	
Description	e.g. This module computes the 8x8 Inverse Discrete Cosine Transform (IDCT) defined as $f(x,y)=\frac{2}{N}\sum_{u=0}^{N-1}\sum_{v=0}^{N-1}C(u)C(v)F(u,v)\cos\frac{(2x+1)u\pi}{2N}\cos\frac{(2y+1)v\pi}{2N}$ with $u, v, x, y = 0, 1, 2, \dots, N-1$ where x, y are spatial coordinates in the sample domain u, v are coordinates in the transform domain $C(u), C(v) = \begin{cases} \frac{1}{\sqrt{2}} & \text{for } u, v = 0 \\ 1 & \text{otherwise} \end{cases}$ It inputs a list of 64 coefficients and outputs a list of 64 decoded coefficients.	
Profiles@levels supported	e.g. MPEG-4 SP	
Input		
Name	Token	
e.g. X	e.g. BLOCK token	
Output		
Name	Token	
e.g. Y	e.g. BLOCK token	
Parameter		
Name	Description	Range

4.2 FU IDs

FU of the specific functionality is identified by its unique identification number. **Table 2** lists IDs and names of all FUs in VTL. IDs and names are used in FND to select FUs.

Table 2 — List of FUs and their IDs

ID	FU Name
1	org.sc29.wg11.common.Algo_SynP_Generic
2	org.sc29.wg11.mpeg4.part2.sp.parser.Algo_SynP
3	org.sc29.wg11.mpeg4.part2.sp.parser.Mgnt_BlockExpand
4	org.sc29.wg11.mpeg4.part2.sp.parser.Mgnt_Splitter420B
5	org.sc29.wg11.mpeg4.part2.sp.parser.Mgnt_Splitter420MV
6	org.sc29.wg11.mpeg4.part2.sp.parser.Algo_MVR_MedianOfThreeLeftAndTopAndTopRight
7	org.sc29.wg11.mpeg4.part2.sp.parser.Algo_MVSequence_LeftAndTopAndTopRight
9	org.sc29.wg11.mpeg4.part2.sp.parser.Mgnt_Splitter_420_TYPE
10	org.sc29.wg11.mpeg4.part2.sp.parser.vlc.Algo_VLDtableB6_MPEG4Part2
11	org.sc29.wg11.mpeg4.part2.sp.parser.vlc.Algo_VLDtableB7_MPEG4Part2
12	org.sc29.wg11.mpeg4.part2.sp.parser.vlc.Algo_VLDtableB8_MPEG4Part2
13	org.sc29.wg11.mpeg4.part2.sp.parser.vlc.Algo_VLDtableB12_MPEG4Part2
14	org.sc29.wg11.mpeg4.part2.sp.parser.vlc.Algo_VLDtableB13_MPEG4Part2
15	org.sc29.wg11.mpeg4.part2.sp.parser.vlc.Algo_VLDtableB14_MPEG4Part2
16	org.sc29.wg11.mpeg4.part2.sp.parser.vlc.Algo_VLDtableB15_MPEG4Part2
17	org.sc29.wg11.mpeg4.part2.sp.parser.vlc.Algo_VLDtableB16_MPEG4Part2
18	org.sc29.wg11.mpeg4.part2.sp.parser.vlc.Algo_VLDtableB17_MPEG4Part2
19	org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IQ_QSAndQmatrixMp4vOrH263Scaler
20	org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction.Algo_DCRAddr_ThreeLeftTop_8x8
21	org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction.Algo_DCRAddr_ThreeLeftTop_16x16
22	org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction.Algo_DCRIInvPred_CHROMA_8x8
23	org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction.Algo_DCRInvPred_LUMA_16x16
24	org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IS_ZigzagOrAlternateHorizontalVertical_8x8
25	org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IAP_AdaptiveHorizontalOrVerticalPred_8x8
26	org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IAP_AdaptiveHorizontalOrVerticalPred_16x16
27	org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IDCT2D_ISOIEC_23002_1
28	org.sc29.wg11.mpeg4.part2.sp.texture.Mgnt_DCSplit
29	org.sc29.wg11.mpeg4.part2.sp.motion.Mgnt_FB_w_Address_8x8
30	org.sc29.wg11.mpeg4.part2.sp.motion.Mgnt_FB_w_Address_16x16
31	org.sc29.wg11.mpeg4.part2.sp.motion.Algo_PictureReconstruction_Saturation
32	org.sc29.wg11.mpeg4.part2.sp.motion.Algo_Interp_HalfpelBilinearRoundingControl
33	org.sc29.wg11.mpeg4.part10.cbp.parser.Algo_NALU
34	org.sc29.wg11.mpeg4.part10.cbp.parser.Algo_SynP
35	org.sc29.wg11.mpeg4.part10.cbp.parser.Algo_BlockExpand

ID	FU Name
36	org.sc29.wg11.mpeg4.part10.cbp.parser.Algo_BlockSplit
37	org.sc29.wg11.mpeg4.part10.cbp.parser.Algo_IntraPred_Split
38	org.sc29.wg11.mpeg4.part10.cbp.parser.Algo_Parser_I_PCM
39	org.sc29.wg11.mpeg4.part10.cbp.selectMacroblock.Algo_DemuxParserInfoForBlocks_Chroma
40	org.sc29.wg11.mpeg4.part10.cbp.selectMacroblock.Algo_DemuxParserInfoForBlocks_Luma
41	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IS_Zigzag_4x4
42	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_DCR_Hadamard_LUMA_IHT1d
43	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_Transpose4x4
44	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_DCR_Hadamard_LUMA_Reordering
45	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_DCR_Hadamard_LUMA_Scaling
46	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_DCR_Hadamard_CHROMA
47	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IT4x4_1d
48	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IT4x4_Addshift
49	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IntraPred_LUMA_16x16
50	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IntraPred_LUMA_4x4
51	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_Merge_4x4_to_16x16
52	org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IQ_QSAndSLAndIDCTScaler_4x4
53	org.sc29.wg11.mpeg4.part10.cbp.Residual.Mgnt_IQ_INTRA16x16
54	org.sc29.wg11.mpeg4.part10.cbp.intraPred.Algo_Merge_4x4_to_8x8
55	org.sc29.wg11.mpeg4.part10.cbp.intraPred.Algo_IntraPred_CHROMA
56	org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_Intra_16x16
57	org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_Intra_4x4
58	org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_IQ_Chroma
59	org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_Buffer_Neighbour_FullMb
60	org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_Buffer_Neighbour_YxY
61	org.sc29.wg11.mpeg4.part10.cbp.intraPred.Algo_Split_16x16_to_4x4_norasterscan
62	org.sc29.wg11.mpeg4.part10.cbp.intraPred.Algo_Merge_4x4_to_16x16_norasterscan
63	org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_Interp_Bilinear
64	org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_Interp_SeparableSixTapQuarterPel
65	org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_Interp_Reord
66	org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_MvLXReconstr
67	org.sc29.wg11.mpeg4.part10.cbp.interPred.Mgnt_DPB
68	org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_MMCO
69	org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_RefIdxtoFrameNum
70	org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_RefList
71	org.sc29.wg11.mpeg4.part10.cbp.interPred.Mgnt_InterPred
72	org.sc29.wg11.mpeg4.part10.cbp.deblockingFilter.Mgnt_DBF_AdaptiveFilter
73	org.sc29.wg11.mpeg4.part10.cbp.deblockingFilter.Algo_DBF_AdaptiveFilter
74	org.sc29.wg11.mpeg4.part10.cbp.display.Mgnt_POC

ID	FU Name
75	org.sc29.wg11.mpeg4.part10.cbp.display.Mgnt_BufferRender
76	org.sc29.wg11.common.Algo_Add_PixSat
77	org.sc29.wg11.common.Mgnt_Select_MB_4
78	org.sc29.wg11.common.Algo_Byte2bit
79	org.sc29.wg11.common.Algo_Mgnt_Merger420
80	org.sc29.wg11.common.Mgnt_Select_MB_8
81	org.sc29.wg11.mpeg4.part10.cbp.display.Mgnt_Merger420_AVC
82	org.sc29.wg11.mpeg4.part10.php.parser.Algo_SynP
83	org.sc29.wg11.mpeg4.part10.php.parser.Algo_BlockExpand
84	org.sc29.wg11.mpeg4.part10.php.selectMacroblock.Algo_DemuxParserInfoForBlocks_Luma
85	org.sc29.wg11.mpeg4.part10.php.Residual.Algo_IS_Zigzag_8x8
86	org.sc29.wg11.mpeg4.part10.php.Residual.Algo_IQ_QSAndSLAndIDCTScaler_8x8
87	org.sc29.wg11.mpeg4.part10.php.Residual.Algo_IIT_8x8
88	org.sc29.wg11.mpeg4.part10.php.Intrapred.Algo_IntraPred_LUMA_8x8
89	org.sc29.wg11.mpeg4.part10.php.Intrapred.Mgnt_Intra_8x8
90	org.sc29.wg11.mpeg4.part10.php.Residual.Algo_Merge_8x8_to_16x16
91	org.sc29.wg11.mpeg4.part10.php.Residual.Algo_DCR_Hadamard_C_HROMA
92	org.sc29.wg11.mpeg4.part10.php.Residual.Algo_DCR_Hadamard_LUMA_Scaling
93	org.sc29.wg11.mpeg4.part10.php.Residual.Algo_IQ_QSAndSLAndIDCTScaler_4x4
94	org.sc29.wg11.mpeg4.part10.php.Intrapred.Algo_Merge_8x8_to_16x16_norasterscan
95	org.sc29.wg11.mpeg4.part10.php.Intrapred.Algo_Split_16x16_to_8x8_norasterscan
96	org.sc29.wg11.mpeg4.part10.php.Residual.Mgnt_I4x4_I8x8_demux
97	org.sc29.wg11.mpeg4.part10.php.Residual.Mgnt_I4x4_I8x8_mux
98	org.sc29.wg11.mpeg4.part10.php.interPred.Algo_GeneratePredWeight
99	org.sc29.wg11.mpeg4.part10.php.interPred.Mgnt_SelectMvpLX
100	org.sc29.wg11.mpeg4.part10.php.interPred.Algo_MvLXReconstr
101	org.sc29.wg11.mpeg4.part10.php.interPred.Algo_MvBuffer
102	org.sc29.wg11.mpeg4.part10.php.interPred.Mgnt_SelectMvpLX
103	org.sc29.wg11.mpeg4.part10.php.interPred.Mgnt_SelectRefIdx
104	org.sc29.wg11.mpeg4.part10.php.interPred.Algo_FrameNumToPocList
105	org.sc29.wg11.mpeg4.part10.php.deblockingFilter.Algo_DBF_AdaptiveFilter
106	org.sc29.wg11.mpeg4.part10.php.deblockingFilter.Algo_MvComponentReorder

4.3 Token Pool

Every token is listed in the 'token pool' that is the table of managing all tokens used in VTL. To facilitate the feasibility of connections among input and output ports of different FUs described in this specification, Table 3 lists all data elements (called "token", which is used throughout this document). The ID field here is informative and used for easy lookup.

Table 3 — List of all token types that are used in the descriptions of FUs in this section.

ID & Name	Description
1 BIT	Token which value is 0 or 1. The bits belongs to the non-decoded bitstream
2 ACKNOWLEDGMENT	Boolean token (True or False) indicating a acknowledgment. True means it is ok, False, not ok.
3 MCBPC	Token representing the MCBPC element of syntax
4 CBBY	Token representing the CBBY element of syntax
5 DCT_DC_SIZE	Token representing the element of syntax DCT_DC_SIZE
6 DCT_DC_DIFF	Token representing the element of syntax DCT_DC_DIFF
7 RUN	Token representing the RUN value in the decoding of the DCT coefficients
8 VALUE	Token representing the VALUE value in the decoding of the DCT coefficients
9 LAST	Token representing the LAST value in the decoding of the DCT coefficients
10 MEM_ADDRESS	Token representing an address in the memory of the frames
11 MEM_WIDTH	Token representing the width in pixel of the data to read or write in the memory of the frames starting from the MEM_ADDRESS information
12 MEM_HEIGHT	Token representing the height in pixel of the data to read or write in the memory of the frames starting from the MEM_ADDRESS information
13 MEM_DATA	Token representing a data stored in the memory of the frames
14 WIDTH	Token representing the width value of video frame in pixels
15 HEIGHT	Token representing the height value of video frame in pixels
16 SIZE	Token representing the size of the current frame in number of macroblock in width and number of macroblock in height
17 DC	Tokens representing the DC coefficients. Each token represent one coefficient
18 AC	Token representing AC coefficients without DC coefficients
19 BLOCK	Token representing BLOCK that consists of 8x8 pixels
20 MB	Token representing a macroblock that consists of BLOCKs
21 MVD	Tokens representing the motion vector differences decoded by the syntax parsing process
22 MV	Tokens representing the coordinates of the motion vectors
23 QUANT	Token representing the QUANT value of quantization
24 COORDINATE	Token representing coordinates of block or macroblocks
25 DISPLACEMENT	Token representing the displacement between pixels (e.g., half- or quarter-pixel)
26 SIGN	Token representing a sign.
27 ROUND	Boolean token (True or False) indicating whether rounding is to be made or not

ID & Name	Description
28 BTYPE	Integer token (2 = INTRA), (1 = INTER), (15 = NEW VOP)
29 ACCODED	Boolean token (True or False) indicating whether AC is coded or not
30 ACPRED	Boolean token (True or False) indicating whether AC prediction is made or not
31 ACPRED_DIR	Token representing the order of prediction of the AC coefficients
32 MOTION	Boolean token (True or False) indicating whether motion predication is made or not
33 FOURMV	Boolean token (True or False) indicating whether FOURMV is to be used or not
34 F_CODE	Token representing a value of FCODE of VOP to specify the range of motion vectors
35 RBSP	Token representing the data in the Raw Byte Sequence Payload
36 NAL_SIZE	Token representing the size in byte of a Network Abstraction Layer unit
37 SUB_MB_TYPE	Token representing sub mb type value for sub partition
38 FRAME_NUM	Token representing the frame number of the current picture to decode
39 FRAME_TO_READ	Token representing the frame to read
40 PART_SIZE	Token representing the size in pixel for a partition of a macroblock, first the width of the partition, then the height.
41 REF_ID	Token representing the identification of the decoded reference frame in memory
42 MB_ID	Token representing the number wich identified a macroblock in a frame in position x and y. The macroblocks are counted in a frame using raster scan order.
43 POC	Token representing the index of the frame to display
44 REF_ORDER	Token representing the index of frames to store into long frame reference and short terme reference
45 MMCO	Token representing the order of the index for frame to store in memory
46 PRED_MODE_INTRA	Token representing the prediction mode of an intra macroblock
47 MB_TYPE	Token representing the type of prediction used by a macroblock (Intra, Intra 4x4, Inter, new frame IDR, non IDR or new slice)
48 SLICE_DBF_PARAM	Tokens representing for each slice if deblocking filter is enabled and the offset used in accessing the α and tC0 deblocking filter tables for filtering operations and the offset used in accessing the β deblocking filter table for filtering operations for each slice
49 MB_DBF_PARAM	Tokens representing for each MB the offset used in accessing the β deblocking filter table for filtering operations
50 CBP_BLK	Token representing which of the sixteen 4x4 luma blocks of a macroblock may contain non-zero transform coefficient levels
51 SELECT	Token representing which blocks will selected (from 0-3)
52 ST_LIST	Token representing the short term reference list
53 ST_LIST_SZ	Token representing the size of the short term reference list
54 DEL_LIST	Token representing the list of reference frames that have to be deleted

5 General-Purpose FUs

5.1 Syntax Parsing

5.1.1 Generic Syntax Parser

FU Name		Algo_ SynP_Generic	
Description		This is a generic syntax parser that needs BSD as an input. Input and output port will be defined as the information in the BSD.	
Profiles@levels supported			
Input			
Name		Token	
Output			
Name		Token	
Parameter			
Name		Description	Range

5.1.2 Algo_Byte2bit

FU Name		Algo_Byte2bit	
Description		This module will take 8 bits in once and will output them one by one.	
Profiles@levels supported			
Input			
Name		Token	
BYTE		BIT token	
Output			
Name		Token	
BITS		BIT token	
Parameter			
Name		Description	Range
Package			
package org.sc29.wg11.common			

5.1.3 Mgnt_Select_MB_4

FU Name	Mgnt_Select_MB_4		
Description	This module selects data from one of its 4 inputs and sends it to its output (X) according to select information.		
Profiles@levels supported	MPEG-4 AVC Constrained BP		
Input			
Name	Token		
IN_0	MB token		
IN_1	MB token		
IN_2	MB token		
IN_3	MB token		
SELECT	SELECT token		

Output		
Name	Token	
OUT	MB token	
Parameter		
Name	Description	Range
MB_WIDTH	Size in pixel of a macroblock	[8;16]
Package		
package org.sc29.wg11.common		

5.1.4 Mgnt_Merger420

FU Name	Mgnt_Merger420	
Description	This module merges data from YUV to compose a MB 16x16	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
Y	BLOCK token	
U	BLOCK token	
V	BLOCK token	
Select	SELECT token	
Output		
Name	Token	
YUV	MB token	
Parameter		
Name	Description	Range
MB_WIDTH	Size in pixel of a macroblock	[8;16]
Package		
package org.sc29.wg11.common		

5.1.5 Mgnt_Select_MB_8

FU Name	Mgnt_Select_MB_8
Description	This module selects data from one of its 8 inputs and sends it to its output according to select information.
Profiles@levels supported	MPEG-4 AVC Constrained BP
Input	
Name	Token
IN_0	MB token
IN_1	MB token
IN_2	MB token
IN_3	MB token
IN_4	MB token
IN_5	MB token
IN_6	MB token
IN_7	MB token
SELECT	SELECT token
Output	
Name	Token
OUT	MB token

Parameter		
Name	Description	Range
MB_WIDTH	Size in pixel of a macroblock	[8;16]
Package		
package org.sc29.wg11.common		

6 FUs for MPEG-4 Simple Profile

FUs for building MPEG-4 Simple Profile decoder are described in this sub-clause.

6.1 Syntax Parsing

6.1.1 Algo_SynP

FU Name	Algo_ SynP	
Description	This module is parsing all syntax element from an MPEG-4 Simple Profile (SP) bitstream.	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
BITS	BIT token	
Output		
Name	Token	
ROUND	ROUND token	
F_CODE	F_CODE token	
MV	MV token	
RUN	RUN token	
VALUE	VALUE token	
LAST	LAST token	
WIDTH	WIDTH token	
HEIGHT	HEIGHT token	
QP	QUANT token	
ACCODED	ACCODED token	
MOTION	MOTION token	
ACPRED	ACPRED token	
BTYPE	BTYPE token	
FOURMV	FOURMV token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser		

6.1.2 Mgnt_BlockExpand

FU Name	Mgnt_BlockExpand
Description	This module is composing a 8x8 block with RUN, VALUE and LAST syntax elements from the parser.
Profiles@levels supported	
Input	

Name		Token	
RUN		RUN token	
VALUE		VALUE token	
LAST		LAST token	
Output			
Name		Token	
OUT		BLOCK token	
Parameter			
Name		Description	Range
Package			
package org.sc29.wg11.mpeg4.part2.sp.parser			

6.1.3 Mgnt_Splitter420B

FU Name		Mgnt_Splitter420B	
Description		This module split each 8x8 block in 4 Y, 1 U and 1V depending on ACCODED and the BTYPE values.	
Profiles@levels supported			
Input			
Name		Token	
B		BLOCK token	
ACCODED		ACCODED token	
BTYPE		BTYPE token	
Output			
Name		Token	
B_Y		BLOCK token	
B_U		BLOCK token	
B_V		BLOCK token	
Parameter			
Name		Description	Range
Package			
package org.sc29.wg11.mpeg4.part2.sp.parser			

6.1.4 Mgnt_Splitter420MV

FU Name	Mgnt_SplitterMV
Description	This module split each 6 MV token in 4 Y, 1 U and 1V when MOTION is true
Profiles@levels supported	
Input	
Name	Token
MV	MV token
MOTION	MOTION token
Output	
Name	Token
MV_Y	MV token
MV_U	MV token
MV_V	MV token

Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser		

6.1.5 Algo_MVR_MedianOfThreeLeftAndTopAndTopRight

FU Name	Algo_MVSequence_LeftAndTopAndTopRight	
Description	This module computes the sequence of coordinates of the different blocks necessary for the prediction of the motion vectors. From the type of encoding of the block (given by the FOURMV, MOTION, VOPMODE, and WIDTH), the FU generates the coordinates of the blocks (on the A port) which will be used by the FU charged of reconstructing the motion vectors for each 8x8 block.	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
FOURMV	FOURMV token	
MOTION	MOTION token	
BTYPE	BTYPE token	
WIDTH	WIDTH token	
Output		
Name	Token	
A	COORDINATE token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser		

6.1.6 Mgnt_Splitter_420_TYPE

FU Name	Mgnt_Splitter_420_TYPE
Description	This module distributes each VOPMODE, ACCODED, ACPRED, and MOTION for each Y, U, and V components sequentially.
Profiles@levels supported	MPEG-4 SP
Input	
Name	Token
BTYPE	BTYPE token
MOTION	MOTION token
ACCODED	ACCODED token
ACPRED	ACPRED token
QP	QUANT token
Output	
Name	Token
BTYPE_Y	BTYPE token
BTYPE_U	BTYPE token
BTYPE_V	BTYPE token
MOTION_Y	MOTION token
MOTION_U	MOTION token
MOTION_V	MOTION token

ACCODED_Y	ACCODED token	
ACCODED_U	ACCODED token	
ACCODED_V	ACCODED token	
ACPRED_Y	ACPRED token	
ACPRED_U	ACPRED token	
ACPRED_V	ACPRED token	
QP_Y	QUANT token	
QP_U	QUANT token	
QP_V	QUANT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser		

6.1.7 Algo_VLDtableB6_MPEG4Part2

FU Name	Algo_VLDtableB6_MPEG4Part2	
Description	This Functional Unit decodes the mcbpc element of syntax of a MPEG-4 conformant bitstream. It is in the case of intra mode. It decodes the bits according to the table B.6 in the reference document (ISO/IEC 14496-2).	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
BITS	BIT token	
Output		
Name	Token	
FINISH	ACKNOWLEDGMENT token	
DATA	MCBPC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser.vlc		

6.1.8 Algo_VLDtableB7_MPEG4Part2

FU Name	Algo_VLDtableB7_MPEG4Part2	
Description	This Functional Unit decodes the mcbpc element of syntax of a MPEG-4 conformant bitstream. It is in the case of inter mode. It decodes the bits according to the table B.7 in the reference document (ISO/IEC 14496-2).	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
BITS	BIT token	
Output		
Name	Token	
FINISH	ACKNOWLEDGMENT token	
DATA	MCBPC token	
Parameter		
Name	Description	Range

Package

package org.sc29.wg11.mpeg4.part2.sp.parser.vlc

6.1.9 Algo_VLDtableB8_MPEG4Part2

FU Name	Algo_VLDtableB8_MPEG4Part2	
Description	This Functional Unit decodes the cbpy element of syntax of a MPEG-4 conformant bitstream. It decodes the bits according to the table B.8 in the reference document (ISO/IEC 14496-2).	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
BITS	BIT token	
Output		
Name	Token	
FINISH	ACKNOWLEDGMENT token	
DATA	CBPY token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser.vlc		

6.1.10 Algo_VLDtableB12_MPEG4Part2

FU Name	Algo_VLDtableB12_MPEG4Part2	
Description	This Functional Unit decodes the elements of syntax relative to the motion vectors in a MPEG-4 conformant bitstream (“horizontal_mv_data” and “vertical_mv_data”). It decodes the bits according to the table B.12 in the reference document (ISO/IEC 14496-2).	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
BITS	BIT token	
Output		
Name	Token	
FINISH	ACKNOWLEDGMENT token	
DATA	MVD token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser.vlc		

6.1.11 Algo_VLDtableB13_MPEG4Part2

FU Name	Algo_VLDtableB13_MPEG4Part2	
Description	This Functional Unit decodes the "dct_dc_size" element of syntax in a MPEG-4 conformant bitstream. The decoding applies only for the luminance macroblocks. It	

	decodes the bits according to the table B.13 in the reference document (ISO/IEC 14496-2).	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
BITS	BIT token	
Output		
Name	Token	
FINISH	ACKNOWLEDGMENT token	
DATA	DCT_DC_SIZE token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser.vlc		

6.1.12 Algo_VLDtableB14_MPEG4Part2

FU Name	Algo_VLDtableB14_MPEG4Part2	
Description	This Functional Unit decodes the “dct_dc_size” element of syntax in a MPEG-4 conformant bitstream. The decoding applies only for the chrominance macroblocks. It decodes the bits according to the table B.14 in the reference document (ISO/IEC 14496-2).	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
BITS	BIT token	
Output		
Name	Token	
FINISH	ACKNOWLEDGMENT token	
DATA	DCT_DC_SIZE token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser.vlc		

6.1.13 Algo_VLDtableB15_MPEG4Part2

FU Name	Algo_VLDtableB15_MPEG4Part2		
Description	This Functional Unit decodes the “dct_dc_differencial” element of syntax in a MPEG-4 conformant bitstream. It decodes the bits according to the table B.15 in the reference document (ISO/IEC 14496-2).		
Profiles@levels supported	MPEG-4 SP		
Input			
Name	Token		
BITS	BIT token		
Output			
Name	Token		
FINISH	ACKNOWLEDGMENT token		

DATA	DCT_DC_DIFF token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser.vlc		

6.1.14 Algo_VLDtableB16_MPEG4Part2

FU Name	Algo_VLDtableB16_MPEG4Part2	
Description	This Functional Unit decodes the INTRA coefficients as elements of syntax in a MPEG-4 conformant bitstream. It decodes the bits according to the table B.16 in the reference document (ISO/IEC 14496-2).	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
BITS	BIT token	
Output		
Name	Token	
FINISH	ACKNOWLEDGMENT token	
RUN	RUN token	
VALUE	VALUE token	
LAST	LAST token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser.vlc		

6.1.15 Algo_VLDtableB17_MPEG4Part2

FU Name	Algo_VLDtableB17_MPEG4Part2	
Description	This Functional Unit decodes the INTER coefficients as elements of syntax in a MPEG-4 conformant bitstream. It decodes the bits according to the table B.16 in the reference document (ISO/IEC 14496-2).	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
BITS	BIT token	
Output		
Name	Token	
FINISH	ACKNOWLEDGMENT token	
RUN	RUN token	
VALUE	VALUE token	
LAST	LAST token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.parser.vlc		

6.2 Texture Decoding

6.2.1 Algo_IQ_QSAndQmatrixMp4vOrH263Scaler

FU Name	Algo_IQ_QSAndQmatrixMp4vOrH263Scaler	
Description	This module computes inverse quantization of AC for 8x8 blocks. Supports both MPEG and H.263 Inverse Quantization modes.	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
DC	DC token	
AC	AC token	
QP	QUANT token	
Output		
Name	Token	
OUT	BLOCK token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.texture		

6.2.2 Algo_DCRAAddr_ThreeLeftTop_8x8

FU Name	Algo_DCRAAddr_ThreeLeftTop_8x8	
Description	This module calculates the addresses of the three neighboring blocks for the current 8x8 block used for DC prediction. If any of the neighbors is not coded for some reason (either outside frame boundaries or skipped by encoder), the address is set as zero. Otherwise the lowest two bits specify the 8x8 component in the macroblock and the other higher order bits specify the macroblock index using circular buffer addressing.	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
BTYPE	BTYPE token	
WIDTH	WIDTH token	
Output		
Name	Token	
A	COORDINATE token	
B	COORDINATE token	
C	COORDINATE token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction		

6.2.3 Algo_DCRAAddr_ThreeLeftTop_16x16

FU Name	Algo_DCRAddr_ThreeLeftTop_16x16	
Description	This module calculates the addresses of the three neighboring blocks for the current 8x8 block used for DC prediction. This module manages groups of four 8x8 blocks as follows: +---+---+ 0 1 +---+---+ 2 3 +---+---+ If any of the neighbors is not coded for some reason (either outside frame boundaries or skipped by encoder), the address is set as zero. Otherwise the lowest two bits specify the 8x8 component in the macroblock and the other higher order bits specify the macroblock index using circular buffer addressing.	
	Profiles@levels supported	
MPEG-4 SP		
Input		
Name	Token	
BTYP	BTYP token	
WIDTH	WIDTH token	
Output		
Name	Token	
A	COORDINATE token	
B	COORDINATE token	
C	COORDINATE token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction		

6.2.4 Algo_DCRInvPred_CHROMA_8x8

FU Name	Algo_DCRInvPred_CHROMA_8x8
Description	This module reconstructs the DC coefficient of the current 8x8 block based on the gradients between neighboring block DC coefficients (see ISO/IEC 14496-2). This module also forwards the decoded prediction direction to the inverse AC prediction (IAP) module and a pointer to the neighboring block used for the prediction. Since inverse quantization is necessary to reconstruct the DC coefficient, the decoded quantization parameter is forwarded to the inverse quantization module. This FU applies for 8x8 blocks of chrominance.
Profiles@levels supported	MPEG-4 SP
Input	
Name	Token
A	COORDINATE token

B	COORDINATE token
C	COORDINATE token
ACCODED	ACCODED token
ACPRED	ACPRED token
QFS_DC	DC token
QP	QUANT token
BTYPE	BTYPE token
WIDTH	WIDTH token
Output	
Name	Token
QF_DC	DC token
PTR	COORDINATE token
AC_PRED_DIR	ACPRED_DIR token
SIGNED	SIGN token
QUANT	QUANT token
PREV_QUANT	QUANT token
Parameter	
Name	Description
	Range
Package	
package org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction	

6.2.5 Algo_DCRInvPred_LUMA_16x16

FU Name	Algo_DCRInvPred_LUMA_16x16
Description	This module reconstructs the DC coefficient of the current 8x8 block based on the gradients between neighboring block DC coefficients (see ISO/IEC 14496-2). This module also forwards the decoded prediction direction to the inverse AC prediction (IAP) module and a pointer to the neighboring block used for the prediction. Since inverse quantization is necessary to reconstruct the DC coefficient, the decoded quantization parameter is forwarded to the inverse quantization module. This FU applies for four 8x8 blocks of luminance.
Profiles@levels supported	MPEG-4 SP
Input	
Name	Token
A	COORDINATE token
B	COORDINATE token
C	COORDINATE token
ACCODED	ACCODED token
ACPRED	ACPRED token
QFS_DC	DC token
QP	QUANT token
BTYPE	BTYPE token
WIDTH	WIDTH token
Output	
Name	Token
QF_DC	DC token
PTR	COORDINATE token
AC_PRED_DIR	ACPRED_DIR token

SIGNED	SIGN token	
QUANT	QUANT token	
PREV_QUANT	QUANT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction		

6.2.6 Algo_IS_ZigzagOrAlternateHorizontalVertical_8x8

FU Name	Algo_IS_ZigzagOrAlternateHorizontalVertical_8x8	
Description	This module inverts the one-dimensional array of coefficients ordered in zigzag (AC_PRED_DIR=0), alternate vertical (AC_PRED_DIR=1) or alternate horizontal (AC_PRED_DIR=2) scan to 2D raster order. It inputs a list of 64 integer coefficients (one per 8x8 block) and outputs the ordered list of integer according to the value of the token AC_PRED_DIR.	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
AC_PRED_DIR	AC_PRED_DIR token	
QFS_AC	AC token	
Output		
Name	Token	
PQF_AC	AC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.texture		

6.2.7 Algo_IAP_AdaptiveHorizontalOrVerticalPred_8x8

FU Name	Algo_IAP_AdaptiveHorizontalOrVerticalPred_8x8	
Description	This module computes inverse AC prediction for specific AC coefficients of 8x8 blocks that have been flagged in the bitstream as coded in this fashion. It inputs a list of 63 AC coefficients received in a horizontal raster manner after being re-ordered by the inverse scan block and the addresses of the 8x8 block used for the prediction in the encoder. It outputs a list of 63 reconstructed AC coefficients sent in a horizontal raster man. The AC_PRED_DIR token communicates the direction of prediction: - AC_PRED_DIR = -2 => NEWVOP flag - AC_PRED_DIR = -1 => An un-coded block so skip inverse AC prediction - AC_PRED_DIR = 0 => No inverse AC prediction but use zigzag inverse scan - AC_PRED_DIR = 1 => Prediction form the left and use alternate vertical scan - AC_PRED_DIR = 2 => Prediction form the top and use alternate horizontal scan	
Profiles@levels supported	MPEG-4 SP	

Input		
Name	Token	
PQF_AC	AC token	
PTR	COORDINATE token	
AC_PRED_DIR	ACPRED_DIR token	
QP	QUANT token	
PREV_QP	QUANT token	
Output		
Name	Token	
QF_AC	AC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.texture		

6.2.8 Algo_IAP_AdaptiveHorizontalOrVerticalPred_16x16

FU Name	Algo_IAP_AdaptiveHorizontalOrVerticalPred_16x16	
Description	This module computes inverse AC prediction for specific AC coefficients of a 16x16 blocks that have been flagged in the bitstream as coded in this fashion. It inputs four lists of 63 AC coefficients received in a horizontal raster manner after being re-ordered by the inverse scan block and the addresses of the four 8x8 block used for the prediction in the encoder. It outputs four lists of 63 reconstructed AC coefficients sent in a horizontal raster man. The AC_PRED_DIR token communicates the direction of prediction: - AC_PRED_DIR = -2 => NEWVOP flag - AC_PRED_DIR = -1 => An un-coded block so skip inverse AC prediction - AC_PRED_DIR = 0 => No inverse AC prediction but use zig zag inverse scan - AC_PRED_DIR = 1 => Prediction form the left and use alternate vertical scan - AC_PRED_DIR = 2 => Prediction form the top and use alternate horizontal scan	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
PQF_AC	AC token	
PTR	COORDINATE token	
AC_PRED_DIR	ACPRED_DIR token	
QP	QUANT token	
PREV_QP	QUANT token	
Output		
Name	Token	
QF_AC	AC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.texture		

6.2.9 Algo_IDCT2D_ISOIEC_23002_1

FU Name	Algo_IDCT2D_ISOIEC_23002_1	
Description	This module computes the 8x8 Inverse Discrete Cosine Transform (IDCT) defined as	
	$f(x,y)=\frac{2}{N}\sum_{u=0}^{N-1}\sum_{v=0}^{N-1}C(u)C(v)F(u,v)\cos\frac{(2x+1)u\pi}{2N}\cos\frac{(2y+1)v\pi}{2N}$ with $u,v,x,y=0,1,2,\dots,N-1$ where x,y are spatial coordinates in the sample domain u,v are coordinates in the transform domain $C(u),C(v)=\begin{cases}\frac{1}{\sqrt{2}} & \text{for } u,v=0 \\ 1 & \text{otherwise}\end{cases}$ It inputs a list of 64 coefficients and outputs a list of 64 decoded coefficients.	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
IN	BLOCK token	
SIGNED	SIGN token	
Output		
Name	Token	
OUT	BLOCK token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.texture		

6.2.10 Mgnt_DCSplit

FU Name	Mgnt_DCSplit	
Description	This module separates the DC coefficient from the AC coefficients. It takes as an input a list of 64 tokens and outputs on the DC port the DC coefficient (the first one) and the AC coefficient (the other 63) on the AC port.	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
IN	BLOCK token	
Output		
Name	Token	
AC	AC token	
DC	DC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.texture		

6.3 Motion Compensation

6.3.1 Mgnt_FB_w_Address_8x8

FU Name	Mgnt_FB_Adress_8x8	
Description	This module generates addresses for the frame buffer block. Write addresses (WA) are used to save the current pixels for retrieval and read addresses (RA) are used to retrieve interpolation pixel values. This module is a frame buffer. It saves data WD at address WA. It outputs the data RD located at address RA.	
Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
HEIGHT	HEIGHT token	
MOT	MOTION token	
MV	MV token	
ROUND	ROUND token	
VOPMODE	BTYPE token	
WIDTH	WIDTH token	
WD	MB token	
Output		
Name	Token	
RA	MEM_ADDRESS token	
RD	MB token	
HALFPEL	DISPLACEMENT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.texture.motion		

6.3.2 Mgnt_FB_w_Address_16x16

FU Name	Mgnt_FB_w_Address_16x16
Description	This module generates addresses for the frame buffer block. Write addresses (WA) are used to save the current pixels for retrieval and read addresses (RA) are used to retrieve interpolation pixel values. This module is a frame buffer. It saves data WD at address WA. It outputs the data RD located at address RA.
Profiles@levels supported	MPEG-4 SP
Input	
Name	Token
HEIGHT	HEIGHT token
MOT	MOTION token
MV	MV token
ROUND	ROUND token
BTYPE	BTYPE token
WIDTH	WIDTH token
WD	MB token
Output	
Name	Token
RA	MEM_ADDRESS token

RD	MB token	
HALFPEL	DISPLACEMENT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.motion		

6.3.3 Algo_PictureReconstruction_Saturation

FU Name	Algo_PictureReconstruction_Saturation		
Description	This module adds texture pixels (TEX) and MC prediction pixels (MOT) in order to output the decoded pixels. For each ACCODED and WIDTH token inputted and according to the type of encoding of the block under consideration, the FU consumes either: - one MB token from the MOT input if the block is only a “motion” block - one MB token from the TEX input if the block is only “texture” block - one MB token from TEX input and one MB token from MOT input otherwise		
Profiles@levels supported	MPEG-4 SP		
Input			
Name	Token		
MOT	MB token		
TEX	MB token		
ACCODED	ACCODED token		
BTYPE	BTYPE token		
Output			
Name	Token		
VID	MB token		
Parameter			
Name	Description	Range	
Package			
package org.sc29.wg11.mpeg4.part2.sp.motion			

6.3.4 Algo_Interp_HalfpelBilinearRoundingControl

FU Name	Algo_Interp_HalfpelBilinearRoundingControl	
Description	This module interpolates the pixels in case of a displacement between two frames of half a pixel. This is done according to the following scheme: $\begin{array}{ccccc} A & \oplus & b & \bigcirc & B \\ a & & & & + \\ c & \bigcirc & d & \bigcirc & \\ C & + & & & D + \end{array}$ + Integer pixel position $\bigcirc$ Half pixel position $\begin{aligned} a &= A, \\ b &= (A + B + 1 - \text{rounding_control}) / 2 \\ c &= (A + C + 1 - \text{rounding_control}) / 2, \\ d &= (A + B + C + D + 2 - \text{rounding_control}) / 4 \end{aligned}$	

Profiles@levels supported	MPEG-4 SP	
Input		
Name	Token	
RD	MB token	
halfpel	DISPLACEMENT token	
Output		
Name	Token	
MOT	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part2.sp.motion		

7 FUs for MPEG-4 AVC Constrained Baseline Profile

FUs for building MPEG-4 AVC Constrained Baseline Profile decoder are described in this sub-clause.

7.1 Syntax Parsing

7.1.1 Algo_NALU

FU Name	Algo_NALU	
Description	This module removes emulation_prevention_three_byte (0x03) and send to its output RBSP bytes and the number of rbsp bytes between 2 NALs.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
bits8	BIT token	
Output		
Name	Token	
bits_rbsp8	RBSP token	
nb_rbsp_byte	NAL_SIZE token	
Parameter		
Name	Description	Range

7.1.2 Algo_SynP

FU Name	Algo_SynP	
Description	This module analyzes a sequence of tokens and realizes Parsing for MPEG-4 AVC syntax	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
BYTE	BIT token	
Output		
Name	Token	

REF_REORDERING	REF_ORDER token uint (size=31)	
NB_REF_FRAME_I0	BIT token uint (size=5)	
MMCO	MMCO token uint(size=31)	
NUM_FREF_FRAME	NUM_REF_FRAME token uint(size=31)	
FRAME_NUM	FRAME_NUM token uint(size=31)	
REF_TYPE_I0	BIT token	
MAX_FRAME_NUM	BIT token uint(size=31)	
SLICE_DBF_PARAM	BIT token uint(size=6)	
CONSTRAINED_IFLAG	BIT token	
DBP_MAX_SZ	BIT token uint(size=6)	
PIC_SIZE_IN_MB	SIZE token	
POC	POC token	
MB_LOCATION	MB_ID token	
MB_TYPE	MB_TYPE token	
CBP_BLK	CBP_BLK token	
I_PCM	MB token	
SUB_MB_TYPE	SUB_MB_TYPE token	
INTRA_PRED_MODE	PRED_MODE_INTRA token	
INTRA_PRED_MODE_C	PRED_MODE_INTRA token	
RUN	RUN token	
VALUE	VALUE token	
LAST	LAST token	
QP	QUANT token	
QP_Cb	QUANT token	
QP_Cr	QUANT token	
MB_PRED_REF_IDX_I0	REF_ID token	
MB_PRED_MVD_I0	MVD token	
SUB_MB_PRED_REF_IDX_I0	REF_ID token	
MB_PRED_MVD_I0	MVD token	
WIDTH	WIDTH token	
HEIGHT	HEIGHT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.parser		

7.1.3 Algo_BlockExpand

FU Name	Algo_BlockExpand
Description	This module decodes the DCT coefficients as elements of syntax in a MPEG-4 AVC Constrained BP conformant bitstream.
Profiles@levels supported	MPEG-4 AVC Constrained BP
Input	
Name	Token
LAST	LAST token
RUN	RUN token
VALUE	VALUE token
MB_TYPE	MB_TYPE token
Output	
Name	Token
BLOCK	BLOCK token

Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.parser		

7.1.4 Algo_BlockSplit

FU Name	Algo_BlockSplit	
Description	This module splits DCT coefficient from LUMA/CHROMA into the DC and AC CHROMA/LUMA coefficients.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
BLOCK	BLOCK token	
MB_TYPE	MB_TYPE token	
Output		
Name	Token	
BLOCK_U_AC	AC token	
BLOCK_U_DC	DC token	
BLOCK_V_AC	AC token	
BLOCK_V_DC	DC token	
BLOCK_Y_AC	AC token	
BLOCK_Y_DC	DC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.parser		

7.1.5 Algo_IntraPred_Split

FU Name	Algo_IntraPred_Split	
Description	This module sends information token of the prediction type (Mb_Type for LUMA and Mb_TypeC for CHROMA) and mode (PredMode) used by the current macroblock according to MbIntraFlag and IntraPredMode Input.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
MB_TYPE	MB_TYPE token	
INTRA_PRED_MODE	PRED_MODE_INTRA token	
MB_LOCATION	MB_ID token	
CONSTRAINED_IFLAG	BIT token	
Output		
Name	Token	
PRED_MODE	PRED_MODE_INTRA token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.parser		

7.1.6 Algo_Parser_I_PCM

FU Name	Algo_Parser_I_PCM	
Description	This module splits an I_PCM macroblobs into Y, U and V I_PCM blocks.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
I_PCM	MB token	
Output		
Name	Token	
I_PCM_Y	MB token	
I_PCM_U	MB token	
I_PCM_V	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.parser		

7.1.7 Algo_DemuxParserInfoForBlocks_Chroma

FU Name	Algo_DemuxParserInfoForBlocks_Chroma	
Description	This module sends information for all Chroma prediction modules (intra 8x8, inter).	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
COEF_ACR	MB token	
MB_LOCATION	MB_ID token	
MB_TYPE	MB_TYPE token	
CONSTRAINED_IFLAG	BIT token	
Output		
Name	Token	
COEF_ACR_INTRA	BLOCK token	
NEIGHBOUR_INTRA	COORDINATE token	
COEF_ACR_INTER	BLOCK token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.selectMacroblock		

7.1.8 Algo_DemuxParserInfoForBlocks_Luma

FU Name	Algo_DemuxParserInfoForBlocks_Luma
Description	This module sends information for all Luma prediction modules (intra 4x4, intra 16x16, inter).
Profiles@levels supported	MPEG-4 AVC Constrained BP
Input	
Name	Token
COEF_ACR	MB token

MB_LOCATION	MB_ID token	
MB_TYPE	MB_TYPE token	
PRED_MODE	PRED_INTRA_MODE token	
CONSTRAINED_IFLAG	BIT token	
Output		
Name	Token	
COEF_ACR_INTRA4	BLOCK token	
NEIGHBOUR_INTRA4	COORDINATE token	
PRED_MODE4	PRED_INTRA_MODE token	
COEF_ACR_INTRA16	BLOCK token	
NEIGHBOUR_INTRA16	COORDINATE token	
PRED_MODE16	PRED_INTRA_MODE token	
COEF_ACR_INTER	BLOCK token	
SELECT	SELECT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.selectMacroblock		

7.2 Texture Decoding

7.2.1 Algo_IS_Zigzag_4x4

FU Name	Algo_IS_Zigzag_4x4	
Description	This module inverts the one-dimensional array of coefficients ordered in zigzag scan to 2D raster order. It inputs a list of 16 integer coefficients (one per 4x4 block) and outputs the ordered list of integer values.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
X	BLOCK token	
Output		
Name	Token	
Y	BLOCK token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.Residual		

7.2.2 Algo_DCR_Hadamard_LUMA_IHT1d

FU Name	Algo_DCR_Hadamard_LUMA_IHT1d		
Description	This module computes 1 dimensional 4x4 Inverse Hadamard Transform for DC luminance coefficients of an intra_16x16 prediction block as a part of 2 dimensional 4x4 Inverse Hadamard Transform.		
Profiles@levels supported	MPEG-4 AVC Constrained BP		
Input			
Name	Token		
X	DC token		
Output			

Name	Token	
Y	DC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.Residual		

7.2.3 Algo_Transpose4x4

FU Name	Algo_Transpose4x4	
Description	This module transposes 4x4 integer array.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
X	DC token	
Output		
Name	Token	
Y	DC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.Residual		

7.2.4 Algo_DCR_Hadamard_LUMA_Reordering

FU Name	Algo_DCR_Hadamard_LUMA_Reordering
Description	This module reorders 4x4 DC luminance coefficients of an intra 16x16 prediction macroblock from raster scan order to the order of block number specified in MPEG-4 AVC specification. The order of block number in a MB <pre>+---+---+---+---+ 0 1 4 5 +---+---+---+---+ 2 3 6 7 +---+---+---+---+ 8 9 12 13 +---+---+---+---+ 10 11 14 15 +---+---+---+---+</pre>
Profiles@levels supported	MPEG-4 AVC Constrained BP
Input	
Name	Token
X	DC token
Output	
Name	Token
Y	DC token

Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.Residual		

7.2.5 Algo_DCR_Hadamard_LUMA_Scaling

FU Name	Algo_DCR_Hadamard_LUMA_Scaling	
Description	This module computes inverse quantization of DC luminance coefficients for intra 16x16 prediction macroblock.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
I	DC token	
QP	QUANT token	
MB_TYPE	MB_TYPE token	
Output		
Name	Token	
O	DC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.Residual		

7.2.6 Algo_DCR_Hadamard_CHROMA

FU Name	Algo_DCR_Hadamard_CHROMA	
Description	This module computes 2 dimensional 2x2 Inverse Hadamard Transform and inverse quantization for DC chrominance coefficients of a macroblock.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
IN	DC token	
QP	QUANT token	
Output		
Name	Token	
OUT	DC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.Residual		

7.2.7 Algo_IT4x4_1d

FU Name	Algo_IT4x4_1d	
Description	This module computes 1 dimensional 4x4 Inverse Integer Transform for 4x4 block coefficients according to MPEG-4 AVC specification as a part of 2 dimensional 4x4 Inverse Integer Transform.	

Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
X	BLOCK token	
Output		
Name	Token	
Y	BLOCK token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.Residual		

7.2.8 Algo_IT4x4_Addshift

FU Name	Algo_IT4x4_Addshift	
Description	This module computes right shifting of input integer value after adding value of 32 as a part of 2 dimensional 4x4 Inverse Integer Transform specified in MPEG-4 AVC specification.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
X	BLOCK token	
Output		
Name	Token	
Y	BLOCK token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.Residual		

7.2.9 Algo_IntraPred_LUMA_16x16

FU Name	Algo_IntraPred_LUMA_16x16	
Description	This module computes intra 16x16 predicted block for a 16x16 luminance block according to MPEG-4 AVC intra 16x16 prediction.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
Y_LEFT	COORDINATE token	
Y_UP	COORDINATE token	
Y_UP_LEFT	COORDINATE token	
AVAIL	ACKNOWLEDGMENT token	
PRED_MODE	PRED_MODE_INTRA token	
Output		
Name	Token	
MPR	MB token	
Parameter		
Name	Description	Range

Package
package org.sc29.wg11.mpeg4.part10.cbp.intraPred

7.2.10 Algo_IntraPred_LUMA_4x4

FU Name	Algo_IntraPred_LUMA_4x4	
Description	This module computes intra 4x4 predicted block for a 4x4 luminance block according to MPEG-4 AVC intra 4x4 prediction.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
Y_LEFT	COORDINATE token	
Y_UP	COORDINATE token	
Y_UP_LEFT	COORDINATE token	
AVAIL	ACKNOWLEDGMENT token	
PRED_MODE	PRED_MODE_INTRA token	
Output		
Name	Token	
MPR	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.intraPred		

7.2.11 Algo_Merge_4x4_to_16x16

FU Name	Algo_Merge_4x4_to_16x16	
Description	This module merge 4x4 blocks send in rasterscan order into a 16x16 macroblocks.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
X	MB token	
Output		
Name	Token	
Y	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.Residual		

7.2.12 Algo_IQ_QSAndSLAndIDCTScaler_4x4

FU Name	Algo_IQ_QSAndSLAndIDCTScaler_4x4	
Description	This module computes inverse quantization of 16 luminance 4x4 blocks and 4 chrominance 4x4 blocks for Cb and Cr components within a macroblock.	

Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
IN	BLOCK token	
QP	QUANT token	
IS_DC	BIT token	
Output		
Name	Token	
OUT	BLOCK token	
Parameter		
Name	Description	Range
NB4x4	Number of block 4x4 in a block	[4; 16]
Package		
package org.sc29.wg11.mpeg4.part10.cbp.Residual		

7.2.13 Mgnt_IQ_INTRA16x16

FU Name	Mgnt_IQ_INTRA16x16	
Description	This module combines DC coefficients, if available, with AC coefficients within a 16x16 block	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
COEF_DC	BLOCK token	
MB_TYPE	MB_TYPE token	
COEF_AC	BLOCK token	
Output		
Name	Token	
IS_DC	BIT token	
O	BLOCK token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.Residual		

7.2.14 Algo_IntraPred_4x4_to_8x8

FU Name	Algo_IntraPred_4x4_to_8x8	
Description	This module merge 4x4 blocks send in rasterscan order into a 8x8 macroblocks.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
X	MB token	
Output		
Name	Token	
Y	MB token	
Parameter		
Name	Description	Range

Package
package org.sc29.wg11.mpeg4.part10.cbp.intraPred

7.2.15 Algo_IntraPred_CHROMA

FU Name	Algo_IntraPred_CHROMA	
Description	This module computes an intra chroma predicted block for a chrominance block according to MPEG-4 AVC intra chroma prediction.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
C_LEFT	COORDINATE token	
C_UP	COORDINATE token	
C_UP_LEFT	COORDINATE token	
AVAIL	ACKNOWLEDGMENT token	
PredMode	PRED_MODE_INTRA token	
Output		
Name	Token	
MPR	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.intraPred		

7.2.16 Mgnt_Intra16x16

FU Name	Mgnt_Intra_16x16	
Description	This module activates and sends the value of pixels needed for a full macrobloc intra prediction to output Y_LEFT, Y_UP, Y_UP_LEFT and the available edge for intra prediction to ouput. Values of needed pixels are received from EDGE input.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
EDGE	MB token	
NEIGHBOUR	BIT token	
Output		
Name	Token	
AVAIL	BIT token	
Y_LEFT	COORDINATE token	
Y_UP	COORDINATE token	
Y_UP_LEFT	COORDINATE token	
Parameter		
Name	Description	Range
MB_WIDTH	Size in pixel of macroblocks	[8;16]
Package		
package org.sc29.wg11.mpeg4.part10.cbp.intraPred		

7.2.17 Mgnt_Intra4x4

FU Name	Mgnt_Intra_4x4	
Description	This module activates and sends the value of pixels needed for a 4x4 macroblock intra prediction to output Y_LEFT4, Y_UP4, Y_UP_LEFT4, the available edge for intra prediction to output AVAIL and the prediction mode to output PRED_MODE4. Values of needed pixels are received from EDGE for neighbouring 16x16 pixels and MB_4x4 input for neighbouring 4x4 pixels.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
NEIGHBOUR	BIT token	
EDGE	MB token	
MB_4X4	MB token	
Output		
Name	Token	
AVAIL	BIT token	
Y_LEFT4	COORDINATE token	
Y_UP4	COORDINATE token	
Y_UP_LEFT4	COORDINATE token	
PRED_MODE4	PRED_MODE_INTRA token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.intraPred		

7.2.18 Mgnt_IQ_Chroma

FU Name	Mgnt_IQ_Chroma	
Description	This module adds the DC coefficient to the AC coefficients	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
COEF_DC	BLOCK token	
COEF_AC	BLOCK token	
Output		
Name	Token	
O	BLOCK token	
IS_DC	BIT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.intraPred		

7.2.19 Mgnt_Buffer_Neighbour_FullMb

FU Name	Mgnt_Buffer_Neighbour_FullMb	
Description	This module stores bottom and right edge from macroblock received in input MB_IN and send to EDGE according to CurrMbAddr and Mb_Type when full macroblock	

	intra-prediction is needed.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
MB_LOCATION	MB_ID token	
MB_IN	MB token	
MB_TYPE	MB_TYPE token	
Output		
Name	Token	
EDGE	MB token	
Parameter		
Name	Description	Range
IsChroma	If this FU operates on chrominance	boolean
MB_WIDTH	Size in pixel of macroblocks	[8;16]
Package		
package org.sc29.wg11.mpeg4.part10.cbp.intraPred		

7.2.20 Mgnt_Buffer_Neighbour_YxY

FU Name	Mgnt_Buffer_Neighbour_YxY	
Description	This module stores bottom and right egde from macrobloc receive in input MB_IN and send to EDGE according to CurrMbAddr and Mb_Type when 4x4 macroblock intra-prediction is needed.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
MB_LOCATION	MB_ID token	
MB_IN	MB token	
MB_TYPE	MB_TYPE token	
Output		
Name	Token	
EDGE	MB token	
Parameter		
Name	Description	Range
IsIntra4x4	If this FU is used for intra 4x4 blocks	boolean
Package		
package org.sc29.wg11.mpeg4.part10.cbp.intraPred		

7.2.21 Algo_Merge_4x4_to_16x16_norasterscan

FU Name	Algo_Merge_4x4_to_16x16_norasterscan		
Description	This module merges 4x4 blocks send in norasterscan order into a 16x16 macroblocks.		
Profiles@levels supported	MPEG-4 AVC Constrained BP		
Input			
Name	Token		
X	MB token		
Output			
Name	Token		

Y	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.intraPred		

7.2.22 Algo_Split_16x16_to_4x4_norasterscan

FU Name		Algo_Split_16x16_to_4x4_norasterscan	
Description		This module splits 16x16 blocks send in non rasterscan order into 4x4 blocks.	
Profiles@levels supported		MPEG-4 AVC Constrained BP	
Input			
Name		Token	
X		MB token	
Output			
Name		Token	
Y		MB token	
Parameter			
Name		Description	Range
Package			
package org.sc29.wg11.mpeg4.part10.cbp.intraPred			

7.3 Motion Compensation

7.3.1 Algo_Interp_EighthPelBilinear

FU Name	Algo_Interp_Bilinear	
Description	This FU performs fractional chroma sample interpolation with bilinear filter. Interpolating a sample in a fractional position requires at most 2x2 integer samples around the interpolated location.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
RD	MEM_DATA token	
PARTSZ	PART_SIZE token	
MV	MV token	
Output		
Name	Token	
INTERP	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.interPred		

7.3.2 Algo_Interp_SeparableSixTapQuarterPel

FU Name	Algo_Interp_SeparableSixTapQuarterPel	
Description	This FU performs fractional luma sample interpolation with separable 6-tap FIR linear phase filter. Interpolating a sample in a fractional position requires at most 6x6 integer samples around the interpolated location:	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
RD	MEM_DATA token	
PARTSZ	PART_SIZE token	
MV	MV token	
Output		
Name	Token	
INTERP	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.interPred		

7.3.3 Algo_Interp_Reord

FU Name	Algo_Interp_Reord	
Description	This module reconstructs an inter prediction macroblock from the partition of inter prediction.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
INTERP	MB token	
MB_TYPE	MB_TYPE token	
SUB_MB_TYPE	SUB_MB_TYPE token	
Output		
Name	Token	
MBPRED	MB token	
Parameter		
Name	Description	Range
SzSidePerPart	If CHROMA then 2 else /*LUMA*/ 4 end	[2,4]
Package		
package org.sc29.wg11.mpeg4.part10.cbp.interPred		

7.3.4 Algo_MvLXReconstr

FU Name	Algo_MvLXReconstr
Description	This FU finds a motion vector predictor by using reference index and MV of neighbouring blocks (left, top, top right). This process is adaptively switched according to the partition size of the current block and availability of the neighbouring blocks. It also adds the residual motion vector.
Profiles@levels supported	MPEG-4 AVC Constrained BP
Input	
Name	Token

MB_LOCATION	MB_ID token	
MB_TYPE	MB_TYPE token	
SUB_MB_TYPE	SUB_MB_TYPE token	
MB_PRED_REF_IDX	REF_ID token	
SUB_MB_PRED_REF_IDX	REF_ID token	
MB_PRED_MVD	MVD token	
SUB_MB_PRED_MVD	MVD token	
Output		
Name	Token	
MV_OUT	MV token	
LOCATION	MB_ID token	
IS_NEW_MB_PIC	BIT token	
IS_NEW_MB_SLICE	BIT token	
Parameter		
Name	Description	Range
IsPredL0	Only PredL0 if true else PredL1 or PredL0	boolean
Package		
package org.sc29.wg11.mpeg4.part10.cbp.interPred		

7.3.5 Mgnt_DPB

FU Name	Mgnt_DPB	
Description	This module stores decoded pictures input from WD port according to the macroblock address (CurrMbAddr), and sends parts of a selected stored picture output through RD port for inter prediction, according to the prediction type (Mb_Type), current position of the macroblock (CurrMbAddr) , a motion vecteur (MV) and an id of frame (RefIdx). This module also reorganizes and erases the picture stored into its internal memory according to RefList input.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
PIC_SIZE_IN_MB	SIZE token	
MB_TYPE	MB_TYPE token	
FRAME_NUM	FRAME_NUM token	
FRAME_TO_READ	FRAME_TO_READ token	
DEL_LIST	DEL_LIST token	
ENABLE_READ	BIT token	
WD	MB token	
RA	RA token	
Output		
Name	Token	
RD	MEM_DATA token	
Parameter		
Name	Description	Range
MB_WIDTH	Width and Height in pixel of a macroblock	[8;16]
Package		
package org.sc29.wg11.mpeg4.part10.cbp.interPred		

7.3.6 Algo_MMCO

FU Name	Algo_MMCO	
Description	This modules marks the index of frames to store as long terme reference, short terme reference, to delete or reorganize in memory. RefReordering indicates whether or not a reordering of the frame stored in memory is necessary.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
MMCO	MMCO token	
FRAME_NUM	FRAM_NUM token	
MAX_FRAME_NUM	MAX_FRAME_NUM token	
NUM_REF_FRAME	NUM_REF_FRAME token	
POC	POC token	
MB_TYPE	MB_TYPE token	
Output		
Name	Token	
DEL_LIST	DEL_LIST token	
LT_LIST	LT_LIST token	
ST_LIST	ST_LIST token	
ST_LIST_SZ	ST_LIST_SZ token	
EMPTY_DBP	BIT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.interPred		

7.3.7 AlgoRefList

FU Name	Algo_RefList	
Description	This FU manages short term and long term reference lists of AVC. This FU is managed by Algo_MMCO	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
LT_LIST	LT_LIST token	
ST_LIST	ST_LIST token	
ST_LIST_SZ	ST_LIST_SZ token	
NB_REF_FRAME	NB_REF_FRAME token	
POC	POC token	
REF_TYPE_LIST	REF_TYPE_LIST token	
EMPTY_DPB	BIT token	
FRAME_NUM	FRAM_NUM token	
MAX_FRAME_NUM	MAX_FRAME_NUM token	
Output		
Name	Token	
REF_LIST	REF_LIST token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.interPred		

7.3.8 Mgnt_InterPred

FU Name	Mgnt_InterPred	
Description	This FU issues an address and a reference frame ID to the luma frame buffer to fetch necessary data for the luma fractional sample interpolation. It also notifies the luma fractional sample interpolation FU which mode is selected via Frac.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
MV	MV token	
LOCATION	MB_ID token	
PARTSZ	PART_SIZE token	
Output		
Name	Token	
ADDR_L	MEM_ADDRESS token	
ADDR_C	MEM_ADDRESS token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.interPred		

7.3.9 Algo_RefIdxToFrameNum

FU Name	Algo_RefIdxToFrameNum	
Description	This module computes the frame to read for each MV.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
REF_LIST	REF_LIST token	
REF_IDX	REF_ID token	
IS_NEW_MB	BIT token	
Output		
Name	Token	
READ_FRAME	FRAME_TO_READ token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.interPred		

7.4 Filtering

7.4.1 Mgnt_DBF_AdaptiveFilter

FU Name		Mgnt_DBF_AdaptiveFilter
Description		This FU implements deblocking filter without supporting MBAFF
Profiles@levels supported		MPEG-4 AVC Constrained BP
Input		
Name	Token	
CBP_BLK	CBP_BLK token	

MB_LOCATION	MEM_WIDTH token	
SLICE_DBF_PARAM	SLICE_DBF_PARAM token	
MB_TYPE	MB_TYPE token	
MV	MV token	
QP_Y	QUANT token	
QP_Cb	QUANT token	
QP_Cr	QUANT token	
READ_FRAME	REF_ID token	
Output		
Name	Token	
BS	BS token	
MB_DBF_PARAM_Y	MB_DBF_PARAM token	
MB_DBF_PARAM_U	MB_DBF_PARAM token	
MB_DBF_PARAM_V	MB_DBF_PARAM token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.deblockingFilter		

7.4.2 Algo_DBF_AdaptiveFilter

FU Name		Algo_DBF_AdaptiveFilter	
Description		This FU implements deblocking filter	
Profiles@levels supported		MPEG-4 AVC Constrained BP	
Input			
Name		Token	
MB_TYPE		MB_TYPE token	
BS		BS token	
MB_LOCATION		MB_ID token	
PIC_SIZE_IN_MB		MEM_HEIGHT token	
MB_DBF_PARAM		MB_DBF_PARAM token	
CBP_BLK		CBP_BLK token	
MB_IN		MB token	
Output			
Name		Token	
MB_OUT		MB token	
Parameter			
Name		Description	Range
MbWidth		Size in pixel of a macroblock	[8;16]
ChromaEdgeFlag		LUMA = false, CHROMA=true	bool
Package			
package org.sc29.wg11.mpeg4.part10.cbp.deblockingFilter			

7.4.3 Algo_MvComponentReorder

FU Name	Algo_MvComponentReorder
Description	This FU reorganizes Motion vector for the deblocking filter
Profiles@levels supported	MPEG-4 AVC Constrained BP
Input	
Name	Token
MB_TYPE	MB_TYPE token

MV	MV token
SUB_MB_TYPE	SUB_MB_TYPE token
READ_FRAME	REF_ID token
Output	

7.5 Renderer

7.5.1 Mgnt_POC

FU Name	Mgnt_POC	
Description	This module select the order of the frame to display according to POC input.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
MB_TYPE	MB_TYPE token	
POC	POC token	
DBP_MAX_SZ	DBP_MAX_SZ token	
EMPTY_DPB	BIT token	
Output		
Name	Token	
POC_DISPLAY	POC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.display		

7.5.2 Mgnt_BufferRender

FU Name	Mgnt_BufferRender	
Description	Based on the POC, this module will buffer and display the picture in the right order	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
MB_TYPE	MB_TYPE token	
POC	POC token	
POC_DISPLAY	POC token	
WD	MB token	
Output		
Name	Token	
O	MB token	
Parameter		
Name	Description	Range
MbWidth	Size in pixel of a macroblock	[8;16]
Package		
package org.sc29.wg11.mpeg4.part10.cbp.display		

7.5.3 Mgnt_Merger420_AVC

FU Name	Mgnt_Merger420_AVC	
Description	This module merges data from YUV to compose a MB 16x16.	
Profiles@levels supported	MPEG-4 AVC Constrained BP	
Input		
Name	Token	
Y	BLOCK token	
U	BLOCK token	
V	BLOCK token	
Select	SELECT token	
Output		
Name	Token	
YUV	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.cbp.display		

8 FUs for MPEG-4 AVC Progressive High Profile

FUs for building MPEG-4 AVC High Profile decoder are described in this sub-clause.

8.1.1 Algo_SynP

FU Name	Algo_SynP	
Description	This module analyzes a sequence of tokens and realizes Parsing for MPEG-4 AVC syntax.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
BYTE	BIT token	
Output		
Name	Token	
MMCO	MMCO token uint(size=31)	
NUM_REF_FRAME	NUM_REF_FRAME token uint(size=31)	
FRAME_NUM	FRAME_NUM token uint(size=31)	
NB_REF_FRAME_I0	BIT token uint(size=5)	
REF_TYPE_I0	BIT token	
REF_REORDERING_I0	REF_ORDER token uint(size=31)	
NB_REF_FRAME_I1	BIT token uint(size=5)	
REF_TYPE_I1	BIT token	
REF_REORDERING_I1	REF_ORDER token uint(size=31)	
MAX_FRAME_NUM	BIT token uint(size=31)	
SLICE_DBF_PARAM	BIT token uint(size=6)	
CONSTRAINED_IFLAG	BIT token	
DBP_MAX_SZ	BIT token uint(size=6)	
PIC_SIZE_IN_MB	SIZE token	
POC	POC token	
SCALING_LIST_Y	SCALING_LIST token	
SCALING_LIST_U	SCALING_LIST token	
SCALING_LIST_V	SCALING_LIST token	
MB_LOCATION	MB_ID token	

MB_TYPE	MB_TYPE token	
CBP_BLK	CBP_BLK token	
I_PCM	MB token	
SUB_MB_TYPE	SUB_MB_TYPE token	
INTRA_PRED_MODE	PRED_MODE_INTRA token	
INTRA_PRED_MODE_C	PRED_MODE_INTRA token	
RUN	RUN token	
VALUE	VALUE token	
LAST	LAST token	
QP	QUANT token	
QP_Cb	QUANT token	
QP_Cr	QUANT token	
MB_PRED_REF_IDX_I0	REF_ID token	
MB_PRED_MVD_I0	MVD token	
SUB_MB_PRED_REF_IDX_I0	REF_ID token	
MB_PRED_MVD_I0	MVD token	
MB_PRED_REF_IDX_I1	REF_ID token	
MB_PRED_MVD_I1	MVD token	
SUB_MB_PRED_REF_IDX_I1	REF_ID token	
MB_PRED_MVD_I1	MVD token	
DIRECT_SPATIAL_MV_PRED_FLAG	BIT token	
TRANSFORM_SIZE_8x8_FLAG	BIT token	
DIRECT_8X8_INTERFERENCE_FLAG	BIT token	
WEIGHTED_PRED_IDC	BIT token uint(size=2)	
WP_PARAM	BIT token uint(size=9)	
WIDTH	WIDTH token	
HEIGHT	HEIGHT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.parser		

8.1.2 Algo_BlockExpand

FU Name	Algo_BlockExpand
Description	This module decodes the DCT coefficients as elements of syntax in a MPEG-4 AVC Progressive High Profile conforming bitstream (conforming with CALVC and CABAC).
Profiles@levels supported	MPEG-4 AVC Progressive High Profile
Input	
Name	Token
LAST	LAST token
RUN	RUN token
VALUE	VALUE token
MB_TYPE	MB_TYPE token
Output	
Name	Token
BLOCK	BLOCK token
Parameter	

Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.parser		

8.1.3 Algo_DemuxParserInfoForBlocks_Luma

FU Name	Algo_DemuxParserInfoForBlocks_Luma	
Description	This module adds information to package org.sc29.wg11.mpeg4.part10.php.selectMacroblock. Algo_DemuxParserInfoForBlocks_Luma by adding support for intra 8x8 decoding blocks	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
COEF_ACR	MB token	
MB_LOCATION	MB_ID token	
MB_TYPE	MB_TYPE token	
PRED_MODE	PRED_INTRA_MODE token	
CONSTRAINED_IFLAG	BIT token	
Output		
Name	Token	
COEF_ACR_INTRA4	BLOCK token	
NEIGHBOUR_INTRA4	COORDINATE token	
PRED_MODE4	PRED_INTRA_MODE token	
COEF_ACR_INTRA16	BLOCK token	
NEIGHBOUR_INTRA16	COORDINATE token	
PRED_MODE16	PRED_INTRA_MODE token	
COEF_ACR_INTRA8	BLOCK token	
NEIGHBOUR_INTRA8	COORDINATE token	
PRED_MODE8	PRED_INTRA_MODE token	
COEF_ACR_INTER	BLOCK token	
SELECT	SELECT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.selectMacroblock		

8.2 Texture Decoding

8.2.1 Algo_IS_Zigzag_8x8

FU Name	Algo_IS_Zigzag_8x8
Description	This module computes inverse zigzag of an 8x8 block.
Profiles@levels supported	MPEG-4 AVC Progressive High Profile
Input	
Name	Token
X	BLOCK token
Output	

Name	Token	
Y	BLOCK token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.Residual		

8.2.2 Algo_IQ_QSAndSLAndIDCTScaler_8x8

FU Name	Algo_IQ_QSAndSLAndIDCTScaler_8x8	
Description	This module computes inverse quantization of 8x8 blocks with scaling list (weight scale) following by scaling of the 8x8 Inverse Integer Cosine Transform.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
IN	BLOCK token	
QP	QUANT token	
MB_TYPE	MB_TYPE token	
Output		
Name	Token	
OUT	BLOCK token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.Residual		

8.2.3 Algo_IIT_8x8

FU Name	Algo_IIT_8x8	
Description	This module computes 2D IIT (Inverse Integer Transform) of 8x8 blocks. 2D IIT is achieved by row column decomposition of the coefficients.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
X	BLOCK token	
Output		
Name	Token	
Y	BLOCK token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.Residual		

8.2.4 Algo_IntraPred_LUMA_8x8

FU Name	Algo_IntraPred_LUMA_8x8	
Description	This module computes intra 8x8 predicted block for a 8x8 luma block according to MPEG-4 AVC intra 8x8 prediction.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
Y_LEFT	COORDINATE token	
Y_UP	COORDINATE token	
Y_UP_LEFT	COORDINATE token	
Y_UP_RIGHT	COORDINATE token	
AVAIL	ACKNOWLEDGMENT token	
PRED_MODE	PRED_MODE_INTRA token	
Output		
Name	Token	
MPR	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.intraPred		

8.2.5 Mgnt_Intra_8x8

FU Name	Mgnt_Intra_8x8	
Description	This module activates and sends samples needed for a 8x8 Macroblock intra prediction to output Y_LEFT8, Y_UP8, Y_UP_LEFT8, Y_UP_RIGHT8, the available edge for intra prediction to output AVAIL and the prediction mode to output PRED_MODE4. Values of needed samples are received from EDGE for neighbouring 16x16 block samples and MB_8x8 input for neighbouring 8x8 block samples.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
NEIGHBOUR	BIT token	
EDGE	MB token	
MB_8X8	MB token	
Output		
Name	Token	
AVAIL	BIT token	
Y_LEFT8	COORDINATE token	
Y_UP8	COORDINATE token	
Y_UP_LEFT8	COORDINATE token	
Y_UP_RIGHT8	COORDINATE token	
PRED_MODE8	PRED_MODE_INTRA token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.intraPred		

8.2.6 Algo_Merge_8x8_to_16x16

FU Name	Algo_Merge_8x8_to_16x16	
Description	This module merges 8x8 blocks send in raster scan order into a 16x16 block.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
X	MB token	
Output		
Name	Token	
Y	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.Residual		

8.2.7 Algo_DCR_Hadamard_CHROMA

FU Name	Algo_DCR_Hadamard_CHROMA	
Description	This module overrides FU from Constrained Baseline Profile to support scaling list in Progressive High Profile.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
IN	DC token	
QP	QUANT token	
MB_TYPE	MB_TYPE token	
SCALING_LIST	SCALING_LIST token	
Output		
Name	Token	
OUT	DC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.Residual		

8.2.8 Algo_DCR_Hadamard_LUMA_Scaling

FU Name	Algo_DCR_Hadamard_LUMA_Scaling
Description	This module adds the support of scaling list to org.sc29.wg11.mpeg4.part10.php.Residual.Algo_DCR_Hadamard_LUMA_Scaling
Profiles@levels supported	MPEG-4 AVC Progressive High Profile
Input	
Name	Token
I	DC token
QP	QUANT token
MB_TYPE	MB_TYPE token
SCALING_LIST	SCALING_LIST token

Output		
Name	Token	
O	DC token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.Residual		

8.2.9 Algo_IQ_QSAndSLAndIDCTScaler_4x4

FU Name	Algo_IQ_QSAndSLAndIDCTScaler_4x4	
Description	This module adds the support of non default scaling list to org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IQ_QSAndSLAndIDCTScaler_4x4	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
IN	BLOCK token	
QP	QUANT token	
IS_DC	BIT token	
MB_TYPE	MB_TYPE token	
SCALING_LIST	SCALING_LIST token	
Output		
Name	Token	
OUT	BLOCK token	
Parameter		
Name	Description	Range
NB4x4	Number of block 4x4 in a block	[4; 16]
Package		
package org.sc29.wg11.mpeg4.part10.php.Residual		

8.2.10 Algo_Merge_8x8_to_16x16_norasterscan

FU Name		Algo_Merge_8x8_to_16x16_norasterscan	
Description		This module merges 8x8 blocks sent in non raster scan order into a 16x16 block.	
Profiles@levels supported		MPEG-4 AVC Progressive High Profile	
Input			
Name		Token	
X		MB token	
Output			
Name		Token	
Y		MB token	
Parameter			
Name		Description	Range
Package			
package org.sc29.wg11.mpeg4.part10.php.intraPred			

8.2.11 Algo_Split_16x16_to_8x8_norasterscan

FU Name		Algo_Split_16x16_to_8x8_norasterscan	
Description		This module splits a 16x16 block sent in non raster scan order into 8x8 blocks.	
Profiles@levels supported		MPEG-4 AVC Progressive High Profile	
Input			
Name		Token	
X		MB token	
Output			
Name		Token	
Y		MB token	
Parameter			
Name		Description	Range
Package			
package org.sc29.wg11.mpeg4.part10.php.intraPred			

8.2.12 Mgnt_I4x4_I8x8_demux

FU Name	Mgnt_I4x4_I8x8_demux	
Description	This module splits the information to compute the residual of a 4x4 block or a 8x8 block.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
COEF_AC	MB token	
MB_TYPE	MB_TYPE token	
QP	QUANT token	
SCALING_LIST	SCALING_LIST token	
TRANSFORM_SIZE_8x8_FLAG	BIT token	
Output		
Name	Token	
COEF_AC_4x4	MB token	
MB_TYPE_4x4	MB_TYPE token	
QP_4x4	QUANT token	
SCALING_LIST_4x4	SCALING_LIST token	
COEF_AC_8x8	MB token	
MB_TYPE_8x8	MB_TYPE token	
QP_8x8	QUANT token	
SCALING_LIST_8x8	SCALING_LIST token	
TRANSFORM_SIZE_8x8_FLAG_O	BIT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.intraPred		

8.2.13 Mgnt_I4x4_I8x8_mux

FU Name	Mgnt_I4x4_I8x8_mux	
Description	This module reorders the information with the residual coming from an 4x4 block or a 8x8 block.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	

Input		
Name	Token	
COEF_AC_4x4	MB token	
COEF_AC_8x8	MB token	
TRANSFORM_SIZE_8x8_FLAG	BIT token	
Output		
Name	Token	
COEF_AVC	MB token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.intraPred		

8.3 Motion Compensation

8.3.1 Algo_GeneratePredWeight

FU Name	Algo_GeneratePredWeight	
Description	This FU performs weighted sum of two block partitions if necessary.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
IS_NEW_MB_L0	BIT token	
IS_NEW_MB_L1	BIT token	
POC_LISTX	POC_LIST token	
POC_IS_LT	BIT token	
REF_IDX_L0	REF_ID token	
REF_IDX_L1	REF_ID token	
SELECT_LIST	BIT token	
WP_PRED_IDC	BIT token uint(size=2)	
WP_PARAM	BIT token uint(size=9)	
Output		
Name	Token	
WP_PARAM_Y	BIT token uint(size=9)	
WP_PARAM_U	BIT token uint(size=9)	
WP_PARAM_V	BIT token uint(size=9)	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.interPred		

8.3.2 Mgnt_SelectMvpLX

FU Name	Mgnt_SelectMvpLX
Description	This FU computes MV for each list.
Profiles@levels supported	MPEG-4 AVC Progressive High Profile
Input	
Name	Token
MB_TYPE	MB_TYPE token
SUB_MB_TYPE	SUB_MB_TYPE token
MV_L0	MVD token
LOCATION_L0	MB_ID token
FRAME_L0	FRAME_TO_READ token

MV_L1	MVD token	
FRAME_L1	FRAME_TO_READ token	
LOCATION_L1	MB_ID token	
DIRECT_PRED_L0	BIT token	
DIRECT_PRED_L1	BIT token	
REF_IDX_L0	REF_ID token	
REF_IDX_L1	REF_ID token	
Output		
Name	Token	
MV	MVD token	
READ_FRAME		
LOCATION		
SELECT_LIST		
REF_IDX	MVD token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.interPred		

8.3.3 Algo_MvLXReconstr

FU Name	Algo_MvLXReconstr	
Description	This FU finds a motion vector predictor by using reference index and MV of neighbouring blocks (left, top, top right). This process is adaptively switched according to the partition size of the current block and availability of the neighbouring blocks. It also adds the residual motion vector.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
MB_LOCATION	MB_ID token	
MB_TYPE	MB_TYPE token	
SUB_MB_TYPE	SUB_MB_TYPE token	
MB_PRED_REF_IDX	REF_ID token	
SUB_MB_PRED_REF_IDX	REF_ID token	
MB_PRED_MVD	MVD token	
SUB_MB_PRED_MVD	MVD token	
COL_ZERO_FLAG	BIT token	
TEMPORAL_PRED_INFO	BIT token int(size=32)	
DIRECT_SPATIAL_MV_FLAG	BIT token	
DIRECT_PRED_LX_I	BIT token	
Output		
Name	Token	
MV_OUT	MV token	
LOCATION	MB_ID token	
IS_NEW_MB_PIC	BIT token	
IS_NEW_MB_SLICE	BIT token	
DIRECT_PRED_LX_O	BIT token	
Parameter		
Name	Description	Range
IsPredL0	Only PredL0 if true else PredL1 or PredL0	boolean
Package		
package org.sc29.wg11.mpeg4.part10.php.interPred		

8.3.4 Algo_MvBuffer

FU Name	Algo_MvBuffer	
Description	This FU manages motion vectors for an entire frame when List1 is used.	
Profiles@levels supported	MPEG-4 AVC Progressvie High Profile	
Input		
Name	Token	
MB_LOCATION	MB_ID token	
MB_TYPE	MB_TYPE token	
SUB_MB_TYPE	SUB_MB_TYPE token	
REF_IDX	REF_ID token	
MV	MVD token	
DIRECT8x8_INFERENCE_FLAG	BIT token	
DIRECT_SPATIAL_MV_FLAG	BIT token	
EMPTY_DPB	BIT token	
FRAME_NUM	FRAME_NUM token	
POC	POC token	
DEL_LIST	DEF_LIST token	
LT	LT_LIST token	
REF_LIST0	REF_LIST token	
REF_LIST1	REF_LIST token	
Output		
Name	Token	
COL_ZERO_FLAG	BIT token	
TEMPORAL_PRED_INFO	BIT token int (size=32)	
Parameter		
Name	Description	Range
IsPredL0	Only PredL0 if true else PredL1 or PredL0	boolean
Package		
package org.sc29.wg11.mpeg4.part10.php.interPred		

8.3.5 Mgnt_SelectMvpLX

FU Name	Mgnt_SelectRefIdx	
Description	This FU selects the frame to read depending on the list.	
Profiles@levels supported	MPEG-4 AVC Progressvie High Profile	
Input		
Name	Token	
SELECT_LIST	BIT token	
READ_FRAME_L0	READ_FRAME token	
READ_FRAME_L1	READ_FRAME token	
IS_NEW_MB_L0	BIT token	
IS_NEW_MB_L1	BIT token	
Output		
Name	Token	
READ_FRAME	READ_FRAME token	
READ_4MB_PRED	BIT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.interPred		

8.3.6 Algo_FrameNumToPocList

FU Name	Algo_FrameNumToPocList	
Description	This FU generates a list of POC for the weighted prediction FU.	
Profiles@levels supported	MPEG-4 AVC Progressvie High Profile	
Input		
Name	Token	
DEL_LIST	DEL_LIST token	
EMPTY_DPB	BIT token	
FRAME_NUM	FRAME_NUM token	
MB_TYPE	MB_TYPE token	
LT	LT_LIST token	
POC	POC token	
REF_LIST0	REF_LIST token	
REF_LIST1	REF_LIST token	
Output		
Name	Token	
POC_LISTX	POC token	
POC_IS_LT	BIT token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.interPred		

8.4 Filtering

8.4.1 Algo_DBF_AdaptiveFilter

FU Name	Algo_DBF_AdaptiveFilter	
Description	This FU replaces deblocking filter from org.sc29.wg11.mpeg4.part10.cbp.deblockingFilter. Algo_DBF_AdaptiveFilter in order to support deblocking of 8x8 blocks.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
MB_TYPE	MB_TYPE token	
BS	BS token	
MB_LOCATION	MB_ID token	
PIC_SIZE_IN_MB	MEM_HEIGHT token	
MB_DBF_PARAM	MB_DBF_PARAM token	
CBP_BLK	CBP_BLK token	
MB_IN	MB token	
TRANSFORM_SIZE_8x8_FLAG	BIT token	
Output		
Name	Token	
MB_OUT	MB token	
Parameter		
Name	Description	Range
MB_WIDTH	Size in samples of a Macroblock width	[8;16]
Package		
package org.sc29.wg11.mpeg4.part10.php.deblockingFilter		

8.4.2 Algo_MvComponentReorder

FU Name	Algo_MvComponentReorder	
Description	This FU reorganizes motion vectors for the deblocking filter.	
Profiles@levels supported	MPEG-4 AVC Progressive High Profile	
Input		
Name	Token	
MB_TYPE	MB_TYPE token	
SUB_MB_TYPE	SUB_MB_TYPE token	
MV	MV token	
SUB_MB_TYPE	SUB_MB_TYPE token	
READ_FRAME	REF_ID token	
SELECT_LIST	BIT token	
Output		
Name	Token	
MV	MV token	
READ_FRAME_DBF	REF_ID token	
PARTSZ	PART_SIZE token	
REF_IDX_TAB	REF_IDX token	
Parameter		
Name	Description	Range
Package		
package org.sc29.wg11.mpeg4.part10.php.deblockingFilter		

Annex A (normative)

Naming Convention of FU

Functional Unit name convention

This Annex details the convention used to name the Functional Units. Each Functional Unit has a unique name.

A.1 Simple Functional Units name convention

The skeleton of the names is in the following format:

{Role}_{Name}_ [property1-property2-...-propertyN]_ [size]_ {STANDARD if exists}_ [Ver_ID]

{...}	→ compulsory
[...]	→ optional
-	→ inside field separator
_	→ separator between fields

Some examples:

- Mgnt_Address_mpeg4_16x16
- Algo_Interpolation_halfpel-mpeg4
- Algo_DCRaddressing_mpeg4_8x8

A.2 Description of the fields

{Role}

This part is compulsory. It specifies if this Functional Unit implements a specific coding algorithm or not. If the FU is a video coding tool, the “ALGO” tag must be used (stands for “algorithmic content”). If not, the “MGNT” tag must be used (stands for “data management”).

{Name}

1. This part is compulsory. This field corresponds to the name of the Functional Unit. It must describe as much as possible the action performed by the Functional Unit. In case of an “ALGO” type it may relate to the

standard sub-clause title or to the (shorter) common name to refer to such specific algorithm. For the other Functional Unit, one would try to put a name which can be understood by the entire MPEG community.

[property]

This part is optional. It provides additional information about the Functional Unit. Several properties can be mentioned in the name.

The property field can be used to specify:

- a given characteristic of the algorithm. Example: ALGO_Interpolation_halfpel, "Halfpel" being the property field.
- luminance of chrominance appliance: "LUMA" or "CHROMA". Example: ALGO_Name_Luma or ALGO_Name_Chroma
- an implementation: It provides any additional information about the implementation of the Functional Unit. If there are various algorithms for one Functional Unit, this field is use to distinguish them.

[size]

This part is optional. This field gives an indication concerning the amount of data the Functional Unit has been designed for. For example the MGNT_Address_16x16 Functional Unit deals with blocks of 16x16 pixels.

{STANDARD if exists}

This tag indicates with which standard the Functional Unit is conformant with.

Example: algo_Interpolation_halfpel_mpeg4 means this FU is conformant with MPEG4 Part 2. Thus, the algorithm is described in the corresponding official document.

- standard appliance: "mpeg" + {2,4,avc}. Example: "mpeg24avc", "mpeg4avc", "mpeg4".

[Ver_ID]

This tag is used for revision of FU description.

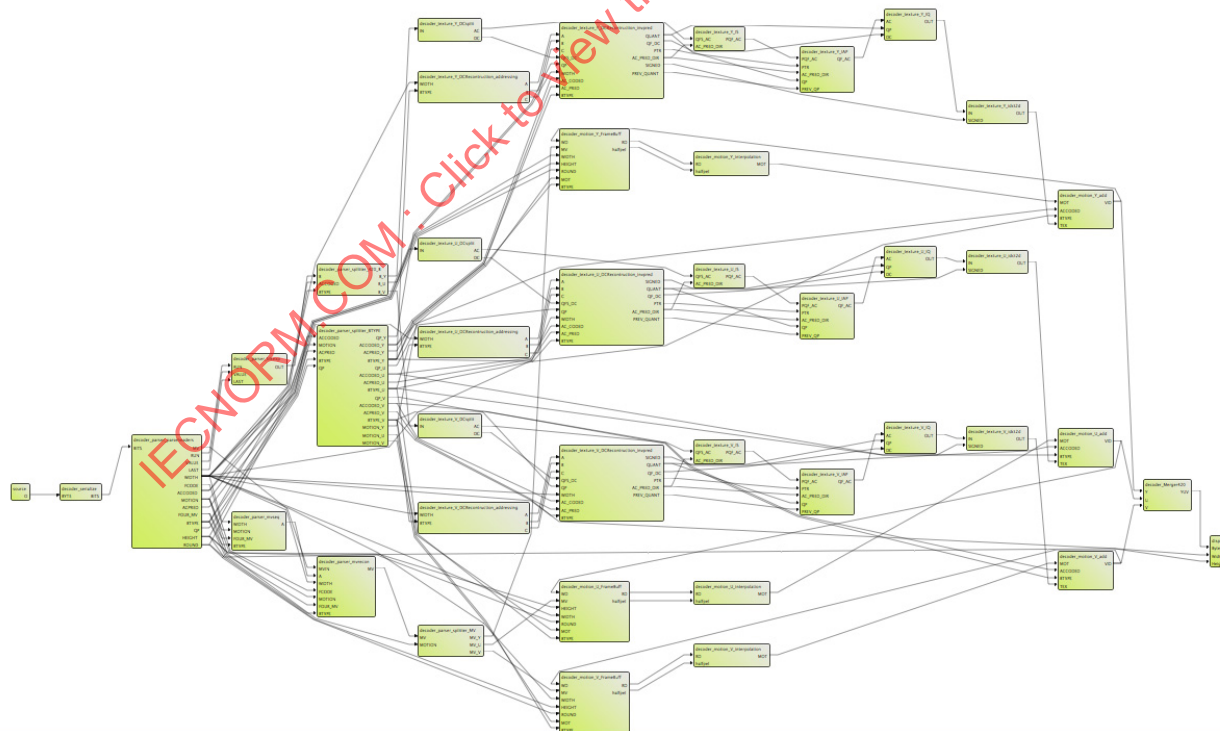
Annex B (informative)

FU Network Examples

B.1 Value of the RVC descriptions

Value of the RVC descriptions	Description
0x00	Unspecified
0x01	Description of MPEG-4 part2 SP defined as Top_mpeg4_part2_SP_decoder.xdf
0x02	Description of MPEG4-part 10 CBP defined as Top_mpeg4_part10_CBP_decoder.xdf
0x03	Description of MPEG-4 part 10 PHP defined as Top_mpeg4_part10_PHP_decoder.xdf
0x04 ... 0xFFFF	Reserved
0xFFFF... 0xFFFFFFFF	User defined

B.2 FNL of MPEG-4 Simple Profile



Complete example of the MPEG-4 SP decoder (Refer to Top_mpeg4_part2_SP_decoder.xdf file)

```

<?xml version="1.0" encoding="UTF-8"?>
<XDF name="Top_mpeg4_part2_SP_decoder">
  <Instance id="source">
    <Class name="org.sc29.wg11.stdio.Source"/>
  </Instance>
  <Instance id="display">
    <Class name="org.sc29.wg11.video.DisplayYUV"/>
  </Instance>
  <Instance id="decoder_serialize">
    <Class name="org.sc29.wg11.common.Algo_Byte2bit"/>
  </Instance>
  <Instance id="decoder_Merger420">
    <Class name="org.sc29.wg11.common.Mgnt_Merger420"/>
  </Instance>
  <Instance id="decoder_parser_parseheaders">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.parser.Algo_SynP"/>
  </Instance>
  <Instance id="decoder_parser_mvseq">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.parser.Mgnt_MVSequence_LeftAndTopAndTopRight"/>
  </Instance>
  <Instance id="decoder_parser_blkexp">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.parser.Mgnt_BlockExpand"/>
  </Instance>
  <Instance id="decoder_parser_mvrecon">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.parser.Mgnt_MVR_MedianOfThreeLeftAndTopAndTopRight"/>
  </Instance>
  <Instance id="decoder_parser_splitter_BTTYPE">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.parser.Mgnt_Splitter_420_TYPE"/>
  </Instance>
  <Instance id="decoder_parser_splitter_MV">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.parser.Mgnt_Splitter420MV"/>
  </Instance>
  <Instance id="decoder_parser_splitter_420_B">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.parser.Mgnt_Splitter420B"/>
  </Instance>
  <Instance id="decoder_texture_Y_DCsplit">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Mgnt_DCSplit"/>
  </Instance>
  <Instance id="decoder_texture_Y_IS">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IS_ZigzagOrAlternateHorizontalVertical_8x8"/>
  </Instance>
  <Instance id="decoder_texture_Y_IAP">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IAP_AdaptiveHorizontalOrVerticalPred_16x16"/>
  </Instance>
  <Instance id="decoder_texture_Y_IQ">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IQ_QSAbdQmatrixMp4vOrH263Scaler"/>
  </Instance>
  <Instance id="decoder_texture_Y_idct2d">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IDCT2D_ISOIEC_23002_1"/>
  </Instance>
  <Instance id="decoder_texture_Y_DCReconstruction_addressing">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction.Algo_DCRAddr_ThreeLeftTop_16x16"/>
  </Instance>
  <Instance id="decoder_texture_Y_DCReconstruction_invpred">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction.Algo_DCRInvPred_LUMA_16x16"/>
  </Instance>
  <Instance id="decoder_texture_U_DCsplit">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Mgnt_DCSplit"/>
  </Instance>
  <Instance id="decoder_texture_U_IS">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IS_ZigzagOrAlternateHorizontalVertical_8x8"/>
  </Instance>
  <Instance id="decoder_texture_U_IAP">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IAP_AdaptiveHorizontalOrVerticalPred_8x8"/>
  </Instance>
  <Instance id="decoder_texture_U_IQ">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IQ_QSAbdQmatrixMp4vOrH263Scaler"/>
  </Instance>
  <Instance id="decoder_texture_U_idct2d">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IDCT2D_ISOIEC_23002_1"/>
  </Instance>
  <Instance id="decoder_texture_U_DCReconstruction_addressing">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction.Algo_DCRAddr_ThreeLeftTop_8x8"/>
  </Instance>
  <Instance id="decoder_texture_U_DCReconstruction_invpred">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction.Algo_DCRInvPred_CHROMA_8x8"/>
  </Instance>
  <Instance id="decoder_texture_V_DCsplit">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Mgnt_DCSplit"/>
  </Instance>
  <Instance id="decoder_texture_V_IS">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IS_ZigzagOrAlternateHorizontalVertical_8x8"/>
  </Instance>
  <Instance id="decoder_texture_V_IAP">
    <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IAP_AdaptiveHorizontalOrVerticalPred_8x8"/>
  </Instance>
</XDF>

```

```

<Instance id="decoder_texture_V_IQ">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IQ_QSAbdQmatrixMp4vOrH263Scaler"/>
</Instance>
<Instance id="decoder_texture_V_idct2d">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.Algo_IDCT2D_ISOIEC_23002_1"/>
</Instance>
<Instance id="decoder_texture_V_DCReconstruction_addressing">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction.Algo_DCRAAddr_ThreeLeftTop_8x8"/>
</Instance>
<Instance id="decoder_texture_V_DCReconstruction_invpred">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.texture.dc_reconstruction.Algo_DCRInvPred_CHROMA_8x8"/>
</Instance>
<Instance id="decoder_motion_Y_interpolation">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.motion.Algo_Interp_HalfpelBilinearRoundingControl"/>
</Instance>
<Instance id="decoder_motion_Y_add">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.motion.Algo_PictureReconstruction_Saturation"/>
</Instance>
<Instance id="decoder_motion_Y_FrameBuff">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.motion.Mgnt_FB_w_Address_16X16"/>
</Instance>
<Instance id="decoder_motion_U_interpolation">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.motion.Algo_Interp_HalfpelBilinearRoundingControl"/>
</Instance>
<Instance id="decoder_motion_U_add">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.motion.Algo_PictureReconstruction_Saturation"/>
</Instance>
<Instance id="decoder_motion_U_FrameBuff">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.motion.Mgnt_FB_w_Address_8X8"/>
</Instance>
<Instance id="decoder_motion_V_interpolation">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.motion.Algo_Interp_HalfpelBilinearRoundingControl"/>
</Instance>
<Instance id="decoder_motion_V_add">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.motion.Algo_PictureReconstruction_Saturation"/>
</Instance>
<Instance id="decoder_motion_V_FrameBuff">
  <Class name="org.sc29.wg11.mpeg4.part2.sp.motion.Mgnt_FB_w_Address_8X8"/>
</Instance>
<Connection dst="decoder_parser_mvrecon" dst-port="MVIN"
  src="decoder_parser_parseheaders" src-port="MV"/>
<Connection dst="decoder_parser_blkexp" dst-port="RUN"
  src="decoder_parser_parseheaders" src-port="RUN"/>
<Connection dst="decoder_parser_blkexp" dst-port="VALUE"
  src="decoder_parser_parseheaders" src-port="VALUE"/>
<Connection dst="decoder_parser_blkexp" dst-port="LAST"
  src="decoder_parser_parseheaders" src-port="LAST"/>
<Connection dst="decoder_parser_mvrecon" dst-port="A"
  src="decoder_parser_mvseq" src-port="A"/>
<Connection dst="decoder_parser_splitter_420_B" dst-port="B"
  src="decoder_parser_blkexp" src-port="OUT"/>
<Connection dst="decoder_parser_splitter_MV" dst-port="MV"
  src="decoder_parser_mvrecon" src-port="MV"/>
<Connection dst="decoder_parser_mvrecon" dst-port="WIDTH"
  src="decoder_parser_parseheaders" src-port="WIDTH"/>
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  src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="decoder_parser_mvrecon" dst-port="FCODE"
  src="decoder_parser_parseheaders" src-port="FCODE"/>
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  src="decoder_parser_parseheaders" src-port="ACCODED"/>
<Connection dst="decoder_parser_splitter_BTTYPE" dst-port="ACCODED"
  src="decoder_parser_parseheaders" src-port="ACCODED"/>
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  src="decoder_parser_parseheaders" src-port="MOTION"/>
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  src="decoder_parser_parseheaders" src-port="MOTION"/>
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  src="decoder_parser_parseheaders" src-port="MOTION"/>
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  src="decoder_parser_parseheaders" src-port="MOTION"/>
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  src="decoder_parser_parseheaders" src-port="ACPREP"/>
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  src="decoder_parser_parseheaders" src-port="FOUR_MV"/>
<Connection dst="decoder_parser_mvrecon" dst-port="FOUR_MV"
  src="decoder_parser_parseheaders" src-port="FOUR_MV"/>
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  src="decoder_parser_parseheaders" src-port="BTTYPE"/>
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  src="decoder_parser_parseheaders" src-port="BTTYPE"/>
<Connection dst="decoder_parser_splitter_420_B" dst-port="BTTYPE"
  src="decoder_parser_parseheaders" src-port="BTTYPE"/>
<Connection dst="decoder_parser_mvrecon" dst-port="BTTYPE"
  src="decoder_parser_parseheaders" src-port="BTTYPE"/>
<Connection dst="decoder_parser_splitter_BTTYPE" dst-port="QP"

```



```

src="decoder_parser_parseheaders" src-port="QP"/>
<Connection dst="decoder_parser_parseheaders" dst-port="BITS"
src="decoder_serialize" src-port="BITS"/>
<Connection dst="decoder_texture_Y_IS" dst-port="QFS_AC"
src="decoder_texture_Y_DCsplit" src-port="AC"/>
<Connection dst="decoder_texture_Y_IAP" dst-port="PQF_AC"
src="decoder_texture_Y_IS" src-port="PQF_AC"/>
<Connection dst="decoder_texture_Y_IQ" dst-port="AC"
src="decoder_texture_Y_IAP" src-port="QF_AC"/>
<Connection dst="decoder_texture_Y_idct2d" dst-port="IN"
src="decoder_texture_Y_IQ" src-port="OUT"/>
<Connection dst="decoder_texture_Y_DCReconstruction_invpred"
dst-port="A" src="decoder_texture_Y_DCReconstruction_addressing" src-port="A"/>
<Connection dst="decoder_texture_Y_DCReconstruction_invpred"
dst-port="B" src="decoder_texture_Y_DCReconstruction_addressing" src-port="B"/>
<Connection dst="decoder_texture_Y_DCReconstruction_invpred"
dst-port="C" src="decoder_texture_Y_DCReconstruction_addressing" src-port="C"/>
<Connection dst="decoder_texture_Y_IQ" dst-port="QP"
src="decoder_texture_Y_DCReconstruction_invpred" src-port="QUANT"/>
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src="decoder_texture_Y_DCReconstruction_invpred" src-port="QF_DC"/>
<Connection dst="decoder_texture_Y_IAP" dst-port="PTR"
src="decoder_texture_Y_DCReconstruction_invpred" src-port="PTR"/>
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src="decoder_texture_Y_DCReconstruction_invpred" src-port="AC_PRED_DIR"/>
<Connection dst="decoder_texture_Y_IS" dst-port="AC_PRED_DIR"
src="decoder_texture_Y_DCReconstruction_invpred" src-port="AC_PRED_DIR"/>
<Connection dst="decoder_texture_Y_idct2d" dst-port="SIGNED"
src="decoder_texture_Y_DCReconstruction_invpred" src-port="SIGNED"/>
<Connection dst="decoder_texture_Y_IAP" dst-port="QP"
src="decoder_texture_Y_DCReconstruction_invpred" src-port="QUANT"/>
<Connection dst="decoder_texture_Y_IAP" dst-port="PREV_QP"
src="decoder_texture_Y_DCReconstruction_invpred" src-port="PREV_QUANT"/>
<Connection dst="decoder_texture_Y_DCReconstruction_invpred"
dst-port="QFS_DC" src="decoder_texture_Y_DCsplit" src-port="DC"/>
<Connection dst="decoder_texture_Y_DCsplit" dst-port="IN"
src="decoder_parser_splitter_420_B" src-port="B_Y"/>
<Connection dst="decoder_texture_Y_DCReconstruction_invpred"
dst-port="QP" src="decoder_parser_splitter_BTYPE" src-port="QP_Y"/>
<Connection dst="decoder_texture_Y_DCReconstruction_addressing"
dst-port="WIDTH" src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="decoder_texture_Y_DCReconstruction_invpred"
dst-port="WIDTH" src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="decoder_texture_Y_DCReconstruction_invpred"
dst-port="AC_CODED" src="decoder_parser_splitter_BTYPE" src-port="AC_CODED_Y"/>
<Connection dst="decoder_texture_Y_DCReconstruction_invpred"
dst-port="AC_PRED" src="decoder_parser_splitter_BTYPE" src-port="ACPRED_Y"/>
<Connection dst="decoder_texture_Y_DCReconstruction_addressing"
dst-port="BTYPE" src="decoder_parser_splitter_BTYPE" src-port="BTYPE_Y"/>
<Connection dst="decoder_texture_Y_DCReconstruction_invpred"
dst-port="BTYPE" src="decoder_parser_splitter_BTYPE" src-port="BTYPE_Y"/>
<Connection dst="decoder_texture_U_IS" dst-port="QFS_AC"
src="decoder_texture_U_DCsplit" src-port="AC"/>
<Connection dst="decoder_texture_U_IAP" dst-port="PQF_AC"
src="decoder_texture_U_IS" src-port="PQF_AC"/>
<Connection dst="decoder_texture_U_IQ" dst-port="AC"
src="decoder_texture_U_IAP" src-port="QF_AC"/>
<Connection dst="decoder_texture_U_idct2d" dst-port="IN"
src="decoder_texture_U_IQ" src-port="OUT"/>
<Connection dst="decoder_texture_U_DCReconstruction_invpred"
dst-port="A" src="decoder_texture_U_DCReconstruction_addressing" src-port="A"/>
<Connection dst="decoder_texture_U_DCReconstruction_invpred"
dst-port="B" src="decoder_texture_U_DCReconstruction_addressing" src-port="B"/>
<Connection dst="decoder_texture_U_DCReconstruction_invpred"
dst-port="C" src="decoder_texture_U_DCReconstruction_addressing" src-port="C"/>
<Connection dst="decoder_texture_U_idct2d" dst-port="SIGNED"
src="decoder_texture_U_DCReconstruction_invpred" src-port="SIGNED"/>
<Connection dst="decoder_texture_U_IQ" dst-port="QP"
src="decoder_texture_U_DCReconstruction_invpred" src-port="QUANT"/>
<Connection dst="decoder_texture_U_IQ" dst-port="DC"
src="decoder_texture_U_DCReconstruction_invpred" src-port="QF_DC"/>
<Connection dst="decoder_texture_U_IAP" dst-port="PTR"
src="decoder_texture_U_DCReconstruction_invpred" src-port="PTR"/>
<Connection dst="decoder_texture_U_IAP" dst-port="AC_PRED_DIR"
src="decoder_texture_U_DCReconstruction_invpred" src-port="AC_PRED_DIR"/>
<Connection dst="decoder_texture_U_IS" dst-port="AC_PRED_DIR"
src="decoder_texture_U_DCReconstruction_invpred" src-port="AC_PRED_DIR"/>
<Connection dst="decoder_texture_U_IAP" dst-port="QP"
src="decoder_texture_U_DCReconstruction_invpred" src-port="QUANT"/>
<Connection dst="decoder_texture_U_IAP" dst-port="PREV_QP"
src="decoder_texture_U_DCReconstruction_invpred" src-port="PREV_QUANT"/>
<Connection dst="decoder_texture_U_DCReconstruction_invpred"
dst-port="QFS_DC" src="decoder_texture_U_DCsplit" src-port="DC"/>
<Connection dst="decoder_texture_U_DCsplit" dst-port="IN"
src="decoder_parser_splitter_420_B" src-port="B_U"/>
<Connection dst="decoder_texture_U_DCReconstruction_invpred"

```

```

dst-port="QP" src="decoder_parser_splitter_BTTYPE" src-port="QP_U"/>
<Connection dst="decoder_texture_U_DCRecontruction_addressing"
dst-port="WIDTH" src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="decoder_texture_U_DCRecontruction_invpred"
dst-port="WIDTH" src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="decoder_texture_U_DCRecontruction_invpred"
dst-port="AC_CODED" src="decoder_parser_splitter_BTTYPE" src-port="ACCODED_U"/>
<Connection dst="decoder_texture_U_DCRecontruction_invpred"
dst-port="AC_PRED" src="decoder_parser_splitter_BTTYPE" src-port="ACPRED_U"/>
<Connection dst="decoder_texture_U_DCRecontruction_addressing"
dst-port="BTTYPE" src="decoder_parser_splitter_BTTYPE" src-port="BTTYPE_U"/>
<Connection dst="decoder_texture_U_DCRecontruction_invpred"
dst-port="BTTYPE" src="decoder_parser_splitter_BTTYPE" src-port="BTTYPE_U"/>
<Connection dst="decoder_texture_V_IS" dst-port="QFS_AC"
src="decoder_texture_V_DCsplit" src-port="AC"/>
<Connection dst="decoder_texture_V_IAP" dst-port="PQF_AC"
src="decoder_texture_V_IS" src-port="PQF_AC"/>
<Connection dst="decoder_texture_V_IQ" dst-port="AC"
src="decoder_texture_V_IAP" src-port="QF_AC"/>
<Connection dst="decoder_texture_V_idct2d" dst-port="IN"
src="decoder_texture_V_IQ" src-port="OUT"/>
<Connection dst="decoder_texture_V_DCRecontruction_invpred"
dst-port="A" src="decoder_texture_V_DCRecontruction_addressing" src-port="A"/>
<Connection dst="decoder_texture_V_DCRecontruction_invpred"
dst-port="B" src="decoder_texture_V_DCRecontruction_addressing" src-port="B"/>
<Connection dst="decoder_texture_V_DCRecontruction_invpred"
dst-port="C" src="decoder_texture_V_DCRecontruction_addressing" src-port="C"/>
<Connection dst="decoder_texture_V_idct2d" dst-port="SIGNED"
src="decoder_texture_V_DCRecontruction_invpred" src-port="SIGNED"/>
<Connection dst="decoder_texture_V_IQ" dst-port="QP"
src="decoder_texture_V_DCRecontruction_invpred" src-port="QUANT"/>
<Connection dst="decoder_texture_V_IQ" dst-port="DC"
src="decoder_texture_V_DCRecontruction_invpred" src-port="QF_DC"/>
<Connection dst="decoder_texture_V_IAP" dst-port="PTR"
src="decoder_texture_V_DCRecontruction_invpred" src-port="PTR"/>
<Connection dst="decoder_texture_V_IAP" dst-port="AC_PRED_DIR"
src="decoder_texture_V_DCRecontruction_invpred" src-port="AC_PRED_DIR"/>
<Connection dst="decoder_texture_V_IS" dst-port="AC_PRED_DIR"
src="decoder_texture_V_DCRecontruction_invpred" src-port="AC_PRED_DIR"/>
<Connection dst="decoder_texture_V_IAP" dst-port="QP"
src="decoder_texture_V_DCRecontruction_invpred" src-port="QUANT"/>
<Connection dst="decoder_texture_V_IAP" dst-port="PREV_QP"
src="decoder_texture_V_DCRecontruction_invpred" src-port="PREV_QUANT"/>
<Connection dst="decoder_texture_V_DCRecontruction_invpred"
dst-port="QFS_DC" src="decoder_texture_V_DCsplit" src-port="DC"/>
<Connection dst="decoder_texture_V_DCsplit" dst-port="IN"
src="decoder_parser_splitter_420_B" src-port="B_V"/>
<Connection dst="decoder_texture_V_DCRecontruction_invpred"
dst-port="QP" src="decoder_parser_splitter_BTTYPE" src-port="QP_V"/>
<Connection dst="decoder_texture_V_DCRecontruction_addressing"
dst-port="WIDTH" src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="decoder_texture_V_DCRecontruction_invpred"
dst-port="WIDTH" src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="decoder_texture_V_DCRecontruction_invpred"
dst-port="AC_CODED" src="decoder_parser_splitter_BTTYPE" src-port="ACCODED_V"/>
<Connection dst="decoder_texture_V_DCRecontruction_invpred"
dst-port="AC_PRED" src="decoder_parser_splitter_BTTYPE" src-port="ACPRED_V"/>
<Connection dst="decoder_texture_V_DCRecontruction_addressing"
dst-port="BTTYPE" src="decoder_parser_splitter_BTTYPE" src-port="BTTYPE_V"/>
<Connection dst="decoder_texture_V_DCRecontruction_invpred"
dst-port="BTTYPE" src="decoder_parser_splitter_BTTYPE" src-port="BTTYPE_V"/>
<Connection dst="decoder_motion_Y_add" dst-port="MOT"
src="decoder_motion_Y_interpolation" src-port="MOT"/>
<Connection dst="decoder_motion_Y_interpolation" dst-port="RD"
src="decoder_motion_Y_FrameBuff" src-port="RD"/>
<Connection dst="decoder_motion_Y_interpolation" dst-port="halfpel"
src="decoder_motion_Y_FrameBuff" src-port="halfpel"/>
<Connection dst="decoder_motion_Y_FrameBuff" dst-port="WD"
src="decoder_motion_Y_add" src-port="VID"/>
<Connection dst="decoder_Merger420" dst-port="Y"
src="decoder_motion_Y_add" src-port="VID"/>
<Connection dst="decoder_motion_Y_FrameBuff" dst-port="MV"
src="decoder_parser_splitter_MV" src-port="MV_Y"/>
<Connection dst="decoder_motion_Y_FrameBuff" dst-port="WIDTH"
src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="decoder_motion_Y_FrameBuff" dst-port="HEIGHT"
src="decoder_parser_parseheaders" src-port="HEIGHT"/>
<Connection dst="decoder_motion_Y_FrameBuff" dst-port="ROUND"
src="decoder_parser_parseheaders" src-port="ROUND"/>
<Connection dst="decoder_motion_Y_add" dst-port="ACCODED"
src="decoder_parser_splitter_BTTYPE" src-port="ACCODED_Y"/>
<Connection dst="decoder_motion_Y_FrameBuff" dst-port="MOT"
src="decoder_parser_splitter_BTTYPE" src-port="MOTION_Y"/>
<Connection dst="decoder_motion_Y_add" dst-port="BTTYPE"
src="decoder_parser_splitter_BTTYPE" src-port="BTTYPE_Y"/>
<Connection dst="decoder_motion_Y_FrameBuff" dst-port="BTTYPE"

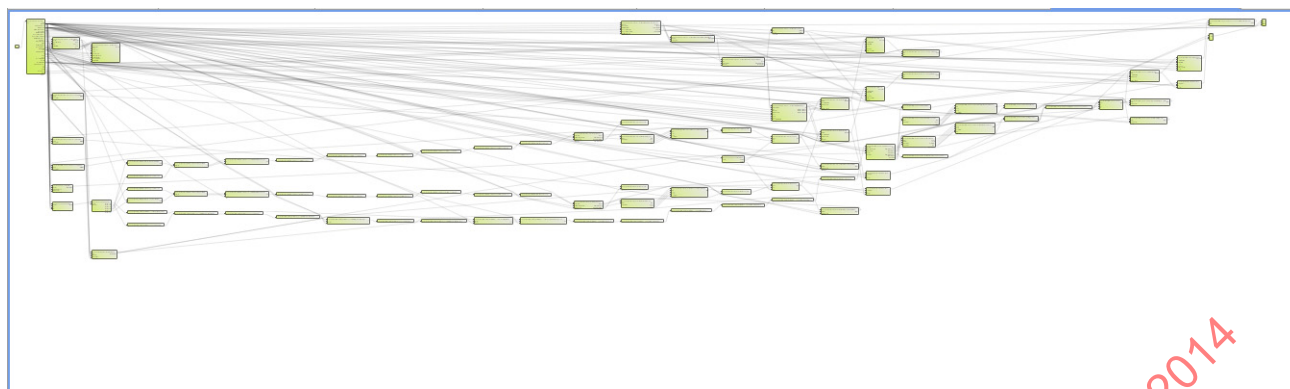
```

```

src="decoder_parser_splitter_BTTYPE" src-port="BTTYPE_Y"/>
<Connection dst="decoder_motion_Y_add" dst-port="TEX"
src="decoder_texture_Y_idct2d" src-port="OUT"/>
<Connection dst="decoder_motion_U_add" dst-port="MOT"
src="decoder_motion_U_interpolation" src-port="MOT"/>
<Connection dst="decoder_motion_U_interpolation" dst-port="RD"
src="decoder_motion_U_FrameBuff" src-port="RD"/>
<Connection dst="decoder_motion_U_interpolation" dst-port="halfpel"
src="decoder_motion_U_FrameBuff" src-port="halfpel"/>
<Connection dst="decoder_motion_U_FrameBuff" dst-port="WD"
src="decoder_motion_U_add" src-port="VID"/>
<Connection dst="decoder_Merger420" dst-port="U"
src="decoder_motion_U_add" src-port="VID"/>
<Connection dst="decoder_motion_U_FrameBuff" dst-port="MV"
src="decoder_parser_splitter_MV" src-port="MV_U"/>
<Connection dst="decoder_motion_U_FrameBuff" dst-port="HEIGHT"
src="decoder_parser_parseheaders" src-port="HEIGHT"/>
<Connection dst="decoder_motion_U_FrameBuff" dst-port="WIDTH"
src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="decoder_motion_U_FrameBuff" dst-port="ROUND"
src="decoder_parser_parseheaders" src-port="ROUND"/>
<Connection dst="decoder_motion_U_add" dst-port="ACCODED"
src="decoder_parser_splitter_BTTYPE" src-port="ACCODED_U"/>
<Connection dst="decoder_motion_U_FrameBuff" dst-port="MOT"
src="decoder_parser_splitter_BTTYPE" src-port="MOTION_U"/>
<Connection dst="decoder_motion_U_add" dst-port="BTTYPE"
src="decoder_parser_splitter_BTTYPE" src-port="BTTYPE_U"/>
<Connection dst="decoder_motion_U_FrameBuff" dst-port="BTTYPE"
src="decoder_parser_splitter_BTTYPE" src-port="BTTYPE_U"/>
<Connection dst="decoder_motion_U_add" dst-port="TEX"
src="decoder_texture_U_idct2d" src-port="OUT"/>
<Connection dst="decoder_motion_V_add" dst-port="MOT"
src="decoder_motion_V_interpolation" src-port="MOT"/>
<Connection dst="decoder_motion_V_interpolation" dst-port="RD"
src="decoder_motion_V_FrameBuff" src-port="RD"/>
<Connection dst="decoder_motion_V_interpolation" dst-port="halfpel"
src="decoder_motion_V_FrameBuff" src-port="halfpel"/>
<Connection dst="decoder_motion_V_FrameBuff" dst-port="WD"
src="decoder_motion_V_add" src-port="VID"/>
<Connection dst="decoder_Merger420" dst-port="V"
src="decoder_motion_V_add" src-port="VID"/>
<Connection dst="decoder_motion_V_FrameBuff" dst-port="MV"
src="decoder_parser_splitter_MV" src-port="MV_V"/>
<Connection dst="decoder_motion_V_FrameBuff" dst-port="WIDTH"
src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="decoder_motion_V_FrameBuff" dst-port="HEIGHT"
src="decoder_parser_parseheaders" src-port="HEIGHT"/>
<Connection dst="decoder_motion_V_FrameBuff" dst-port="ROUND"
src="decoder_parser_parseheaders" src-port="ROUND"/>
<Connection dst="decoder_motion_V_add" dst-port="ACCODED"
src="decoder_parser_splitter_BTTYPE" src-port="ACCODED_V"/>
<Connection dst="decoder_motion_V_FrameBuff" dst-port="MOT"
src="decoder_parser_splitter_BTTYPE" src-port="MOTION_V"/>
<Connection dst="decoder_motion_V_add" dst-port="BTTYPE"
src="decoder_parser_splitter_BTTYPE" src-port="BTTYPE_V"/>
<Connection dst="decoder_motion_V_FrameBuff" dst-port="BTTYPE"
src="decoder_parser_splitter_BTTYPE" src-port="BTTYPE_V"/>
<Connection dst="decoder_motion_V_add" dst-port="TEX"
src="decoder_texture_V_idct2d" src-port="OUT"/>
<Connection dst="display" dst-port="B" src="decoder_Merger420" src-port="YUV"/>
<Connection dst="display" dst-port="WIDTH"
src="decoder_parser_parseheaders" src-port="WIDTH"/>
<Connection dst="display" dst-port="HEIGHT"
src="decoder_parser_parseheaders" src-port="HEIGHT"/>
<Connection dst="decoder_serialize" dst-port="BYTE" src="source" src-port="O"/>
</XDF>

```

B.3 FNL of MPEG-4 AVC Constrained Baseline Profile decoder



Complete example of the MPEG-4 AVC Constrained Baseline Profile decoder (Refer to Top_mpeg4_part10_CBP_decoder.xdf file)

```
<?xml version="1.0" encoding="UTF-8"?>
<XDF name="Top_mpeg4_part10_CBP_decoder">
  <Instance id="source">
    <Class name="org.sc29.wg11.stdio.Source"/>
  </Instance>
  <Instance id="Merger">
    <Class name="std.image.format.Merger420"/>
  </Instance>
  <Instance id="display">
    <Class name="org.sc29.wg11.video.DisplayYUV"/>
  </Instance>
  <Instance id="AVCDecoder_Syn_Parser_Algo_Synp">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.synParser.Algo_SynP"/>
  </Instance>
  <Instance id="AVCDecoder_Syn_Parser_Algo_Parser_IPCM">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.synParser.Algo_Parser_IPCM"/>
  </Instance>
  <Instance id="AVCDecoder_Syn_Parser_IntraPredSplit">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.synParser.Algo_IntraPred_Split"/>
  </Instance>
  <Instance id="AVCDecoder_Syn_Parser_Generate_Inter_Info_MMCO">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_MMCO"/>
  </Instance>
  <Instance id="AVCDecoder_Syn_Parser_Generate_Inter_Info_RefList0">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_RefList"/>
  </Instance>
  <Instance id="AVCDecoder_Syn_Parser_Generate_Inter_Info_Mgnt_InterPred">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Mgnt_InterPred"/>
  </Instance>
  <Instance id="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.deblockingFilter.Mgnt_DBF_AdaptiveFilter"/>
  </Instance>
  <Instance id="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_MvLXReconstr"/>
    <Parameter name="IsPredL0">
      <Expr kind="Literal" literal-kind="Boolean" value="true"/>
    </Parameter>
  </Instance>
  <Instance id="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_RefldxL0ToFrameNum">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.RefldxToFrameNum"/>
  </Instance>
  <Instance id="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.deblockingFilter.Algo_MvComponentReorder"/>
  </Instance>
  <Instance id="AVCDecoder_Decoding_Y_DecodedPictureBuffer">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Mgnt_DPB"/>
    <Parameter name="MB_WIDTH">
      <Expr kind="Literal" literal-kind="Integer" value="16"/>
    </Parameter>
  </Instance>
  <Instance id="AVCDecoder_Decoding_Y_PredictionY_Select">
    <Class name="org.sc29.wg11.common.Algo_SelectMB_4"/>
    <Parameter name="WIDTH">
      <Expr kind="Literal" literal-kind="Integer" value="256"/>
    </Parameter>
  </Instance>
  <Instance id="AVCDecoder_Decoding_Y_PredictionY_Deblocking_Filter">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.deblockingFilter.Algo_DBF_AdaptiveFilter"/>
    <Parameter name="ChromaEdgeFlag">

```

```

    <Expr kind="Literal" literal-kind="Boolean" value="false"/>
  </Parameter>
  <Parameter name="MbWidth">
    <Expr kind="Literal" literal-kind="Integer" value="16"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.selectMacroblock.Algo_DemuxParserInfoForBlocks_Luma"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Mgnt_Intra_16x16">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_Intra_16x16"/>
  <Parameter name="MB_WIDTH">
    <Expr kind="Literal" literal-kind="Integer" value="16"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Algo_IntraPred_LUMA_16x16">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Algo_IntraPred_LUMA_16x16"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Add_Clip">
  <Class name="org.sc29.wg11.common.Algo_AddPixSat"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Buffer_Neighbour_FullMb">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_Buffer_Neighbour_FullMb"/>
  <Parameter name="IsChroma">
    <Expr kind="Literal" literal-kind="Boolean" value="false"/>
  </Parameter>
  <Parameter name="MB_WIDTH">
    <Expr kind="Literal" literal-kind="Integer" value="16"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Mgnt_Intra4x4">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_Intra_4x4"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_IntraPred_LUMA_4x4">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Algo_IntraPred_LUMA_4x4"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Add_4x4">
  <Class name="org.sc29.wg11.common.Algo_AddPixSat"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Merge_4x4_to_16x16_norasterscan">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Algo_Merge_4x4_to_16x16_norasterscan"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Split_16x16_to_4x4_norasterscan">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Algo_Split_16x16_to_4x4_norasterscan"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Buffer_Neighbour_4x4">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_Buffer_Neighbour_YxY"/>
  <Parameter name="IsIntra4x4">
    <Expr kind="Literal" literal-kind="Boolean" value="true"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Inter_Algo_Interp_SeparableSixTapQuarterPel">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_Interp_SeparableSixTapQuarterPel"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Inter_Add_Clip">
  <Class name="org.sc29.wg11.common.Algo_AddPixSat"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_PredictionY_Inter_Algo_Interp_Reord">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_Interp_Reord"/>
  <Parameter name="SzSidePerPart">
    <Expr kind="Literal" literal-kind="Integer" value="4"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_Algo_Merge_4x4_to_16x16">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_Merge_4x4_to_16x16"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_IS_Zigzag_4x4_DC">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IS_Zigzag_4x4"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_IHT1d_0">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_DCR_Hadamard_LUMA_IHT1d"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DC_Transpose4x4_0">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_Transpose4x4"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_IHT1d_1">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_DCR_Hadamard_LUMA_IHT1d"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_Scaling">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_DCR_Hadamard_LUMA_Scaling"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DC_Transpose4x4_1">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_Transpose4x4"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_Reordering">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_DCR_Hadamard_LUMA_Reordering"/>

```

```

</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Algo_IS_Zigzag_4x4_AC">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IS_Zigzag_4x4"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Mgnt_IQ_INTRA16x16">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Mgnt_IQ_INTRA16x16"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Algo_IQ_QSAndSLAndIDCTScaler_4x4">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IQ_QSAndSLAndIDCTScaler_4x4"/>
  <Parameter name="NB4x4">
    <Expr kind="Literal" literal-kind="Integer" value="16"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_IT4x4_1d_0">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IT4x4_1d"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_Transpose4x4_0">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_Transpose4x4"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_IT4x4_1d_1">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IT4x4_1d"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_Transpose4x4_1">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_Transpose4x4"/>
</Instance>
<Instance id="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_IT4x4_Addshift">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IT4x4_Addshift"/>
</Instance>
<Instance id="AVCDecoder_Decode_U_Buffer_inter">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Mgnt_DPB"/>
  <Parameter name="MB_WIDTH">
    <Expr kind="Literal" literal-kind="Integer" value="8"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decode_U_PredictionC_Select_chroma">
  <Class name="org.sc29.wg11.common.Algo_SelectMB_4"/>
  <Parameter name="WIDTH">
    <Expr kind="Literal" literal-kind="Integer" value="64"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decode_U_PredictionC_Deblocking_Filter">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.deblockingFilter.Algo_DBF_AdaptiveFilter"/>
  <Parameter name="ChromaEdgeFlag">
    <Expr kind="Literal" literal-kind="Boolean" value="true"/>
  </Parameter>
  <Parameter name="MbWidth">
    <Expr kind="Literal" literal-kind="Integer" value="8"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decode_U_PredictionC_DemuxParserInfos">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.selectMacroblock.Algo_DemuxParserInfoForBlocks_Chroma"/>
</Instance>
<Instance id="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_IntraPred_CHROMA">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Algo_IntraPred_CHROMA"/>
</Instance>
<Instance id="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_Add">
  <Class name="org.sc29.wg11.common.Algo_AddPixSat"/>
</Instance>
<Instance id="AVCDecoder_Decode_U_PredictionC_Intra8x8_Buffer_Neighbour_FullMb">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_Buffer_Neighbour_FullMb"/>
  <Parameter name="IsChroma">
    <Expr kind="Literal" literal-kind="Boolean" value="true"/>
  </Parameter>
  <Parameter name="MB_WIDTH">
    <Expr kind="Literal" literal-kind="Integer" value="8"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decode_U_PredictionC_Intra8x8_Mgnt_Intra_8x8">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgnt_Intra_16x16"/>
  <Parameter name="MB_WIDTH">
    <Expr kind="Literal" literal-kind="Integer" value="8"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Interp_EighthPelBilinear">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_Interp_Bilinear"/>
</Instance>
<Instance id="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Add">
  <Class name="org.sc29.wg11.common.Algo_AddPixSat"/>
</Instance>
<Instance id="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Interp_Reord">
  <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_Interp_Reord"/>
  <Parameter name="SzSidePerPart">
    <Expr kind="Literal" literal-kind="Integer" value="2"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decode_U_ResidualC_Algo_DCR_Hadamard_CHROMA">

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    <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_DCR_Hadamard_CHROMA"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_U_ResidualC_Algo_Merge_4x4_to_8x8">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_Merge_4x4_to_8x8"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_U_ResidualC_IS_IQ_IT_C_Algo_IS_Zigzag_4x4">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IS_Zigzag_4x4"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_U_ResidualC_IS_IQ_IT_C_Mgmt_IQ_Chroma">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Mgmt_IQ_Chroma"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_U_ResidualC_IS_IQ_IT_C_Algo_IQ_QSAndSLAndIDCTScaler_4x4">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IQ_QSAndSLAndIDCTScaler_4x4"/>
    <Parameter name="NB4x4">
      <Expr kind="Literal" literal-kind="Integer" value="4"/>
    </Parameter>
  </Instance>
  <Instance id="AVCDecoder_Decompose_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_0">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IT4x4_1d"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_0">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_Transpose4x4_0"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_1">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IT4x4_1d"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_1">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_Transpose4x4_1"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_Addshift">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.Residual.Algo_IT4x4_Addshift"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_Buffer_inter">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Mgmt_DPB"/>
    <Parameter name="MB_WIDTH">
      <Expr kind="Literal" literal-kind="Integer" value="8"/>
    </Parameter>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_PredictionC_Select_chroma">
    <Class name="org.sc29.wg11.common.Algo_SelectMB_4"/>
    <Parameter name="WIDTH">
      <Expr kind="Literal" literal-kind="Integer" value="64"/>
    </Parameter>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_PredictionC_Deblocking_Filter">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.deblockingFilter.Algo_DBF_AdaptiveFilter"/>
    <Parameter name="ChromaEdgeFlag">
      <Expr kind="Literal" literal-kind="Boolean" value="true"/>
    </Parameter>
    <Parameter name="MbWidth">
      <Expr kind="Literal" literal-kind="Integer" value="8"/>
    </Parameter>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_PredictionC_DemuxParserInfos">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.selectMacroblock.Algo_DemuxParserInfoForBlocks_Chroma"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_PredictionC_Intra8x8_Algo_IntraPred_CHROMA">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Algo_IntraPred_CHROMA"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_PredictionC_Intra8x8_Algo_Add">
    <Class name="org.sc29.wg11.common.Algo_AddPixSat"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_PredictionC_Intra8x8_Buffer_Neighbour_FullMb">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgmt_Buffer_Neighbour_FullMb"/>
    <Parameter name="IsChroma">
      <Expr kind="Literal" literal-kind="Boolean" value="true"/>
    </Parameter>
    <Parameter name="MB_WIDTH">
      <Expr kind="Literal" literal-kind="Integer" value="8"/>
    </Parameter>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_PredictionC_Intra8x8_Mgmt_Intra_8x8">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.intraPred.Mgmt_Intra_16x16"/>
    <Parameter name="MB_WIDTH">
      <Expr kind="Literal" literal-kind="Integer" value="8"/>
    </Parameter>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_PredictionC_Inter_Algo_Interp_EighthPelBilinear">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_Interp_Bilinear"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_PredictionC_Inter_Algo_Add">
    <Class name="org.sc29.wg11.common.Algo_AddPixSat"/>
  </Instance>
  <Instance id="AVCDecoder_Decompose_V_PredictionC_Inter_Algo_Interp_Reord">
    <Class name="org.sc29.wg11.mpeg4.part10.cbp.interPred.Algo_Interp_Reord"/>
    <Parameter name="SzSidePerPart">

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    <Expr kind="Literal" literal-kind="Integer" value="2"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decode_V_ResidualC_Algo_DCR_Hadamard_CHROMA">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.Residual.Algo_DCR_Hadamard_CHROMA"/>
</Instance>
<Instance id="AVCDecoder_Decode_V_ResidualC_Algo_Merge_4x4_to_8x8">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.Residual.Algo_Merge_4x4_to_8x8"/>
</Instance>
<Instance id="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Algo_IS_Zigzag_4x4">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.Residual.Algo_IS_Zigzag_4x4"/>
</Instance>
<Instance id="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Mgmt_IQ_Chroma">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.Residual.Mgmt_IQ_Chroma"/>
</Instance>
<Instance id="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Algo_IQ_QSAndSLAndIDCTScaler_4x4">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.Residual.Algo_IQ_QSAndSLAndIDCTScaler_4x4"/>
  <Parameter name="NB4x4">
    <Expr kind="Literal" literal-kind="Integer" value="4"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_0">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.Residual.Algo_IT4x4_1d"/>
</Instance>
<Instance id="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_0">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.Residual.Algo_Transpose4x4"/>
</Instance>
<Instance id="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_1">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.Residual.Algo_IT4x4_1d"/>
</Instance>
<Instance id="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_1">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.Residual.Algo_Transpose4x4"/>
</Instance>
<Instance id="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_Addshift">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.Residual.Algo_IT4x4_Addshift"/>
</Instance>
<Instance id="AVCDecoder_CavlcExpand_BlockExpand">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.synParser.Algo_BlockExpand"/>
</Instance>
<Instance id="AVCDecoder_CavlcExpand_BlockSplit">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.synParser.Algo_BlockSplit"/>
</Instance>
<Instance id="AVCDecoder_Display_Render_DisplayRendererY">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.display.Mgmt_BufferRenderer"/>
  <Parameter name="MB_WIDTH">
    <Expr kind="Literal" literal-kind="Integer" value="16"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Display_Render_DisplayRendererU">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.display.Mgmt_BufferRenderer"/>
  <Parameter name="MB_WIDTH">
    <Expr kind="Literal" literal-kind="Integer" value="8"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Display_Render_DisplayRendererV">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.display.Mgmt_BufferRenderer"/>
  <Parameter name="MB_WIDTH">
    <Expr kind="Literal" literal-kind="Integer" value="8"/>
  </Parameter>
</Instance>
<Instance id="AVCDecoder_Display_Render_Mgmt_Display_Poc">
  <Class name="org.sc29.wg11.mpeg4.part10.cbpc.display.Mgmt_POC"/>
</Instance>
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  dst-port="I_PCM" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="I_PCM"/>
<Connection dst="AVCDecoder_Syn_Parser_IntraPredSplit"
  dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_Syn_Parser_IntraPredSplit"
  dst-port="INTRA_PRED_MODE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="INTRA_PRED_MODE"/>
<Connection dst="AVCDecoder_Syn_Parser_IntraPredSplit"
  dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
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  dst-port="CONSTRAINED_IFLAG"
  src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="CONSTRAINED_IFLAG"/>
<Connection dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_RefList0"
  dst-port="EMPTY_DPB"
  src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MMCO" src-port="EMPTY_DPB"/>
<Connection dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_RefList0"
  dst-port="ST_LIST"
  src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MMCO" src-port="ST_LIST"/>
<Connection dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_RefList0"
  dst-port="ST_LIST_SZ"
  src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MMCO" src-port="ST_LIST_SZ"/>
<Connection dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_RefList0"
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src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MMCO" src-port="LT_LIST"/>
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dst-port="REF_IDX"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr" src-port="REF_IDX_OUT"/>
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dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord"
dst-port="MV"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr" src-port="MV_OUT"/>
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dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord"
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src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_RefIdxL0ToFrameNum" src-port="READ_FRAME"/>
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dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_RefIdxL0ToFrameNum"
dst-port="IS_NEW_MB"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr" src-port="IS_NEW_MB_SLICE"/>
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dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_Mgnt_InterPred"
dst-port="MV"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr" src-port="MV_OUT"/>
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dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_Mgnt_InterPred"
dst-port="PARTSZ"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord" src-port="PARTSZ"/>
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dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter"
dst-port="READ_FRAME"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord" src-port="READ_FRAME_DBF"/>
<Connection
dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter"
dst-port="MV"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord" src-port="MV_OUT_DBF"/>
<Connection
dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_RefIdxL0ToFrameNum"
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src="AVCDecoder_Syn_Parser_Generate_Inter_Info_RefList0" src-port="REF_LIST"/>
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dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter"
dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr"
dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord"
dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
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<Connection
dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord"
dst-port="SUB_MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="SUB_MB_TYPE"/>
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dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr"
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<Connection
dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr"
dst-port="SUB_MB_PRED_MVD" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="SUB_MB_PRED_MVD_I0"/>
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dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr"
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src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="SUB_MB_PRED_REF_IDX_I0"/>
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dst-port="MAX_FRAME_NUM" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MAX_FRAME_NUM"/>
<Connection dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_RefList0"
dst-port="MAX_FRAME_NUM" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MAX_FRAME_NUM"/>
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dst-port="MMCO" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MMCO"/>
<Connection dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_RefList0"
dst-port="NB_REF_FRAME" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="NB_REF_FRAME_I0"/>
<Connection dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_RefList0"
dst-port="REF_REORDERING" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="REF_REORDERING"/>
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    dst-port="FRAME_NUM" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="FRAME_NUM"/>
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    dst-port="POC" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="POC"/>
<Connection dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_RefList0"
    dst-port="POC" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="POC"/>
<Connection
    dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter"
    dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection
    dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr"
    dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MMCO"
    dst-port="NUM_REF_FRAME" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="NUM_REF_FRAMES"/>
<Connection
    dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter"
    dst-port="QP_Y" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="QP"/>
<Connection
    dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter"
    dst-port="QP_Cb" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="QP_Cb"/>
<Connection
    dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter"
    dst-port="QP_Cr" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="QP_Cr"/>
<Connection
    dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter"
    dst-port="SLICE_DBF_PARAM" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="SLICE_DBF_PARAM"/>
<Connection
    dst="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter"
    dst-port="CBP_BLK" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="CBP_BLK"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Deblocking_Filter"
    dst-port="MB_IN" src="AVCDecoder_Decoding_Y_PredictionY_Select" src-port="OUT"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_Select"
    dst-port="SELECT"
    src="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos" src-port="SELECT"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Add_Clip"
    dst-port="X"
    src="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Algo_IntraPred_LUMA_16x16" src-port="MPR"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Algo_IntraPred_LUMA_16x16"
    dst-port="AVAIL"
    src="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Mgnt_Intra_16x16" src-port="AVAIL"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Algo_IntraPred_LUMA_16x16"
    dst-port="Y_LEFT"
    src="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Mgnt_Intra_16x16" src-port="Y_LEFT"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Algo_IntraPred_LUMA_16x16"
    dst-port="Y_UP"
    src="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Mgnt_Intra_16x16" src-port="Y_UP"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Algo_IntraPred_LUMA_16x16"
    dst-port="Y_UP_LEFT"
    src="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Mgnt_Intra_16x16" src-port="Y_UP_LEFT"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Mgnt_Intra_16x16"
    dst-port="EDGE"
    src="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Buffer_Neighbour_FullMb" src-port="EDGE"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_Select"
    dst-port="IN_2"
    src="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Add_Clip" src-port="Z"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Add_Clip"
    dst-port="Y"
    src="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos" src-port="COEF_ACR_INTRA16"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Algo_IntraPred_LUMA_16x16"
    dst-port="PRED_MODE"
    src="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos" src-port="PRED_MODE16"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Buffer_Neighbour_FullMb"
    dst-port="MB_IN" src="AVCDecoder_Decoding_Y_PredictionY_Select" src-port="OUT"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Mgnt_Intra_16x16"
    dst-port="NEIGHBOUR"
    src="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos" src-port="NEIGHBOUR16"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_IntraPred_LUMA_4x4"
    dst-port="Y_LEFT"
    src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Mgnt_Intra4x4" src-port="Y_LEFT4"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_IntraPred_LUMA_4x4"
    dst-port="Y_UP"
    src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Mgnt_Intra4x4" src-port="Y_UP4"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_IntraPred_LUMA_4x4"

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dst-port="Y_UP_LEFT"
src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Mgnt_Intra4x4" src-port="Y_UP_LEFT4"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Add_4x4"
dst-port="X"
src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_IntraPred_LUMA_4x4" src-port="MPR"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_IntraPred_LUMA_4x4"
dst-port="AVAIL"
src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Mgnt_Intra4x4" src-port="AVAIL"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Merge_4x4_to_16x16_norasterscan"
dst-port="X"
src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Add_4x4" src-port="Z"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Add_4x4"
dst-port="Y"
src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Split_16x16_to_4x4_norasterscan" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_IntraPred_LUMA_4x4"
dst-port="PRED_MODE"
src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Mgnt_Intra4x4" src-port="PRED_MODE4"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Mgnt_Intra4x4"
dst-port="EDGE"
src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Buffer_Neighbour_4x4" src-port="EDGE"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Mgnt_Intra4x4"
dst-port="MB_4x4"
src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Add_4x4" src-port="Z"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_Select"
dst-port="IN_1"
src="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Merge_4x4_to_16x16_norasterscan" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Algo_Split_16x16_to_4x4_norasterscan"
dst-port="X"
src="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos" src-port="COEF_ACR_INTRA4"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Mgnt_Intra4x4"
dst-port="PRED_MODE"
src="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos" src-port="PRED_MODE4"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Buffer_Neighbour_4x4"
dst-port="MB_IN" src="AVCDecoder_Decoding_Y_PredictionY_Select" src-port="OUT"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Mgnt_Intra4x4"
dst-port="NEIGHBOUR"
src="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos" src-port="NEIGHBOUR4"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_Inter_Add_Clip"
dst-port="X"
src="AVCDecoder_Decoding_Y_PredictionY_Inter_Algo_Interp_Reord" src-port="MBPRED"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Inter_Algo_Interp_Reord"
dst-port="INTERP"
src="AVCDecoder_Decoding_Y_PredictionY_Inter_Algo_Interp_SeparableSixTapQuarterPel" src-port="INTERP"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_Select"
dst-port="IN_3"
src="AVCDecoder_Decoding_Y_PredictionY_Inter_Add_Clip" src-port="Z"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_Inter_Add_Clip"
dst-port="Y"
src="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos" src-port="COEF_ACR_INTER"/>
<Connection dst="AVCDecoder_Decoding_Y_DecodedPictureBuffer"
dst-port="WD"
src="AVCDecoder_Decoding_Y_PredictionY_Deblocking_Filter" src-port="MB_OUT"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Inter_Algo_Interp_SeparableSixTapQuarterPel"
dst-port="RD" src="AVCDecoder_Decoding_Y_DecodedPictureBuffer" src-port="RD"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_IHT1d_0"
dst-port="X"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_IS_Zigzag_4x4_DC" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DC_Transpose4x4_0"
dst-port="X"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_IHT1d_0" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_IHT1d_1"
dst-port="X"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DC_Transpose4x4_0" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_Scaling"
dst-port="I"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_IHT1d_1" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DC_Transpose4x4_1"
dst-port="X"

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src="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_Scaling" src-port="O"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_Reordering"
dst-port="X"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DC_Transpose4x4_1" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Mgnt_IQ_INTRA16x16"
dst-port="COEF_AC"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Algo_IS_Zigzag_4x4_AC" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Algo_IQ_QSAndSLAndIDCTScaler_4x4"
dst-port="IN"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Mgnt_IQ_INTRA16x16" src-port="O"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Algo_IQ_QSAndSLAndIDCTScaler_4x4"
dst-port="IS_DC"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Mgnt_IQ_INTRA16x16" src-port="IS_DC"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_Transpose4x4_0"
dst-port="X"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_IT4x4_1d_0" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_IT4x4_1d_1"
dst-port="X"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_Transpose4x4_0" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_Transpose4x4_1"
dst-port="X"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_IT4x4_1d_1" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_IT4x4_Addshift"
dst-port="X"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_Transpose4x4_1" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_IT4x4_1d_0"
dst-port="X"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Algo_IQ_QSAndSLAndIDCTScaler_4x4" src-port="OUT"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_Algo_Merge_4x4_to_16x16"
dst-port="X"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_IT4x4_Algo_IT4x4_Addshift" src-port="Y"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Mgnt_IQ_INTRA16x16"
dst-port="COEF_DC"
src="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_Reordering" src-port="Y"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos"
dst-port="COEF_ACR"
src="AVCDecoder_Decoding_Y_ResidualY_Algo_Merge_4x4_to_16x16" src-port="Y"/>
<Connection dst="AVCDecoder_Decoding_Y_DecodedPictureBuffer"
dst-port="PIC_SIZE_IN_MB" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="PIC_SIZE_IN_MB"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Deblocking_Filter"
dst-port="PIC_SIZE_IN_MB" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="PIC_SIZE_IN_MB"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos"
dst-port="CONSTRAINED_IFLAG"
src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="CONSTRAINED_IFLAG"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Inter_Algo_Interp_Reord"
dst-port="SUB_MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="SUB_MB_TYPE"/>
<Connection dst="AVCDecoder_Decoding_Y_DecodedPictureBuffer"
dst-port="FRAME_NUM" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="FRAME_NUM"/>
<Connection dst="AVCDecoder_Decoding_Y_DecodedPictureBuffer"
dst-port="DEL_LIST"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MMCO" src-port="DEL_LIST"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Inter_Algo_Interp_SeparableSixTapQuarterPel"
dst-port="MV"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr" src-port="MV_OUT"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Inter_Algo_Interp_SeparableSixTapQuarterPel"
dst-port="PARTSZ"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord" src-port="PARTSZ"/>
<Connection dst="AVCDecoder_Decoding_Y_DecodedPictureBuffer"
dst-port="ENABLE_READ"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr" src-port="IS_NEW_MB_PIC"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_Select"
dst-port="IN_0" src="AVCDecoder_Syn_Parser_Algo_Parser_IPCM" src-port="I_PCM_Y"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos"
dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Deblocking_Filter"
dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection
dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Buffer_Neighbour_FullMb"
dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection

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    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Buffer_Neighbour_4x4"
    dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection dst="AVCDecoder_Decoding_Y_DecodedPictureBuffer"
    dst-port="FRAME_TO_READ"
    src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_RefIdxL0ToFrameNum" src-port="READ_FRAME"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Deblocking_Filter"
    dst-port="BS"
    src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter" src-port="BS"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Deblocking_Filter"
    dst-port="MB_DBF_PARAM"
    src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter" src-port="MB_DBF_PARAM_Y"/>
<Connection dst="AVCDecoder_Decoding_Y_DecodedPictureBuffer"
    dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos"
    dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Deblocking_Filter"
    dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_16x16_Buffer_Neighbour_FullMb"
    dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Intra_4x4_Buffer_Neighbour_4x4"
    dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
    dst="AVCDecoder_Decoding_Y_PredictionY_Inter_Algo_Interp_Reord"
    dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
    dst="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_Scaling"
    dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
    dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Mgnt_IQ_INTRA16x16"
    dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
    dst="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_DCR_Hadamard_LUMA_Scaling"
    dst-port="QP" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="QP"/>
<Connection
    dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Algo_IQ_QSAndSLAndDCTScaler_4x4"
    dst-port="QP" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="QP"/>
<Connection dst="AVCDecoder_Decoding_Y_DecodedPictureBuffer"
    dst-port="RA"
    src="AVCDecoder_Syn_Parser_Generate_Inter_Info_Mgnt_InterPred" src-port="R_ADDR_L"/>
<Connection dst="AVCDecoder_Decoding_Y_PredictionY_DemuxParserInfos"
    dst-port="PRED_MODE" src="AVCDecoder_Syn_Parser_IntraPredSplit" src-port="PRED_MODE"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Deblocking_Filter"
    dst-port="MB_IN"
    src="AVCDecoder_Decode_U_PredictionC_Select_chroma" src-port="OUT"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Select_chroma"
    dst-port="SELECT"
    src="AVCDecoder_Decode_U_PredictionC_DemuxParserInfos" src-port="SELECT"/>
<Connection
    dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Mgnt_Intra_8x8"
    dst-port="EDGE"
    src="AVCDecoder_Decode_U_PredictionC_Intra8x8_Buffer_Neighbour_FullMb" src-port="EDGE"/>
<Connection
    dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_IntraPred_CHROMA"
    dst-port="AVAIL"
    src="AVCDecoder_Decode_U_PredictionC_Intra8x8_Mgnt_Intra_8x8" src-port="AVAIL"/>
<Connection
    dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_IntraPred_CHROMA"
    dst-port="C_LEFT"
    src="AVCDecoder_Decode_U_PredictionC_Intra8x8_Mgnt_Intra_8x8" src-port="Y_LEFT"/>
<Connection
    dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_IntraPred_CHROMA"
    dst-port="C_UP"
    src="AVCDecoder_Decode_U_PredictionC_Intra8x8_Mgnt_Intra_8x8" src-port="Y_UP"/>
<Connection
    dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_IntraPred_CHROMA"
    dst-port="C_UP_LEFT"
    src="AVCDecoder_Decode_U_PredictionC_Intra8x8_Mgnt_Intra_8x8" src-port="Y_UP_LEFT"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_Add"
    dst-port="X"
    src="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_IntraPred_CHROMA" src-port="MPR"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Select_chroma"
    dst-port="IN_1"
    src="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_Add" src-port="Z"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_Add"
    dst-port="Y"
    src="AVCDecoder_Decode_U_PredictionC_DemuxParserInfos" src-port="COEF_ACR_INTRA"/>
<Connection
    dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Buffer_Neighbour_FullMb"
    dst-port="MB_IN"
    src="AVCDecoder_Decode_U_PredictionC_Select_chroma" src-port="OUT"/>
<Connection

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dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Mgnt_Intra_8x8"
dst-port="NEIGHBOUR"
src="AVCDecoder_Decode_U_PredictionC_DemuxParserInfos" src-port="NEIGHBOUR_INTRA"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Add"
dst-port="X"
src="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Interp_Reord" src-port="MBPRED"/>
<Connection
dst="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Interp_Reord"
dst-port="INTERP"
src="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Interp_EighthPelBilinear" src-port="INTERP"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Select_chroma"
dst-port="IN_2"
src="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Add" src-port="Z"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Add"
dst-port="Y"
src="AVCDecoder_Decode_U_PredictionC_DemuxParserInfos" src-port="COEF_ACR_INTER"/>
<Connection dst="AVCDecoder_Decode_U_Buffer_inter" dst-port="WD"
src="AVCDecoder_Decode_U_PredictionC_Deblocking_Filter" src-port="MB_OUT"/>
<Connection
dst="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Interp_EighthPelBilinear"
dst-port="RD" src="AVCDecoder_Decode_U_Buffer_inter" src-port="RD"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_Mgnt_IQ_Chroma"
dst-port="COEF_AC"
src="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_Algo_IS_Zigzag_4x4" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_Algo_IQ_QSAndSLAndIDCTScaler_4x4"
dst-port="IN"
src="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_Mgnt_IQ_Chroma" src-port="O"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_Algo_IQ_QSAndSLAndIDCTScaler_4x4"
dst-port="IS_DC"
src="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_Mgnt_IQ_Chroma" src-port="IS_DC"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_0"
dst-port="X"
src="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_0" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_1"
dst-port="X"
src="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_0" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_1"
dst-port="X"
src="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_1" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_Addshift"
dst-port="X"
src="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_1" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_0"
dst-port="X"
src="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_Algo_IQ_QSAndSLAndIDCTScaler_4x4" src-port="OUT"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_Algo_Merge_4x4_to_8x8"
dst-port="X"
src="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_Addshift" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_Mgnt_IQ_Chroma"
dst-port="COEF_DC"
src="AVCDecoder_Decode_U_ResidualC_Algo_DCR_Hadamard_CHROMA" src-port="OUT"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_DemuxParserInfos"
dst-port="COEF_ACR"
src="AVCDecoder_Decode_U_ResidualC_Algo_Merge_4x4_to_8x8" src-port="Y"/>
<Connection dst="AVCDecoder_Decode_U_Buffer_inter"
dst-port="PIC_SIZE_IN_MB" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="PIC_SIZE_IN_MB"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Deblocking_Filter"
dst-port="PIC_SIZE_IN_MB" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="PIC_SIZE_IN_MB"/>
<Connection
dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Algo_IntraPred_CHROMA"
dst-port="PredMode" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="INTRA_PRED_MODEC"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_DemuxParserInfos"
dst-port="CONSTRAINED_IFLAG"
src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="CONSTRAINED_IFLAG"/>
<Connection
dst="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Interp_Reord"
dst-port="SUB_MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="SUB_MB_TYPE"/>
<Connection dst="AVCDecoder_Decode_U_Buffer_inter"
dst-port="FRAME_NUM" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="FRAME_NUM"/>
<Connection dst="AVCDecoder_Decode_U_Buffer_inter"
dst-port="DEL_LIST"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MMCO" src-port="DEL_LIST"/>
<Connection
dst="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Interp_EighthPelBilinear"
dst-port="MV"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr" src-port="MV_OUT"/>

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<Connection
  dst="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Interp_EighthPelBilinear"
  dst-port="PARTSZ"
  src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord" src-port="PARTSZ"/>
<Connection dst="AVCDecoder_Decode_U_Buffer_inter" dst-port="RA"
  src="AVCDecoder_Syn_Parser_Generate_Inter_Info_Mgmt_InterPred" src-port="R_ADDR_C"/>
<Connection dst="AVCDecoder_Decode_U_Buffer_inter"
  dst-port="ENABLE_READ"
  src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr" src-port="IS_NEW_MB_PIC"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Select_chroma"
  dst-port="IN_0" src="AVCDecoder_Syn_Parser_Algo_Parser_IPCM" src-port="I_PCM_U"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_DemuxParserInfos"
  dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Deblocking_Filter"
  dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection
  dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Buffer_Neighbour_FullMb"
  dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection dst="AVCDecoder_Decode_U_Buffer_inter"
  dst-port="FRAME_TO_READ"
  src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_RefldxL0ToFrameNum" src-port="READ_FRAME"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Deblocking_Filter"
  dst-port="BS"
  src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgmtDeblockingFilter" src-port="BS"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Deblocking_Filter"
  dst-port="MB_DBF_PARAM"
  src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgmtDeblockingFilter" src-port="MB_DBF_PARAM_U"/>
<Connection dst="AVCDecoder_Decode_U_Buffer_inter"
  dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_Deblocking_Filter"
  dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_Decode_U_PredictionC_DemuxParserInfos"
  dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
  dst="AVCDecoder_Decode_U_PredictionC_Intra8x8_Buffer_Neighbour_FullMb"
  dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
  dst="AVCDecoder_Decode_U_PredictionC_Inter_Algo_Interp_Reord"
  dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
  dst="AVCDecoder_Decode_U_ResidualC_Algo_DCR_Hadamard_CHROMA"
  dst-port="QP" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="QP_Cb"/>
<Connection
  dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_Algo_IQ_QSAndSLAndIDCTScaler_4x4"
  dst-port="QP" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="QP_Cb"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Deblocking_Filter"
  dst-port="MB_IN"
  src="AVCDecoder_Decode_V_PredictionC_Select_chroma" src-port="OUT"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Select_chroma"
  dst-port="SELECT"
  src="AVCDecoder_Decode_V_PredictionC_DemuxParserInfos" src-port="SELECT"/>
<Connection
  dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Mgmt_Intra_8x8"
  dst-port="EDGE"
  src="AVCDecoder_Decode_V_PredictionC_Intra8x8_Buffer_Neighbour_FullMb" src-port="EDGE"/>
<Connection
  dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Algo_IntraPred_CHROMA"
  dst-port="AVAIL"
  src="AVCDecoder_Decode_V_PredictionC_Intra8x8_Mgmt_Intra_8x8" src-port="AVAIL"/>
<Connection
  dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Algo_IntraPred_CHROMA"
  dst-port="C_LEFT"
  src="AVCDecoder_Decode_V_PredictionC_Intra8x8_Mgmt_Intra_8x8" src-port="Y_LEFT"/>
<Connection
  dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Algo_IntraPred_CHROMA"
  dst-port="C_UP"
  src="AVCDecoder_Decode_V_PredictionC_Intra8x8_Mgmt_Intra_8x8" src-port="Y_UP"/>
<Connection
  dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Algo_IntraPred_CHROMA"
  dst-port="C_UP_LEFT"
  src="AVCDecoder_Decode_V_PredictionC_Intra8x8_Mgmt_Intra_8x8" src-port="Y_UP_LEFT"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Algo_Add"
  dst-port="X"
  src="AVCDecoder_Decode_V_PredictionC_Intra8x8_Algo_IntraPred_CHROMA" src-port="MPR"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Select_chroma"
  dst-port="IN_1"
  src="AVCDecoder_Decode_V_PredictionC_Intra8x8_Algo_Add" src-port="Z"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Algo_Add"
  dst-port="Y"
  src="AVCDecoder_Decode_V_PredictionC_DemuxParserInfos" src-port="COEF_ACR_INTRA"/>
<Connection
  dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Buffer_Neighbour_FullMb"
  dst-port="MB_IN"
  src="AVCDecoder_Decode_V_PredictionC_Select_chroma" src-port="OUT"/>
<Connection
  dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Mgmt_Intra_8x8"

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dst-port="NEIGHBOUR"
src="AVCDecoder_Decode_V_PredictionC_DemuxParserInfos" src-port="NEIGHBOUR_INTRA"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Add"
dst-port="X"
src="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Interp_Reord" src-port="MBPRED"/>
<Connection
dst="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Interp_Reord"
dst-port="INTERP"
src="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Interp_EighthPelBilinear" src-port="INTERP"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Select_chroma"
dst-port="IN_2"
src="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Add" src-port="Z"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Add"
dst-port="Y"
src="AVCDecoder_Decode_V_PredictionC_DemuxParserInfos" src-port="COEF_ACR_INTER"/>
<Connection dst="AVCDecoder_Decode_V_Buffer_inter" dst-port="WD"
src="AVCDecoder_Decode_V_PredictionC_Deblocking_Filter" src-port="MB_OUT"/>
<Connection
dst="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Interp_EighthPelBilinear"
dst-port="RD" src="AVCDecoder_Decode_V_Buffer_inter" src-port="RD"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Mgnt_IQ_Chroma"
dst-port="COEF_ACR"
src="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Algo_IS_Zigzag_4x4" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Algo_IQ_QSAndSLAndIDCTScaler_4x4"
dst-port="IN"
src="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Mgnt_IQ_Chroma" src-port="O"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Algo_IQ_QSAndSLAndIDCTScaler_4x4"
dst-port="IS_DC"
src="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Mgnt_IQ_Chroma" src-port="IS_DC"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_0"
dst-port="X"
src="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_0" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_1"
dst-port="X"
src="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_0" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_1"
dst-port="X"
src="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_1" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_Addshift"
dst-port="X"
src="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_Transpose4x4_1" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_1d_0"
dst-port="X"
src="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Algo_IQ_QSAndSLAndIDCTScaler_4x4" src-port="OUT"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_Algo_Merge_4x4_to_8x8"
dst-port="X"
src="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_IT4x4_Algo_IT4x4_Addshift" src-port="Y"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Mgnt_IQ_Chroma"
dst-port="COEF_DC"
src="AVCDecoder_Decode_V_ResidualC_Algo_DCR_Hadamard_CHROMA" src-port="OUT"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_DemuxParserInfos"
dst-port="COEF_ACR"
src="AVCDecoder_Decode_V_ResidualC_Algo_Merge_4x4_to_8x8" src-port="Y"/>
<Connection dst="AVCDecoder_Decode_V_Buffer_inter"
dst-port="PIC_SIZE_IN_MB" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="PIC_SIZE_IN_MB"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Deblocking_Filter"
dst-port="PIC_SIZE_IN_MB" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="PIC_SIZE_IN_MB"/>
<Connection
dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Algo_IntraPred_CHROMA"
dst-port="PredMode" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="INTRA_PRED_MODEC"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_DemuxParserInfos"
dst-port="CONSTRAINED_IFLAG"
src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="CONSTRAINED_IFLAG"/>
<Connection
dst="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Interp_Reord"
dst-port="SUB_MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="SUB_MB_TYPE"/>
<Connection dst="AVCDecoder_Decode_V_Buffer_inter"
dst-port="FRAME_NUM" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="FRAME_NUM"/>
<Connection dst="AVCDecoder_Decode_V_Buffer_inter"
dst-port="DEL_LIST"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MMCO" src-port="DEL_LIST"/>
<Connection
dst="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Interp_EighthPelBilinear"
dst-port="MV"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconstr" src-port="MV_OUT"/>
<Connection

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dst="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Interp_EighthPelBilinear"
dst-port="PARTSZ"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvComponentReord" src-port="PARTSZ"/>
<Connection dst="AVCDecoder_Decode_V_Buffer_inter"
dst-port="ENABLE_READ"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_MvL0_Reconst" src-port="IS_NEW_MB_PIC"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Select_chroma"
dst-port="IN_0" src="AVCDecoder_Syn_Parser_Algo_Parser_IPCM" src-port="I_PCM_V"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_DemuxParserInfos"
dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Deblocking_Filter"
dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection
dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Buffer_Neighbour_FullMb"
dst-port="MB_LOCATION" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_LOCATION"/>
<Connection dst="AVCDecoder_Decode_V_Buffer_inter"
dst-port="FRAME_TO_READ"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MVReconstruct_RefIdxL0ToFrameNum" src-port="READ_FRAME"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Deblocking_Filter"
dst-port="BS"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter" src-port="BS"/>
<Connection dst="AVCDecoder_Decode_V_Buffer_inter"
dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Deblocking_Filter"
dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_DemuxParserInfos"
dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
dst="AVCDecoder_Decode_V_PredictionC_Intra8x8_Buffer_Neighbour_FullMb"
dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
dst="AVCDecoder_Decode_V_PredictionC_Inter_Algo_Interp_Reord"
dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_Algo_DCR_Hadamard_CHROMA"
dst-port="QP" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="QP_Cr"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Algo_IQ_QSAndSLAndIDCTScaler_4x4"
dst-port="QP" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="QP_Cr"/>
<Connection dst="AVCDecoder_Decode_V_Buffer_inter" dst-port="RA"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_Mgnt_InterPred" src-port="R_ADDR_C"/>
<Connection dst="AVCDecoder_Decode_V_PredictionC_Deblocking_Filter"
dst-port="MB_DBF_PARAM"
src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MgntDeblockingFilter" src-port="MB_DBF_PARAM_V"/>
<Connection dst="AVCDecoder_CavlcExpand_BlockSplit" dst-port="BLOCK"
src="AVCDecoder_CavlcExpand_BlockExpand" src-port="BLOCK"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_IS_IQ_IT_L_Algo_IS_Zigzag_4x4_AC"
dst-port="X" src="AVCDecoder_CavlcExpand_BlockSplit" src-port="BLOCK_Y_AC"/>
<Connection
dst="AVCDecoder_Decoding_Y_ResidualY_FUN_dcr_Algo_IS_Zigzag_4x4_DC"
dst-port="X" src="AVCDecoder_CavlcExpand_BlockSplit" src-port="BLOCK_Y_DC"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_IS_IQ_IT_C_Algo_IS_Zigzag_4x4"
dst-port="X" src="AVCDecoder_CavlcExpand_BlockSplit" src-port="BLOCK_U_AC"/>
<Connection
dst="AVCDecoder_Decode_U_ResidualC_Algo_DCR_Hadamard_CHROMA"
dst-port="IN" src="AVCDecoder_CavlcExpand_BlockSplit" src-port="BLOCK_U_DC"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_IS_IQ_IT_C_Algo_IS_Zigzag_4x4"
dst-port="X" src="AVCDecoder_CavlcExpand_BlockSplit" src-port="BLOCK_V_AC"/>
<Connection
dst="AVCDecoder_Decode_V_ResidualC_Algo_DCR_Hadamard_CHROMA"
dst-port="IN" src="AVCDecoder_CavlcExpand_BlockSplit" src-port="BLOCK_V_DC"/>
<Connection dst="AVCDecoder_CavlcExpand_BlockExpand"
dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_CavlcExpand_BlockSplit"
dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_CavlcExpand_BlockExpand" dst-port="LAST"
src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="LAST"/>
<Connection dst="AVCDecoder_CavlcExpand_BlockExpand" dst-port="RUN"
src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="RUN"/>
<Connection dst="AVCDecoder_CavlcExpand_BlockExpand"
dst-port="VALUE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="VALUE"/>
<Connection dst="AVCDecoder_Display_Render_DisplayRendererY"
dst-port="POC_DISPLAY"
src="AVCDecoder_Display_Render_Mgnt_Display_Poc" src-port="POC_DISPLAY"/>
<Connection dst="AVCDecoder_Display_Render_DisplayRendererV"
dst-port="POC_DISPLAY"
src="AVCDecoder_Display_Render_Mgnt_Display_Poc" src-port="POC_DISPLAY"/>
<Connection dst="AVCDecoder_Display_Render_DisplayRendererU"
dst-port="POC_DISPLAY"
src="AVCDecoder_Display_Render_Mgnt_Display_Poc" src-port="POC_DISPLAY"/>
<Connection dst="AVCDecoder_Display_Render_DisplayRendererY"
dst-port="POC" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="POC"/>
<Connection dst="AVCDecoder_Display_Render_DisplayRendererU"

```

```

    dst-port="POC" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="POC"/>
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  dst-port="POC" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="POC"/>
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  dst-port="POC" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="POC"/>
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<Connection dst="AVCDecoder_Display_Render_DisplayRendererU"
  dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_Display_Render_DisplayRendererV"
  dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_Display_Render_Mgmt_Display_Poc"
  dst-port="MB_TYPE" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="MB_TYPE"/>
<Connection dst="AVCDecoder_Display_Render_Mgmt_Display_Poc"
  dst-port="EMPTY_DBP"
  src="AVCDecoder_Syn_Parser_Generate_Inter_Info_MMCO" src-port="EMPTY_DBP"/>
<Connection dst="AVCDecoder_Display_Render_Mgmt_Display_Poc"
  dst-port="DBP_MAX_SZ" src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="DBP_MAX_SZ"/>
<Connection dst="AVCDecoder_Display_Render_DisplayRendererY"
  dst-port="WD"
  src="AVCDecoder_Decoding_Y_PredictionY_Deblocking_Filter" src-port="MB_OUT"/>
<Connection dst="AVCDecoder_Display_Render_DisplayRendererU"
  dst-port="WD"
  src="AVCDecoder_Decode_U_PredictionC_Deblocking_Filter" src-port="MB_OUT"/>
<Connection dst="AVCDecoder_Display_Render_DisplayRendererV"
  dst-port="WD"
  src="AVCDecoder_Decode_V_PredictionC_Deblocking_Filter" src-port="MB_OUT"/>
<Connection dst="Merger" dst-port="U"
  src="AVCDecoder_Display_Render_DisplayRendererU" src-port="O"/>
<Connection dst="Merger" dst-port="V"
  src="AVCDecoder_Display_Render_DisplayRendererV" src-port="O"/>
<Connection dst="Merger" dst-port="Y"
  src="AVCDecoder_Display_Render_DisplayRendererY" src-port="O"/>
<Connection dst="display" dst-port="WIDTH"
  src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="WIDTH"/>
<Connection dst="display" dst-port="HEIGHT"
  src="AVCDecoder_Syn_Parser_Algo_Synp" src-port="HEIGHT"/>
<Connection dst="AVCDecoder_Syn_Parser_Algo_Synp" dst-port="BYTE"
  src="source" src-port="O"/>
</XDF>

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Annex C
(normative)

FNL of MPEG-4 AVC Progressive High Profile decoder

IECNORM.COM : Click to view the full PDF of ISO/IEC 23002-4:2014

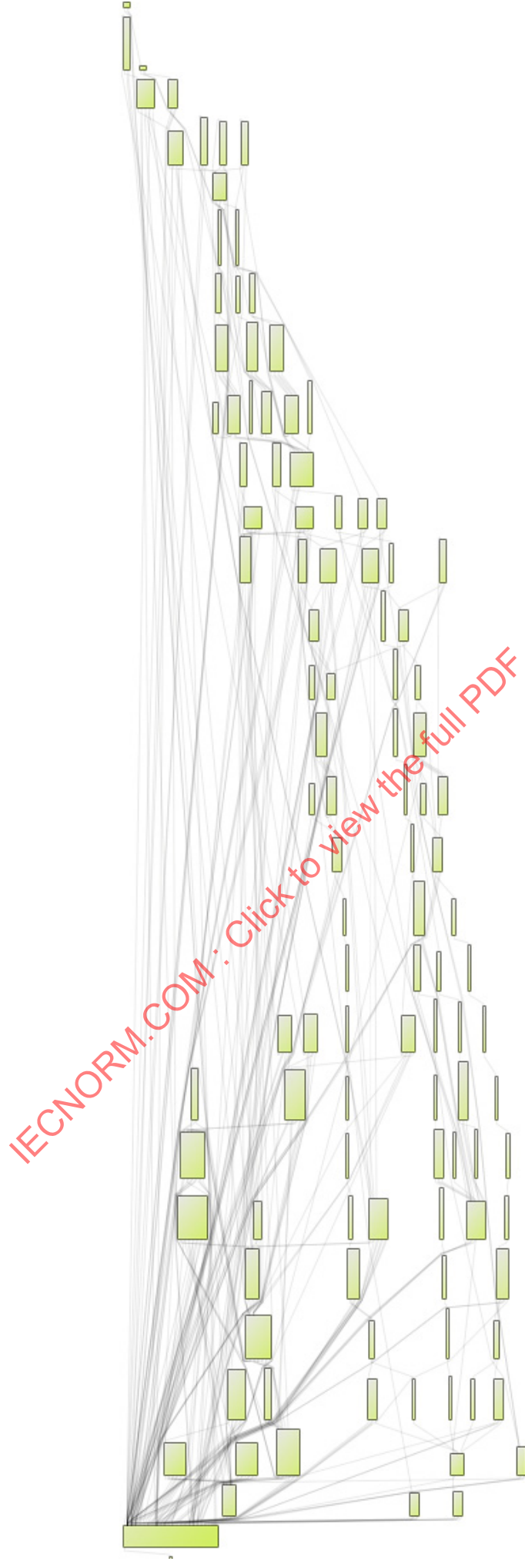


Figure C.1 — Complete example of a graphical representation of the MPEG-4 AVC Progressive High Profile decoder
(Refer to Top_mpeg4_part10_PHP_decoder.xdf.)