

# Video Compression Systems

*Author: Richard Herveille*  
*richard.herveille@flextronicssemi.com*

**Rev. 0.1**  
**March 29, 2002**

*This page left intentionally blank*

## Revision History

Rev.	Date	Author	Description
0.1	03/29/02	Richard Herveille	First Draft

# Contents

**INTRODUCTION** ..... 1

**COMMON**..... 2

**VIDEO CODECS**..... 3

**AUDIO CODECS** ..... 4

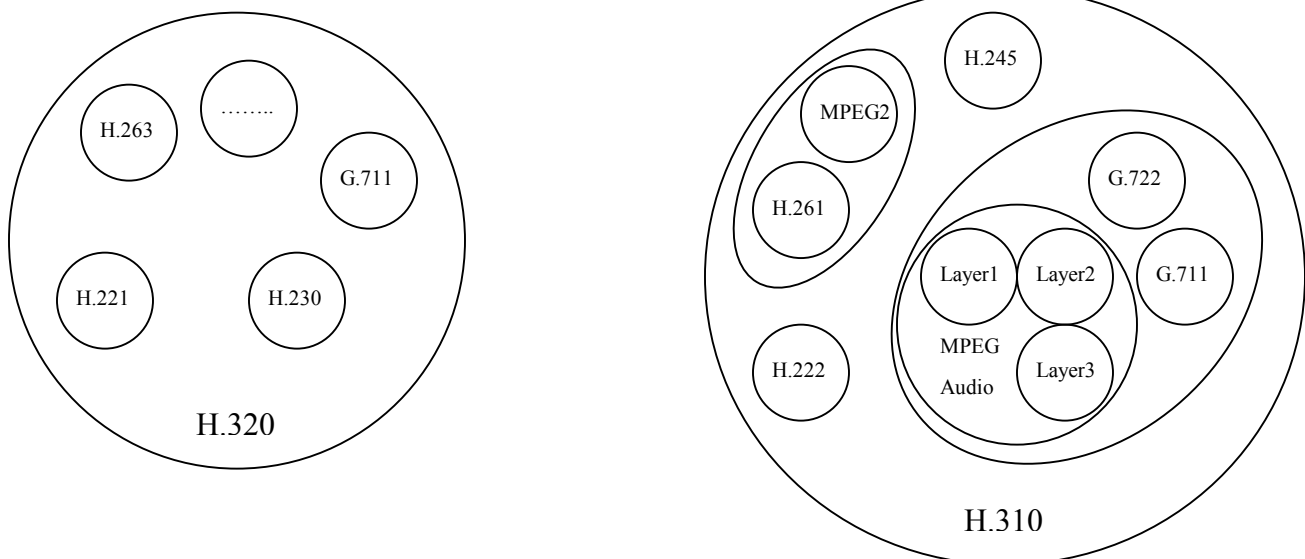
**MULTIPLEXING**..... 5

# 1

## Introduction

The Video Compression Systems group designs and maintains a collection of free Intellectual Property (IP) cores. Each IP core is either a fundamental building block, like a Discrete Cosine Transform or a Motion Estimator, or a complete compression unit as described by ISO and/or ITU standards.

The system integrator can combine multiple IP cores into a complete compression system, see the examples below.



Each circle represents a fundamental building block or a standard. A complete compression system standard is made up out of many sub-standards. Each standard can contain many building blocks. For example, the audio-layer for the H.310 video conferencing system standard uses G.711, G.722, G.728, and MPEG audio encoding standards. The MPEG audio standard describes three sub-standards called layer1, layer2, and layer3. MPEG-audio Layer3 is what is commonly referred to as MPEG3 (MP3).

# 2

---

## Common

Common blocks are fundamental building blocks. A fundamental building block is no standard, but is used by many standards. Examples of these blocks are:

- Discrete Cosine Transformers; FDCT & IDCT
- Quantization & rounding
- Motion estimation & compensation
- Run Length Encoders/Decoders
- etc.

# 3

---

## Video codecs

Video codecs are ITU and/or ISO standards that provide a way to (de)compress video images. Examples of video codec standards are:

- MPEG-1
- MPEG-2
- MPEG-4
- Motion JPEG
- H.261
- H.263

# 4

---

## Audio Codecs

Audio codecs are ITU and/or ISO standards that provide a way to (de)compress audio signals. Examples of audio codec standards are:

- MPEG (layer-1, layer-2, layer-3)
- G.711
- G.722
- G.723
- G.728



# 5

---

## Multiplexing

Multiplexing standards describe how to mix video, audio, data and control signals into a single datastream. Examples of multiplexing standards are:

- H.222 (H.222.0, H.222.1)
- H.221
- H.225