



FLEXIBLE AND SCALABLE

MPEG-4 video coding is characterised by superior flexibility and scalability. Its usefulness spans from low and intermediate to high bit rates, delivering a competitive advantage to other video coding standards and proprietary video coding technologies.

To support the diversity of potential application spaces, MPEG-4 offers a variety of so-called "profiles": well-defined subsets from the toolbox, useful for specific applications. In natural video coding, the most commonly used profiles are Simple Visual Profile (SP) and Advanced Simple Visual Profile (ASP).

MPEG-4 VISUAL CODING PROFILES

The MPEG-4 market has converged on two important visual profiles for natural video:

- **MPEG-4 Visual – Simple Profile (SP)** is designed primarily for low processing power coding, low latency and use in less-than-ideal transmission circumstances. Ideal for real-time desktop software encoding, mobile and wireless devices, video telephony and video-conferencing.
- **MPEG-4 Visual - Advanced Simple Profile (ASP)** offers the best MPEG-4 coding performance and can be deployed into more demanding environments where video decoding at intermediate and higher bit rates is required. ASP is also ideal for broadcasters wishing to provide wide range of programming qualities suited to a variety of platforms, e.g. Broadcast, Internet and Mobile Phones.

Both profiles are already implemented in a wide range of software players, hardware, silicon, embedded systems and consumer devices: mobile phones, handheld computers, PDAs, personal video jukeboxes, and consumer digital still- and video cameras.

BENEFITS OF PROFILES

- The scalable choice between MPEG-4 profiles supports the diversity of digital video applications, avoiding costly production of a number of different multimedia formats.
- Service providers can use broadband and narrowband platforms for the distribution of their content, such as wireless networks, digital television and the Internet.
- Profiles allow users to choose tool-sets supporting just the functionality they need.

COMPARISON OF MPEG-4 VSP AND ASP

<i>Simple Profile</i>	<i>Advanced Simple Profile</i>
The basis of all MPEG-4 video profiles; to some extent compatible with H.263	Based on Simple Profile, adds advanced coding tools to SP
Suited for low bit rates, from 10 kbit/s upwards, and for low latency applications.	Supports a wide range of bit rates from narrowband (56 kbit/s) to broadband (300-750 kbit/s), and broadcast SD to HD (1-8+ Mbit/s).
Industrial quality control, low complexity desktop video, mobile video, use close circuit video surveillance, teleconferencing or video telephony, more.	Broadcast, Unicast and Multicast applications, advanced Internet Streaming, media asset management, browsing, VOD, education, security, more
Adopted by 3GPP for wireless video streaming and ISMA (Level 0) for narrowband internet streaming.	Adopted by ISMA (Level 1) for broadband internet streaming. Used in many consumer devices such including some DVD players and PDAs.
Includes error resilience tools	Includes interlace Support
Real-time software encoding easy to achieve	Better coding efficiency at higher quality levels and bitrates.
Can be Implemented in small or resource-constrained devices.	Encoder and decoder is more complex; encoding and decoding in software possible on modern personal computers
Coding of Intra (I) and Predicted (P)Frames	Adds support for coding of B-Frames (Bidirectionally interpolated)
½ Pixel accurate motion compensation	¼ Pixel accurate motion compensation
Block-based (16x16, 8x8 blocks) motion compensation	Adds global motion compensation (GMC) with up to 6 parameter affine model

BENEFITS OF AN OPEN STANDARD

Open standards are part of your everyday life. When you switch on your TV or pick up the phone, when you load A4 or letter-sized paper in a photocopier, you are benefiting from open standards. A multi-vendor model automatically creates a larger market and delivers what users want: choice. In addition, using an open standard like MPEG-4 avoids the dangerous hidden costs of proprietary technology, such as:

- becoming hostage to third party business and pricing models
- the level of risk in depending on proprietary and confidential third party technology road maps
- conflicting agendas when the licensing entity is both a supplier and a competitor to the licensee
- exploitative licensing terms, such as when the license includes many more bundled features than required
- single sourcing problems with respect to pricing, competition, product-sourcing, new product versions, and bug fixes.