

DivX/ MPEG4 Feature List

DivX Playback on the DVDR-X30



Product Overview

MPEG-4

The ISO/IEC 14496/ MPEG-4 is an international video standard characterized by superior flexibility and scaling. Its usefulness spans from low to intermediate bit rates, delivering a competitive advantage over other standards. MPEG-4 offers a variety of profiles, useful for specific applications. The most commonly used profiles are Simple Profile (SP) and Advanced Simple Profile (ASP). Due to its similarity with the MPEG-2 standard, support for MPEG-4 is feasible without adding extra cost to the existing silicon and system infrastructures.

DivX3.11

DivX3.11 is a format that has come from an early submission of the MPEG-4 standard to the ISO/ITU committee. Because DivX3.11 was created before the ratification of the MPEG-4 standard, it is not MPEG-4 compliant. It is primarily based on MPEG-4 simple profile with significant differences in coding tables.

DivX4.x, DivX5.x, DivXPro

In early 2000, DivX Networks created an open-source MPEG-4 CODEC known as DivX4.0 enabling content distribution on the Internet. DivX Networks later decided to close the source code distribution, and released DivX5.0 which was an improved CODEC compared to DivX4.0. Both DivX4.0 and DivX5.0 are based on MPEG-4 Simple Profile and the CODEC can be downloaded without a charge. Next the company released DivXPro, which is based on the MPEG-4 Advanced Simple Profile (ASP). DivX Networks later removed the requirements for the support of quarter-pixel (Qpel) and global motion compensation (GMC) which is now termed ASP*.

Xvid

XviD (DivX spelled backwards) is an open-source alternative to DivX that is a fully compliant MPEG-4 CODEC based on Simple Profile and Advanced Simple Profile tools, and is designed for cross-platform compatibility. XviD is not officially sponsored by any corporations, and is a continuously-evolving implementation of the MPEG-4 CODEC.

Feature Summary for DivX Formats

| DivX3.11 | Simple Profile (DivX4.0, DivX5.02) | ASP* (DivX5.1, DivX Pro) | ASP, Advanced Simple Profile (XviD) |
|--|---|---|--|
| Coding of I and P frames | Coding of I and P frames | Coding of I, P and B frames | Coding of I,P and B frames |
| DC prediction is different | AC/ DC prediction | AC/ DC prediction | AC/ DC prediction |
| Block based motion compensation (16x16 blocks) | Block based motion compensation (16x16, 8x8 blocks) | Block based motion compensation (16x16, 8x8 blocks) | Global Motion Compensation (GMC) |
| Different VLD tables | Optimized VLD tables | Optimized VLD tables | Optimized VLD tables |
| No interlaced support | No interlaced support | Includes interlaced support | Includes interlaced support |
| ½ pixel accurate motion compensation | ½ pixel accurate motion compensation | ½ pixel accurate motion compensation | ¼ pixel accurate motion compensation |

Below are the DivX playback specifications that LSI Logic supports on the DVDR-X30

Video Stream Formats:

- DivX3.11
- Simple Profile (SP) - DivX4.x, DivX5.02
- Advanced Simple Profile Star (ASP*) - DivX5.1, DivX Pro
- XviD Basic (no GMC or Qpel support)
- MP4 File Format (*alpha release*) (*partial support*)
- B-pictures supported
- Interlaced and Progressive source supported
- 4xMV and dual-quantization modes supported

Audio Stream Formats:

- MP3
- MP2
- LPCM (*partial support*)
- AC3
- WMA
- AAC (*partial support*)

Note: DivX Certification requires the support of both MP2 and MP3 files, although MP3 provides the best performance of the audio formats listed above. It is estimated that over 90% of all DivX content available uses MP3.

File Format:

- AVI
- MP4 (*partial support*)
- ASF (*limited content*) (NG)
- Ogg (*limited content*) (NG)
- DIVX

Logical Formats:

- CD-R/ -RW (homogeneous content)
- DVD +R/+RW (homogeneous content)

Bit Rate:

- Average bit rate: 2Mbps
- Maximum macroblocks per second: 40500 MCBPS

- Maximum peak bitrate: 2.5Mbps < 1/2 second

Input Stream Resolution:

- **Minimum:** 200x100 (original is 176x128 , Kourosh suggest to reduct to 200x100) @ 30 fps (all streams between the resolutions of 176x128 and 352x288 (SIF) will be supported at 30 fps)
- **Maximum:** 720x480 @ 30 fps and 720x576 @ 25 fps

Input Frame Rate:

- All frame rates between 8 to 29.97 fps will be decodable (pending compliance to maximum MCBPS)

Display:

- Frame rate: Streams will be played back at either a or 29.97 (NTSC) or 25 (PAL) fps
- Resolution: 720x480 (NTSC) and 720x576(PAL)

Trickplay:

- Pause
- Fast Forward (I-frame only) 8x, 16x, 32x
- Fast Reverse (I-frame only) 8x, 16x, 32x

Subtitle Support:

- External subtitles

Other:

- Progressive Scan video output supported (480P, 576P) (*Can't switch Progressive/Interlace when playing Divx*)
- NTSC to PAL Transcode
PAL to NTSC Transcode
Four CC codes supported: MP4, mpg4, divx3, DivX50, MP43, mp43, XVID, xvid , DIVX, divx

Note: For additional information on DivX, please see the DivX website: <http://www.divx.com/>