

ARMovie Video Architecture

- Flexible architecture
- Software based system – immediately takes advantage of improvements in system performance
- Video and Audio codec interface to allow new codecs to be added by ART or third parties
- Supports a wide range of screen displays
- Open architecture allows many components to be added or replaced by third party developers
- Special effects can be applied to movies at run time

The ARMovie architecture allows users of RISC OS ARM based systems to play moving video streams with synchronised audio. The architecture supports either single or multi-tasking operation; in multi-tasking mode multiple simultaneous video streams may be played with a single audio stream. In future releases, support will be added for multiple simultaneous audio streams.

Flexible display support provides for screen display depths from 1bpp (black/white) through to 24bpp colour; both colour and greyscale palettes are supported. Movies can be played back unsealed, which means they are undithered, or scaled and dithered to give improved rendition of colour on lower bit depth displays. In high quality display modes (15bpp or 24bpp) scaling can be combined with interpolation to reduce apparent pixelisation, producing very high quality output results.

New Codecs can easily be added – a clearly defined interface is provided to allow the addition of new codecs. A number of codecs are provided as standard – several uncompressed codecs at various bit depths, and two compressed codecs: *Moving Lines* and *Moving Blocks* (see separate video codec data sheet DS016)

Similarly, audio codecs can be added through an audio codec interface.

Architectural Benefits

The ARMovie architecture provides a number of benefits:

- Use of data buffers provides high system latency tolerance e.g. disc seek time
- New Codecs can be added so allowing the codec to be optimised for a specific application environment e.g. greyscale or cartoon optimised codecs
- ARMovie is optimised for the ARM processor range, taking advantage of the ARM's ability to perform multiword memory<->register transfers so giving high performance on inexpensive hardware
- Run-time code generation produces optimal performance for given movie and screen mode
- Supports up to 25fps at 300kb/sec and 12.5fps at 150kb/sec

Using ARMovie

ARMovie can easily be used by RISC OS applications, in either single or multi-tasking mode. In multi-tasking mode, the movie can be inserted into your application's window, allowing video to be mixed with other data in a seamless fashion.

ARMovie operates in any screen display mode supported by the RISC OS desktop, so your application can work across a wide range of systems, with full screen display independence. ARMovie Codecs can also be used by other applications directly, allowing other applications to operate on video data contained within ARMovie files.

Third party applications can be used to perform editing of ARMovie file to produce multimedia video presentations.

Detailed Specification

- 1, 2, 4, 8, 16 and 32bpp display modes supported: LCD or CRT displays
- Greyscale or colour output
- Codec interface allowing creation of additional video or audio codecs
- Run-time code generation for specific screen depths
- Currently operates on ARM2, ARM3, ARM250, ARM610, ARM710 and ARM7500 processors
- Support for future ARM processors e.g. ARM810 and StrongARM will be added
- Operates on RISC OS 3.10 and later (some features require RISC OS 3.50 or later)
- RGB and YUV colour models supported
- Additional colour spaces can be added
- Support for movies with arbitrary 8 bit palettes
- Shape distortion of movies allows mapping of a movie onto a sphere or other complex object while playing
- Movies can start from any position if the movie contains key frame data

System Requirements

- ARM-based machine running RISC OS 2.00 or later
- Minimum recommended system configuration: RAM 2MByte
- Multi-tasking operation currently requires RISC OS 3.50 or later (RISC OS 3.50 onwards do not operate on ARM2, ARM3 or ARM250)

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