QuickTime 3.0

QuickTime is Apple Computer's industry standard software architecture for creating, editing, and publishing digital media.

QuickTime is at the foundation of some of the industry's most respected digital media software tools, including Adobe After Effects, Avid Cinema, Adobe Premiere, Radius Edit, and Macromedia's much-anticipated Final Cut.

QuickTime also provides the most reliable way to deliver digital media to a variety of computer platforms. That's why top computer entertainment companies like Broderbund, Voyager, Cyan, Macromedia, Pixar, Microsoft, Disney, and CNN all use QuickTime to deliver digital video. QuickTime provides the high level of performance, compatibility, and quality that these companies demand to deliver their products.

The QuickTime movie file format enables seamless exchange of digital media between nearly all digital media tools. QuickTime movie files are used in a wide range of situations ranging from professional video editing stations from Scitex and Media 100 to over half of the video found on the internet. For the first time with QuickTime 3.0, the full range of QuickTime media creation, editing, and publishing functionality is now available on the Windows 95 and Windows NT platforms, in addition to Mac OS. QuickTime 3.0 now provides unprecedented power and flexibility for QuickTime customers on all the major desktop computer platforms.

QuickTime 3.0 contains literally dozens of significant new capabilities to assist media authors and application developers to work more effectively with QuickTime.

QuickTime features major enhancements to its media interchange architecture to support full interoperability with a wider range of professional media file formats, including the AVI, OpenDML, OMF, and DVCam formats.

QuickTime 3.0 introduces rich support for DVCam media streams to the base architecture. The release provides software-only or hardware-accelerated playback, editing, and creation of DVCam streams in any QuickTime application.

QuickTime also integrates flexible real-time effects and transitions capabilities. QuickTime now standardizes access to software-based and hardware-accelerated effects features within an open, scalable, and extensible architecture.

Read on for more information on how the advanced architecture and rich feature set QuickTime 3.0 offers benefit both media content authors and application developers.

QuickTime 3.0

Component Architecture

QuickTime isn't just one single piece of software, QuickTime is a collection of over 175 different software components that work seamlessly. These software components are divided into over 20 different categories, with each one providing a particular service. This component architecture allows QuickTime to be continuously updated to support new technologies by adding new components or enhancing existing ones. Developers, too can add their own software components, allowing their technology to take advantage of all the benefits of QuickTime integration.

Hardware

One of the key features of the QuickTime software architecture is that it provides an abstraction layer that enables applications to be created with no dependencies on the underlying media hardware. Because computing power increases so rapidly, a decompression algorithm that required an add-in hardware board to provide full motion playback two years ago can now be completely implemented in software. Without QuickTime, applications would ordinarily interact directly with the media hardware, resulting in less robust, less compatible application behavior.

Because QuickTime provides a well defined hardware abstraction layer, applications are isolated from the underlying media

technologies. This abstraction means that applications are always ready to take advantage of the latest hardware technology advances such as MMX and multiprocessing.

Platforms

Digital media is created on a variety of computing platforms for delivery on an even wider variety of platforms. QuickTime has long supported the ability to deliver digital media to a range of computing platforms. QuickTime 3.0 adds the ability to capture, edit, and compress digital media on the same range of platforms. This strong multi-platform support gives developers and customers a choice in both their development and delivery platforms, while maintaining the consistent and reliable results that QuickTime has always provided.

Media Types

While most digital media content creation focuses on sound and video, there are many other kinds of media that are used on a daily basis. The QuickTime architecture is capable of handling any time based media, going well beyond just sound and video. By providing a unified architecture for working with all time based media, QuickTime simplifies the creation and delivery of all kinds of media. By standardizing how important media types such as text, time code, MIDI, and 3D are combined with video and sound, QuickTime enables applications easily integrate all kinds of media to create compelling media presentations.

Digital Capture Media Types

In addition to the ability to playback and edit digital media, QuickTime contains a complete architecture for

digital media capture. Beyond providing services for the synchronized streaming capture of digital video and audio in a variety of formats from a wide range of sources, QuickTime also provides standard user interface elements which enable applications to easily integrate capture support.

QuickTime's digital capture solutions are flexible enough to be used both to capture broadcast quality video and for video conferencing applications. And QuickTime supports a variety of media types for capture including MIDI and text, making it easy to synchronize the acquisition of almost any kind of media.

Digital Media File Formats

Professionals who create digital media every day work with a variety of media file formats. Different kinds of media are stored in different kinds of files. QuickTime provides a solution to this mixed media chaos in two ways. First, the QuickTime software architecture enables QuickTime based applications to easily work with a wide variety of industry standard media file formats. Second, the QuickTime movie file format provides a powerful container with the ability to contain nearly any kind of digital media. The QuickTime movie file format is so well suited to professional media storage, that Silicon Graphics has announced their intention to standardize on QuickTime movie files for all their sound and video storage.

In addition to complete support for the QuickTime Movie format, QuickTime supports a long list of digital media file formats. The QuickTime software architecture allows support for new file formats and these may be plugged in at any time as they emerge.
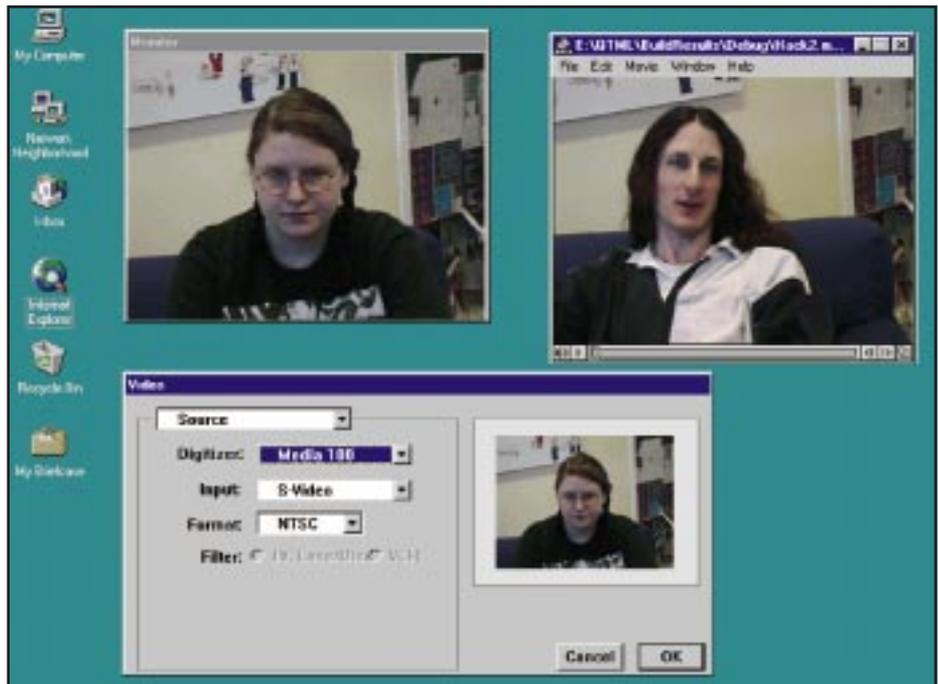
Compressed Data Formats

In the digital video and audio markets, a variety of different compression technologies are used. Each technology was created to meet the need of a particular market. For example, Cinepak was created to deliver video from CD-ROMs, Motion JPEG Format A to edit broadcast quality video, and ClearVideo to deliver video on the internet. During the course of creating and delivering a digital media production, several different formats may be used.

The QuickTime software architecture enables almost any compression technology to be integrated with QuickTime. Creators of digital media content have the freedom to choose the best compression format for the job.

Export Formats

Just as it is important to be able to bring any digital media file formats into QuickTime, it is also important to be able to easily put media from QuickTime movie files into other standard media formats. QuickTime provides the basis for a great system for creating, editing, and delivering digital media. In some cases, the delivery platform for the digital content may not support QuickTime movie files directly, for example a DVCam video tape. In this case, it is necessary to be able to easily encode a QuickTime movie into the DVCam format. QuickTime has the built-in ability to export to a variety of standard digital media formats, and the extensibility to add support for other digital media formats as needed.

QuickTime 3.0

Component Architecture

- Image Decompressor
- Image Compressor
- Sound Decompressor
- Sound Compressor
- Data Handler
- Media Handler
- Clock
- Image Transcoder
- Movie Controller
- Movie Importer
- Movie Exporter
- Data Decompressor*
- Capture Channel
- Capture Interface Panel
- Graphics Format Importer
- File Previewer
- Musical Instrument Provider
- Software Music Synthesizer
- Sound Mixer
- Interpolator
- Video Digitizer
- Audio Digitizer

Hardware Abstraction

- Clock/Timers
- Sound Output
- Image Compression
- Image Compositing
- Sound Compression
- Sound Mixing
- Digital Media Capture
- Media Storage
- MIDI Synthesis
- 3D Rendering

Media Types

- Video
- Sound
- Text
- Timecode
- 3D
- MIDI
- Sprite/Animation
- Tween
- MPEG
- VR

Compressed Data Formats

Video Formats

- JPEG
- Motion JPEG Format A
- Motion JPEG Format B
- AVR (Avid Video Resolution)*
- OpenDML Motion JPEG*
- YUV 4:2:2
- YUV 4:1:1
- RGB
- ARGB
- Windows Uncompressed*
- Apple Video
- Animation
- Apple Graphics
- Cinepak
- Windows RLE*
- GIF
- Photoshop
- Vector Animation*
- DVCam*
- H.263*
- MPEG
- CCIR 601

Supported through additional third party extensions:
- ClearVideo*
- TrueMotion
- Indeo 3.2
- Indeo Video Interactive *
- H.261*

Audio Formats

- PCM
- IMA ADPCM
- MACE 3:1
- MACE 6:1
- 32-bit IEEE Floating Point*
- 64-bit IEEE Floating Point*
- µLaw
- DVCam*

Supported through additional third party extensions:
- G.723*
- G.728*
- GSM*

* New in QuickTime 3.0

Digital Media File Formats

Digital Video
- AVI*
- OpenDML*
- OMF*
- MPEG
- DVCam*

Digital Audio
- AIFF/AIFC
- Wave
- Sound Designer II*
- AU
- MPEG Layer 2

Still Image
- QuickTime Image File
- Photoshop
- QuickDraw Picture
- BMP*
- GIF
- JPEG/JFIF
- SGI
- MacPaint
- PNG*

Animation
- FLC/FLI*
- PICS
- 3DMF

MIDI
- General MIDI
- Karaoke MIDI

Digital Capture Media Types

- Video
- Sound
- DVCam*
- MIDI
- Text
- Timecode

Export File Formats

- AIFF/AIFC
- Wave
- MIDI
- QuickDraw
- Picture
- Text
- DVCam*

Platforms

- Mac OS System 7
- Mac OS System 8
- Windows 95
- Windows NT 4.0*