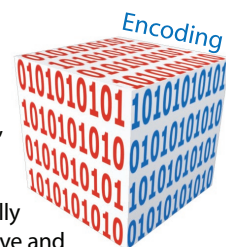


The fastest,
most powerful
and flexible
digital cinema
mastering system
in the world!

QUBE
MASTER *Pro*

www.qubecinema.com

Qube Cinema is a company that has proven expertise in managing complex technology transformations in traditional workflows; a company with a passion for cinema and a thorough understanding of film, video, audio and computer technology as well as the production, post-production and exhibition industries. Qube Cinema has an entire suite of products required for a practical, commercially viable, end-to-end implementation of Digital Cinema.

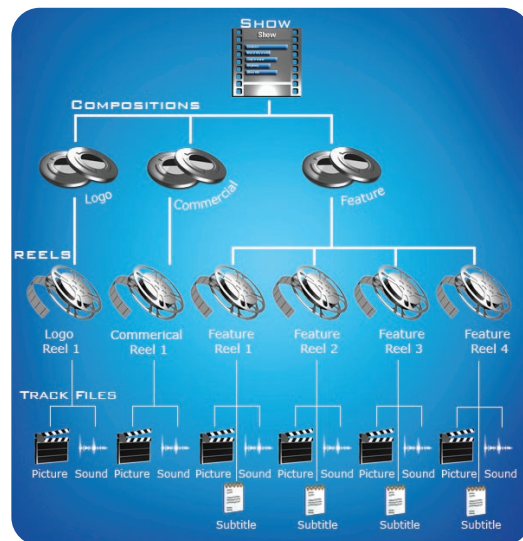


QubeMaster Pro is a uniquely flexible and powerful Digital Cinema encoding and packaging solution designed to integrate fully into the modern post environment. It is a database-driven software solution for the Microsoft Windows™ platform with an intuitive and familiar user interface that is simple to understand, yet provides virtually unlimited power and flexibility for digital cinema content creation. For power users, the software provides fast keyboard-based control over nearly all operations.

QubeMaster Pro's DCI Object Model

The architecture of QubeMaster Pro closely mirrors the *Digital Cinema Initiatives* (DCI) Object Model with a hierarchy of *Shows*, *Compositions*, *Reels* and *Track Files*. It is this design that makes QubeMaster Pro unarguably the best choice for every digital cinema mastering application.

While QubeMaster Pro has been designed from the ground up to conform to the DCI Specification and is the ideal product to go from a *Digital Cinema Distribution Master* (DCDM) to a *Digital Cinema Package* (DCP), it has also been designed to operate in the real world where workflows don't always represent the ideal.



QubeMaster Pro's DCI Object Model

The Virtual DCDM

QubeMaster Pro has powerful pre-processing capabilities that allow it to crop, scale and add borders to the image, and to combine multiple audio files with flexible channel assignments. QubeMaster Pro can perform Log to Linear conversions, handle 1 D and 3 D Lookup Tables as well as convert between XYZ, RGB and YCbCr color spaces with user defined R, G, B and White Point colour coordinates. For more advanced pre-processing, QubeMaster Pro includes *Color Transform Language* (CTL) Script Processing. The software handles all pre-processing calculations with the highest internal precision to preserve every bit of image quality.

Together, these pre-processing capabilities allow QubeMaster Pro to work directly on the Digital Intermediate data where there is insufficient time or budget to create a DCDM – a concept that we refer to as the Virtual DCDM! And since the DCDM is the ideal archival format for a film, QubeMaster Pro can also generate a standards-compliant DCDM even as it encodes, thus saving considerable time and money.

More Pre-processing

There are many more pre-processing capabilities built right into QubeMaster Pro so that you can manage most situations without export/import or the use of third-party software. This includes the capability to burn-in captions, both in 2D and 3D with Z positioning; perform audio pull-ups and pull-downs, video and audio frame rate conversions and much, much more.

Flexible Source File Formats

The software supports multiple methods of bringing in picture and sound elements including file import and image sequence import. Numerous picture formats are supported including TIFF, DPX, Cineon, TGA and BMP image sequences apart from MXF, Quicktime, QT Reference and AVI based sources. Since QubeMaster Pro works with any existing local or shared storage, its flexible support of multiple file formats will quickly become a boon in a post facility without the need to copy or convert.

Simple, Intuitive Workflow

QubeMaster Pro provides a very powerful mastering interface which allows picture, sound and subtitle *Track Files* to be added to the database by a simple drag-and-drop operation. These files are then synced accurately using a Sync Point such as the 2-Pop to form *Reels*. Sync Points are marked for each Track File using the *Clip Editor* as are In and Out Points representing the *First Frame of Action* (FFOA) and the *Last Frame of Action* (LFOA) of each Reel.

Subtitles are xml or MXF files in the CineCanvas™ format and can be created by the QubeMaster Pro application from plain text files in multiple popular formats or the system can directly use standards compliant xml files created in other applications.

Multiple Reels are ordered and chained together to form a *Composition* along with additional metadata that is entered by the user. The Composition is the basic unit of distribution in the digital cinema world and QubeMaster Pro produces standards compliant SMPTE and MXF Interop *Digital Cinema Packages* (DCPs) and *Key Delivery Messages* (KDMs) for distribution to digital screens.

"A deceptively simple user interface that hides the fact that QubeMaster Pro has an answer to every digital cinema packaging problem one can think of!"



Keys, Security and Audit Logs

While QubeMaster Pro is a mastering system, it does include efficient Key management capabilities. KDMs can be issued for a single target Device Certificate or optionally, in bulk for a folder full of target Device Certificates. And for large post-production organizations, QubeMaster Pro also allows KDMs to be restricted to just a specified list of target Device Certificates such as those in internal screening rooms and dedicated Key Management solutions such as Qube KeySmith. And that's not all, QubeMaster Pro logs every encode performed on the system so an audit log will be available to the System Administrator.

QubeMaster Pro was built for the real world and addresses nearly every real-world challenge. Whatever your digital cinema mastering application, QubeMaster Pro is one system that has the power and flexibility to support it!

System Requirements:

Microsoft Windows 7 x64 based Workstation, Intel Core i5 Processor 2.3 GHz or faster CPU (20-core Workstation with dual Intel Xeon Processor E7s preferred), 4 GB RAM minimum (16 GB preferred), 250 GB available Storage (SSD preferred), separate Media Storage and an ATI Radeon HD Series Graphics Adapter capable of a screen-resolution of 1280x1024 or higher (1920x1080 or 2048x1536 preferred).

QubeMaster Pro is part of an entire suite of products for an end-to-end implementation of digital cinema.

The DCI Certified **Qube XP-I Storage Server** with **Qube Xi Integrated Media Block** and the **Qube XP-D Digital Cinema Server** are the core offerings for cinemas. While the Qube XP D has quad HDSLI outputs at 2K resolution and can work with content at DCI specified data rates, the Qube Xi IMB can work at 2K and 4K resolutions and goes well beyond the DCI specification to handle High Frame Rates at 48 fps and 60 fps 3D or 120 fps 2D at 500 Mbps. The system also includes the unique ability to link multiple projectors with their Qube Xi IMBs to play a single DCP encoded at 1000 Mbps at 120 fps per eye in 3D!

Qube KeySmith is a powerful and comprehensive web-based digital cinema key management and reporting system that was developed to meet real-world requirements across different environments. While retaining a high level of flexibility and ease-of-use, Qube KeySmith has comprehensive reporting capabilities, maintains all audit-trails and can enforce multi-point authorizations for all key requests.

		QubeMaster Pro	QubeMaster Packager	QubeMaster Preview	QubeMaster Xpress	QubeMaster Xport
ENCODING	Operating System	Microsoft Windows™	Microsoft Windows™	Microsoft Windows™	Microsoft Windows™	Mac OS X
	2K	✓	✗	✗	✓	✓
	4K	✓	✗	✗	✓	✓
	High Frame Rate	✓	✗	✗	✗	✗
	High Bit Rate	✓	✗	✗	✗	✗
SOURCE FILE FORMATS	DPX, Cineon, TIFF Sequences	✓	✗	✗	✗	✓
	Quicktime, AVI Files	✓	✗	✗	✓	✓
	MXF Files	✓	✗	✗	✗	✗
	Separate WAV, AIF Audio	✓	✗	✗	✗	✓
	Still Images	✗	✗	✗	✓	✗
SUBTITLES	CineCanvas XML	✓	✓	✗	✗	✗
	Subtitle Text Files	✓	✓	✗	✗	✗
PACKAGING	Encryption	✓	✓	✗	✗	✗
	Composition Editing, Versioning	✓	✓	✗	✗	✗
	Single Composition DCPs	✓	✓	✗	✓	✓
KEY MANAGEMENT	Multi Composition DCPs	✓	✓	✗	✗	✗
	Partial DCPs	✓	✓	✗	✗	✗
	Single KDM Generation	✓	✓	✗	✗	✗
	Bulk KDM Generation	✓	✓	✗	✗	✗
	KDM Target Restrictions	✓	✓	✗	✗	✗
	Audit Logging	✓	✗	✗	✗	✗
	DCP Ingest	✓	✓	✓	✗	✗
	Realtime Playback in 2D & 3D	✓	✓	✓	✗	✗



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