

Format Converter features

- Best in class file format up, down and cross conversion
- Unique software tools for interlaced to progressive conversion for
 - 576i to 720p
 - 576i to 1080p
 - 576i to 1080i
 - 480i to 720p
 - 480i to 1080p
 - 480i to 1080i
 - 720p to 480p
 - 720p to 576p
 - 720p to 1080p
 - 1080i to 1080p
 - 1080i to 720p
 - 1080p to 576p
 - 1080p to 480p
 - 1080i to 576i
 - 1080i to 480i
 - Custom (e.g. mobile)
- Highest quality resizing
- Reaspecting 4:3, 16:9, 14:9, custom
- Fully featured Transcode system supplied as standard
- Transcode growing files for low latency multi-format transcoding
- Speed-ups and Slowdowns of video and audio to always maintain sync
- Constant Cadence 3:2 pull-down Add/Remove as well as Frame Dropping/Doubling
- Static Logo insertion with opacity support for content branding
- In-vision timecode insertion for generation of proxy formats
- VBI pass-through and ability to Add/Remove SD Analog Blanking (704 pixels)
- MXF Cutting and Splicing
- Motion compensated SD Standards Conversion
- Integration and Automation
 - Web service control as though you had a “robot operator”
 - VDCP interface and VTR Emulation
 - GUI java plug-in API
 - Watch Folders
 - User Definable Scripts and notifications
 - Automatic post-ingest transcoding
 - Manual transcoding
 - SOA Web Services
 - Watch Folders

iCR Format Converter Data sheet

We live in a multi format world. Content created for one delivery resolution may be shown on many others. Image quality is a key differentiator for any Broadcaster or content provider and it's especially important for SD content shown on HD screens. The iCR Format Converter delivers best quality software file format conversion for:

- Up conversion
- Down conversion
- Cross conversion

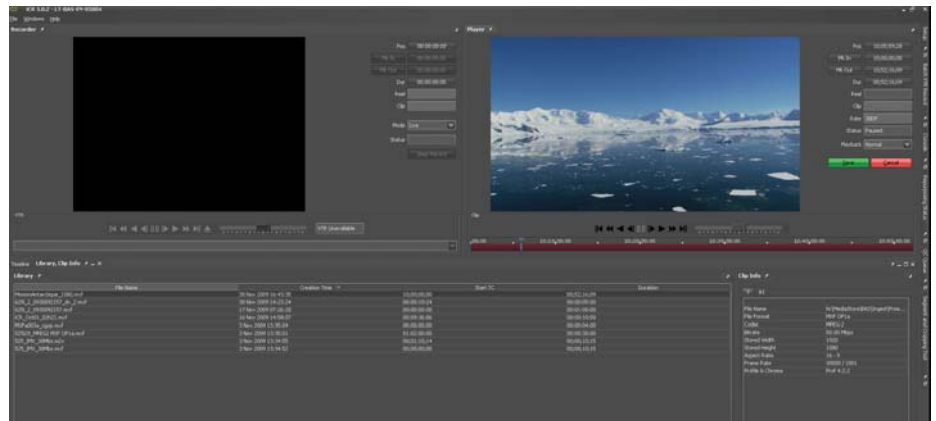
Rather than relying on simplistic algorithms, multi-stage process are used. Adaptive de-interlacing handles mixed sources such as film, video and mixes of interlaced and progressive, for example progressive graphics over an interlaced background. State of the art scaling algorithms produce clean sharp results, without ringing or other artifacts. Operation is simple as most processes are pre set for best results, plus the iCR Format Converter includes adjustable softening and sharpening pre-processing controls for matching difficult shots into other sequences.

Designed for open file based workflow

Hardware format converters perform only one limited range of tasks, sit idle between jobs and tie you into a single vendor's hardware roadmap. The iCR Format Converter delivers outstanding results but is available as software. This enables you to benefit from latest PC developments and integrate efficiently into your overall file based facility workflow – and with the iCR Format Converter, no time consuming tape layback followed by baseband conversion is necessary. All that translates directly to improving your bottom line.

Transcoding included

All iCR Format Converters come with a fully featured Transcode toolset as standard, including MXF OP1a, MXF XDCAM, MXF P2, MXF OP-Atom, MPEG-2 Transport Stream, MPEG-2 Program Stream, Elementary Streams, AVI, Windows Media Video (ASF) and QuickTime MOV. Latest developments include JPEG2000 and MXF AS02 support.



Closed Captioning Option

The iCR Format Converter also handles closed captions. There is comprehensive support for film and TV frame rates, VBI / VANC, ATSC as well as the ability to insert .scc files into a workflow. That means no need to go through the hassles of an additional external process.

Upgradeable and Future Proof

As your business needs grow, the iCR Format Converter can be upgraded to other AmberFin products, adding new capabilities like video baseband ingest and automatic assisted quality control. All iCR Format Converters are available with a comprehensive support and maintenance package, which keeps your investment protected and up to date with regular new releases.

The iCR Format Converter is equally at home in Post Production applications, as a machine room all-round tool, or as a specific solution for Broadcast play to air requirements, like 720P up conversion, with a comprehensive range of MAM and automation capabilities.

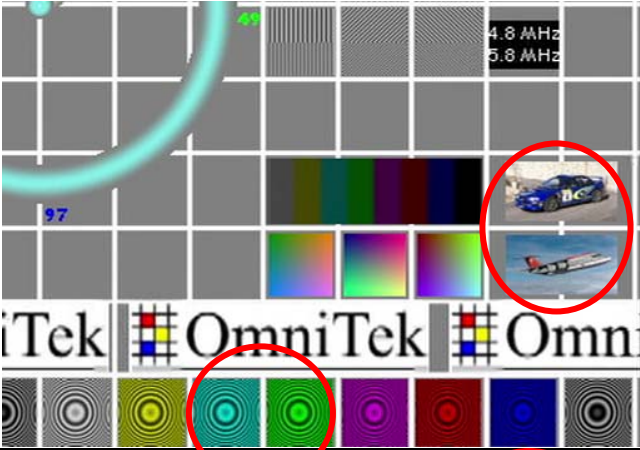


Everybody's watching

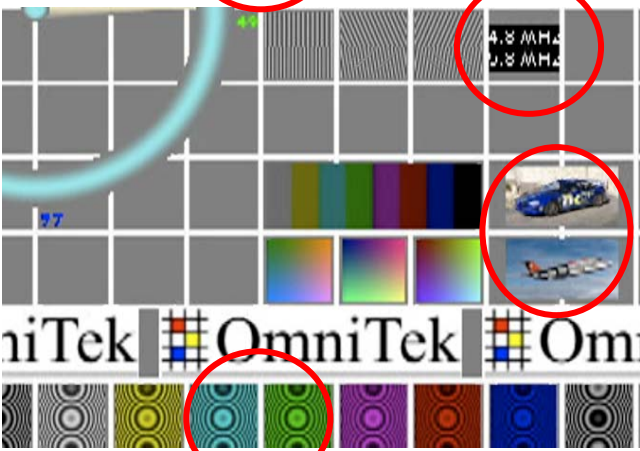
The iCR Format Converter in action

Print images can't full convey the crisp, artifact-free images that the iCR Format Converter delivers. The images that follow, which were produced using a well respected industry test pattern, can only give a partial idea of the additional quality that AmberFin technology delivers on real content. What they do show are dramatic differences, that can be even more noticeable on real moving displays.

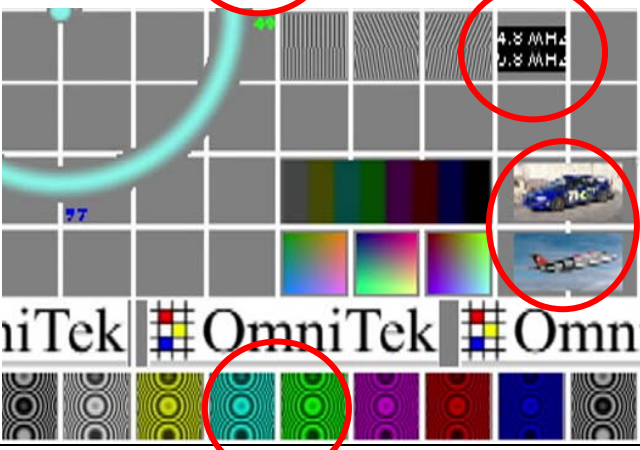
Compare the results obtained with alternative software and hardware approaches to a 576i SD to 720p HD up convert. There are dramatic differences shown on the lettering on the black boxes on the right, the small pictures of the car & airplane and the circular test signals at the bottom:



iCR Format Converter:
Text can be read.
No aliasing (jagged edges) on car and plane.
Test signal is a single circle (correct).



Alternative well known software:
Text is quite hard to read.
Car is blurred and plane is aliased.
Test signal is three circles (incorrect).



Alternative well known hardware:
Text is quite hard to read.
Car is blurred, aliasing on car and plane.
Test signal is three circles (incorrect).

Why quality matters

Given the choice, viewers prefer better looking pictures¹. That applies to TV, Web and Mobile delivered content. Program sponsors prefer clean pictures. This is especially the case in sports sponsorship – there's no point placing corporate branding on posters, sports cars or shirts, if the message can't be read by the viewer.

Up converting requires scaling the image - i.e. reading a lower number of input pixels and writing a higher number of output pixels. Interpolation is needed. If the input video signal is interlaced, while the output is progressive, special processes are needed to avoid artifacts. Down conversion also requires more sophistication than simply dropping pixels.

Transcoding material created in one size format for delivery in another, poses one set of technical quality challenges. Transcoding interlaced material for progressive display poses another. Most modern display devices, including TV's, PC screens and mobile phones are progressive. Most legacy content however is interlaced.

AmberFin have addressed both these challenges with unique high quality algorithms that produce outstanding results.

Conventional up converters typically use either motion adaptive or linear processes. Motion adaptive systems tend to intermittently lose definition, while linear systems typically show either ringing or softness.

iCR format conversion is based on Emmy™ award winning technology. Up and down converts use adaptive multi-tap polyphase interpolation filters. Rather than simple pixel repetition or decimation, the iCR scaler calculates intermediate points using filters optimized for the needs of the particular conversion process. The filters have been optimized by AmberFin, for example for low-ringing, producing 'best in class' results.



Double imaging on interlaced material is a typical problem with poor quality systems. Compare the standard processes on the left with the AmberFin on the right. AmberFin produces clean results.

iCR superior image quality has been validated by independent research company User Analytics. The independent user research was undertaken to analyze viewer responses to video quality on a small (iPod Touch) and large screen (HD) device. Over two thirds (69%) of those questioned in the independent study preferred the quality of the video produced by AmberFin iCR, which also delivers content file sizes reduced by up to 25%, to that of a well known other system.

AmberFin quality offers the choice of either producing the highest possible quality deliverables, or of saving time and money by reducing data rates, while still producing good quality results.

Find out more

The iCR Format Converter is based on proven, award winning AmberFin technology, already used by major media organizations worldwide.

To find out more, contact your local AmberFin channel partner, or contact AmberFin direct at

<http://www.amberfin.com/about/contact-us>

¹ See for example the recent report by Contentinople http://www.contentinople.com/author.asp?section_id=430&doc_id=179849



Everybody's watching

iCR Format Converter supported Codecs and wrappers

Format	Play back	Transcode	
		in	out
AVI (Matrox compatible)	DV / DVCPPro	•	•
	Uncompressed video	•	•
	Uncompressed audio	•	•
	User installed codecs (input side)	•	x
MXF OP1a	MPEG-2 I frame	•	•
	MPEG-2 Long-GOP	•	•
	HDV	•	x
	DV / DVCPPro 50/100/HD	•	•
	Uncompressed audio	•	•
	MP1L2 audio	•	•
MXF XDCAM	Dolby D (AC-3, 5.1)	•	•
	XDCAM HD	•	•
	D10 (IMX 30 / 40 / 50)	•	•
MXF P2	DVCAM	•	x
	DV / DVCPPro 50/100/HD	•	•
MXF OP-Atom	DNxHD	•	•
MXF AS02	JPEG 2000	•	•
	MPEG-2 I frame	•	•
	MPEG-2 Long-GOP	•	•
	D10 (IMX 30 / 40 / 50)	•	•
	DV / DVCPPro 50/100/HD	•	•
	Uncompressed audio	•	•
	Dolby D (AC-3, 5.1)	•	•
MPEG2 Transport Stream	MPEG-2 I frame	•	•
	MPEG-2 Long-GOP	•	•
	D10 (IMX 30 / 40 / 50)	•	•
	HDV	•	x
	H.264 / AAC	•	special
	Uncompressed audio	•	•
	MP1L2 audio	•	•
MPEG2 Program Stream	Dolby D (AC-3, 5.1)	•	•
	MPEG-2 I frame	•	•
	MPEG-2 Long-GOP	•	•
	D10 (IMX 30 / 40 / 50)	•	•
	MPEG1 video	x	x
	Uncompressed audio	•	•
Elementary Streams	MP1L2 audio	•	•
	Dolby D (AC-3, 5.1)	•	•
	JPEG 2000	•	•
	MPEG-2 I frame	•	•
	MPEG-2 Long-GOP	•	•
	D10 (IMX 30 / 40 / 50)	•	•
	MPEG1 video	x	x
	DV / DVCPPro 50/100/HD	•	•
	Uncompressed audio	•	•
	MP1L2 audio	•	•
	Dolby D (AC-3, 5.1)	•	•
System stream	WAV / BWA	•	•
	AIFF	•	x
Quicktime (.mov)	MPEG1 video + MP1L2 audio	•	x
	MPEG-2 I-Frame	•	•
	MPEG-2 Long-GOP	•	x
	XDCAM HD	•	•
	D10 (IMX 30 / 40 / 50)	•	•
	DV / DVCPPro 50/100/HD	•	•
	Native QT 7 A/V codecs on Windows	•	•
	Pro-Res	•	x
	User installed QT 7 A/V codecs (e.g. ON2 flash)	•	•
	Uncompressed 10bit / 8 bit	8 bit	•
	Sorensen video 3	•	•
	ASP	•	•
	H.264	•	•
	AAC	•	•
	AMR	•	•

Key: • – full support ◐ - partial support, x - unsupported in current version. Some functionality such as Dolby D is sold as an option. Full details from AmberFin or one of its channel partners. <http://www.amberfin.com>