calibrated{Q}

AVC-Intra Decode

User Guide

Calibrated Software, Inc.

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Calibrated{Q} AVC-Intra Decode Options application contains the following source code:

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Getting Started 1

Overview

Calibrated{Q} AVC-Intra Decode is a multi-threaded QuickTime Codec(Decode Only) that enables you to view QuickTime AVC-Intra Movies in QuickTime Player and other 3rd party applications that support QuickTime.

Please see the Supported Formats Section in this Chapter for information regarding supported file types and formats.

The Calibrated{Q} AVC-Intra Decode Options application sets Global Options for use with the Calibrated{Q} AVC-Intra Decode codec (see Chapter: Global Options).

IMPORTANT: This version of software (v2.0 or greater) will require a new Software License and an upgrade fee if you had purchased a Software License for a previous version.

DEMO MODE Limitation

When run in DEMO MODE, Calibrated{Q} AVC-Intra Decode will show the Calibrated{Q} AVC-Intra Decode Logo as a watermark over the video – this is the only DEMO MODE limitation. In every other way, Calibrated{Q} AVC-Intra Decode is fully functional. Using the software in DEMO MODE is for testing only and should not be used for commercial purposes.

Known Issues and Limitations

The following known issues and limitations are associated with Calibrated{Q} AVC-Intra Decode codec:

- Calibrated{Q} AVC-Intra Decode for Windows will crash if run on a computer system that does not support SSE3 instructions which were introduced in Pentium 4 processors circa 2004 (see the Windows Requirements section).

- Even though Calibrated{Q} AVC-Intra Decode supports decoding to 10-bit YUV422 and 16-bit RGB(A) 444(4), thus preserving the full bit depth of AVC-Intra, it is up to the application using Calibrated{Q} AVC-Intra Decode to request those colorspaces. Please see the FourCC Output Watermark in the Global Options Chapter to see which colorspace on application is requesting, and also see the Enable High-Precision YUV, and Enable 16-bit RGB(A) in the Global Options Chapter to learn more about 10-bit support.

- For reasons unknown, playback performance in Vegas on Windows will not be in realtime.

- **BETA Support ONLY for decoding ANY type of Sony XAVC Intra video; AND for decoding Panasonic AVC-Intra 200Mb or higher bitrates/resolutions. Please note that playback performance may not be in realtime.**

- Playback of files is dependent on both the speed of your CPU and harddrive, as well as the application that you are using the movie files in. Please note that Calibrated{Q} AVC-Intra Decode can be used in a wide-variety of applications; however some applications do not use the QuickTime SDK in an optimized way (i.e. the Software Developer's Kit that applications use to integrate QuickTime) which would cause a notable decrease in playback performance in those applications*. Before purchasing a Software License, please test the software in DEMO MODE using your own computers and applications to ensure performance is suitable for your particular workflow needs. Using Calibrated{Q} AVC-Intra Decode in DEMO MODE is fully functional (including performance speed) except for the watermark over the video.* ***Please see the 'Performance' section for more details.***

- **CATDV**: If you experience any problems in creating proxies and/or playback in CatDV, please enable Protected Mode in CatDV. To enable 'Protected Mode', go to the CatDV Preferences and select 'Media Playback' and then check the option *'Protected player: Use separate QuickTime helper process'.* Playback performance is a little less smooth in 'Protected Mode' but it will be more stable. Also, in newer version of CatDV you may wish to also disable *'scrub audio when dragging play head'* in the 'Media Playback' CatDV Preferences to make scrubbing in CatDV faster.

- 10.9 (Mavericks) and 10.10 (Yosemite) or 10.11 (El Capitan) or 10.12 (Sierra)- QuickTime Player X and Finder Preview in Mavericks do not work with our software. The workaround for QT Player X is to install QuickTime Player 7 and use that for playback. You can download QuickTime Player 7 from Apple here: http://support.apple.com/kb/DL923 and it will install into the /Applications/Utilities folder and can co-exist fine with QT Player X on the same computer.

- **Mountain Lion (OSX 10.8)**. QuickTime Player X may show the DEMO MODE watermarks over the video if you are licensed due to the license file being 'sandboxed' by OSX 10.8. This issue is being investigated – the workaround is to install QuickTime Player 7 and use that for playback. You can download QuickTime Player 7 from Apple here: http://support.apple.com/kb/DL923 and it will install into the /Applications/Utilities folder and can co-exist fine with QT Player X on the same computer.

QuickTime Gamma

QuickTime Gamma Correction (by Default) is TURNED OFF – we have found that this is what the vast MAJORITY of users prefer – however in certain applications this can produce rendered video that is slightly brighter/darker than the source video usually when rendering to another QuickTime codec - to correct please TURN ON QuickTime Gamma Correction. Please see the Gamma Settings in the Global Options Chapter.

Important note about 8/10-bit YUV and 16-bit RGB(A) Support

Calibrated{Q} AVC-Intra Decode supports decoding to both 8/10-bit YUV422 and 16-bit RGB(A) 444(4) however it is up to the application using Calibrated{Q} AVC-Intra Decode to request those colorspaces. To preserve the full bit depth of AVC-Intra an application should request either 10-bit YUV422 of 16-bit RGB(A) from the Calibrated{Q} AVC-Intra Decode codec. Many applications that support importing MOV files only request 8-bit RGB(A) 444(4) colorspace. Please see the Colorspace Watermark in the Global Options Chapter to see which colorspace on application is requesting, and also see the Enable 8-bit YUV, Enable High-Precision YUV, and Enable 16-bit RGB(A) in the Global Options Chapter to learn more about the various colorspace support.

Performance

Playback of files is dependent on both the speed of your CPU and harddrive, as well as the application that you are using the movie files in. Please note that Calibrated{Q} AVC-Intra Decode can be used in a wide-variety of applications; however some applications do not use the QuickTime SDK in an optimized way (i.e. the Software Developer's Kit that applications use to integrate QuickTime) which would cause a notable decrease in playback performance in those applications. One of the main reasons that Calibrated{Q} AVC-Intra Decode will perform slower in some applications is if the application is requesting video frames to be decoded in the RGB colorspace and not in the YUV colorspace. AVC-INTRA compressed video will natively decode to YUV but if an application requests RGB video data then Calibrated{Q} AVC-INTRA Decode must decompress the frame to YUV and then convert the YUV to RGB data which then takes more CPU time.

Before purchasing a Software License, please test the software in DEMO MODE using your own computers and applications to ensure performance is suitable for your particular workflow needs. Using Calibrated{Q} AVC-INTRA Decode in DEMO MODE is fully functional (including performance speed) except for the watermark over the video.

- If playback is NOT realtime in QuickTime Player, your computer might not be fast enough to playback the video. This could mean either the CPU is not fast enough, the hard drive is not fast enough, or a combination of both.

- If you're playing back the video in an application other than QuickTime Player, the third-party application may not be optimized to playback MOV files or the third-party application may not be taking advantage of optimizations in Calibrated{Q} AVC-INTRA Decode for realtime performance.

- If you are playing the MOV files from a (i) DVD-ROM or Blu-Ray ROM disc, (ii) USB 2.0 external harddrive, (iii) FlashDrive, (iv) Compact Flash Card or (v) another type of removable storage or camera card media then playback performance would not be reliable, and playback could be extremely choppy. It is recommended to playback media from a 7200RPM SATA harddrive(preferably 2 or more harddrives striped at RAID0) that's either a local harddrive(s), or if an external harddrive then have an (at the minimum) eSata or FireWire800 connection.

- If you are on Windows, using our software is not supported on a Virtual Operating System (i.e. using Parallels or VMWare) and performance could be much slower in a Virtual Operating System.

- If you are on Windows, playing files off of a MacFormatted Harddrive could also decrease performance. It is recommended to use harddrives with a NTFS file system on Windows computers.

- If you're using an Adobe CS5.0.3/5.5.0 application – please see the Section *Special Note: Adobe CS5.0.3/5.5.0 Performance Enhancement* in this User Guide to increase performance in Adobe CS5.0.3/5.5.0 applications

- You can also improve performance for applications that request frames in the RGB colorspace by enabling the **'MT YUV->RGB' or 'MT-X YUV->RGB'** option – see the Section *Performance Options* for more details.

- For reasons unknown, playback performance in Vegas on Windows will not be in realtime.

- Playback of16-bit RGBA or 10-bit YUV video is much more CPU/Harddrive intensive and that could affect playback performance

- **CATDV**: Please see the section '*Special Note: CatDV'* in this User Guide for information about performance.

- BETA Support ONLY for decoding ANY type of Sony XAVC Intra video; AND for decoding Panasonic AVC-Intra 200Mb or higher bitrates/resolutions. Please note that playback performance may not be in realtime.

Supported Formats

.MOV File Formats*
Please note that .MOV files must be using an Apple FourCC tag

Calibrated{Q} AVC-Intra Decode supports decoding Panasonic P2 AVC-Intra** video from the following .MOV files:

Panasonic AVC-Intra 50: 1080p24, 1080p25, 1080p30, 1080i30, 1080i25, 720p60, 720p50, 720p30, 720p25, and 720p24.

Panasonic AVC-Intra 100: 1080p24, 1080p25, 1080p30, 1080i30, 1080i25, 720p60, 720p50, 720p30, 720p25, and 720p24.

BETA Support ONLY for decoding ANY type of Sony XAVC Intra video; AND for decoding Panasonic AVC-Intra 200Mb or higher bitrates/resolutions. Please note that playback performance may not be in realtime.

.MXF File Formats*
(For Windows or Mac computers without FC Pro/Studio/Server)
When Calibrated{Q} AVC-Intra Decode is used in conjunction with Calibrated{Q} MXF Import, AVC-Intra MXF Files** can be viewed and used in applications such as QuickTime Player and CatDV, see the Calibrated{Q} MXF Import User Guide (PDF) for more details. ***Please note that Calibrated{Q} MXF Import and Calibrated{Q} AVC-Intra Decode are separate products and each product requires its own purchased Software License.***

*Playback performance can vary widely in different applications depending on how an application uses QuickTime, and running the software in a virtual OS is not supported. See Performance section for more details.

***** BETA Support ONLY for decoding ANY type of Sony XAVC Intra video; AND for decoding Panasonic AVC-Intra 200Mb or higher bitrates/resolutions. Please note that playback performance may not be in realtime.***

Windows Requirements and Installation

Ensure your PC meets the following requirements prior to installing Calibrated{Q} AVC-Intra Decode:

- Pentium 4 processor with SSE3 support or greater; recommended at least Intel Core 2 Duo with two cores or two physical processors
- 32/64-bit Windows 7 or Vista (Business or Ultimate) or Windows 32-bit XP with SP3
- BETA Support for 32/64-bit Windows 8 & 10 - our software should work fine on Windows 8 & 10; however QuickTime Player does not officially support Windows 8 & 10 yet.
- QuickTime 7.6.6 or higher
- Virtual OS is not supported
- QT Lite is not supported

Installing on Windows

To install Calibrated{Q} AVC-Intra Decode on a Windows Computer:

1. Quit any applications using QuickTime.
2. Run the Calibrated{Q} AVC-Intra Decode Installer. The install program creates a folder named **Calibrated** in the **[System Drive]\[Program Files]** directory. The **Calibrated** folder will contain the Calibrated{Q} AVC-Intra Decode Options application and User Guide.
3. Restart your computer

After running the Calibrated{Q} AVC-Intra Decode installer, you will be able to access the Calibrated{Q} AVC-Intra Decode Options application (CalibratedQAVCIntraOptions.exe) in this location:
[System Drive]\Program Files\Calibrated\Applications\Options

The CalibratedAVCIntraQ.qtx will be auto-copied to the [System Drive]\Program Files\QuickTime\QTComponents directory.

Uninstalling on Windows

To uninstall Calibrated{Q} AVC-Intra Decode on a Windows Computer:

1. **If LICENSED, please use the Calibrated License Manager to DEACTIVATE your Software License before uninstalling**
2. Go to the **Control Panel>Add/Remove Programs**.
3. Select and uninstall **Calibrated{Q} AVC-Intra Decode** from the list of programs.
4. Restart your computer.

MAC OSX Requirements and Installation

Ensure your Mac meets the following requirements prior to installing Calibrated{Q} AVC-Intra Decode:

- MacIntel Computer Only; recommended at least Intel Core 2 Duo with two cores or two physical processors
- Mac Intel with OSX 10.6.8(Snow Leopard) or 10.7.5(Lion) or 10.8.5(Mountain Lion) or 10.9.4 (Mavericks) or 10.10 (Yosemite) or 10.11 (El Capitan) or 10.12 (Sierra)
- 10.9 (Mavericks) or 10.10 (Yosemite) or 10.11 (El Capitan) or 10.12 (Sierra) -- *QuickTime Player X and Finder Preview do not work with our software. The workaround for QT Player X is to install QuickTime Player 7 and use that for playback. You can download QuickTime Player 7 from Apple here: http://support.apple.com/kb/DL923 and it will install into the /Applications/Utilities folder and can co-exist fine with QT Player X on the same computer.*
- QuickTime 7.6.5 or higher
- Calibrated{Q} AVC-Intra Decode no longer automatically loads in Final Cut Pro, SoundTrack Pro, LiveType, DVD Studio Pro, Compressor, Color, Cinema Tools. For FC Studio 2 applications, this can be overridden – please see the 'FC Studio 2' Option in the 'Global Options' Chapter in this User Guide.
- Not for use when Final Cut Server or Final Cut Studio 3 is installed

Installing on Mac OSX

To install Calibrated{Q} AVC-Intra Decode on a Mac Computer:

1. Quit any applications using QuickTime.
   Run the Calibrated{Q} AVC-Intra Decode Installer. The install program creates a folder named **Calibrated** in the **/Applications** directory. The **Calibrated** folder will contain the Calibrated{Q} AVC-Intra Decode Options application and User Guide
2. The CalibratedAVCIntraCodec.component will be auto-copied to the "/Library/QuickTime"directory.
3. Restart your computer

After running the Calibrated{Q} AVC-Intra Decode installer, you will be able to access the Calibrated{Q} AVC-Intra Decode Options application (CalibratedQAVCIntraOptions.app) in this location:
/Applications/Calibrated/Applications/Options/

Uninstalling on Mac OSX

To uninstall Calibrated{Q} AVC-Intra Decode on a Mac OSX Computer:

1. **If LICENSED, please use the Calibrated License Manager to DEACTIVATE your Software License before uninstalling**
2. If no other Calibrated Software is installed, then delete the directory:

   /Applications/Calibrated

   and skip Step 2 and go to Step 3

3. If other Calibrated Software is installed, then only delete:
   a. /Applications/Calibrated/Applications/Options/CalibratedQAVCIntraOptions.app
   b. /Applications/Calibrated/Plugins/QuickTime/CalibratedAVCIntraCodec.component
   c. /Applications/Calibrated/Docs/ CalibratedQAVC-Intra-UserGuide.pdf

4. Delete the file:

   /Library/QuickTime/CalibratedAVCIntraCodec.component

   (that's the Library folder on the Main Harddrive NOT the Library folder in the User Directory)

5. Restart your computer

Special Note: Media 100 Suite Version 1.6.2

Media 100 Suite Version 1.6 now supports Calibrated{Q} AVC-Intra Decode for OSX for playback of AVC-Intra **MOV** files in Media 100 Suite. When Calibrated{Q} AVC-Intra Decode is installed together with Calibrated{Q} MXF Import for OSX, Media 100 Suite can "fast import" and edit P2 AVC-Intra **MXF** files too!

Please see http://www.media100.com/ for more information.

Special Note: Adobe CS Performance Enhancement

If you are using the following Adobe CS 5/5.5/6/CC/CC2014 Applications:

After Effects, Premiere Pro, Photoshop, and Encore

decoding performance of Calibrated{Q} Decode codecs can be greatly enhanced by installing an Adobe XML patch file that we've created. The XML patch file enables the above Adobe applications to decode from the Calibrated{Q} Decode codecs at 8-bit YUV422 or 10-bit YUV422 colorspace which will greatly improve decode performance in the above Adobe applications.

10-bit YUV422 support is intended for Calibrated{Q} AVC-Intra Decode when working with AVC-Intra files - to work in 10-bit YUV422 in After Effects please make sure that **your Project Bit Depth is either 16-bit or 32-bit** and to work in 10-bit YUV422 in Premiere Pro please make sure that your **Sequence Settings are have 'Maximum Bit Depth' and 'Maximum Render Quality' ENABLED.**

You can download the XML patch file here http://www.calibratedsoftware.com/AdobeXMLPatchFile.php

Special Note: Assimilate Scratch v6

To enable 16-bit RGB(A) 444(4) decoding in Scratch v6 thereby preserving the 10-bit depth of AVC-Intra – it may be necessary to add the AVC-Intra FourCC codes to the SConfig.txt file located in the [System Drive]/Program Data/Assimilator/Settings folder. Before attempting the below – please

(1) Close Scratch
(2) In the SConfig.txt file please remove the # sign from both QT_10BIT_CODECS and QT_ENDIAN_DECODE_BYTESWAP
(3) In both QT_ENDIAN_DECODE_BYTESWAP and QT_10BIT_CODECS, please add the following FourCC codes to the already existing ones in the text file:

    ai16,ai15,ai13,ai12,ai1p,ai1q,ai56,ai55,ai53,ai52,ai5p,ai5q

    (there should be a comma but no 'white' space between each of the FourCC codec)

(4) Restart Scratch
(5) Now you can set the AVC-Intra MOV file to be processed at 10-bits or 16- bits in Scratch.

Special Note: CatDV

IMPORTANT: If you experience any problems in creating proxies and/or playback in CatDV, please enable Protected Mode in CatDV. To enable 'Protected Mode', go to the CatDV Preferences and select 'Media Playback' and then check the option *'Protected player: Use separate QuickTime helper process'.* Playback performance is a little less smooth in 'Protected Mode' but it will be more stable. Also, in newer versions of CatDV you may wish to also disable the *'scrub audio when dragging play head'* option in the 'Media Playback' CatDV Preferences to make scrubbing in CatDV faster.

Quick Note: Final Cut Pro and FC Studio Applications

In the past Calibrated{Q} Decode codecs stated they were not meant for any computers with Final Cut Pro or Final Cut Studio installed. This was because Calibrated{Q} Decode codecs for the most part were not necessary in FC Studio and could conflict with the Apple codecs that come with Final Cut Studio – the conflicts would not cause crashes; however the conflicts mainly centered around RT performance in FCP and the use of QuickTime Gamma in YUV->RGB conversion (Calibrated{Q} Decode codecs by default have QuickTime Gamma correction disabled; while the Apple codecs use QuickTime Gamma in YUV->RGB conversions)

With newer versions (see the 'Version History' chapter), Calibrated{Q} Decode codecs no longer loads in Final Cut Pro, SoundTrack Pro, LiveType, DVD Studio Pro, Compressor, Color, Cinema Tools. Please use the Apple codecs that come with Final Cut Studio in those applications.

For Calibrated{Q} AVC-Intra Decode and FC Studio 2 applications, this can be overridden – please see the 'FC Studio 2' Option in the 'Global Options' Chapter in this User Guide

Global Options

2

Overview

This chapter describes the features available in the Calibrated{Q} AVC-Intra Decode Options interface.

Important Note: You must set options within the Calibrated{Q} AVC-Intra Decode Options application before opening an application that supports QuickTime and before attempting to open any MXF and/or QuickTime AVC-Intra movie in any application that supports QuickTime. If you set options while the QuickTime-supported application is opened, you will have to restart the application before the Calibrated{Q} AVC-Intra Decode options take effect.

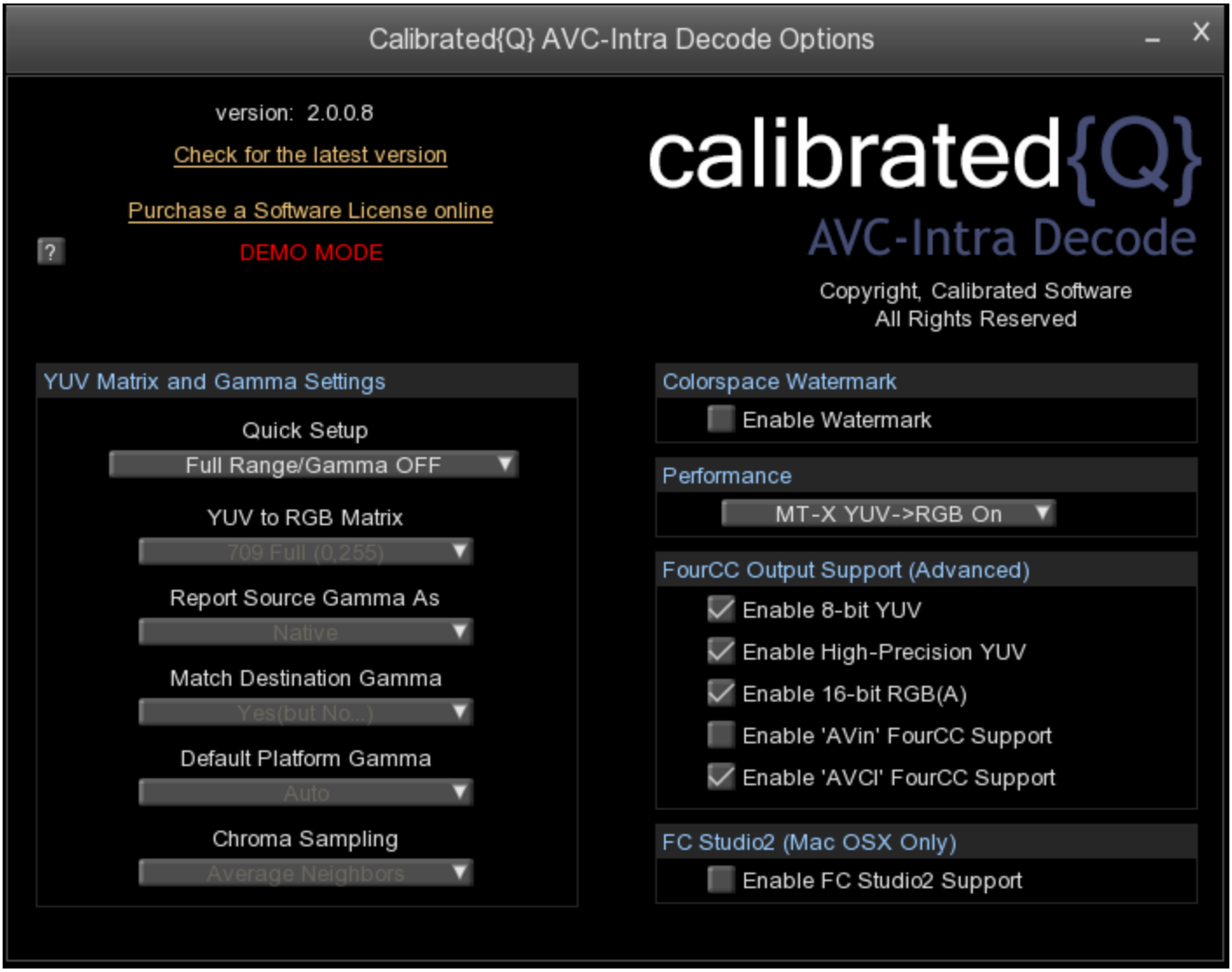
Starting with v1.1.0 your settings are all global for all users on the computer and stored in:

(Windows) "[SystemDrive]:\Program Data\Calibrated" for Vista and Windows 7 or "[SystemDrive]:\Documents and Settings\All users\Application Data\Calibrated" for Win XP. The Options now require Admin Rights to change and are the same for all users on the computer.

(Mac OSX) "/Library/Application Support/Calibrated". The Options now require Admin Rights to change and are the same for all users on the computer.

Options Interface

The Calibrated{Q} AVC-Intra Decode Options interface has an OpenGL GUI which contains the version number of the currently installed Calibrated{Q} AVC-Intra Decode codec and indicates whether the codec is running in DEMO MODE or LICENSED MODE, as well as containing all of the global options for the Calibrated{Q} AVC-Intra Decode codec.



Version

The version box shows the version of Calibrated{Q} AVC-Intra Decode you are running and it display a webpage link of where to download the latest version.

License

The license box is where you enter in your Software License after purchase. It will display a green LICENSED if you are properly licensed. Please see the 'Software License' chapter in this User Guide for more information.

The following decode options are available in the Calibrated{Q} AVC-Intra Decode Options application:

YUV Matrix and Gamma Settings

Quick Setup

These are five different quick settings for the Full Range/Gamma OFF, Full Range/Gamma ON(Auto), Full Range/Gamma ON(Swap), SMPTE Range/Gamma OFF and Custom that you might prefer depending on your particular workflow. You should consider the setting information that follows as guidelines only in regards to QuickTime Gamma Correction. Different applications behave differently with respect to QuickTime Gamma Correction.

Full Range/Gamma OFF (DEFAULT): These are the default settings and are probably what most users prefer. QuickTime Gamma Correction will be disabled in the codec and RGB data will have the same Gamma as the native YUV. This may produce slightly brighter/darker video in some applications when rendering to different QuickTime video codecs as those QuickTime video codecs may be expecting RGB with Gamma Correction.

Full Range/Gamma ON (Auto): This setting enables QuickTime Gamma Correction when converting to RGB with the default Platform Gamma (1.8 for Apple computers and 2.5 for Windows computers). In most applications, this setting may produce darker or brighter RGB video frames when converting from YUV to RGB. However, this *should* correct the slightly brighter/darker video when rendering to different QuickTime video codecs.

Full Range/Gamma ON (Swap): This is an ADVANCED setting that enables QuickTime Gamma Correction when converting to RGB with the **opposite** Platform Gamma (2.5 for Apple computers and 1.8 for Windows computers). This should only be used in **ADVANCED** workflows.

SMPTE Range/Gamma OFF: This setting should only be used with applications that can accept RGB video data in the SMPTE range of 16-235.

Custom: Use this option to specify your own YUV Matrix and QuickTime Gamma options.

YUV to RGB Matrix

With Calibrated{Q} AVC-Intra you have the ability to enable/disable support for various YUV/RGB colorspaces Setting the YUV Matrix enables you to control how YUV is converted to RGB in SD and HD.

There are four **YUV to RGB Matrix** options:

- 601 SMPTE (16,235)
- 601 Full (0,255)
- 709 SMPTE (16,235)
- 709 Full (0,255)

Generally, 601 equations are used for SD video and 709 equations are used for HD video.

The Full option (the default value) converts YUV, which has black-white levels of 16-235, to RGB with black-white levels of 0-255. The SMPTE option will convert YUV to RGB with black-white levels of 16-235. The Full option is usually the preferred workflow option since RGB is viewed at having a black/white level of 0-255 for 8-bit RGB material in most applications. Using the SMPTE option, users can preserve the super black/white values of YUV data when converting to RGB, but this option should only be used for specific workflow where you will be able to work with RGB data in the broadcast range (for example, 16-235).

Important Note: The **YUV to RGB Matrix** setting will ONLY be used if an application requests RGB data for a video frame. If an application requests YUV data for a video frame, which is typical behavior for the QuickTime Player, the **YUV to RGB Matrix** setting will have no effect on the YUV data being handed to the application.

Report Source Gamma As

Gamma is perhaps one of the most confusing and frustrating features for many users of QuickTime movies in their workflow. In fact, there are many articles about how differently QuickTime Gamma is treated in various applications. The

ability to adjust the reported Gamma is a feature in the Calibrated{Q} Decode codecs to help you alleviate the problems associated with QuickTime Gamma.

There are six **Source Gamma** options:

- Native
- 2.22
- 2.20
- 2.50
- 1.8
- Match Destination

QuickTime requires any codec to report the Source Gamma of the video. QuickTime recommends reporting a Gamma of 2.20 for SD YUV and 2.22. for HD YUV and reporting either Apple(1.8) or Window(2.5) Gamma for RGB video, depending on the platform you are using. The **Match Destination** setting is unique in the Calibrated{Q} Decode codecs in that the codec will report the Source Video Gamma for the video as whatever the requested Destination Video Gamma is, thereby sidestepping the need for QuickTime or other applications to try to match the different Gammas of the Source and Destination video. This can come in handy if you are converting the YUV source data to RGB destination data.

Match Destination Gamma

There are three **Match Destination Gamma** options:

- No
- Yes
- Yes (but No…)

When the Gamma differs between the Source Gamma and Destination Gamma, QuickTime asks the codec if it can match the Gammas (for example, convert the footage from Source Gamma to Destination Gamma). The default value is **Yes (but no…)**, which means the codec notifies QuickTime that it will perform Gamma conversions, but in actuality it does not perform any Gamma conversion.

You can set the **Match Destination Gamma** option to **No**, which means the codec cannot perform Gamma conversion. This option may cause QuickTime to try to perform the Gamma conversion itself. You can also set this option to **Yes** and the codec will perform any Gamma conversions. If you set the **Report Source Gamma As** option to **Match Destination**, then the **Match Destination Gamma** option should not matter since the codec will always report Source and Destination Gamma as equal.

Default Platform Gamma

There are three options:

- Auto (**DEFAULT**)
- Apple Platform Gamma
- Windows Platform Gamma

When Auto is selected, QuickTime Windows Platform Gamma of 2.5 is used on Windows computers and QuickTime Apple Platform Gamma of 1.8 is used on Apple computers when Gamma Correction is enabled. You can override and swap the default platform values – this should only be done in advanced workflows.

Chroma Sampling

There are two options:

- Duplicate Values
- Average Neighbors (**DEFAULT**)

This controls how chroma is interpolated when converting from YUV 422 -> RGB 444. 'Average Neighbors' will produce smoother colors when converting; 'Duplicate Values' was added to essentially 'turn off' the averaging for a few customer's custom workflows.

Important Note about QuickTime Gamma Settings

Please Note: Even with the above settings to adjust Gamma, it is imperative that a user test out the settings in their own workflows due to the fact that QuickTime Player and 3rd party applications can still disregard the Gamma information from a codec and still attempt to adjust Gamma on their own.

Performance Options

MT RGB: This option can enable/disable multi-threading YUV to RGB conversions if an application is requesting frames in the RGB colorspace.

MT-X RGB: This option can enable/disable multi-threading YUV to RGB conversions with OPTIMIZED 8/10-bit color-conversion routines if an application is requesting frames in the 8/16-bit RGB colorspace when the Quick Setup is set to either "Full Range/Gamma OFF" or "SMPTE Range/Gamma OFF".

CPU Boost (BETA) + MT-X RGB: DEFAULT This option will enable optimized CPU decoding and enable multi-threading YUV to RGB conversions with OPTIMIZED 8/10-bit color-conversion routines if an application is requesting frames in the 8/16-bit RGB colorspace when the Quick Setup is set to either "Full Range/Gamma OFF" or "SMPTE Range/Gamma OFF". **If CPU usage is too high – switch the MT-X RGB option and restart application using codec**

Colorspace Watermark

This option watermarks the video in the top-left corner – it is IMPORTANT to disable this option when doing production work or rendering as the watermark will be a part of the video – this option is just meant for quick checks for the user to see what colorspace Calibrated{Q} AVC-Intra Decode is handing to the calling application. The watermark is a black rectangle. The top text will either be 8 or 10-bit YUV422 – this indicates what the AVC-Intra video was decompressed as. The bottom text will either say Deliver 8-bit YUV422, Deliver 10-bit YUV422, Deliver High Precision YUV, Deliver 8-bit RGB444, Deliver 8-bit RGBA4444, Deliver 16-bit RGB444, or Deliver 16-bit RGBA4444 – this indicates what colorspace the video frame is delivered at to the calling application.

FourCC Output Support(Advanced)

All QuickTime codecs must be able to decompress to 8-bit or 16-bot RGB(A) as a base colorspace format. QuickTime codecs can also declare that they can decompress to other types of colorspaces as well, which can be useful in certain workflows and applications.

Important Note about FourrCC Output Support

Even though Calibrated{Q} AVC-Intra Decode supports decoding to 8/10-bit YUV422,16-bit RGB(A) 444(4) , and other YUV colorspaces (i.e. High-Precision YUV) - it is up to an application using Calibrated{Q} AVC-Intra Decode to request those colorspaces – most applications though only request 8-bit RGB(A) 444(4) from QuickTime codecs.

The FourCC options enable you to set which colorspaces, beyond the base 8-8/16-bit RGB(A), that Calibrated{Q} AVC-Intra Decode codec will declare to applications that it supports. There are four FourCC options:

- Enable 8-bit YUV (enabled by default)
- Enable High-Precision YUV (enabled by default)
- Enable 16-bit RGB(A) (enabled by default)
- Enable Avid

Enable 8-bit YUV

Enable/disable support for 8-bit YUV422 '2vuy' colorspace. This option enables QuickTime Player to perform decoding at its fastest speed, however at a less bit depth quality than the full 10-bits that AVC-Intra can provide.

Enable High-Precision YUV

This option enables/disables support 8-bit YUVA4444 'r408', 32-bit float YUVA4444 'r4fl' and 10-bit YUV422 'v210'colorspaces. This option should **ALWAYS** be enabled – as the 'v210' colorspace is the highest bit depth that AVC-Intra will decompress to.

Enable 16-bit RGB(A)

This option enables/disables support for 16-bit RGB 'b48r' and 16-bit RGBA 'b64a' colorspaces. This option should ALWAYS be enabled in order in preserve the most bit depth from AVC-Intra when RGB is requested by an application. When this option is ENABLED – then 8-bit RGB(A) support is DISABLED and likewise when this option is DISABLED then 8-bit RGB(A) support is ENABLED. This is done to try to 'force' applications to use 16-bit RGB(A) pathways over 8-bit RGB(A) pathways.

Enable 'AVin' FourCC Support

When checked this will enable support in Calibrated{Q} AVC-Intra Decode for the Avid 'AVin' FourCC for Avid QT Ref MOV files that reference Avid AVC-Intra MXF Files. DO NOT ENABLE ON COMPUTERS WHERE YOU HAVE AVID MEDIA COMPOSER 5 OR GREATER INSTALLED.

Enable 'AVCI' FourCC Support

When checked this will enable support in Calibrated{Q} AVC-Intra Decode for Apple AVC-Intra QuickTime MOV files with the Panasonic 'AVCI' FourCC that were created via Log and Transfer with FCP6. DO NOT ENABLE ON COMPUTERS WHERE YOU HAVE FCP6 or Panasonic P2CMS INSTALLED.

FC Studio 2 Support (Mac OSX Only – BETA)

BETA FEATURE - This option is only for Mac OSX computers using Calibrated{Q} AVC-Intra Decode with Final Cut Pro 6 and Final Cut Studio 2. Enabling this option will allow Calibrated{Q} AVC-Intra Decode to work with FCP6 and FC Studio 2 applications.

With this option enable, you will be able to import P2 AVC-Intra MXF Files(when used in conjunction with Calibrated{Q} MXF Import for OSX) and AVC-Intra MOV Files (created via Log And Transfer from a FCP7 computer), in FCP6 and FC Studio 2 applications.

1. Before using Calibrated{Q} AVC-Intra Decode with FCP6 or FC Studio 2 applications, please set the 'Quick Setup' in CalibratedQAVCIntraOptions.app to '709 Full/Gamma ON' as FCP/FC Studio 2 applications uses QuickTime Gamma.

2. In FCP6, before adding AVC-Intra files to a Sequence - you should manually setup a FCP Sequence to use ProRes for the compression and set the sequence video processing to either 'Render 10-bit material in High-Precision YUV' or 'Render all YUV material in High-Precision YUV'. The Sequence must be properly configured **manually** before adding any AVC-Intra files to the FCP sequence. For AVC-Intra 50 files, please set the framesize to "HD (960x720) (16:9)" for AVC-Intra 720p 50 files and set the framesize to "HD (1440x1080)(16:9)" for AVC-Intra 1080 50 files. The Sequence 'Pixel Aspect Ratio' should be set to 'Square' with 'Anamorphic 16:9' checked.

3. When you place the AVC-Intra file on your new Sequence – the files will show with a red-bar indicating that the video needs to be rendered if you have the Sequence setup for 'Safe RT'; however if you have the Sequence setup for 'Unlimited RT' then the files will show with an orange-bar over the files. When the red-bar is over the AVC-Intra video, it will scrub as 8-bit YUV422 – but the files need to be rendered to ProRes to play in the Sequence; however in 'Unlimited RT' the AVC-Intra files will play and scrub as 8-bit YUV422. If your sequence is setup properly, when you render the AVC-Intra files using ProRes (either when rendering effects in the sequence or exporting the AVC-Intra files to ProRes) the AVC-Intra files should be decompressed as 10-bit YUV422 and then recompressed to ProRes, thereby preserving the full bit-depth of the AVC-Intra files.

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Troubleshooting 4

Seeing a white or black screen after installing

1. Is Calibrated{Q} AVC-Intra Decode installed properly?

   On Mac OSX, please make sure that the CalibratedAVCIntraCodec.component is in the /Library/QuickTime folder (that's the Library folder on the Main Harddrive NOT the Library folder in the User directory)

   On Windows, make sure QuickTime Player 7.6.6 is installed, and that the CalibratedAVCIntraQ.qtx component is in the [System Drive]/Program Files/QuickTime/QTComponents folder (on Windows 64-bit systems it would be the Program Files (x86) folder)

2. Did you restart your computer after installing?

   If you haven't, then please restart

3. Did you re-import the files into your application?

   With some applications it is necessary to re-import your files.

4. Are you sure the files are AVC-Intra compressed?

   To check if they are, please open the AVC-Intra files in QT Player and open the 'Movie Inspector' Window and check what is reported as the 'Format' - it should be a type of AVC-Intra

5. I can see the AVC-Intra files in QT Player but not the application that I want to use them in?

   If you already tried restarting and re-importing the files into the application you want to use then perhaps the application you want to use does not support QuickTime or the QuickTime 7.0 SDK.

DEMO MODE watermark still visible after licensing

1. Did you restart your computer after licensing?

   If you haven't, then please restart

2. Did you re-import the files into your application?

   With some applications it is necessary to re-import your files or if you had rendered the files while in DEMO MODE then the DEMO MODE watermark would be 'burned' into the rendered files – please re-render the files.

3. Are you sure the files are AVC-Intra compressed?

   To check if they are, please open the AVC-Intra files in QT Player and open the 'Movie Inspector' Window and check what is reported as the 'Format' - it should be a type of AVC-Intra

4. Did you generate and enter in your Software License?

   If not, please see the 'Software License' chapter in this User Guide on how to generate and enter in your Software License after purchase. If you are properly licensed, then the 'about' page of the Calibrated{Q} AVC-Intra Options applications should say LICENSED in green.

Misc.

1. The files do not play real time.

   Please see the 'Performance' sub-chapter at the beginning of this User Guide for information on this topic.

2. The files crash when I try to open up QT Player in Windows?

   It sounds like you are on an older computer (circa 2005/2006 or earlier) that does not support SSE3 processor instructions. A computer with a processor that supports SSE3 instructions is a requirement.

3. CatDV crashes or locks up when playing AVC-Intra MXF or AVC-Intra MOV files.

   If you experience any problems in creating proxies and/or playback in CatDV, please enable Protected Mode in CatDV. To enable 'Protected Mode', go to the CatDV Preferences and select 'Media Playback' and then check the option 'Protected player: Use separate QuickTime helper process'. Playback performance is a little less smooth in 'Protected Mode' but it will be more stable. Also, in newer versions of CatDV you may wish to also disable the *'scrub audio when dragging play head'* option in the 'Media Playback' CatDV Preferences to make scrubbing in CatDV faster.

4. After licensing on OSX 10.9 Mavericks, the DEMO MODE watermarks are still present in some applications.

   BETA Only Support for 10.9 (Mavericks) - QuickTime Player X and Finder Preview in Mavericks do not work with our software. The workaround for QT Player X is to install QuickTime Player 7 and use that for playback. You can download QuickTime Player 7 from Apple here: http://support.apple.com/kb/DL923 and it will install into the /Applications/Utilities folder and can co-exist fine with QT Player X on the same computer.

Version History

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Version 2.1.0

- Licensing Update and new build with 10.12 (Sierra) SDK

Version 2.0.5

- Added support for AVC-Intra LT

Version 2.0.4

- Licensing Update
- **Added Default Performance Option "CPU Boost (BETA) + MT-X RGB"** If CPU usage is too high – switch the MT-X RGB option and restart application using codec

Version 2.0.3

- Updated Windows and Mac OS X requirements in User Guide

Version 2.0.2

- Fixed minor issue to not load Calibrated{Q} AVC-Intra Decode with P2 Viewer Plus when the decode 'AVCI' MOV files option was selected in the Calibrated{Q} AVC-Intra Decode Preferences

Version 2.0.1

- BETA Support for decoding Panasonic AVC-Ultra 2k/3k/4k

Version 2.0.0

- New Software Licensing and Software License Agreement
- Updated User Guide
- Update GUI
- BETA Support ONLY for decoding ANY type of Sony XAVC Intra video; AND for decoding Panasonic AVC-Intra 200Mb or higher bitrates/resolutions. Please note that playback performance may not be in realtime.
- **IMPORTANT: This version of software (v2.0 or greater) will require a new Software License and an upgrade fee if you had purchased a Software License for a previous version.**

Version 1.2.8

- **BETA Only Support for 10.9 (Mavericks)** - QuickTime Player X and Finder Preview in Mavericks do not work with our software. The workaround for QT Player X is to install QuickTime Player 7 and use that for playback. You can download QuickTime Player 7 from Apple here: http://support.apple.com/kb/DL923 and it will install into the /Applications/Utilities folder and can co-exist fine with QT Player X on the same computer.

Version 1.2.7

- Fixed issue where some improperly encoded AVC-Intra .MOV files were crashing the codec.
- Updated User Guide

Version 1.2.6

- **[Mac OSX]** Fixed issue with sandboxing of license file and settings file in QT Player X on OSX 10.8 (Mountain Lion)

Version 1.2.5

- Minor speed improvement
- Updated User Guide
- Installer is now 'digitally signed' to verify that it came from Calibrated Software

Version 1.2.4

- [Windows Only Fix] – Fixed rare crash in the Calibrated{Q} AVC-Intra Decode Options application

Version 1.2.3

- "MT-X YUV->RGB On" is now enabled as the default YUV->RGB conversion. If you had installed a previous version of Calibrated{Q} AVC-Intra Decode then you will have to manually enable the 'MT-X YUV->RGB' option in the Calibrated{Q} AVC-Intra Decode Options application.

Version 1.2.2

- Added BETA Feature – in the 'Performance' Options you can enable "MT-X YUV->RGB On" – this will greatly speed up 8/10-bit YUV->8/16-bit RGB conversions when the Quick Setup is set to either "Full Range/Gamma OFF" or "SMPTE Range/Gamma OFF"

Version 1.2.1

- Added BETA Feature – in the 'Performance' Options you can enable "MT-X YUV->RGB On" – this will greatly speed up 8-bit YUV->8-bit RGB conversions when the Quick Setup is set to either "Full Range/Gamma OFF" or "SMPTE Range/Gamma OFF"

Version 1.2.0

- Lions OSX Support

Version 1.1.9

- Added support for Apple AVC-Intra QuickTime MOV files with the Panasonic 'AVCI' FourCC – BETA FEATURE

Version 1.1.8

- Added new QuickSetup, added ability to swap Platform Gamma, added ability to change Chroma Sampling

Version 1.1.7

- Fixed issue where AVC-Intra files would display at 16-bit RGB in After Effects or Premiere Pro CS5.03 or CS5.5.0 instead of 10-bit YUV422 when the Adobe CS XML patch was installed.

Version 1.1.6

- Updated Adobe CS XML patch file for CS5.5.0
- Added option for multi-threading any YUV->RGB conversions – BETA FEATURE
- Minor optimizations

Version 1.1.5

- Updated text in Options application

Version 1.1.4

- Added Adobe CS5.0.3 XML patch file for faster decoding

- Updated User Guide

- Fixed issue when using Google Chrome on Mac OSX to generate your Software License

Version 1.1.3

- Updated User Guide

- Updated Options Application

Version 1.1.2

- Patch of v1.1.1 - Fixed bug for 10-bit YUV422 not displaying.

Version 1.1.1

- Fixed bug where 720p50 AVC-Intra 50 would crash in certain conditions.

Version 1.1.0

- Updated User Guide

- **(Windows)** Global Options are now stored in "[SystemDrive]:\Program Data\Calibrated" for Vista and Windows 7 or "[SystemDrive]:\Documents and Settings\All users\Application Data\Calibrated" for Win XP. The Options now require Admin Rights to change and are the same for all users on the computer.

- **(Mac OSX)** Global Options are now stored in "/Library/Application Support/Calibrated". The Options now require Admin Rights to change and are the same for all users on the computer.

- Updated 'about' page of the Calibrated{Q} AVC-Intra Options application

- **(Mac OSX)** Calibrated{Q} Decode codecs no longer loads in Final Cut Pro, SoundTrack Pro, LiveType, DVD Studio Pro, Compressor, Color, Cinema Tools

Version 1.0.2

- Optimizations

- Added support for Avid AVC-Intra FourrCC

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