



**Sales Demo Guide**

**NVIDIA®**

**Quadro FX GPUs  
Power Mercury  
Playback Engine for  
Premiere Pro CS5.5**

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## Quick Overview

At the heart of Premiere Pro CS5.5 is the Adobe Mercury Playback Engine – built using the NVIDIA® CUDA™ parallel processing architecture – so Quadro GPUs deliver real-time previewing and editing of native, high-resolution footage, including multiple layers of RED 4K video. It must be understood that the CPU and the hard drives feeding MPE has an impact on performance especially when using large compressed movie formats such as RED. By exploiting GPU rendering, the CPU is then left free to work on the job of handling disk I/O, codec decompressing.

The current cards supporting MPE GPU acceleration are Quadro CX, Quadro FX 3800, FX 4800 (Mac and PC), FX 5800, Quadro 2000, Quadro 4000 (Mac and PC), Quadro 5000, Quadro 6000, Quadro 2000M, Quadro 3000M, Quadro 4000M, Quadro 5000M, Quadro 5010M as well as the GeForce GTX 285, GTX 470, GTX 480, GTX 570 and GTX 580.

## Key Features of this Demonstration

- GPU accelerated color correction in real-time vs “stuttering” software playback.
- GPU accelerated motion effects in real-time vs “stuttering” software playback
- GPU accelerated navigation and effects feedback in real-time within the timeline not possible in software.
- GPU accelerated use of DSLR (Digital SLR) footage that is becoming an emerging “tapeless” format for wedding and event videographers. This is a key group because if they invest \$2,000 in a camera they expect performance with footage and a Quadro makes an ideal partner to their studio setup.



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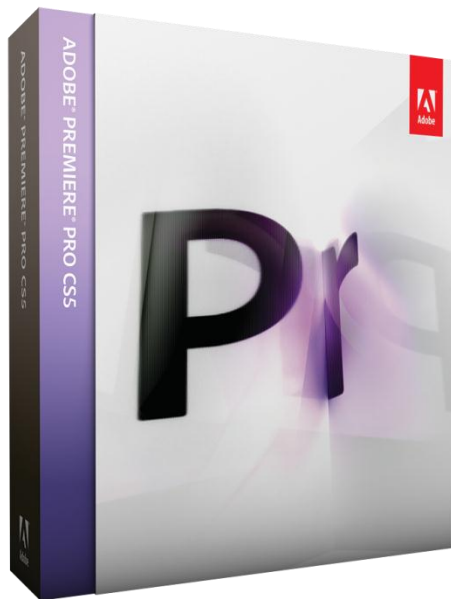
## Premier Pro CS5.5 MPE Demo Script

### Premiere Pro CS5.5

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# Adobe Premiere Pro CS5.5 MPE Acceleration



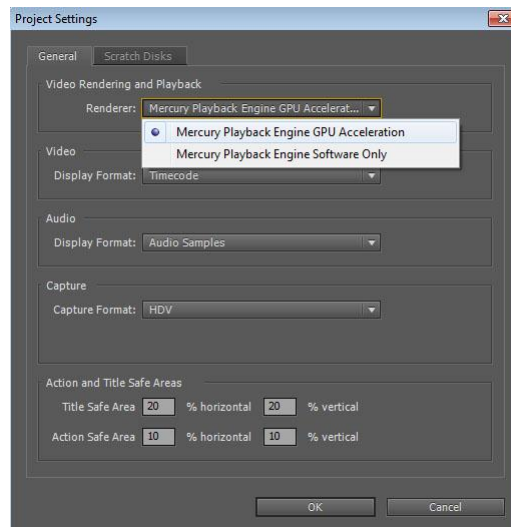
# Testing Premiere Pro CS5.5 MPE GPU Acceleration

1. Install the full version or the 30-day trial version of Adobe Premiere Pro CS5.5
2. Download the latest NVIDIA product drivers from the FTP site and install them and switch off any Win 7 Aero Themes
3. Sample project file is available on the press FTP. Copy these demo files onto the fastest drives in your system, ideally a 10K rpm SATA RAID of two drives or more.
4. Launch Adobe Premiere Pro CS5.5 by double clicking the project file **PProCS5.5-GPU.prproj**.

## Verify Settings

### Mercury Playback Engine GPU Acceleration Settings

From the menu select Project >>Project Settings >>General

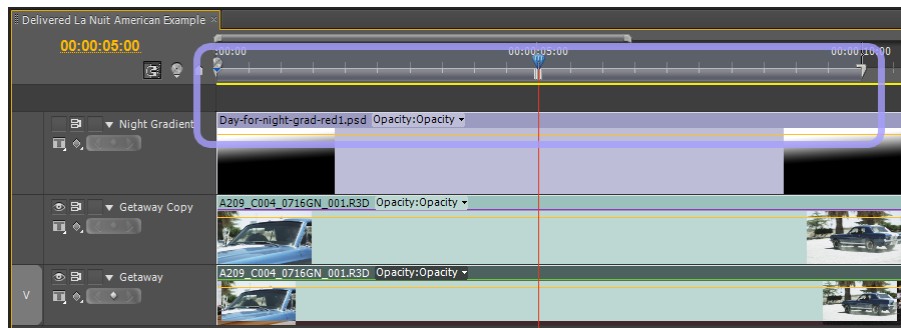


**Figure 1:** Project Settings – General – Mercury Payback Engine GPU Acceleration

If the Mercury Playback Engine option is grayed out uninstall the current drivers and reinstall the latest drivers from nvidia.com. You change this setting for GPU accelerated to software only CPU based rendering and back as many times as you like and will be an intrinsic part of the demo.

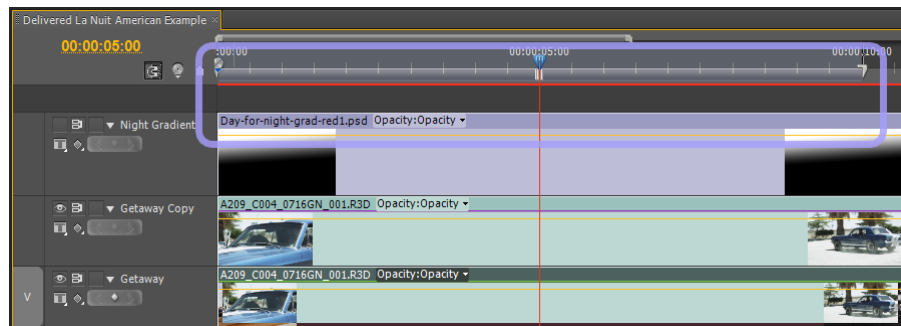
## CPU vs GPU Testing

The primary benefit of MPE is to take what were previously CPU intensive operations and pass them to the Quadro GPU so there is a more interactive and realtime user experience. You know when the GPU is active as there should be a yellow bar above the Sequence timeline.



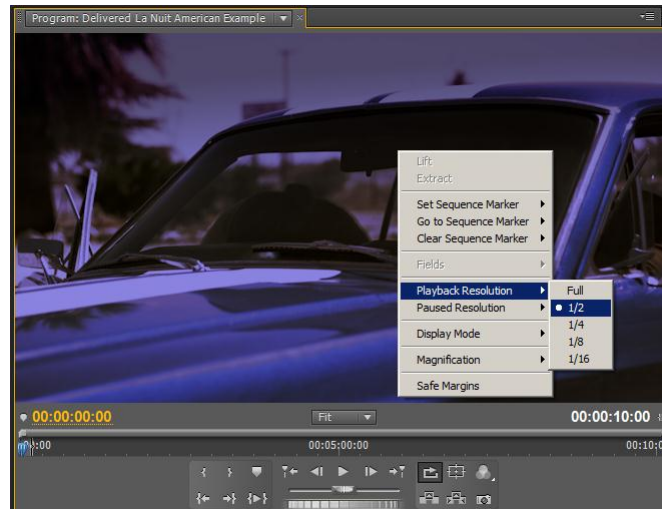
**Figure 2:** Yellow Sequence indicator showing GPU MPE active.

If the GPU acceleration of MPE is off and you're rendering on the CPU only, a red bar is seen above the Sequence timeline.



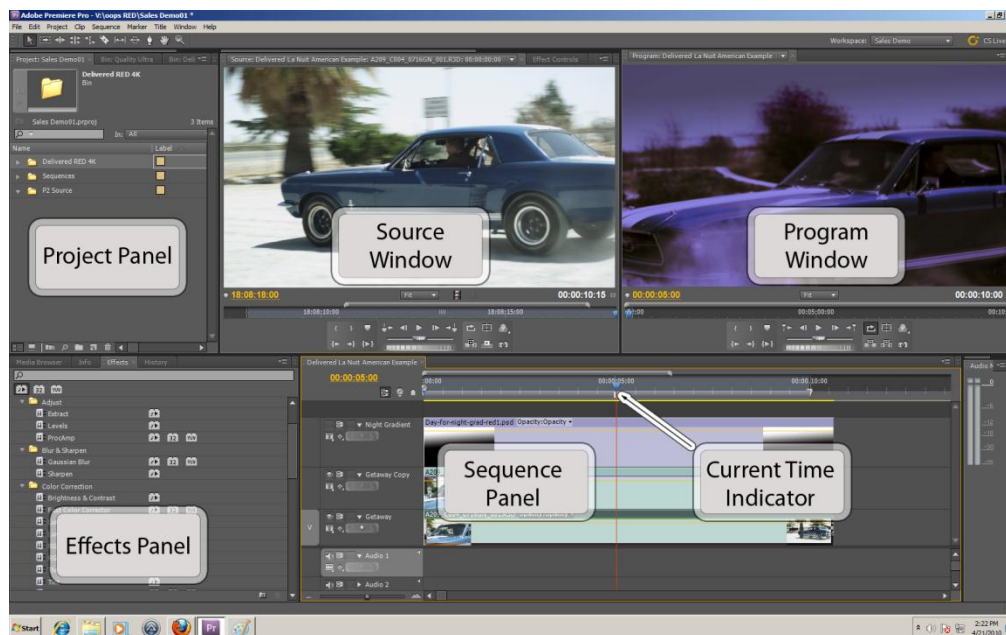
**Figure 3:** Red Sequence indicator showing CPU MPE rendering active, no GPU.

There are several Playback resolutions available in the program monitor. Adjusting these helps optimize the real-time playback from the GPU and further illustrates the benefits of GPU MPE over pure CPU rendering.



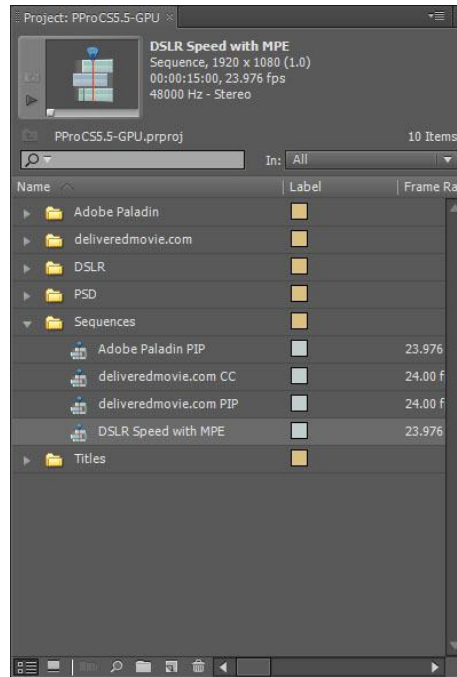
**Figure 4:** Playback resolution.

## Premiere Pro User Interface Basics



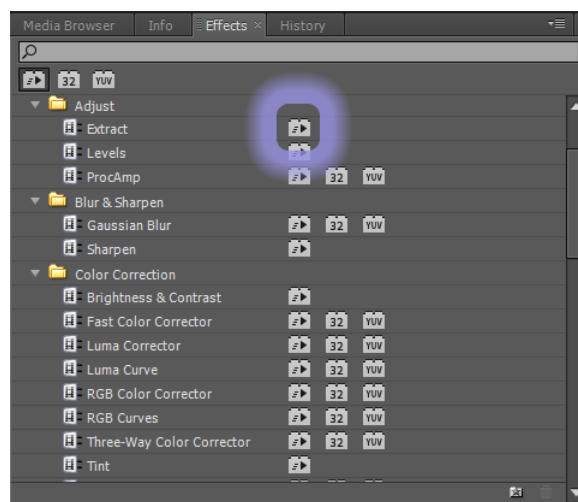
**Figure 5:** The Premiere Pro Interface

The **Project Panel** contains all footage items and sequences in a directory system. Sequences can be opened by double clicking.



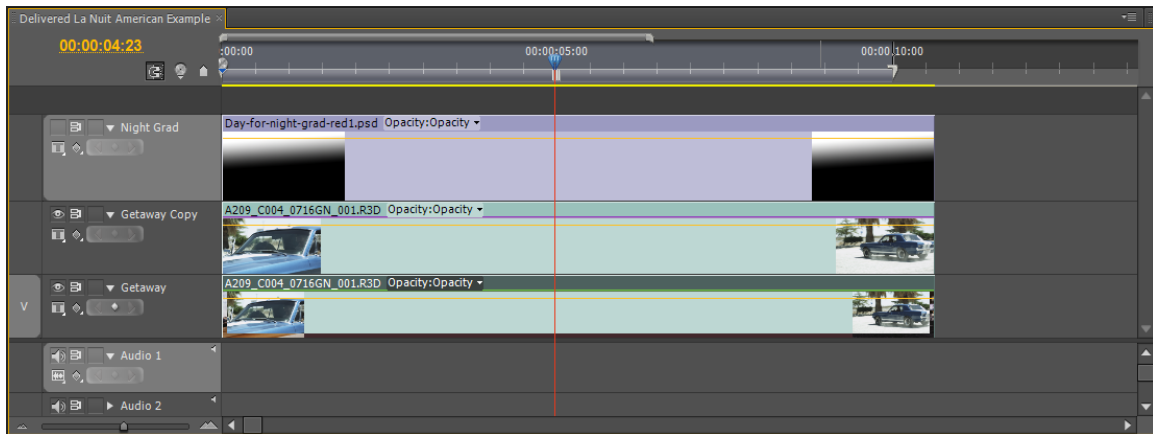
**Figure 6:** The Premiere Pro Project Panel

The **Effect Controls Panel** is below the **Project Panel** and effects are dragged from this window on to clips in the timeline. MPE accelerated effects are identified by the “brick” icon with an arrow as shown below.



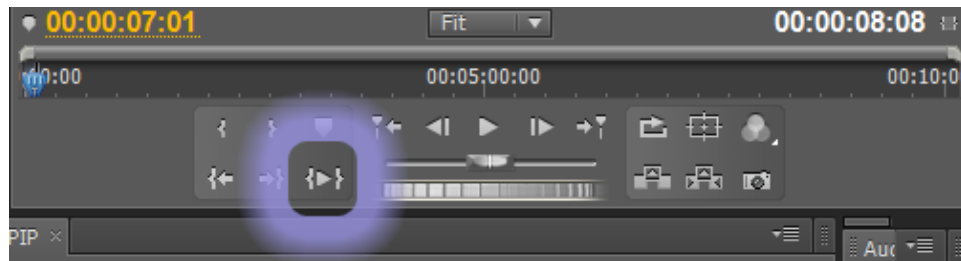
**Figure 7:** The Effect Controls Panel

The **Sequence Panel** is where you drag clips for editing, apply effects and use the **Current Time Indicator (CTI)** to scrub forward or backward in the timeline.



**Figure 8: The Sequence Panel**

When playing a clip, the sequence has start and end points setup for you so all you have to do is click the **Play In to Out** button shown below to start and end playback.



**Figure 9: Play In to Out**

# Using Adobe Premiere Pro CS5.5 GPU Accelerated MPE Effects

## Multiple Layer Color Correction

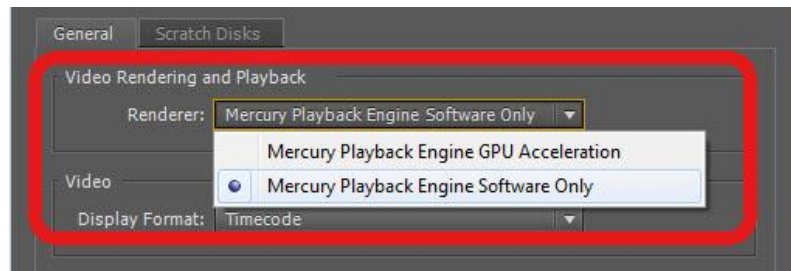
(2 video streams with color correction and a keyed effect)

This sequence contains RED 4K footage, in an HD 1080 24P, courtesy of deliveredmovie.com, and shows how GPU accelerated MPE gives not only dynamic color correction but also handles large image file formats natively such as RED. .

Normally when using a color corrector, the CPU has to render each layer in turn and this takes time. When using GPU accelerated MPE, the changes to the color and layer attributes are instantaneous.

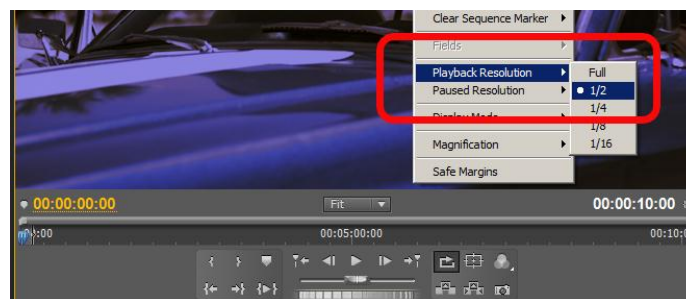
### Testing GPU Accelerated MPE Color Corection :

1. Double click the **deliveredmovie.com CC** sequence in the **Project Panel** to open it.
2. Make sure the MPE mode is set to **CPU** by selecting **Software Only** mode in the **Project – General Settings Panel**.



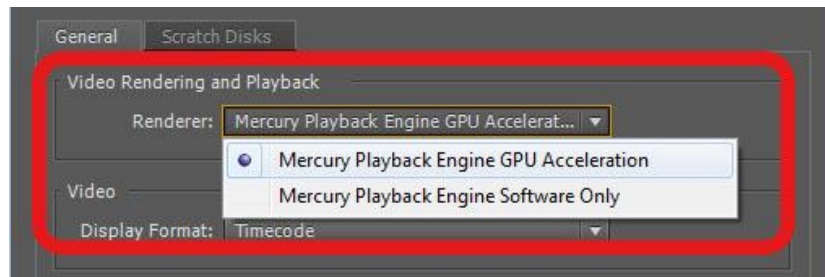
**Figure 10:** MPE in CPU mode

3. Make sure the **Program Panel** is set to play back at 1/2 Resolution as this will illustrate better the difference between **CPU** and **GPU** playback.



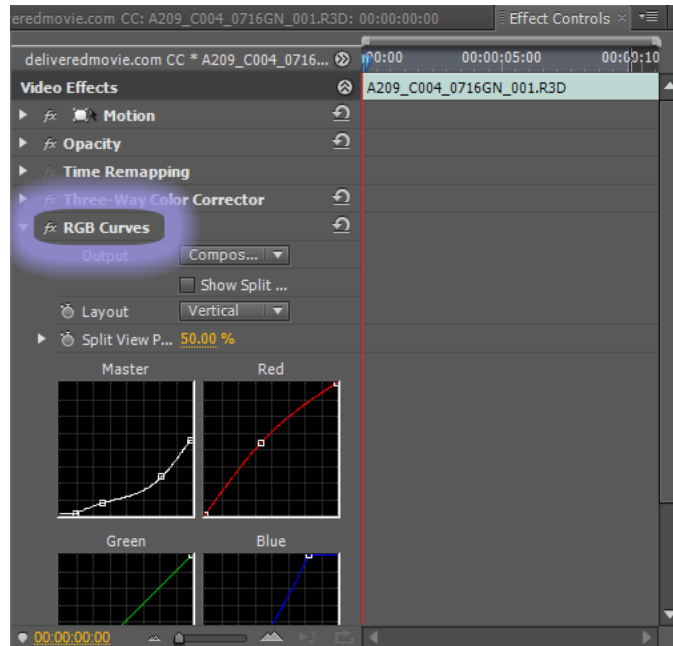
**Figure 11:** Playback Resolution

4. **Double Click** on any of the **Car** elements in the sequence timeline to open the clip in the **Source Panel**. Press **Play** to show how bright the clip is and that it plays back OK in software.
5. Now click the **Play In to Out** button in the **Program Panel** and the clip will start to play smoothly but as the **CTI** moves down the Sequence the playback will begin to stutter.
6. Drag the **CTI** along the sequence and show how you have to wait for the **CPU** to render each frame.
7. Now make sure the **MPE** mode is set to **GPU** by selecting Software mode in the **Project – General Settings Panel**.



**Figure 12:** GPU Accelerated MPE

8. Now click the **Play In to Out** button in the **Program Panel** and the clip will start to play smoothly and as the **CTI** moves down the Sequence the playback will remain smooth.
9. Drag the **CTI** along the sequence and show how you don't have to wait for the **CPU** to render each frame.
10. Click on the video clip **Car Darker** and then open the **Effects Control Panel** next to the **Source Panel Tab** and click the **RGB Curves** effect on and off to show the rapid changes to the image in the **Program Panel**. Emphasize the “no waiting” and the GPU is doing the work.
11. Try adjusting the **RGB Curves** directly to show the immediate response of **GPU** rendering. **<CTRL Z>** will undo any of your actions.



**Figure 13:** Effect Control Panel

## Multiple Picture in Picture

(3 video streams with color correction and an animated motion effect over a single black graphic layer)

This is an example of a common PIP style to illustrate different sequences all at once. In this case it is again RED 4k footage, HD 1080 24P, courtesy of deliveredmovie.com, and shows how GPU accelerated MPE gives the ability to do smooth transitions and scaling multiple video streams.

### Testing GPU Accelerated PIP:

1. Double click the **deliveredmovie.com PIP** sequence in the **Project Panel** to open it.
2. Make sure the MPE mode is set to **CPU** by selecting **Software Only** mode in the **Project – General Settings Panel**.

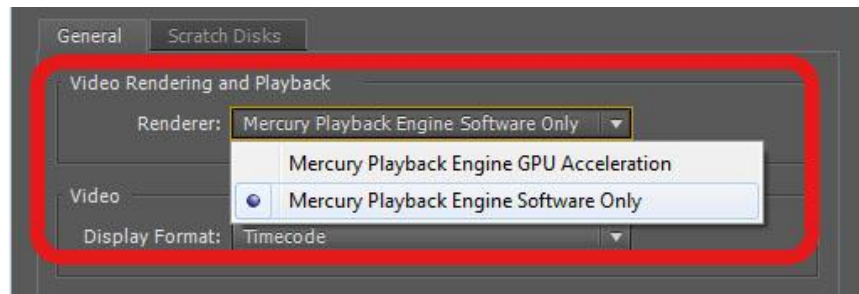


Figure 14: MPE in CPU mode

3. Make sure the **Program Panel** is set to play back at 1/4 Resolution, if you have a Dual CPU system you may want to leave it at 1/2 resolution, as this will illustrate better the difference between **CPU** and **GPU** playback.

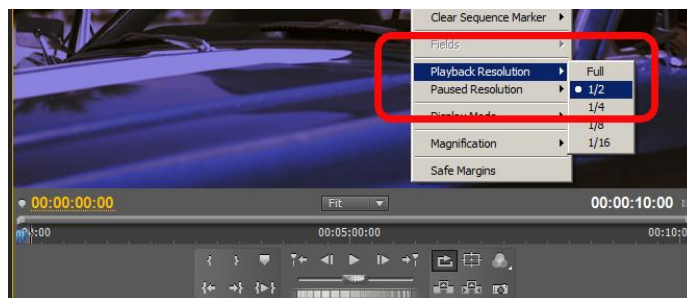
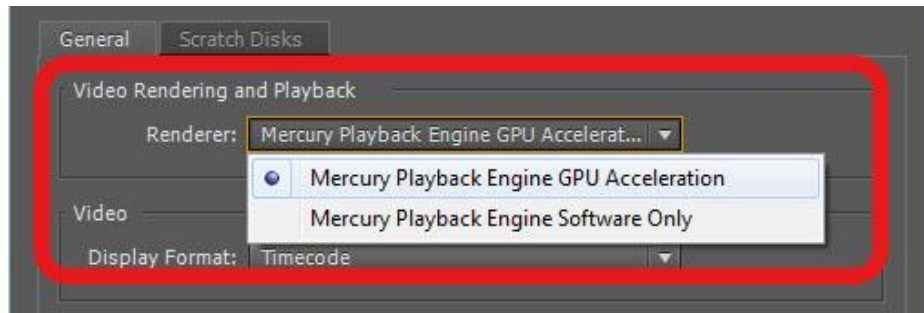


Figure 15: Playback Resolution

4. Now click the **Play In to Out** button in the **Program Panel** and the clip will start to play smoothly but as the **CTI** moves down the Sequence the playback will begin to stutter.
5. Drag the **CTI** along the sequence and show how you have to wait for the **CPU** to render each frame.
6. Now make sure the **MPE** mode is set to **GPU** by selecting Software mode in the **Project – General Settings Panel**.



**Figure 16:** GPU Accelerated MPE

7. Now click the **Play In to Out** button in the **Program Panel** and the clip will start to play smoothly and as the **CTI** moves down the Sequence the playback will remain smooth.
8. Drag the **CTI** along the sequence and show how you don't have to wait for the **CPU** to render each frame.

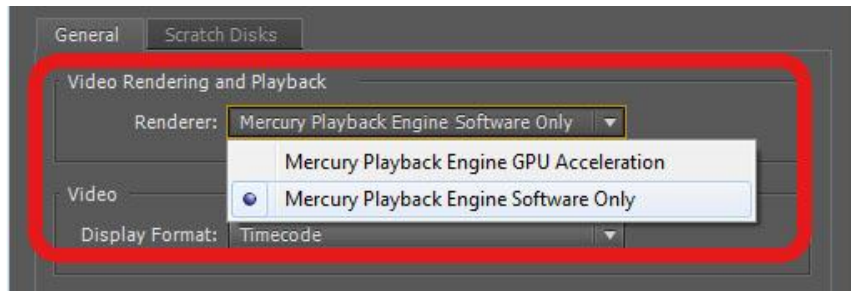
## Multiple PIP with Ultrakey

(9 video streams with color correction and multiple effects)

This example is not your average workflow but it actually shows the realtime rendering capabilities of GPU coupled with MPE. This sequence features an UltraKey from RED 2K footage, HD 720 24P, courtesy of Adobe, composited over eight simultaneous video layers each playing with a level of color correction and or blur.

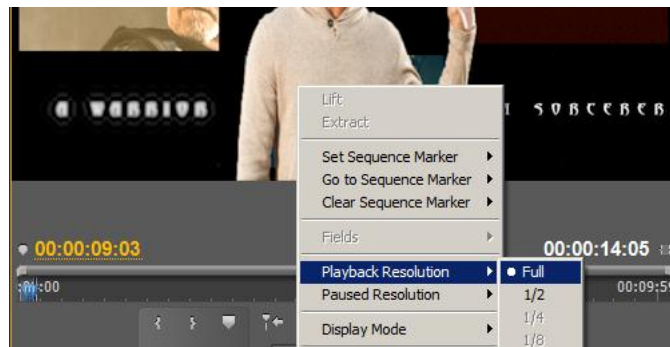
### Testing GPU Accelerated Multiple PIP and UltraKey:

1. Double click the **Adobe Paladin PIP** sequence in the **Project Panel** to open it.
2. Make sure the MPE mode is set to CPU by selecting **Software Only** mode in the **Project General Settings Panel**.



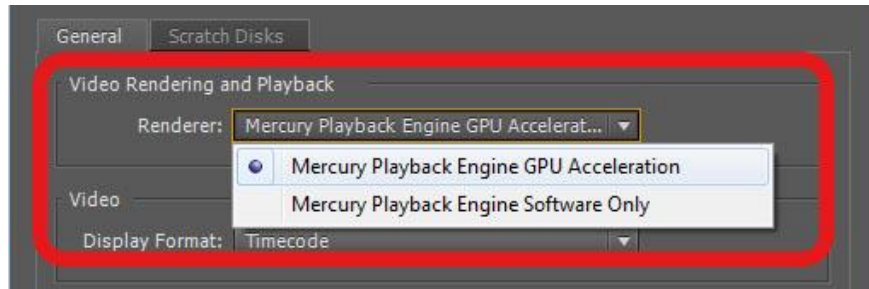
**Figure 17:** MPE in CPU mode

3. Make sure the **Program Panel** is set to play back at Full Resolution as this will illustrate better the difference between **CPU** and **GPU** playback.



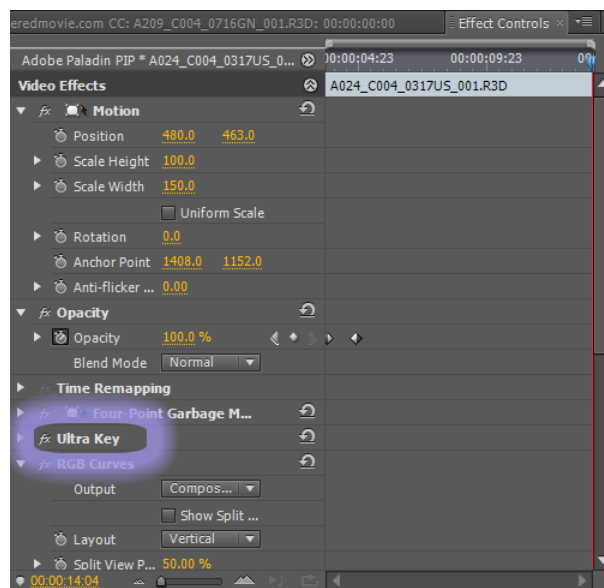
**Figure 18:** Playback Resolution

- Now click the **Play In to Out** button in the **Program Panel** and the clip will start to play smoothly but as the **CTI** moves down the Sequence the playback will begin to stutter and eventually fail.
- Drag the **CTI** along the **Sequence** and show how you have to wait for the **CPU** to render each frame.
- Now make sure the **MPE** mode is set to **GPU** by selecting Software mode in the **Project – General Settings Panel**.



**Figure 19: GPU Accelerated MPE**

- Now click the **Play In to Out** button in the **Program Panel** and the clip will start to play smoothly and as the **CTI** moves down the Sequence the playback will remain smooth.
- Drag the **CTI** along the **Sequence** and show how you don't have to wait for the **CPU** to render each frame.
- Click on the video clip **UltraKey** and then open the **Effects Control Panel** next to the **Source Panel Tab** and click the **UltraKey** effect on and off to show the rapid changes to the image in the **Program Panel**. Emphasize the "no waiting" and the GPU is doing the work.



**Figure 20 : UltraKey Effect**

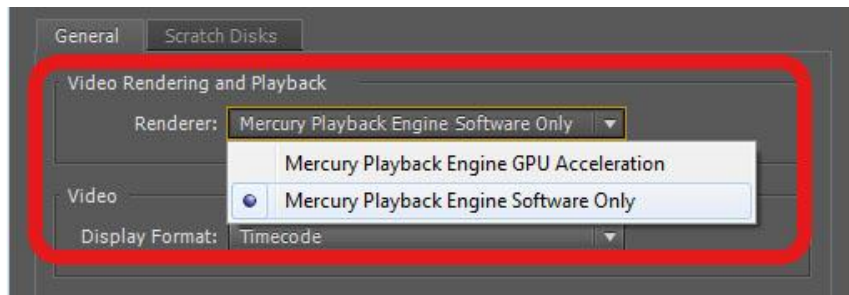
## Multiple Picture in Picture with DSLR

(Four streams of DSLR footage with PIP and Gaussian blur)

This example is not your average workflow but it actually shows the realtime rendering capabilities of GPU coupled with MPE with the new emerging DSLR format. Many wedding and event videographers are now changing from a tape based workflow, DV or HDV, to tapeless workflows based around these emerging HD video shooting capable DSLR cameras. These users will check and maybe edit on their laptops in the field, weddings for example, or take back for a craft edit after the event because of the ability to look at the footage directly within Premiere Pro.

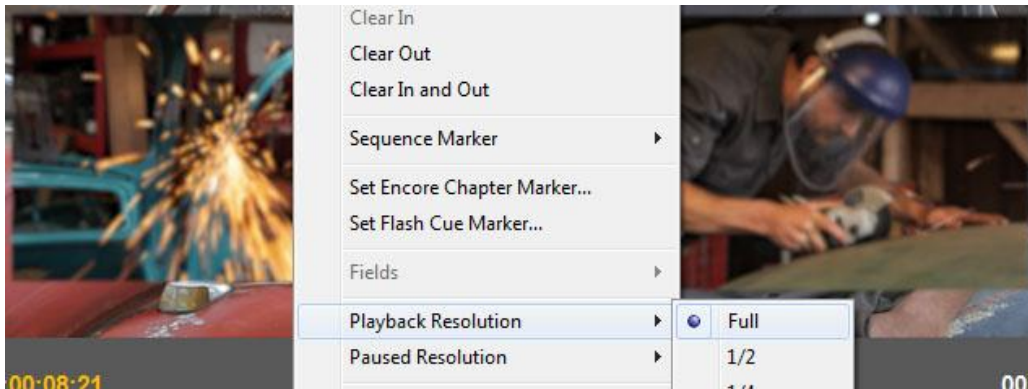
### Testing GPU Accelerated Multiple DSLR Footage:

1. Double click the **DSLR Speed with MPE** sequence in the **Project Panel** to open it.
2. Make sure the MPE mode is set to CPU by selecting **Software Only** mode in the **Project General Settings Panel**.



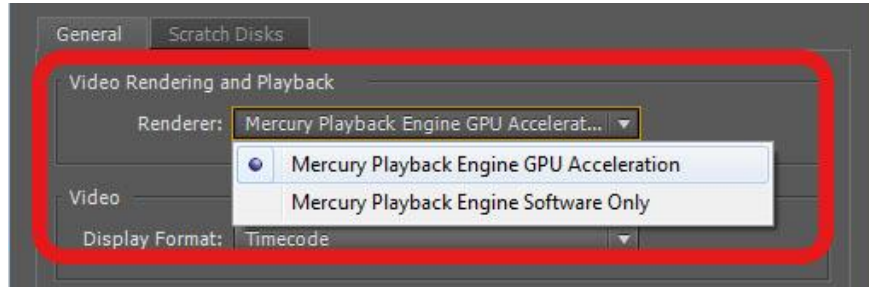
**Figure 21: MPE in CPU mode**

3. Make sure the **Program Panel** is set to **play back** at **Full Resolution** as this will illustrate better the difference between **CPU** and **GPU** playback.



**Figure 22: Playback Resolution**

4. Now click the **Play In to Out** button in the **Program Panel** and the clip will start to play smoothly but as the **CTI** moves down the Sequence the playback will begin to stutter and eventually fail.
5. Drag the **CTI** along the **Sequence** and show how you have to wait for the **CPU** to render each frame.
6. Now make sure the **MPE** mode is set to **GPU** by selecting Software mode in the **Project – General Settings Panel**.



**Figure 23: GPU Accelerated MPE**

7. Now click the **Play In to Out** button in the **Program Panel** and the clip will start to play smoothly and as the **CTI** moves down the Sequence the playback will remain smooth.
8. Drag the **CTI** along the **Sequence** and show how you don't have to wait for the **CPU** to render each frame.

# Test Machine Specifications

HP Z800, Dual Xeon X5860 @ 3.33Ghz, 24GB ram, Win 7 Pro, Quadro 4000

## System

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Manufacturer: Hewlett-Packard Company  
Model: HP Z800 Workstation  
Rating: **5.9** Your Windows Experience Index needs to be refreshed  
Processor: Intel(R) Xeon(R) CPU X5680 @ 3.33GHz 3.33 GHz (2 processors)  
Installed memory (RAM): 24.0 GB  
System type: 64-bit Operating System  
Pen and Touch: No Pen or Touch Input is available for this Display







# Appendix A: NVIDIA Marketing and PR Information

North America	<p><b>Sean Kilbride</b>            Technical Marketing Manager,            Workstation Product Reviews            408-486-2313 (Office)            510-673-4570 (Cell)  <a href="mailto:skilbride@nvidia.com">skilbride@nvidia.com</a></p>	<p><b>Mark Priscaro</b>            Senior Public Relations Manager            T 408.486.2438            C 408.429.9435  <a href="mailto:mpriscaro@nvidia.com">mpriscaro@nvidia.com</a></p>
	<p><b>Nick STAM</b>            Director, Technical Marketing            215-504-0321 (Office)            215-514-0400 (Cell)  <a href="mailto:nstam@nvidia.com">nstam@nvidia.com</a></p>	
Europe, Middle-East, Africa, and India	<p><b>Luciano ALIBRANDI</b>            Director of Product PR EMEA            +33 6 07405498  <a href="mailto:lalibrandi@nvidia.com">lalibrandi@nvidia.com</a>            NVIDIA Ltd            14, place Marie Jeanne Bassot            92593 Levallois Perret, FRANCE</p>	<p><b>Stephane QUENTIN</b>            Southern European Product PR Manager            +33 6 14308655  <a href="mailto:squentin@nvidia.com">squentin@nvidia.com</a>            NVIDIA Ltd            14, place Marie Jeanne Bassot            92593 Levallois Perret, FRANCE</p>
	<p><b>Jens NEUSCHAEFER</b>            Central European Product PR Manager            +49 173 528 2912  <a href="mailto:jneuschaef@nvidia.com">jneuschaef@nvidia.com</a>            NVIDIA GmbH            Rosenheimerstr.145b            81671 München, GERMANY</p>	<p><b>Benjamin Berraondo</b>            Northern European Product PR Manager            +44 118 903 3078  <a href="mailto:bberraondo@nvidia.com">bberraondo@nvidia.com</a>            NVIDIA Ltd            1310 Arlington Business Park            Theale, Berkshire RG7 4SA            United Kingdom</p>

Asia and Pacific Region	<b>Kaori NAKAMURA</b> Japan Marketing Manager +81 (3) 6743-8712 <a href="mailto:knakamura@nvidia.com">knakamura@nvidia.com</a> NVIDIA Japan Akasaka Tameike Tower 2F, 2-17-7 Akasaka Minato-ku, Tokyo 107-0052 JAPAN	<b>Cynthia LEE</b> Director of Marketing, Japan and Korea +88 6-2-21755769 <a href="mailto:cynlee@nvidia.com">cynlee@nvidia.com</a>
	<b>Sunny LEE</b> Korea Marketing Manager +82 (2) 6000-8012 <a href="mailto:slee@nvidia.com">slee@nvidia.com</a> NVIDIA Korea #2101, COEX Trade Tower 159-1 Samsung-dong Kangnam-gu, Seoul 135-729 KOREA	<b>Peizhi (Perry) DENG</b> Technical Marketing Manager, APAC +86-10 5866 1518 <a href="mailto:PDeng@nvidia.com">PDeng@nvidia.com</a> NVIDIA Corp. Unit 2901-2904, China World Tower 1 NO.1 Jian Guo Men Wai Avenue Beijing, P. R. China

## Branding Guidelines

The correct way of writing NVIDIA is the name “NVIDIA” in all uppercase. Upon first reference, the name should be followed by a registered trademark symbol, “NVIDIA®.”

Quadro is written with an uppercase “Q,” lowercase “uadro.” In the first reference, the name Quadro should be followed by a registered trademark symbol, “Quadro®.”

If the first reference to NVIDIA is “NVIDIA Quadro,” the registration mark may be omitted after NVIDIA, “NVIDIA Quadro®.” In such a case, the first use of NVIDIA separate from the Quadro name should be followed by the trademark symbol, as described above.

Write the name “Quadro” (according to the preceding guidelines), followed by a space, and all uppercase “FX.” The model number follows the “FX,” with a space separating the model number and the word “FX.” Available models:

- NVIDIA Quadro® FX SKUs:  
350/370/380/550/560/570/580/1500/1700/1800/3500/3700/3800/4500/4500 X2/4600/4800/5500/5600/5800
- NVIDIA Quadro® FX Mobile:  
350M/1500M/1600M/2500M/3500M/3600M/3700M
- NVIDIA Quadro® FX 4500 SDI/5500 SDI (space between “5500” or “4500” and “SDI”)
- NVIDIA Quadro® G-Sync option board

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