

MAKE THE
WORLD SEE

Milestone Systems

XProtect® Smart Client 2019 R1

Hardware acceleration guide



Contents

Copyright, trademarks, and disclaimer	3
Hardware acceleration (explained)	4
Check hardware acceleration settings	5
Verify your operating system	6
Check CPU Quick Sync support	7
Examine the Device Manager	8
Check NVIDIA hardware acceleration support	9
Enable the Intel display adapter in the BIOS	10
Update the video driver	11
Check memory modules configuration	12
Monitor client resources	13

Copyright, trademarks, and disclaimer

Copyright © 2019 Milestone Systems A/S

Trademarks

XProtect is a registered trademark of Milestone Systems A/S.

Microsoft and Windows are registered trademarks of Microsoft Corporation. App Store is a service mark of Apple Inc. Android is a trademark of Google Inc.

All other trademarks mentioned in this document are trademarks of their respective owners.

Disclaimer

This text is intended for general information purposes only, and due care has been taken in its preparation.

Any risk arising from the use of this information rests with the recipient, and nothing herein should be construed as constituting any kind of warranty.

Milestone Systems A/S reserves the right to make adjustments without prior notification.

All names of people and organizations used in the examples in this text are fictitious. Any resemblance to any actual organization or person, living or dead, is purely coincidental and unintended.

This product may make use of third-party software for which specific terms and conditions may apply. When that is the case, you can find more information in the file `3rd_party_software_terms_and_conditions.txt` located in your Milestone system installation folder.

Hardware acceleration (explained)

Hardware acceleration improves the decoding capability and performance of the computer running XProtect Smart Client. This is particularly useful when you view multiple video streams with high frame rate and high resolution.



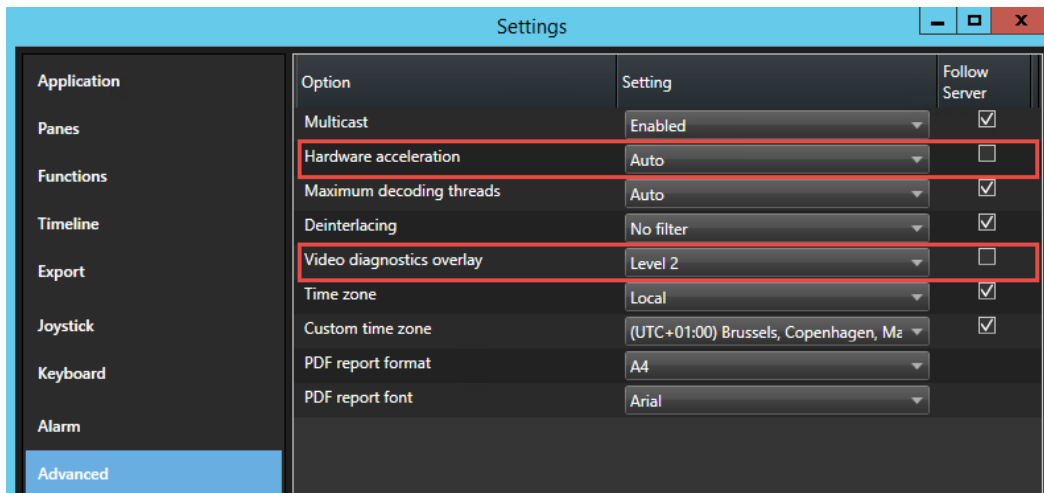
XProtect Smart Client supports hardware accelerated decoding using Intel® and NVIDIA® GPUs. Milestone does not recommend the use of Scalable Link Interface (SLI) configuration of your NVIDIA display adapters.

Follow the steps described in the next sections to examine your PC to make sure that all hardware acceleration resources are available.


Check hardware acceleration settings

1. Go to **Settings > Advanced > Hardware acceleration**.
2. There are two settings for hardware acceleration: **Auto** and **Off**.

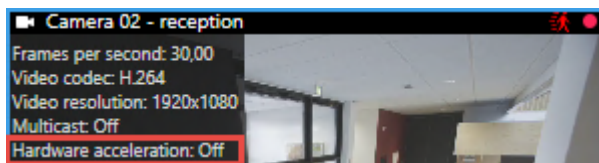
Select the default setting **Auto**.



3. Go to **Video diagnostics overlay**.
4. To make the current status of the stream, including the GPU resource used for hardware acceleration visible, select **Level 2**.

 This setting applies to all view items. The default setting is **Hide**.

The video diagnostics overlay status for **Hardware acceleration** can be: **Intel**, **Nvidia** or **Off**.



If the status is **Off**, continue to examine your computer so you can enable hardware acceleration, if possible.

Next, Verify your operating system on page 6.

Verify your operating system

Make sure your operating system is Microsoft® Windows® 8.1, Windows® Server 2012, or newer.



Only non-virtual environments are supported.



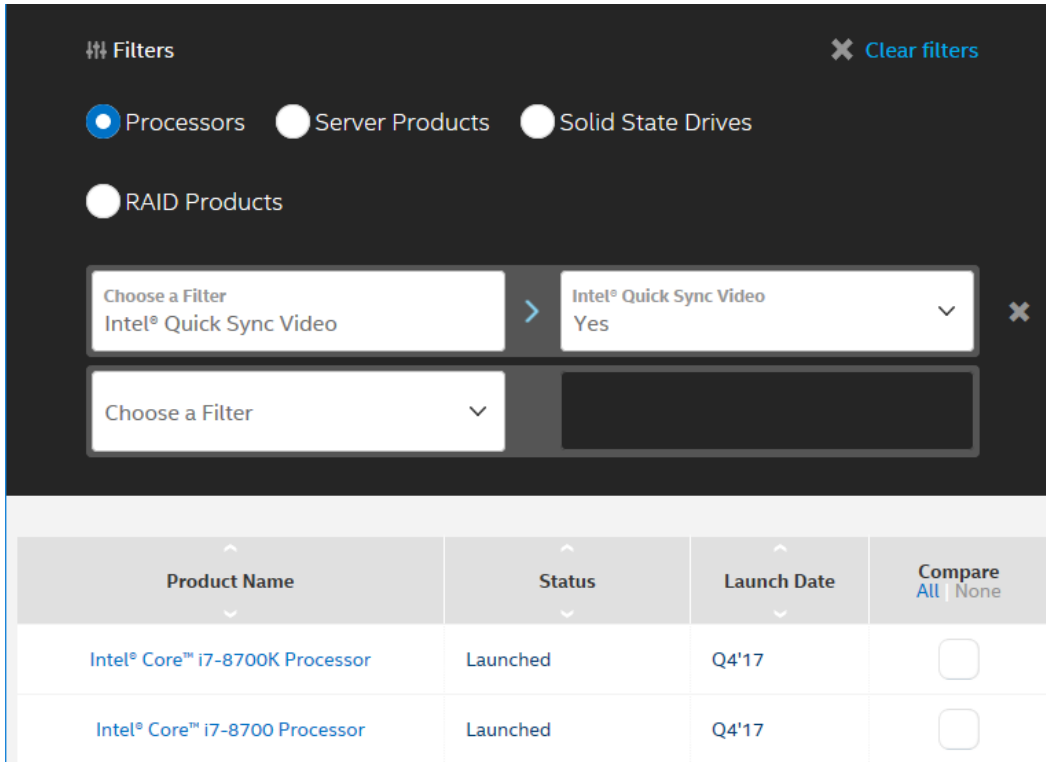
NVIDIA hardware acceleration is only supported by 64-bit operating systems.

Next, Check CPU Quick Sync support on page 7.

Check CPU Quick Sync support

To verify that your processor supports Intel Quick Sync Video:

1. Visit the Intel website (<https://ark.intel.com/Search/FeatureFilter?productType=processors/>).
2. In the menu, set **Processors** and **Intel Quick Sync Video** filter to **Yes**.
3. Find your CPU in the list.



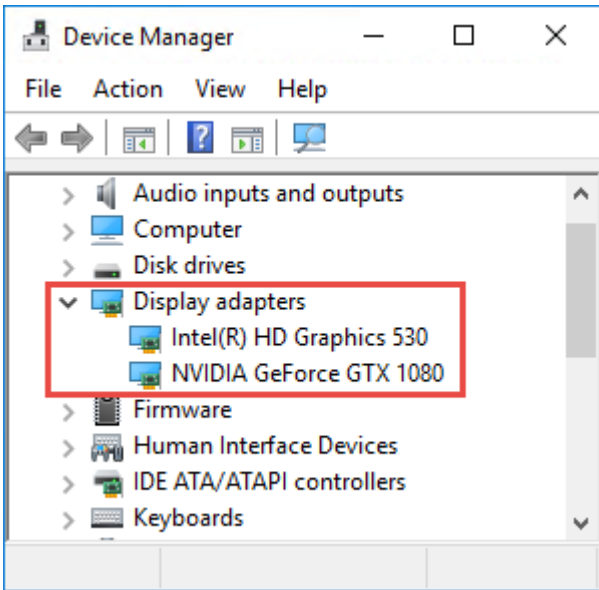
The screenshot shows the Intel ARK website's filter interface. At the top, there are radio buttons for 'Processors' (selected), 'Server Products', and 'Solid State Drives'. Below these are two filter boxes: one for 'Intel Quick Sync Video' set to 'Yes', and another empty filter box. Below the filters is a table with the following data:

Product Name	Status	Launch Date	Compare All None
Intel® Core™ i7-8700K Processor	Launched	Q4'17	<input type="checkbox"/>
Intel® Core™ i7-8700 Processor	Launched	Q4'17	<input type="checkbox"/>

Next, Examine the Device Manager on page 8.

Examine the Device Manager

Make sure that an Intel or NVIDIA display adapter is present in Windows Device Manager.



You can connect your displays to any display adapter available. If a more powerful display adapter is available in your computer, typically NVIDIA or AMD®, connect your displays to this adapter to use all available GPU resources for hardware accelerated decoding and rendering.



Not all NVIDIA display adapters supports hardware acceleration. Check NVIDIA hardware acceleration support on page 9.

If the Intel display adapter is not present, enable the Intel display adapter in the BIOS (see Enable the Intel display adapter in the BIOS on page 10).

Next, Update the video driver on page 11

Check NVIDIA hardware acceleration support

NVIDIA products have different compute capabilities.



Hardware accelerated decoding using NVIDIA GPUs requires compute capability version 6.x (Pascal) or newer.

To find the compute capability version of your NVIDIA product, visit the NVIDIA website (<https://developer.nvidia.com/cuda-gpus/>).

Next, Update the video driver on page 11.

Enable the Intel display adapter in the BIOS

If another display adapter card, for example NVIDIA or AMD, is available in your computer, the onboard Intel display adapter may be disabled, and you must enable it.

The Intel display adapter is located on the motherboard as a part of the CPU. To enable it, look for graphics, CPU or display settings in the computer BIOS. The vendor's motherboard manual may be helpful to find the relevant settings.



If changing the settings does not enable the onboard Intel display adapter, you can try to move the display adapter card to another slot and then connect the display to the motherboard. In some cases, this can enable the onboard display adapter.

Next, Update the video driver on page 11.

Update the video driver

Make sure that the driver version for all your display adapters are updated to the newest version available from Intel or NVIDIA.



The Intel driver version provided by the PC vendor can be an older version and may not support Intel Quick Sync Video.

There are two ways of updating your video driver. Manual download and install or using a driver update utility.

Intel

Manual download and install:

1. Go to the Intel download website (<https://downloadcenter.intel.com/>).
2. Enter the name of your integrated display adapter.
3. Manually download and install the driver.

For automatic detection and updates of Intel components and drivers:

1. Download Intel Driver and Support Assistant (https://www.intel.com/p/en_us/support/detect/).
2. Run the assistant to auto search for the drivers.
3. Choose to update the driver for Graphics.

NVIDIA

Option 1: Manually find drivers for my NVIDIA products.

1. Go to the NVIDIA download drivers website (<https://www.nvidia.com/Download/index.aspx>).
2. Enter the name of your product and the operating system.
3. Manually download and install the driver.

Option 2: Automatically find drivers for my NVIDIA products.

1. Go to the NVIDIA download drivers website (<https://www.nvidia.com/Download/index.aspx>).
2. Click **GRAPHICS DRIVERS**.
3. Your system is scanned.
4. Download and update the driver.

Next, Check memory modules configuration on page 12.

Check memory modules configuration

If your system supports more than one memory channel, you can increase the system performance by making sure that a minimum of two channels have a memory module inserted in the correct DIMM slot. Refer to the motherboard manual to find the correct DIMM slots.

Example:

A system with two memory channels and a total of 8 GB of memory obtains the best performance using a 2 x 4 GB memory module configuration.

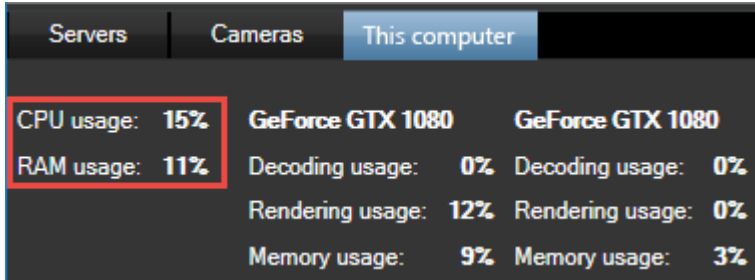
If you use a 1 x 8 GB memory module configuration, you only use one of the memory channels.

Next, Monitor client resources on page 13.

Monitor client resources

The number of cameras in a view together with the resolution, frame rate, and codec results in a load on your PC running XProtect Smart Client. To observe the current load on **CPU**, **RAM**, and NVIDIA GPU resources:

1. Click and drag the **System Monitor** tab to undock it to a separate window.
2. Select **This computer**.
3. To monitor the load of the current view, select the **Live** or **Playback** tab.



Servers	Cameras	This computer	
CPU usage: 15%	GeForce GTX 1080	GeForce GTX 1080	
RAM usage: 11%	Decoding usage: 0%	Decoding usage: 0%	
	Rendering usage: 12%	Rendering usage: 0%	
	Memory usage: 9%	Memory usage: 3%	



If your client PC has additional NVIDIA display adapters installed, the load on these GPU's are also visible.



If the load is too high, you can add GPU resources to your PC by installing multiple NVIDIA display adapters. Milestone does not recommend the use of Scalable Link Interface (SLI) configuration of your NVIDIA display adapters.



helpfeedback@milestone.dk

About Milestone

Milestone Systems is a leading provider of open platform video management software; technology that helps the world see how to ensure safety, protect assets and increase business efficiency. Milestone Systems enables an open platform community that drives collaboration and innovation in the development and use of network video technology, with reliable and scalable solutions that are proven in more than 150,000 sites worldwide. Founded in 1998, Milestone Systems is a stand-alone company in the Canon Group. For more information, visit <https://www.milestonesys.com/>.

