Maximize the true potential of your system with multiple GPU support in XProtect®
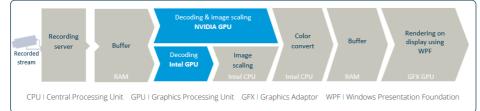
Powered by NVIDIA® & Intel®

With the average number of connected devices per installation on the rise, and with the video analytics market expected to grow over 21% by 2021, an inevitable increase of the load put on the CPU is expected, driving the VMS industry to find a solution. Introducing: Hardware Accelerated Video Decoding.

As installations grow and aggregate more high-resolution cameras, a higher load is expected to be handled by the CPU. The rapid growth in the video analytics market makes analytics solutions more accessible and useful than ever, augmenting human capabilities and setting a new standard in video surveillance and efficiency. Such advances in technology push the boundaries of video management, however put a heavy load on the CPU in charge of decoding the video on its way to be analyzed that is no longer capable of providing the necessary processing power and creating a processing bottle neck.

By allowing the VMS to utilize GPUs added to the system, we automatically shift the work load from the built in CPU to additional GPUs which allows up to remove the bottle neck and to enjoy a new level of system performance. XProtect is now capable of utilizing both the built in Intel GPU, as well as additional NVIDIA GPUs, to offer scalable systems with outstanding performance in the Smart Client, the Recording Server and in the Mobile Server.

Hardware acceleration in the Smart Client

To process more high-resolution streams and to display them on high definition monitors the smoothest way possible, a strong processing unit is required. Allowing the VMS to utilize additional GPUs transforms the video decoding and image scaling process from linear (using only the built in CPU) to parallel (using GPUs).

CPU I Central Processing Unit   GPU I Graphics Processing Unit   GFX I Graphics Adaptor   WPF I Windows Presentation Foundation
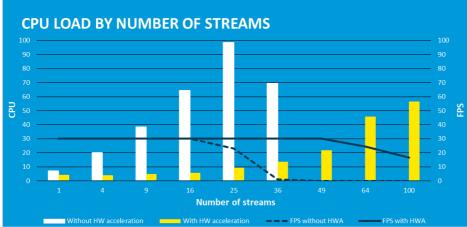
Key benefits
- Customize performance to fit your needs by adding multiple cards
- Fluent display of several concurrent video streams
- Reduces CPU load
- Enable display of several 4K/UHD video streams

Key features
- Flexible system support in both Intel® and NVIDIA® GPU.
- Decoding is offloaded automatically to Intel Quick Sync once NVIDIA GPUs are maxed out.
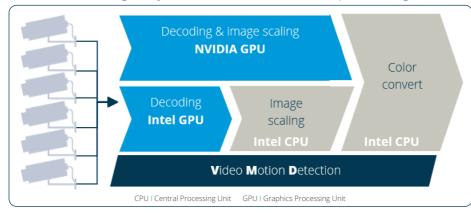
Available in

Hardware accelerated video decoding utilizing both Intel and NVIDIA GPUs, is available in XProtect Smart Client 2018 R1 version and later. This also applies to all XProtect Add-on products running within XProtect Smart Client, including XProtect LPR and XProtect Smart Wall

This removes the hardware-based bottle neck and allows Installations to enhance the processing power of their machines by using either the built-in GPU or additional graphics cards. It is a prerequisite that the machine supports hardware acceleration components such as Intel® Quick Sync or NVIDIA cards to leverage on this capability and enjoy improved rendering and smooth display of live and recorded video.

CPU LOAD BY NUMBER OF STREAMS

XProtect Smart Client performance measured for h.264 stream format in full HD. Tested hardware: Windows PC with Intel Core i7-8700K processor at 3.70GHz, 32 GB RAM, 2X NVIDIA GeForce GTX 1080 8GB

Hardware acceleration in the Recording Server

Being able to increase the number of connected cameras per Recording Server means removing the bottle neck created by the hardware and providing more computing power necessary for decoding video and for image scaling. With XProtect support for additional NVIDIA GPUs, we allow the VMS to go beyond the machine's built-in processing unit.

The load balancing requires no setup and is completely automatic: XProtect will first distribute the load necessary for video decoding and video motion detection (VMD) evenly between the Intel GPU (using Intel Quick Sync®) and the added NVIDIA graphics cards. Then the load will be balanced automatically according to the thresholds defined in the

Better together

Milestone has worked closely together with Intel on developing and improving their Media SDK to better use the built-in GPU component in Intel CPU's for video decoding. Due to this cooperation, additional VMS specific functions have been added to the Intel® Media SDK enabling video decoding of multiple video streams simultaneously on Intel CPU's supporting Intel Quick Sync Video. Download the Milestone-Intel whitepaper to learn more:

Key benefits

• Increase the number of connected cameras per server

• Maximize the potential of your resources and avoid unnecessary hardware costs

• Save on maintenance and overhead costs by running a smaller yet stronger servers network
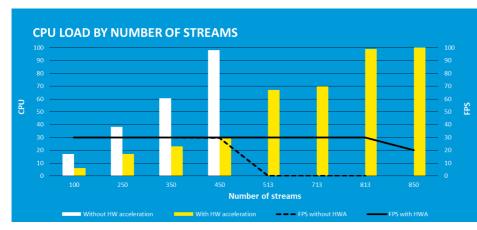
Key features

• Full utilization of both Intel® and NVIDIA® GPUs

• Automatic load balancing mechanism requiring minimal setup

system to maximize the potential of the hardware and minimize the CPU load.

The graph below shows the performance using 4 NVIDIA GPUs:

CPU LOAD BY NUMBER OF STREAMS

Legend: Without HW acceleration | With HW acceleration | FPS without HWA | FPS with HWA

Performance measured for h.264 stream format in full HD (1920X1080). Tested hardware: Windows server 2016, 2X Intel Xeon Silver 4114, 64 GB RAM, 4X NVIDIA Quadro P2000

Lower risk for CPU overload

By shifting the computing intensive video decoding process from the CPU to the GPU, the CPU load is drastically reduced. This not only gives a more responsive XProtect Smart Client experience, but it also frees up CPU power for any other applications that may be running on the operators' workstations.

Reduce cost, increase efficiency

Hardware acceleration is another example for technology changing the way we work today. This advance technology delivered in XProtect truly pushes the boundaries of video management, sets a new standard for performance and delivers higher processing power at a lower cost. It redefines scalability and makes it easy to grow your video installation together with your business and avoid hefty financial investment in new hardware. Build and maintain a smaller yet stronger servers network, spend less on hardware, maintenance and overhead costs, and increase productivity and efficiency of your business and team using Milestone's latest technology.

Available in

Hardware accelerated video decoding and video motion detection utilizing both Intel and NVIDIA GPUs, is available in XProtect 2018 R2 version and later.

A full list of supported NVIDIA graphics cards that can be utilized for hardware acceleration can be found here

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The full list of system requirements for the XProtect components can be found here:

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Read more about Milestone XProtect VMS solutions:

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Milestone Systems is a global industry leader in open platform IP video management software, founded in 1998 and now operating as a standalone company in the Canon Group. Milestone technology is easy to manage, reliable and proven in thousands of customer installations, providing flexible choices in network hardware and integrations with other systems. Sold through partners in more than 100 countries, Milestone solutions help organizations to manage risks, protect people and assets, optimize processes and reduce costs.

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