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# Power Advanced Video Walls with Matrox LUMA Pro Series Graphics Cards

## Deliver exceptional display density, resolution, and performance for demanding multi-monitor video wall applications with Matrox LUMA Pro Series graphics cards, powered by the Intel® Arc™ GPU

**matrox** video

Video walls are large display surfaces, typically composed of multiple projectors, large-format displays, or LED tiles. These modular elements allow the wall to be created in almost any dimension, including non-rectangular shapes. The content displayed on video walls can be a single source spread across all screens—such as a motion video or digital signage—or it can be a collage of content from a variety of sources in different formats.

Depending on the use case, video sources may be locally stored files that are being read/played; video graphics signals such HDMI, DisplayPort, or SDI that are sent from another device; IP streams that have arrived via the network and have been decoded (including network KVMs); or browser-based content such as dashboards. For some use cases, such as Google Earth or displaying a moving 3D CAD model, advanced rendering and decoding capabilities are required on the hardware that fuels video wall installations.

### Challenge: Supporting demanding, advanced video wall use cases

While video walls are commonly found in control rooms, corporate spaces, and myriad public spaces, new requirements are emerging to ensure a standout experience. The increasing sophistication of content and interactive capabilities drives greater complexity and requires more-powerful systems.

Today's video wall controllers are required to handle more incoming and outgoing signals than ever. They need to accept inputs from multiple sources—including computers, cameras, and streaming devices—to easily create a variety of video presentations. They also need to output to multiple high-resolution screens simultaneously—and with perfect synchronization, even across multiple GPUs—to create a single seamless video wall display.

Inputs and outputs are also becoming increasingly IP based. AV over IP, a technology that allows audio and video signals to be transmitted over an IP network, is significantly impacting the video wall market and enabling the creation of more-flexible and -scalable video walls. Meanwhile, powerful codecs are required to support a variety of media streaming formats in decoding, transcoding, and encoding. With the right capabilities, video wall controllers can be used to consolidate workloads onto a single device where multiple were previously required.

*"Robust media streaming decoding capabilities and board-to-board video synchronization [empower] OEMs and system integrators to deliver unparalleled video wall solutions that set new standards in the industry."*

—Daniel Collin, Senior Product Manager, Matrox Video

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ARC™
GRAPHICS

To ensure a professional look, it's critical to synchronize the output of multiple screens to display the same image at the same time. It's also important to scale video content to fit the size of the video wall regardless of the size of the display. There has been recent growth in the use of LED tile-based displays. These are smaller but more versatile and can be arranged together to create a larger, more impressive display. Typically, bezel-less LED tiles offer a more immersive viewing experience but also require even tighter synchronization.

Finally, a variety of control options, such as remote access, scheduling, and user management, make it easy to manage your video wall system from anywhere. Extended Display Identification Data (EDID) is a standard that allows display devices to communicate their capabilities—such as the display's native resolution, supported color spaces, and maximum refresh rate—to source devices. EDID management is important to ensure that displays are showing the correct resolution and color space, to prevent compatibility issues between source devices and displays, and to maximize the overall reliability of video signal connections to displays.

## Solution: Matrox LUMA Pro Series graphics cards powered by Intel

To enable next-generation video wall use cases, Matrox Video and Intel are collaborating to deliver the LUMA Pro Series of graphics cards. These advanced graphics processing cards can be deployed in video wall controllers to power advanced visual workloads—whether it's in a store, boardroom, mission control center, or anywhere in between.

Leveraging built-in Intel® Arc™ graphics, LUMA Pro Series graphics cards can support up to two 8Kp60 displays—or up to two 5Kp120 displays. They can also power up to four synchronized high-resolution displays or projectors from one card. Multiple LUMA Pro Series cards can also be used, taking advantage of the integrated video synchronization feature, to support even larger video walls such as 4x4 screens.

With the Matrox LUMA Pro Series, OEMs, system integrators, value-added channel partners, and end users can push the boundaries of video innovation. Those seeking to support

customer needs using this solution can capture their share of the fast-growing video wall market and provide a clearly differentiated offering that helps unlock advanced video wall deployments cost-effectively and efficiently.

"It is a thrilling era for video wall technology, driven by the continuously rising customer demand for cutting-edge visual experiences," says Daniel Collin, senior product manager at Matrox Video. "LUMA Pro Series is the result of fruitful collaboration with Intel, bringing forth a range of exceptional video wall features integrated into the graphics card. These include robust media streaming decoding capabilities and board-to-board video synchronization, empowering OEMs and system integrators to deliver unparalleled video wall solutions that set new standards in the industry."



### Video wall use cases

Control rooms are a common use case for video walls, providing situational awareness for process control, transport management, urban or building security, and broadcast operations. Video walls are also used in public spaces, effectively acting as massive screens. These applications range from the departures board at an airport to a mixed-use digital signage area in a university thoroughfare to the replay screen in a sports stadium.

In a collaboration room—and in museum or exhibition environments—video walls can be enriched with touch-sensitive capabilities, allowing multiple users to interact directly with applications on the wall. In retail, video walls are used to deploy dynamic branding and to merchandise products. Businesses of all types also use video walls in lobbies, reception areas, and conference rooms to enhance the visitor experience.

## How it works

Close collaboration with Intel enables the LUMA Pro Series to take full advantage of the integrated Intel Arc graphics and deliver powerful, built-in features to address specific market needs and offer unique capabilities.

### Support up to 16 displays with 5K resolution

A single LUMA Pro Series card can drive up to two 8K displays or up to two 5Kp120 displays. However, taking advantage of integrated video synchronization capabilities, four LUMA Pro cards in a system can support and synchronize a maximum display of up to 8x 8Kp60 monitors or up to 16x 5Kp60 monitors. LUMA Pro can also be combined with Matrox QuadHead2Go multi-monitor controllers to create ultra-large-scale configurations of up to 64x 1920x1080p60 screens.

The integrated video synchronization capabilities—including board-to-board framelock cables—enable LUMA Pro Series cards to synchronize and deliver a smooth, polished display across numerous screens. These integrated capabilities, optimized through collaboration between Matrox Video and Intel, allow for more-efficient deployments because a separate card isn't required for synchronization.
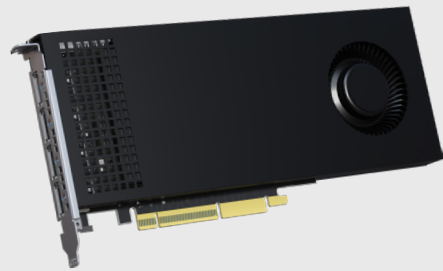
### Matrox LUMA Pro Series Overview
Powered by Intel® Arc™ graphics
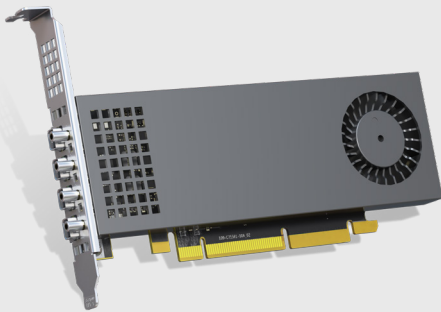


**LUMA A310FP**

Low-profile, single-slot PCIe 4.0 x16 (x8 electrical) quad-output graphics card featuring four mini DisplayPort lockable connectors, delivering increased performance in a wide range of small form factor and standard-height systems

**LUMA A380P**

Standard height, single-slot PCIe 4.0 x16 (x8 electrical) quad-output graphics card featuring four DisplayPort connectors, delivering the best display density, resolution, and performance for demanding multi-monitor applications

Matrox LUMA Pro Series graphics cards support Windows 10, Windows 10 LTSC, and Windows 11.
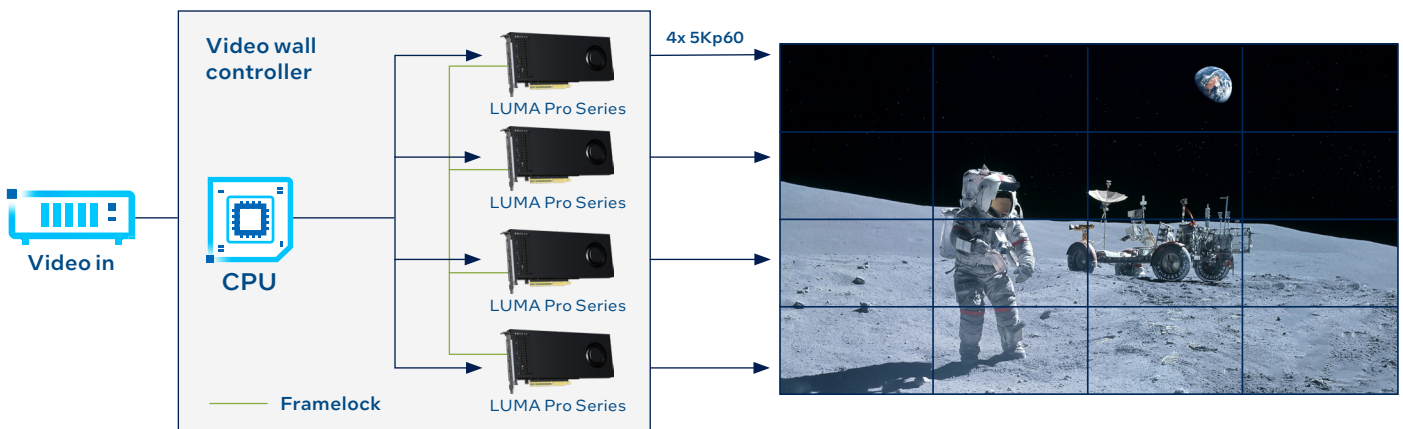


The LUMA Pro Series delivers outstanding display density, resolution, and performance for demanding multi-monitor video wall applications. The series offers PCIe 4.0 single slot cards featuring four DisplayPort 2.0 connectors to support up to two 8Kp60 HDR, up to two 5Kp120 displays, or up to four 5Kp60 displays.

## Easily manage and optimize multi-display video walls

The LUMA Pro Series delivers streamlined management of multi-display video wall environments via the Matrox PowerDesk desktop management software for Windows. Matrox PowerDesk gives professional users a comprehensive set of tools to deploy and control a variety of display configurations, with rich features developed in collaboration with Intel:
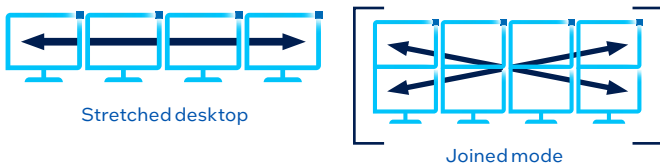
▪ **Bezel management:** Allow users to compensate for the physical space created by monitor bezels to output a continuous image across multiple displays.

Bezel management                         Edge overlap

▪ **Combined desktop:** Create an ultra-large desktop that expands a single application across all screens on one graphics card—or even across multiple graphics cards with the Multi-GPU Single Large Surface feature.

Stretched desktop

Joined mode

▪ **EDID management:** Increase resolution support and select display modes such as wide-screen resolutions, video timing, and refresh rates that are not available by the default in the monitor. EDID also provides a consistent signal to the graphics card to ensure video is displayed correctly, helping to increase display reliability and uptime.
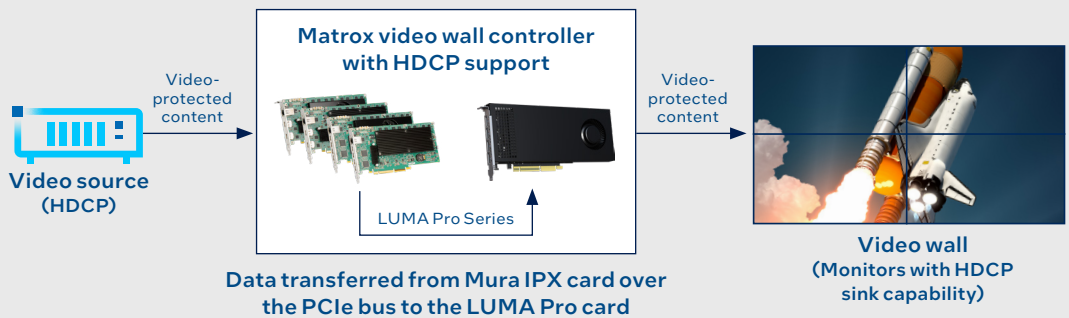
EDID management

▪ **Matrox MuraControl:** Intuitively manage video walls and develop custom functions and applications for any video wall installations, using a complete range of APIs, SDKs, and libraries. Whatever the installation requirement, this powerful video wall software provides the necessary toolkit to build complete end-to-end solutions.
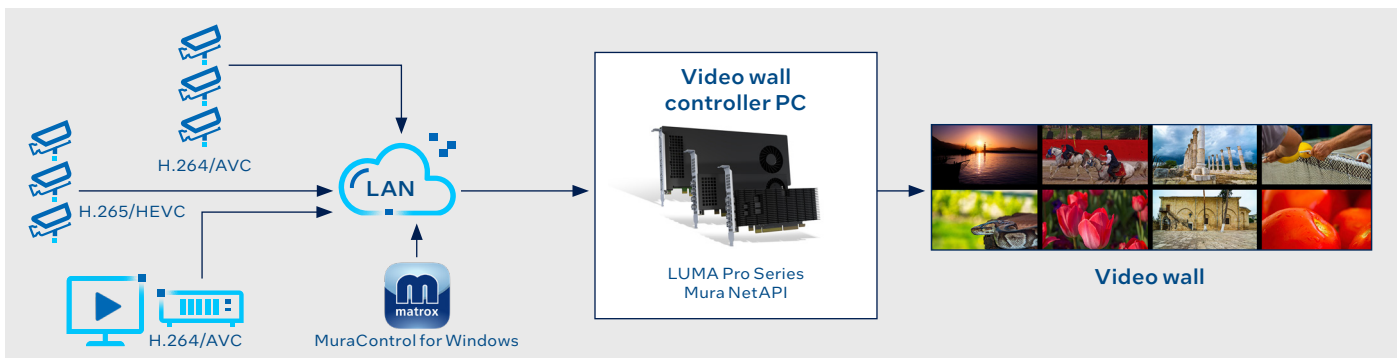
▪ **HDCP support:** Display protected content on video walls, or capture and display protected content when paired with Matrox Mura IPX capture cards.

Video-protected content

**Matrox video wall controller with HDCP support**

LUMA Pro Series

Video source (HDCP)

Video-protected content

**Data transferred from Mura IPX card over the PCIe bus to the LUMA Pro card**

**Video wall (Monitors with HDCP sink capability)**

## Take advantage of tightly integrated Intel® media libraries

Using the Intel® media libraries, included as part of the Intel® oneAPI Video Processing Library (oneVPL) and built into Matrox MuraControl software, the LUMA Pro Series can decode up to 40 full HD streams per card. Users can create IP-based video walls using only LUMA

Pro Series graphics cards, a possibility that was previously unattainable. This breakthrough not only saves valuable space but also significantly reduces power consumption and hardware costs associated with video wall controllers.

H.264/AVC

H.265/HEVC

LAN

H.264/AVC

matrox

MuraControl for Windows

**Video wall controller PC**

LUMA Pro Series Mura NetAPI

**Video wall**

Intel® media libraries, part of the Intel® oneAPI Video Processing Library (oneVPL), allow the LUMA Pro Series to decode a wide range of video formats with exceptional performance, eliminating the need for separate appliances or additional cards.

## Integrate seamlessly with capture cards

A vital aspect of a video wall system is harmonious interaction between input and output subsystems, often spanning a large and varied sets of ports. The existing Matrox Video family of APIs seamlessly integrates the Mura IPX family of input cards with the LUMA Pro Series. This also means that wall controller applications written against the Mura APIs will support the LUMA Pro Series from the outset.

## Invest confidently with a seven-year life cycle

By working closely with Intel, Matrox Video offers the LUMA Pro Series with a life cycle of seven years and dedicated customer support. Manufacturers that use LUMA Pro cards in their offerings can reliably sell their products for years without needing to change designs or recertify systems. Plus, LUMA Pro cards carry a three-year warranty, with the option to extend it.

## Conclusion: Enable advanced video wall installations with Matrox Video and Intel

As video walls continue to evolve and become integral parts of daily life, the Matrox LUMA Pro Series with Intel Arc graphics can help enable new use cases with higher levels of efficiency, reliability, and visual fidelity.

Whether you're a solution provider building a custom installation for your clients, an OEM seeking to deliver standout video wall controllers, or an end user organization looking to deploy your own video wall capabilities, you can rely on these Intel-enabled graphics cards to power advanced video wall solutions.

## Learn more

**Matrox LUMA Pro Series**

Deliver the best display density, resolution, and performance for demanding multi-monitor video wall applications.

**Get more information ›**

### About Matrox Video

Matrox Video is a global leader in video technology. Featuring a complete portfolio of world-class hardware, software, APIs, and SDKs, Matrox Video enables OEMs, system integrators, value-added channel partners, and end users to push the boundaries of video innovation. Serving the AV/IT, broadcast, and emerging markets for over 45 years, Matrox Video is synonymous with quality, performance, interoperability, and support. Matrox Video's legal entity is Matrox Graphics Inc., part of the Matrox Group.

**video.matrox.com**