

COEX SERIES

NOVASTAR FLAGSHIP CONTROL SYSTEM

NovaStar has been consistently devoted to delivering superior visual experience and innovation for users. Here comes the COEX Series solution. The design concept includes below.

- C for Creative & Connective
- O for Open
- E for Extensible
- X for More possibilities in the future



8K Modular Design LED Processor



MX2000 Pro



MX6000 Pro



Specifications

Product Model	MX6000 Pro	MX2000 Pro
Rack Unit	6U	2U
Max. Input /Output Cards	8	2
Max. Loading Capacity	141 Million	35.38 Million
Max. Width & Height	16,384	
Input Card Options	MX_4×HDMI 2.0 input card / MX_4×DP 1.2 input card / MX_2×HDMI 2.1 input card MX_2×DP 1.4 input card / MX 4×12G-SDI input card / MX_1×SMPTE ST 2110 input card	
Output Card Options	MX_4×10G_Fiber output card (Work with Armor series card) MX_1×40G_Fiber output card (Work with CA50E receiving card)	
Control Interface	1G Ethernet	
Control Protocol	TCP/IP, SNMP	
Layers	Up to 32×4K layers	Up to 8×4K layers
	Note: 4×4K layers per output card	
Genlock	Tri-level, Bi-level / Black burst	
Input Bit Depth	8bit / 10bit / 12bit	
Image Booster 2.0	√ (*Exclusively supported by A8s-N, A10s Pro and CA50E)	
Dynamic Booster	√	
Thermal Compensation	√ (*Exclusively supported by A10s Pro and CA50E)	
Multi-layer Full Grayscale Calibration	√ (*Exclusively supported by A10s Pro and CA50E)	
Color Management	Color Replacement, 14CH Color Correction, Color Curve, 3D LUT	
No Rectangle Limitation	√ (*Exclusively supported by A5s Plus, A7s Plus, A8s-N, A10s Pro and CA50E)	
HDR	HDR10 / HLG	
Brightness Overdrive	√ (*Exclusively supported by A10s Pro)	
Low Latency(<1ms)	√	
Adaptive Frame Rate	23.98 / 24 / 25 / 29.97 / 30 / 47.95 / 48 / 50 / 59.94 / 60 / 72 / 75 / 100 / 119.88 / 120 / 143.86 / 144 / 240Hz (*Exclusively supported by A10s Pro and CA50E)	
Multi Mode	√ (*Exclusively supported by A10s Pro)	
3D	√	

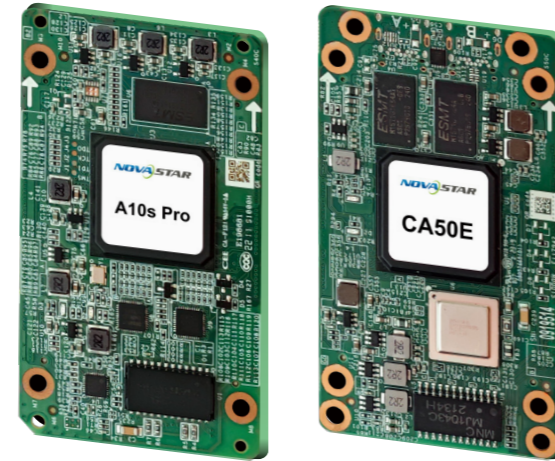
MX Series LED Processor



Specifications

Product Model	MX40 Pro	MX30	MX20	KU20
Loading Capacity	9 Million	6.5 Million	3.9 Million	3.9 Million
Max Input Width & Height	Max width 8192 Max height 8192	Max width 8192 Max height 7680	Max width 3840 Max height 2560	Max width 3840 Max height 2560
Inputs	3×HDMI 2.0, 1×DP1.2 1×12G-SDI	1×HDMI 2.0, 1×HDMI 1.4 1×DP1.1, 2×3G-SDI	2×HDMI 1.3, 1×3G-SDI	1×HDMI 1.3
Outputs	20×EtherCON, 4×10G OPT 3×HDMI2.0 LOOP 1×12G-SDI LOOP, 1×SPDIF OUT	10×EtherCON, 2×10G OPT 1×HDMI2.0 LOOP, 1×HDMI1.4 LOOP 2×3G SDI LOOP, 1×SPDIF	6×EtherCON, 2×10G OPT 2×HDMI1.3 LOOP, 1×3G SDI LOOP, 1×SPDIF	6×EtherCON, 1×10G OPT 1×HDMI 1.3 LOOP, 1×SPDIF
Control	1G Ethernet, TCP/IP	1G Ethernet, TCP/IP	1G Ethernet, TCP/IP	1G Ethernet, TCP/IP
Working Modes	Sending-Only Controller mode; All-in-One Controller mode			
Layers	4	3	3	1
Genlock	√	√	√	/
Input Bit Depth	8bit / 10bit / 12bit	8bit / 10bit	8bit / 10bit	8bit / 10bit (Optional)
Adaptive Frame Rate	23, 98/24/25/29.97/30/ 47.95/48/50/59.94/60/72/ 75/85/100/119.88/120/143.86/ 144/240Hz(*Exclusively supported by A10s Pro)	23,98/24/25/29.97/30/47.95/48/ 50/59.94/60/72/75/85/100/ 119.88/120/143.86/144/240Hz (*Exclusively supported by A10s Pro)	23,98/24/25/29.97/30/47.95/ 48/50/59.94/60/72/75/85/100/ 119.88/120/143.86/144Hz (*Exclusively supported by A10s Pro)	23,98/24/25/29.97/30/47.95/ 48/50/59.94/60/71.93/72/75/ 100/119.88/120Hz (*Exclusively supported by A10s Pro)
3D	√	/	/	/
HDR	HDR10 / HLG	HDR10 / HLG	/	/
Dynamic Booster	√ (*Exclusively supported by A10s Pro)	/	/	/
Image Booster 2.0	√ (*Exclusively supported by A8s, A8s-N, A10s Pro)			
Multi Mode	√ (*Exclusively supported by A10s Pro)			
Full Grayscale Calibration	√ (*Exclusively supported by A10s Pro)			
More Features	No Rectangle Limitation, Low Latency (<1ms) , Thermal Compensation, Art-Net / SNMP			

COEX Series Receiving Card



Product Model	A10s Pro	CA50E
Bandwidth	1G	5G
Loading Capacity	512×512	512×768
Image Booster 2.0	√	√
Dynamic Booster	√	√
Thermal Compensation	√	√
Multi-layer Full Grayscale Calibration	√	√
Adaptive Frame Rate	√	√
HDR (HDR10 / HLG)	√	√
Mapping	√	√
Monitoring (Temperature/Voltage/Bit Error Detection)	√	√
RGB Parallel Data Group	32/64 expandable	
Serial Data Groups	64/128 expandable	

VMP Vision Management Platform



COEX SOFTWARE



Intelligent Monitoring

Detect risks before happen

Users can get end to end monitoring from video source to LED displays, and know the health status through the visualized interface and running logs. The potential risks can be detected accurately, so that users could take measures accordingly and make sure the events and projects are conducted smoothly.



Input Source Preview & Content Monitoring

Real-time control of display status

No need additional LCD monitors. Users can get the input source and content on screen in the VMP software in real time.



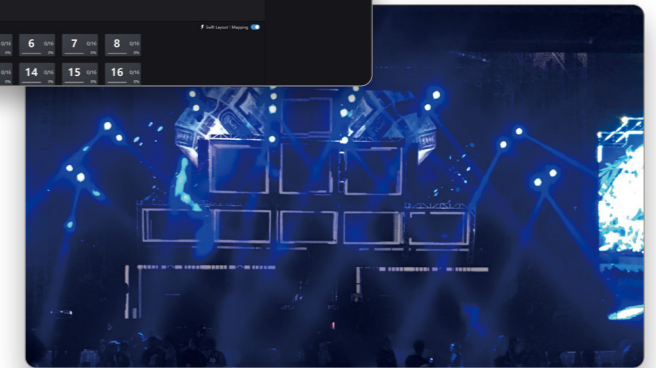
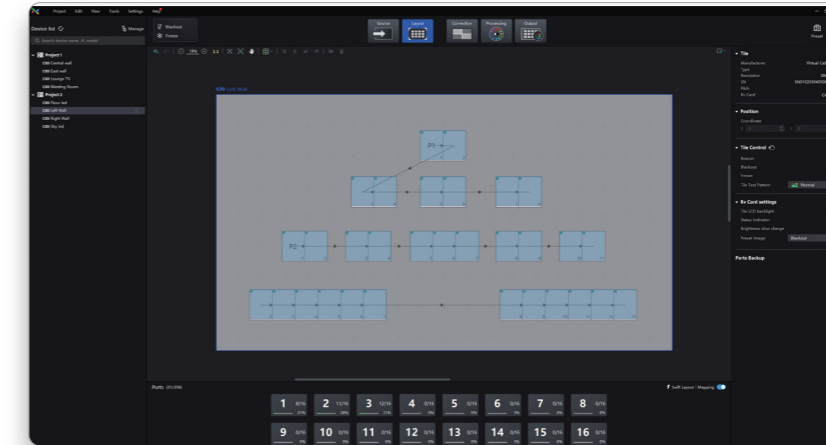
Quick And Easy Screen Mapping

Screen mapping can be done easily on the software canvas with a mouse. Auto detection of connected cabinets and exporting of screen mapping file in advance serve to greatly increase operational efficiency.



Free From Rectangular Calculation Maximizing The Capacity

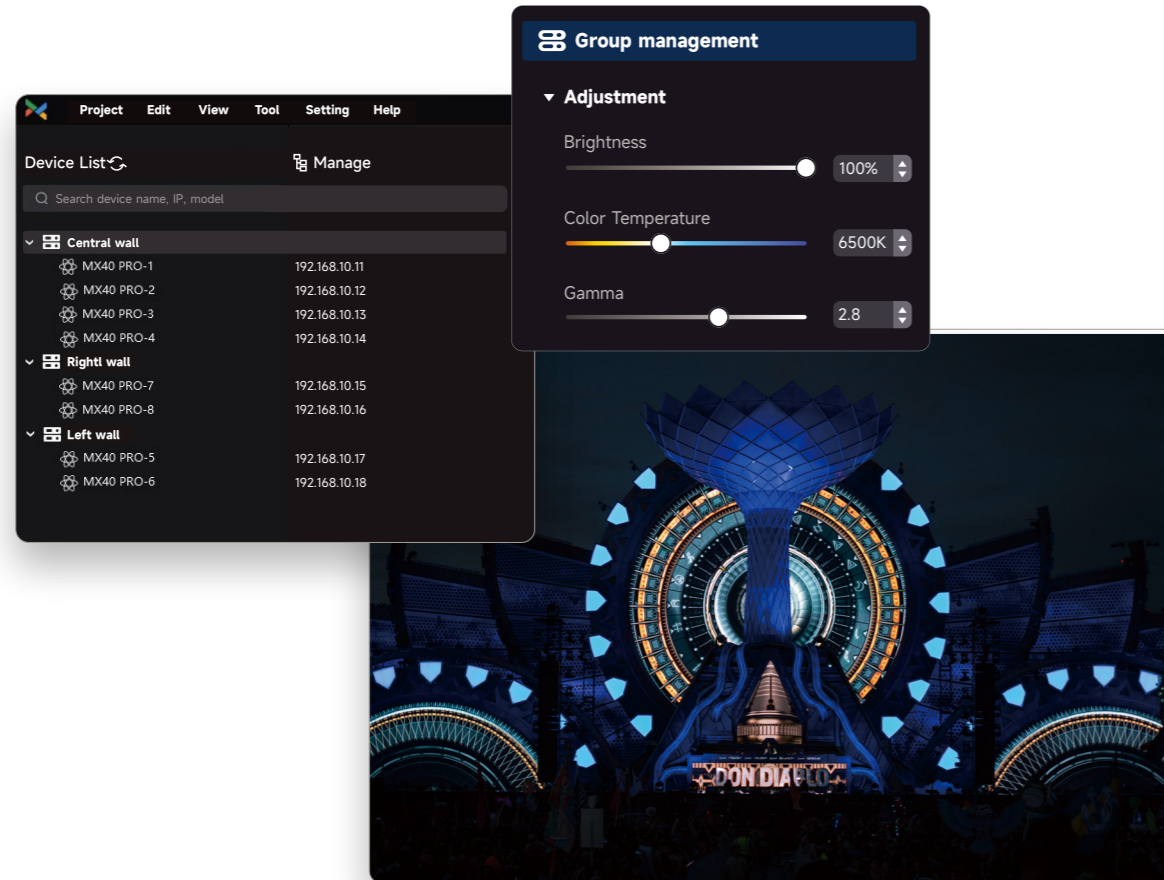
Loading capacity is calculated by the physical cabinet pixels, free from rectangular limitation, helping maximize the loading capacity of controllers. No more capacity waste from leaving blank or irregular shape designs. Create without limits!





Group Management Made Easy

All devices are grouped by screens, making multiple screen management easier and more efficient than before.



Visualized Seam Correction

Seam correction can be completed rapidly with an interactive and visualized design. Visually locate and select the seams simply by using a cursor, then directly view the screen to adjust the seams in this software, greatly improving efficiency.



Scenario Presets

Save all parameters of inputs and outputs into presets, providing quick and easy retrieval with a single click.

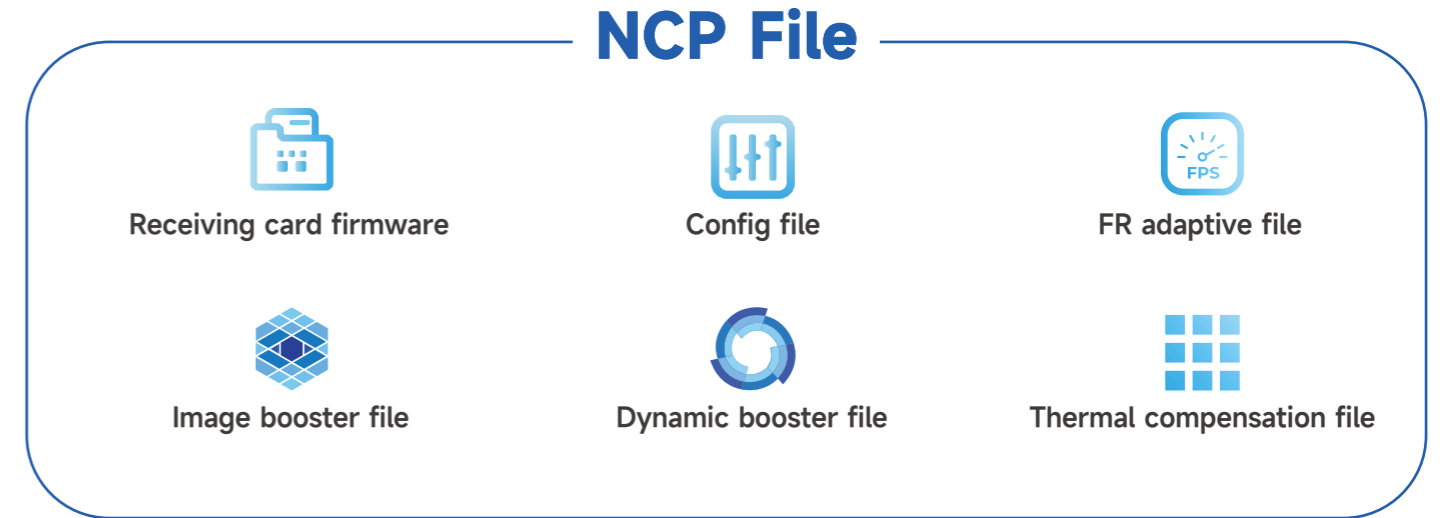




NCP All-in-one File

All parameters set in LED manufacturers to get the best performance

To ensure the panels in best conditions before shipping and to make the panel management easy afterwards for users, COEX system is designed with NCP all-in-one file (Novastar Configuration Package).
All the relevant parameters can be written and packed into one file in receiving card, including firmware program, configuration file, image booster file, dynamic booster file, multi-frame rate file and thermal compensation data. Let users get easy management of panels. No more worry about the compatibility issues.



COEX FEATURES

Image Booster 2.0

Fine Grayscale

22bit+, 64 times grayscale improvement, 0.002nits precise control, ultra-precise image for stunning realism.



More Realistic Color

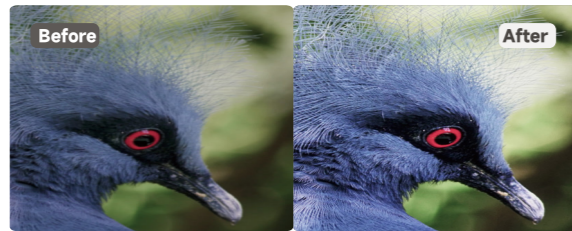
Fully automated color standardization, calibration and verification, self-adapts to color gamut.



Dynamic Booster

Higher Contrast Ratio

By enhancing bright and dark content details to the ideal level, an SDR source can deliver HDR-like effect, ensuring no overexposure in bright areas and no loss of detail in shadows.



Power Saving With Dynamic Algorithm

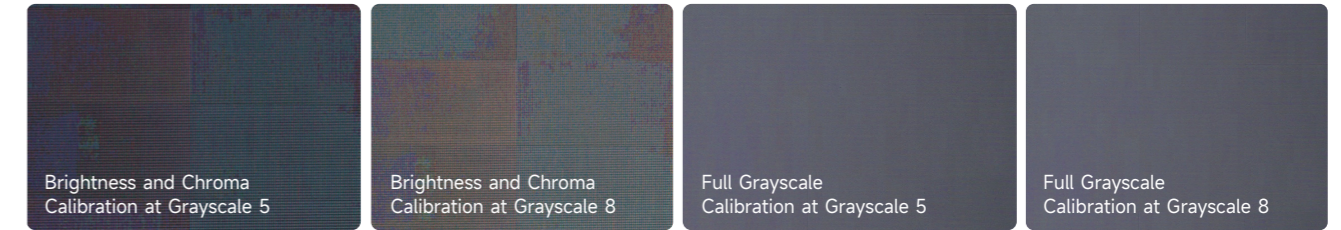
With real-time analysis, brightness is adjusted dynamically frame by frame, saving 20%-40% power, extending the lifespan of an LED display.



Multi-layer Full Grayscale Calibration

Deliver stunning image quality with uniform grayscale

Multi-layer full grayscale calibration keeps Mini LED and Micro LED screens always uniform especially in the low grayscale by generating the exclusive calibration coefficients for every grayscale.



Thermal Compensation

No color shift for your LED display

Real-time heat characteristics analysis of LED displays enables precise thermal compensation tailored to the display. It effectively addresses color shift issues caused by uneven heat dissipation on the screen.



COEX FEATURES

Professional Color Management

Professional Color Management



Color Replacement



14 CH Color Correction



Color Curve



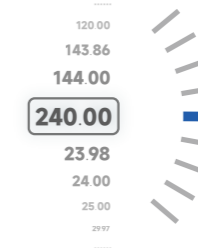
3D LUT



Adaptive Frame Rate

No need extra setting when frame rate changes

The system can adapt to video inputs' frame rate automatically. Users can easily switch among different frame rates with no more settings. Frame rate can be customized by users from 23.94Hz to 240Hz, stepping value accurate to 0.01Hz.



Shutter Fit

Capture every frame perfectly

Utilizing technologies such as Genlock, phase offset and shutter fit, LED display and cameras can be synchronized seamlessly avoiding black field, scan lines, so that cameras can capture the most perfect images and videos without any visual artifacts.



*Note: Available for specific driver ICs.

COEX FEATURES

240
Hz



Frequency & Frame Multiplication

Improve the efficiency for multi-camera shooting



Brightness Overdrive

No loss of details in shadows
No overexposure in highlights

The display's brightness can be adjusted in real time to get the optimal brightness effect, achieving wider dynamic range and ensuring the presentation of details and highlights.



Ultra Low Latency

Essential for live events and broadcast

Latency can be minimized to 0 frame for broadcast, sport events, film industries, etc. It greatly enhances the synchronization of camera shooting and stage acting.



COEX SOLUTION

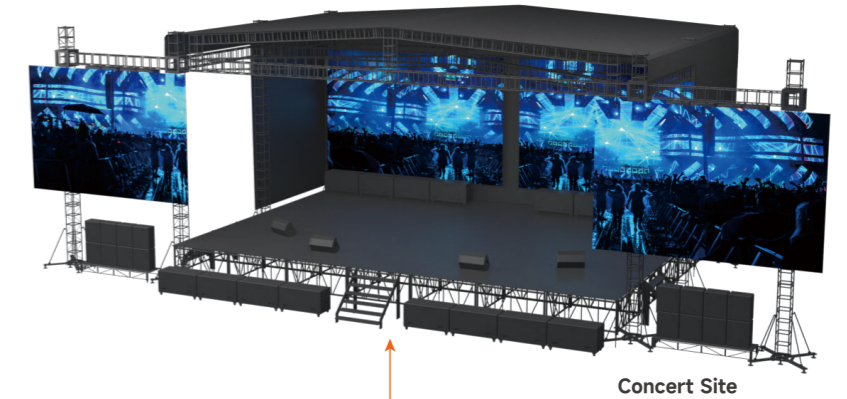
TOURING SOLUTION

NovaStar Touring Rental Solution is user-friendly, and excels in professional functions. With easy cable wiring and modular design, it effortlessly handles tasks ranging from large loading capacity and 4K-level input/output to multi-source switching, and ultra long distance transmission. User can customize their processor hardware by flexible combination of input/output cards. It ensures the display performance without the need for any adjustments once powered on. Paired with VMP software, real-time control of the display screen significantly enhances operational efficiency. The solution offers comprehensive functions for event stability, making it the perfect choice for touring.



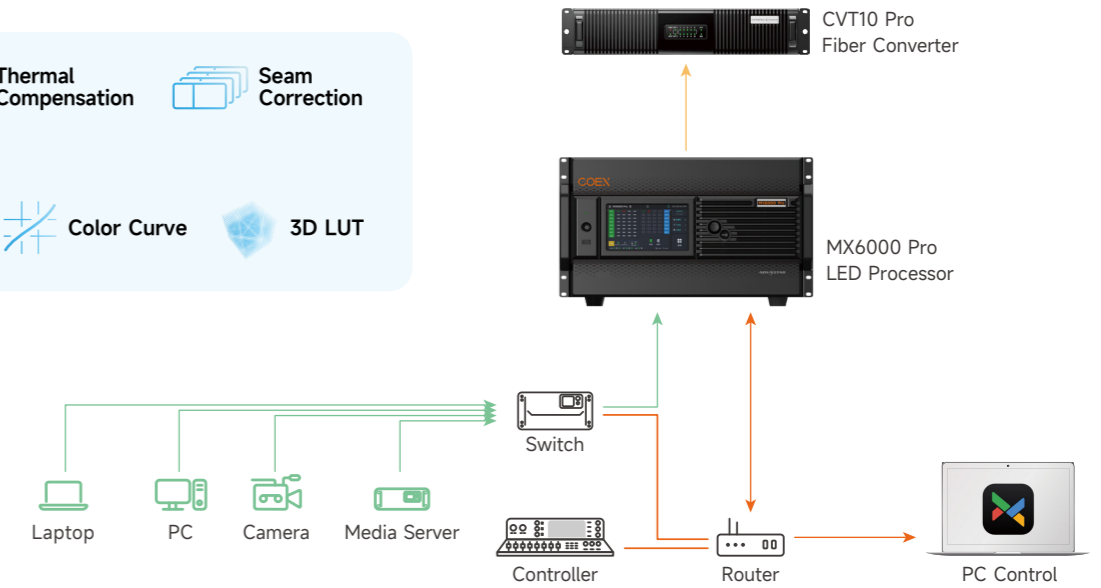
Solution Introduction

NovaStar Touring Rental Solution is feature-rich, user-friendly, and excels in quick assembly and disassembly. With lightweight equipment and straightforward wiring, it effortlessly handles tasks ranging from large payload capacity and 4K-level input/output to multi-source switching, and ultra-long-distance transmission. The flexible combination of input/output daughter cards allows for fine display without the need for any adjustments once powered on. Paired with the innovative Visual Management Platform (VMP), real-time control of the display screen significantly enhances operational efficiency. The solution offers comprehensive support for event stability, making it the perfect choice for touring rental scenarios.



- Ultra-low Latency
- Thermal Compensation
- Seam Correction
- 14 CH Color Correction
- Color Curve
- 3D LUT

- Fiber
- Video Signal Cable
- Cable



COEX SOLUTION

LARGE SCALE xR/VP SOLUTION

The large scale xR/VP virtual production scenario involves the use of LED Screens to create an expansive shooting background screen (with an area ranging from 200 to 1000 square meters, often in the form of curved screens with dome screens). With computer-generated 3D scenes, actors and props, an immersive scene is created. It's widely used in film production, television shows, conferences, and advertising.

In large scale studios, LED display control system is a crucial component, responsible for accurately displaying video sources on the screen.

Therefore, large studios have strict requirements for the functionalities, image quality, and system stability of the control system. Besides, large studio screens are usually high resolution, which encounters challenges such as multiple devices management and too-complex structures.



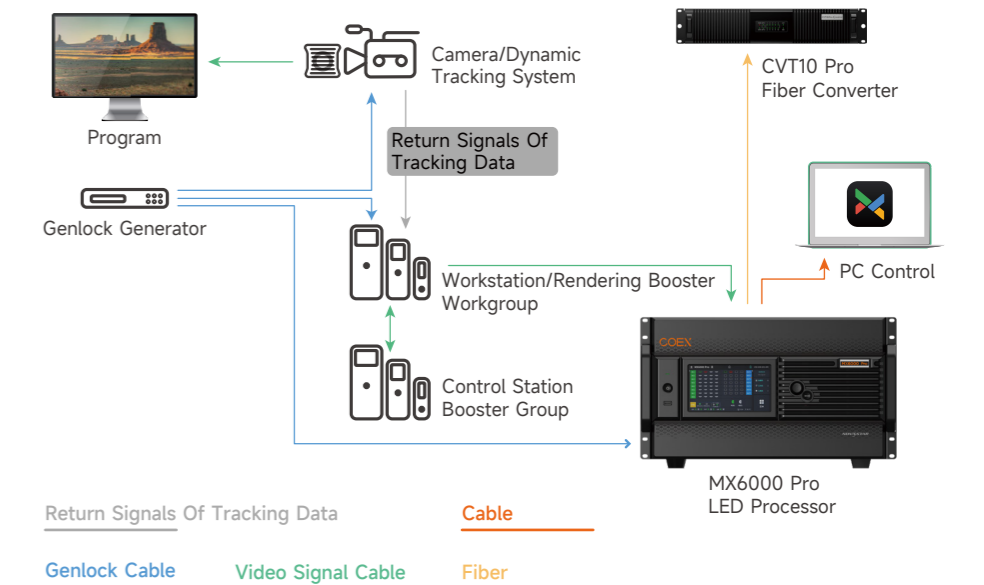
Solution Introduction

NovaStar's Studio Solution includes the flagship MX6000 Pro processor, A10s Pro receiving card and VMP software. It is designed to meet the high and strict requirements of virtual production. The stunning image quality and intuitive control will empower users to create an immersive virtual shooting studio.

The MX6000 Pro is modular design, in which users can customize the input cards from 4K to 8K. The loading capacity can be up to 141 million pixels with 10G or 40G optical output available. Additionally, it can accommodate SMPTE2110 signal inputs. With one device serving large studios, this solution provides a streamlined and professional control system for large scale studios.



- Ultra-low Latency
- Adaptive Frame Rate
- Thermal Compensation
- Color Management
- Shutter Fit
- Color Replacement
- 14 CH Color Correction
- 3D LUT
- Color Curve
- HDR HDR-PQ
- 240 Hz Frequency Multiplication
- Frame Multiplication
- 22bit+



COEX SOLUTION

SMALL TO MID-SIZE xR/VP SOLUTION

The small to mid-size xR/VP scenario involves creating the construction of a compact multi-screen

environment using LED Screens (with an area ranging from 50 to 200 square meters). The structures often feature angled configurations with floor screen or curve screen combined.

This scenario combines virtual reality and augmented reality techniques to create a comprehensive

virtual production technology that simulates realistic scenes in a 3D virtual space. It has been widely used in advertising, gaming, conferences, and stage performances.

In xR shooting, LED screen control system is a crucial part. It plays a vital role in accurately displaying

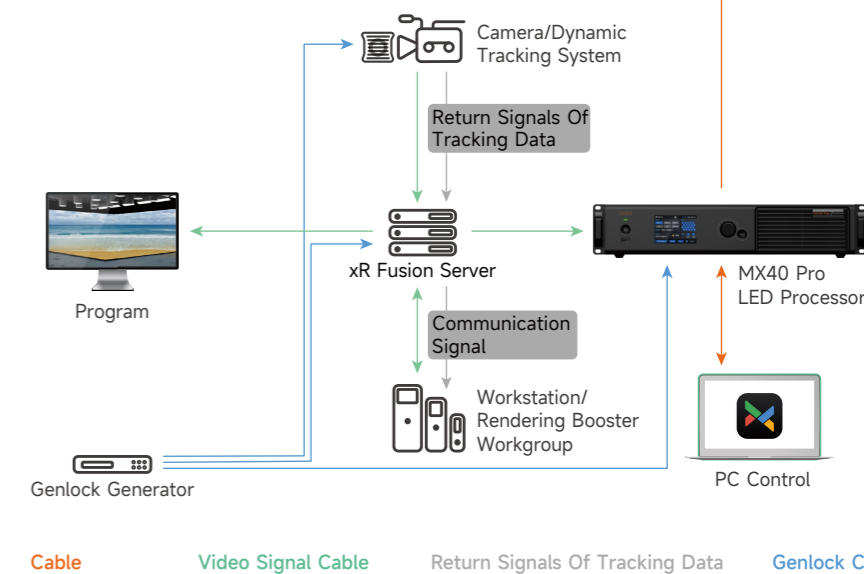
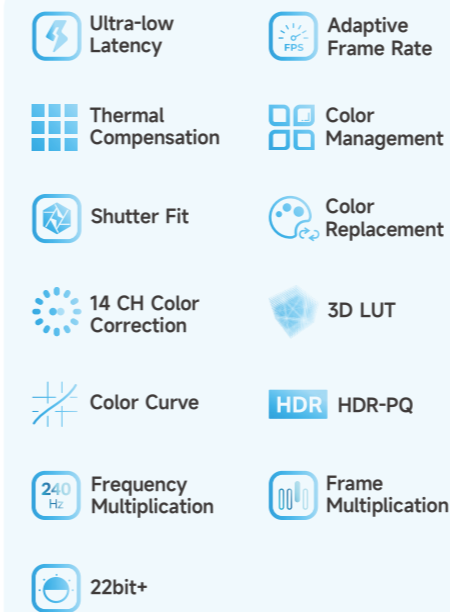
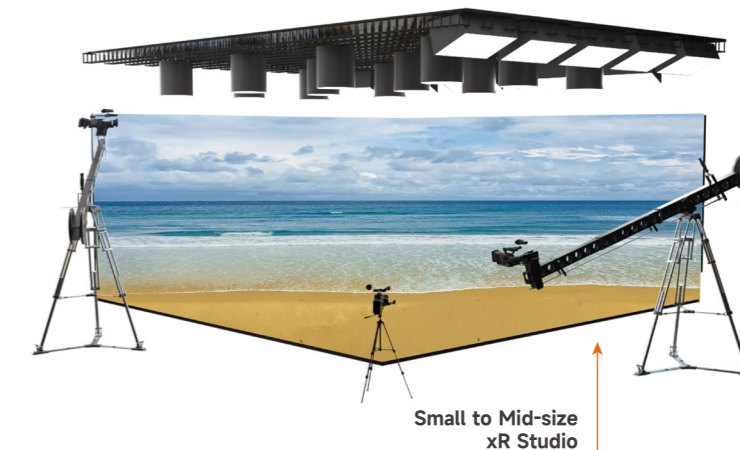
video sources on the screen and synchronizing with peripherals such as blending servers and cameras. Therefore, in xR shooting scenarios, the control system is expected to fulfill various functional requirements, including user-friendly software operation, flexible color processing, precise grayscale display, ultra low latency, and synchronization with video sources and cameras.



Solution Introduction

Designed for small to mid-size xR / VP projects, NovaStar's MX40 Pro and MX2000 Pro, combined with VMP software and A10s Pro receiving card, offer a professional LED control system solution.

This solution incorporates advanced features tailored for virtual shooting, equipped with cutting-edge image enhancement technologies. It effectively addresses issues like black field, scan lines, color deviation, and loss of details. during shooting, creating a shooting environment that fully equals real world.



COEX SOLUTION

BROADCAST SOLUTION

In the field of broadcast and television, LED technology is revolutionizing the traditional industry by offering higher definition, larger screens, and more flexible and intelligent display solutions. These advantages have propelled upgrades across the industry. LED screens with high resolution, brightness, and contrast ratios provide an outstanding visual experience. However, the broadcasting industry imposes strict requirements for color accuracy, stable screen refresh rates, and synchronization with cameras. So more advanced and specialized LED control solution is required.



Solution Introduction

MX6000 Pro is the milestone processor in COEX series embedding remarkable features. With 16K loading capacity per output card, HDR image quality, and ultra low latency, it ensures the highest standard of image quality, color processing, and synchronization between LED display and cameras. It has multiple input and output cards for users to customize.

The SMPTE ST2110 input card can accept video source through a 25G optical interface, greatly simplifying the system setup process.

MX6000 Pro is your reliable partner for broadcasting projects, simplifying your system structure and ensuring high stability.

- Ultra-low Latency
- Adaptive Frame Rate
- Thermal Compensation
- Phase Offset
- Shutter Fit
- Color Replacement
- 14 CH Color Correction
- Image Booster 2.0
- Color Curve
- 3D LUT
- SMPTE ST 2110
- HDR HDR-PQ
- Frame Multiplication
- 240 Hz Frequency Multiplication

