NovaStar
NEW
SOLUTIONS
2024

NOVASTAR

CONTENT »»

COEX SERIES

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 Designed
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_12G-SDI×4 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

	MX40 Pro	MX30	MX20	KU20
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	Send-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	No Rectangle Limitation、Low Latency (<1ms) 、Thermal Compensation、Art-Net / SNMP			

MX40 Pro

MX30

MX20

KU20

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! (*Exclusively supported by A10s Pro)

COEX SOFTWARE
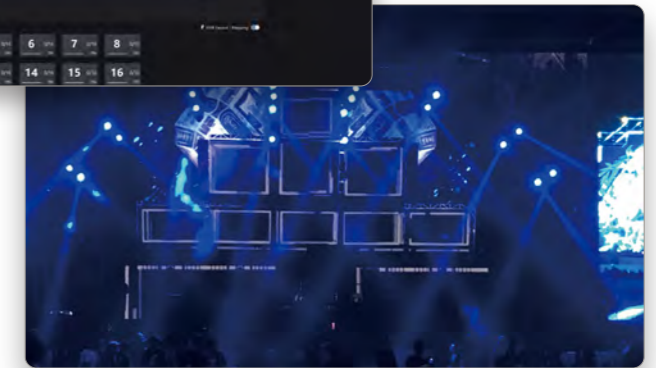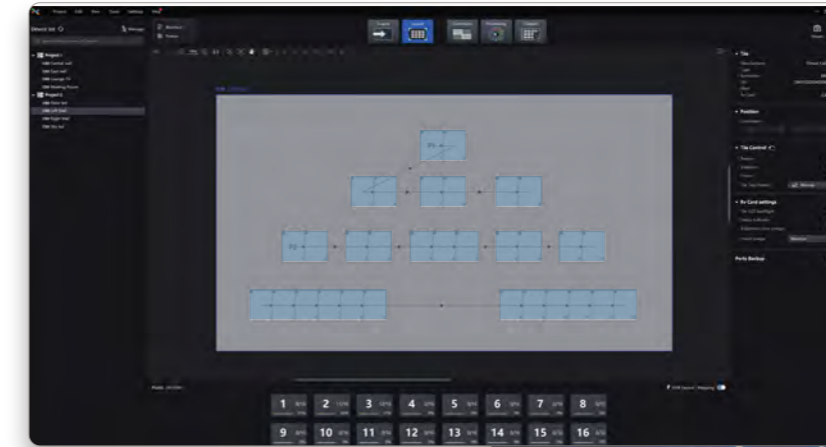
Group Management Made Easy

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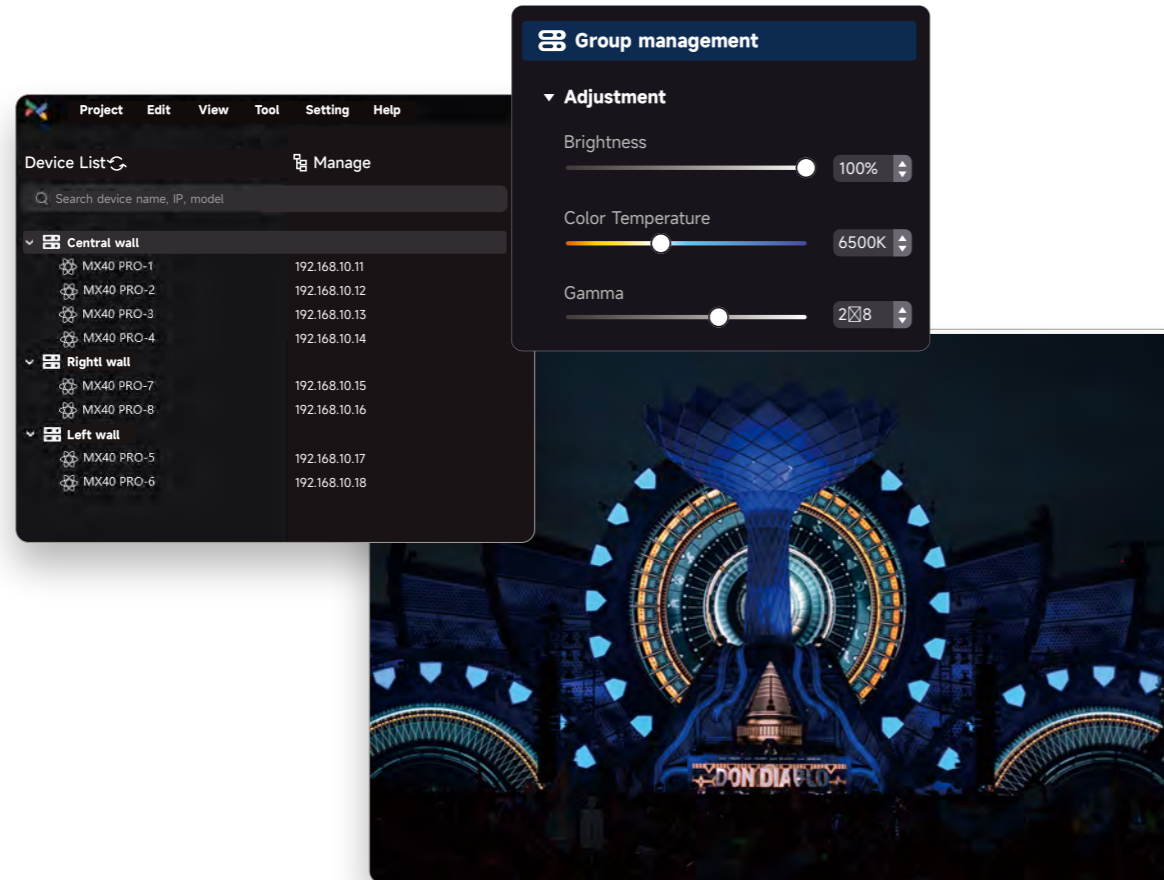

Visualized Seam Correction

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 the software, greatly improving efficiency.
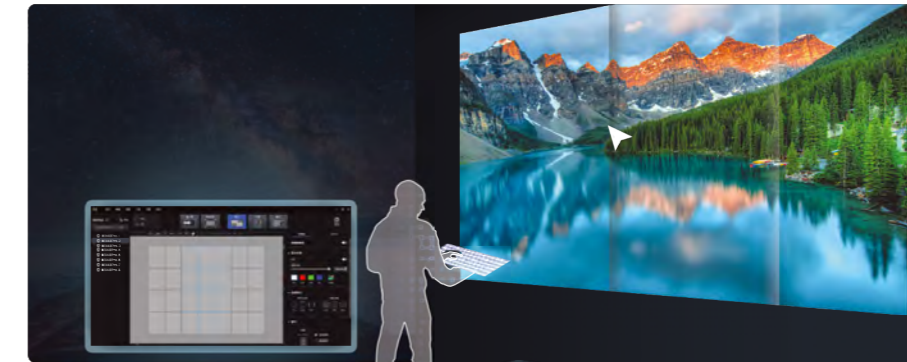
Scenario Presets

Save all parameters of inputs and outputs into presets, providing quick and easy retrieval with a single click.
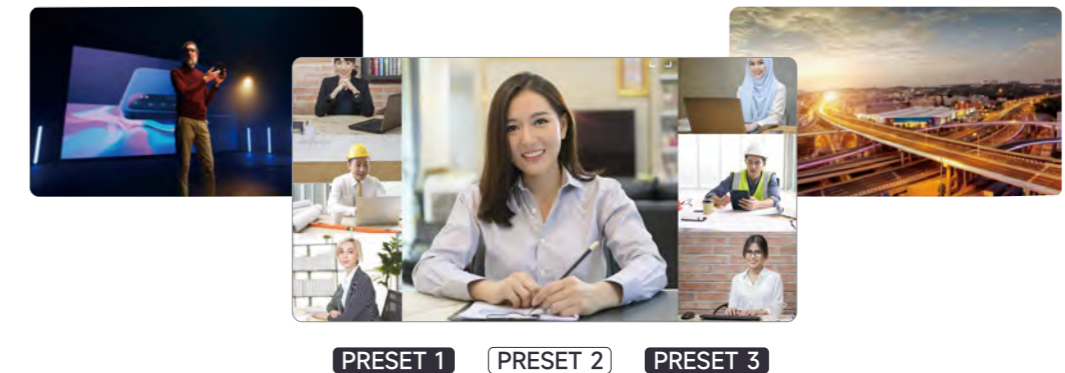
NCP All-in-one File

All parameters set in LED manufacturers to get the best performance

Key Features

→

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 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.

NCP file

|		
Receiving card firmware file	Config file	FR adaptive file
Image booster file	Dynamic booster file	Thermal compensation file
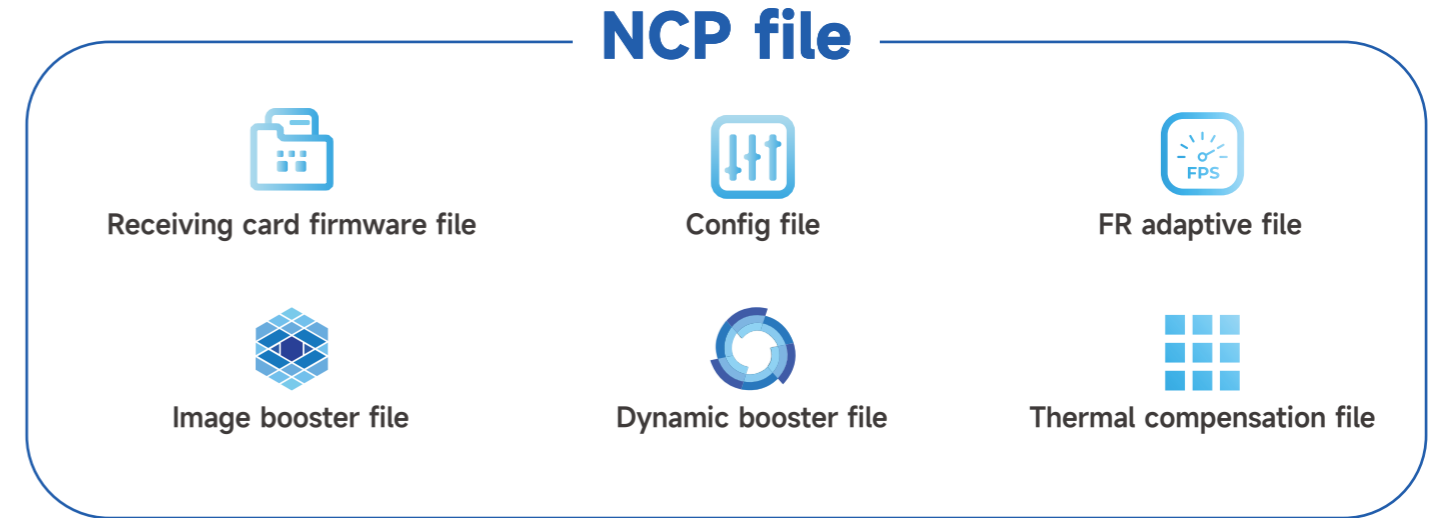
COEX FEATURES

Image Booster 2.0

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

Before | After

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

Before | After
△E<2
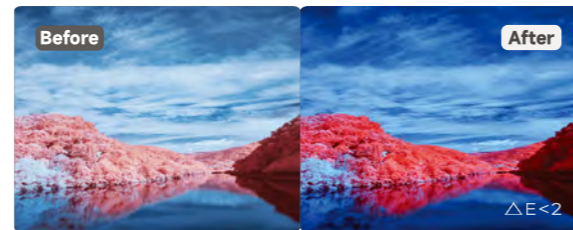
Dynamic Booster

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 brightareas and no loss of detail in shadows.

Before | After
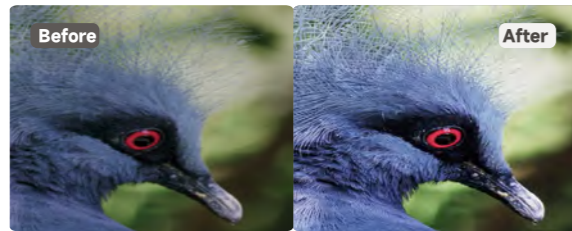
Power Saving With Dynamic Algorithm
With real-time analysis, brightness is adjusted dynamically frame by frame, saving 20%-40% power, extending the lifespan of an LED display.

Test items
Kwh

100%

60%

Dynamic Booster | Dynamic Booster

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.

Brightness and Chroma Calibration at Grayscale 5 | Brightness and Chroma Calibration at Grayscale 8 | Full Grayscale Calibration at Grayscale 5 | Full Grayscale Calibration at Grayscale 8

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.

Uneven heat dissipation | Thermal Compensation

Professional Color Management

Professional Color Management

| Color Replacement | 14 CH Color Correction | Color Curve | 3D LUT |

Original

After 3D LUT-1
DEUTERANOPE.CUBE

After 3D LUT-2
CRIME PRINCE.CUBE

After 3D LUT-3
TRITANOPE.CUBE

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 customized by users from 23.94Hz to 240Hz, stepping value accurate to 0.01Hz.

120.00
143.86
144.00
240.00
23.98
24.00
25.00
20.91
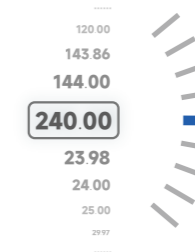
Shutter Fit

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.

Without Shutter Fit

Shutter Fit Enabled

*Note: Available for specific driver ICs.

Frequency & Frame Multiplication

240 Hz

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.

Image Quality   Output

Mode   Standard Mode

Adjustment

Brightness   1500nits

111.10%

Brightness Overdrive

Gamma

2.40

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.

Concert Site

CVT10 Pro
Fiber Converter

MX6000 Pro
LED Processor
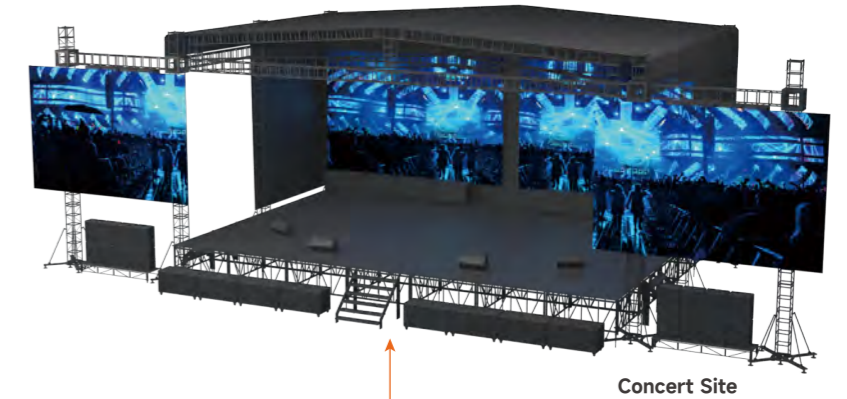
Ultra-low Latency

Thermal Compensation

Seam Correction

14 CH Color Correction

Color Curve

3D LUT

Fiber

Video Signal Cable

Cable

Laptop   PC   Camera   Media Server

Switch

Controller   Router   PC Control
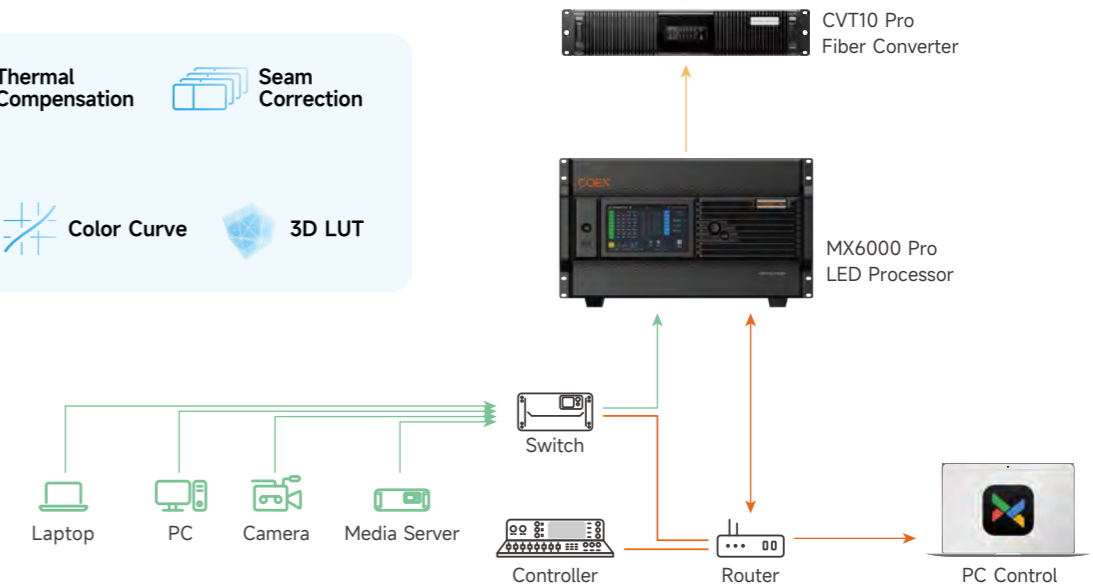
COEX SOLUTION

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.

Large-Scale Studio

- 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
- Frequency Multiplication
- Frame Multiplication
- 22bit+

Program

Camera/Dynamic Tracking System

CVT10 Pro Fiber Converter

Return Signals Of Tracking Data

Genlock Generator

Workstation/Rendering Booster Workgroup

PC Control

Control Station Booster Group

MX6000 Pro LED Processor

Return Signals Of Tracking Data   Cable

Genlock Cable   Video Signal Cable   Fiber

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.

Small to Mid-size xR Studio

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

Camera/Dynamic Tracking System

Return Signals Of Tracking Data

Program

xR Fusion Server

MX40 Pro LED Processor

Communication Signal

Genlock Generator

Workstation/ Rendering Booster Workgroup

PC Control

Cable   Video Signal Cable   Return Signals Of Tracking Data   Genlock Cable

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
ST 2110	HDR-PQ
Frame Multiplication	Frequency Multiplication

Broadcast Studio

Camera

Laptop

Genlock Generator

PC

Camera

MX6000 Pro LED Processor

CVT10 Pro Fiber Converter

ST2110 Converter

25G Router

Preview Monitoring

Router

PC Control

Fiber   Video Signal Cable   Cable   Genlock Cable
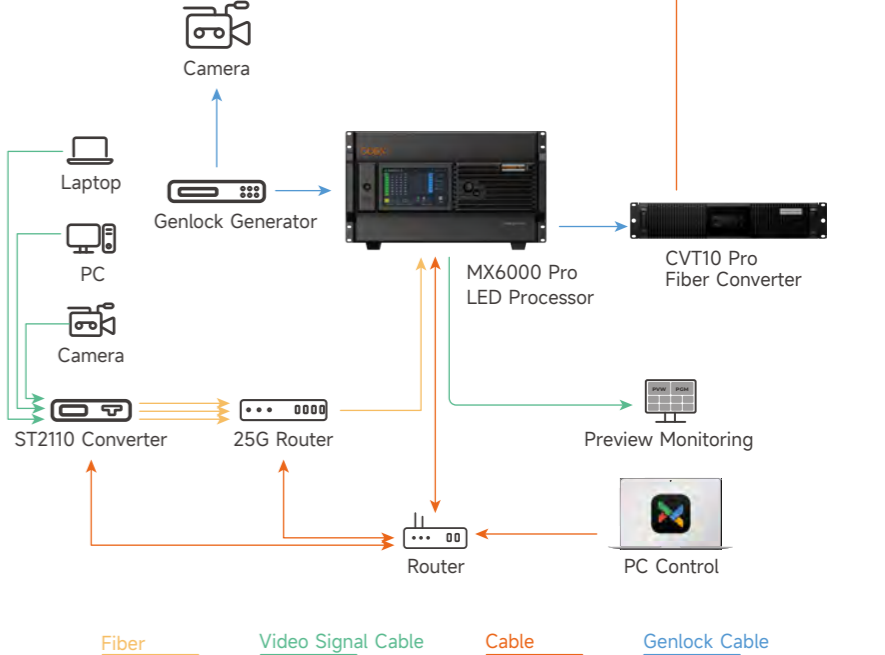
TU SERIES

INTELLIGENT CONTROL SOLUTION

View with cloud, Advance with smart

TU Series Intelligent Control Solution

TU series intelligent control solution is NovaStar's next-gen intelligent full link LED display control solution, which is smarter, more convenient and more reliable for single 4K and below LED display application scenarios. Its innovative intelligent configuration function, the newly upgraded convenient interactive interface, and the powerful cloud service messaging and maintenance application can provide users with the ultimate intelligent and boundless experience of LED display in anytime and anywhere.

The solution consists of TU intelligent control, VNNOX Media, VNNOX Care, by one mobile phone, which can achieve the LED intelligent configuration, application and maintenance of the full cycle easily, it is also the best choice for the user in the conference office display, exhibition hall display, advertising media display and other application scenarios.
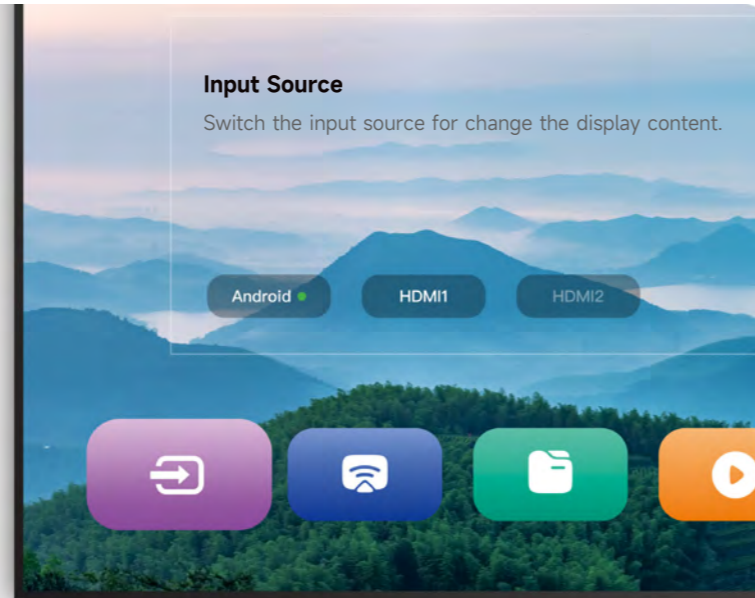
Mobile informatization, Cloud-based, Intelligent

Input Source

Switch the input source for change the display content.

Android ● | HDMI1 | HDMI2

Intelligent Configuration Quick and Effective

Traditional solution:

LED configuration often requires professionals to carry professional software and equipment for several hours even half a day to complete, with low efficiency and high cost.

TU solution:

1 mobile phone, 1 APP, 10 minutes, can quickly complete configuration, 0 cost to get started, simple and efficient.

Scan the Code with Your Phone to Receive the Configuration File

Automatically identify, obtain and issue the receiving card program and configuration file, easy to activate the screen, quick and flexible.
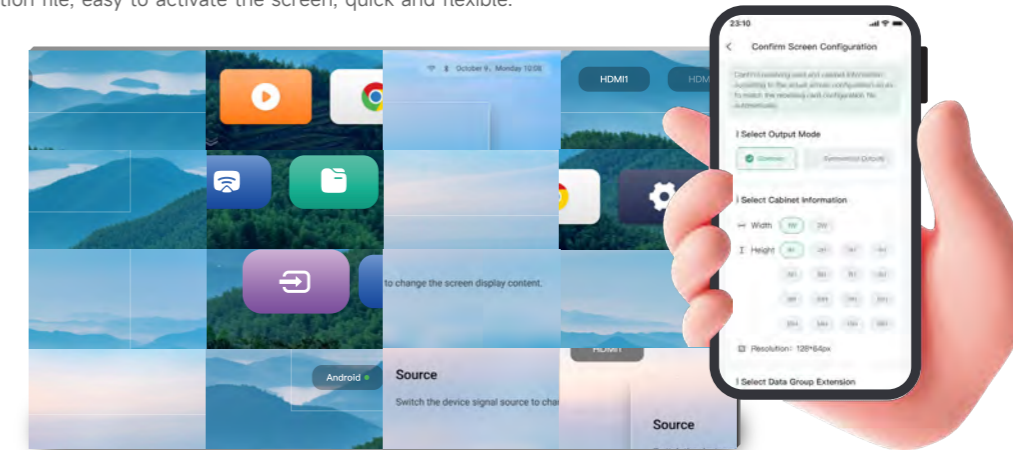
5 Seconds: Screen Connection via Photo Capture

With NovaStar's self-developed algorithm, which could support offline recognition, screen connecting within 5s, stable and efficient.
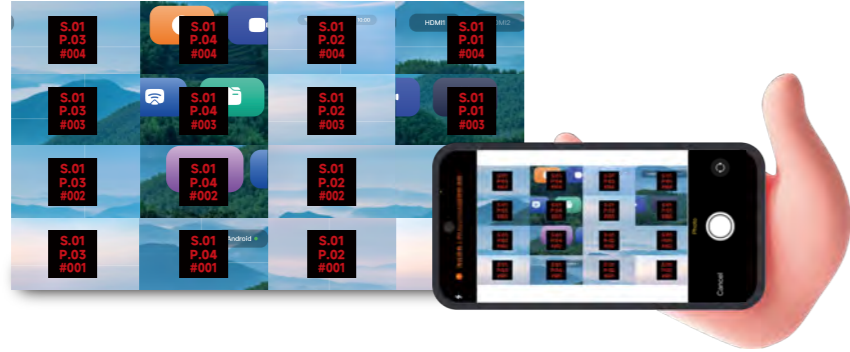
Eliminates the Bright & Darkness Lines Full-screen Accurate Calibration

Don't need professional camera, just photo capture by your phone,eliminates the lines automatically completes the full-screen accurate calibration, and the efficiency is significantly improved.
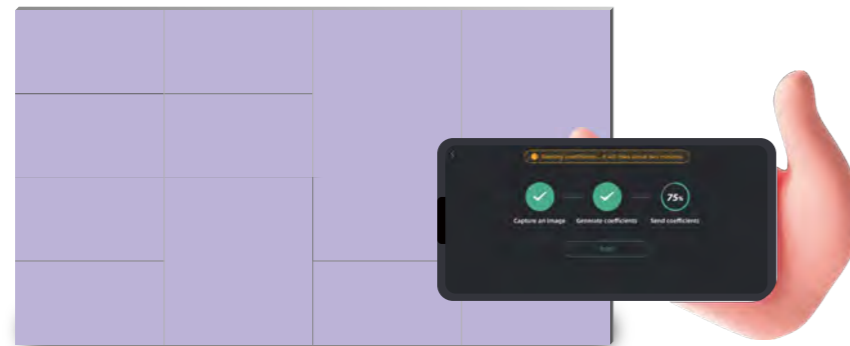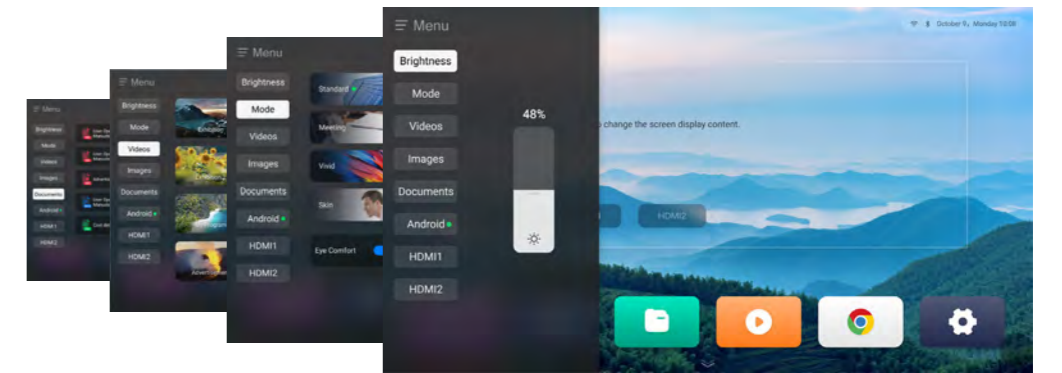
Extreme Experience Smooth and Easy

All-new Interaction Friendly Experience

All-new smooth interaction design

Simple and easy operation interface

New touch assistance, OSD menu one-click call, and other rich functions

Bring the new experience to users

Control & Play, All by Simple Touch

USB Drive Mode

Plug and play the USB driver, simplify the display and control.

Remote Control Mode

Support program storage, convenient on-demand display.

VNNOX Media Mode

Broadcast Management:
Support fast production of programs, convenient broadcast control in anytime and anywhere.

Mirroring Interactive:
Support pictures, videos, documents and other via mobile phone mirroring or screen sharing and a series of advanced functions, mobile phone can be used as a remote control, which brings convenient and intelligent.

Cloud-based Screen Management:
Support one-click program publish via cloud, long distance control, easy to get started, calmly cope with a variety of application scenarios.

Wireless Mirroring, Consistent Display

Multiple mirroring mode, easy to connect.

High stability, stay online more than 72 hours.

Smooth display, less than 80ms latency.

9 split screen display, more efficient screen mirroring.

Support Multiple OS: Windows,Linux,MAC

PAD Wireless Mirroring

Remote Control

Pick-up
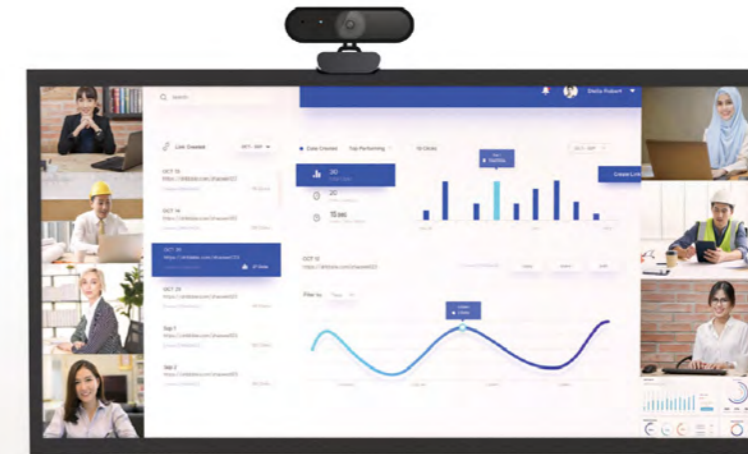
Full Operation and Maintenance Full Angle Monitoring

OPS and Monitoring, Anytime and Anywhere
Screen operating status 7×24 hours real-time monitoring, pre-warning of the potential risk.

Troubleshooting, Faster & Accurate
Provide fault alarms, diagnosis, and locate the issue in time.

Cloud backup, One-click Recovery
The configuration files are backed up to the cloud. When a fault occurs, the configuration files can be recovered with one click, improving the efficiency of after-sales maintenance.
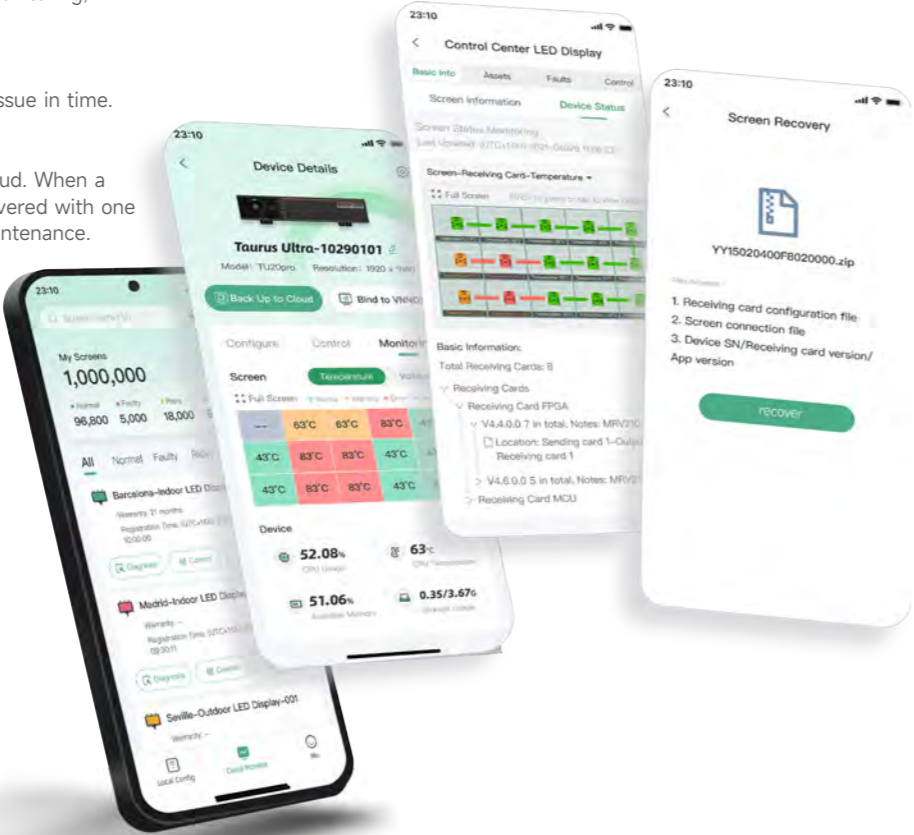
Software and Hardware Powered by Innovation

Rich interface, more flexible expansion, to meet the needs of users in different scenarios, at the same time has a perfect software ecosystem, support Tencent Meeting, Zoom, Teams and other mainstream conference software. Software and hardware collaboration brings a truly easy to use and efficient interconnection of the whole scene experience.

A Perfect Software Ecosystem
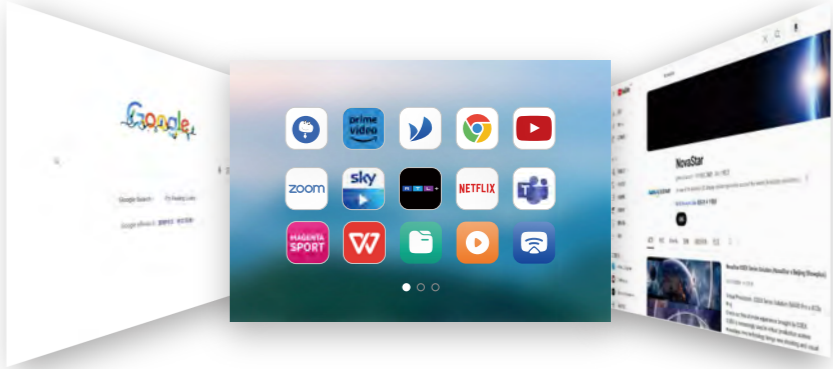
Rich Interface More Flexible Expansion
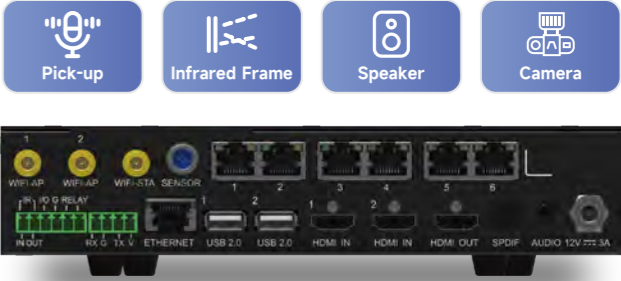
Pluralistic Application Excellent Performance

Conference Room

Enterprise Exhibition Hall

Report Hall

Brand Store

Shopping Mall
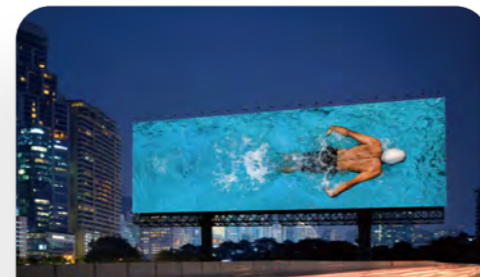
Advertising Media

Specifications

	TU20 Pro	TU15 Pro
Size	211.7mm×185.0mm×50.6mm	
Input voltage	DC 12V 3A	
Standby power consumption	Standby Power Consumption≤0.5W	
Loading capacity	3.9 Million	2.6 Million
Max width&Height	Max Width 4096 pixels, Max Height 1920 pixels	
Android	Android 11	
Wi-Fi	Wi-Fi6 (AP) ; Wi-Fi5 (Station)	
Memory space	4GB/32GB	
Input ports	2×HDMI1.3; 3×USB2.0	
Output ports	6×RJ45; 1×HDMI1.3; 1×3.5mm Audio Output; 1×SPDIF	4×RJ45; 1×HDMI1.3; 1×3.5mm Audio Output; 1×SPDIF
Control ports	1 × RJ45; 1 × RS232; 1 × Sensor	
Intelligent broadcast control	Remote, APP, USB Drive	
Wireless projection	Support Type-C, Wireless USB Adapter, Support Windows / IOS / Android Multiple Platform Mirroring	
Whiteboard	Support (Combined with Infrared Boarder)	
Effect adjusting	Support (Standard, Soft, Theater, Meeting)	
More	Phone photo mapping、Intelligent voice control、Free scaling、Image enhancement、One click eye protection、Launcher customization、Boot animation customization	

MLED
INTEGRATED SOLUTION

Refresh Vision, Broaden the Application Boundaries of LED Display

MLED Integrated Solution

MLED (Mini&Micro LED) display products with COB, MIP, COG and other package technologies as the core bring new development opportunities to the industry, leading LED display to a number of brand new blue ocean markets. These new markets propose new challenges in terms of image quality and convenience of maintenance, and NovaStar offers a series of innovative solutions based on advanced algorithms, focusing on the unique features of MLED displays and new application scenarios and aiming to promote the rapid development of the entire industry.

MLED Calibration Solution

LED Screen

Full Screen Calibration

LED Cabinet

Cabinet Calibration

Factory Module Level Automatic Calibration

MLED Display & Control Solutions

Applications

Indoor Installation

Meeting Room

High-end TV

Image Quality Algorithm

Image Booster

Dynamic Booster

Multi-layer Full Grayscale Calibration

Adaptive Calibration

Thermal Compensation

Control Board

A10s Pro

NS6323A

Three-in-one Control Board

CA50C

Image Quality Enhance Algorithm

`MLED`

Image Booster

Through the color management technology of the image booster, the color gamut of the display screen is adjusted according to the color gamut of the video source, to eliminate color deviation, highly reproduce the true color of the natural scene, and achieve color high fidelity.

Through the 22bit+ technology of the Image Booster, the display can achieve 64 times dynamic contrast improvement, achieve 0.002nits accurate control, and brings out the most intricate details in every display image with unparalleled clarity.

Color Shift
Color Shift Is Eliminated
Grayscale Inaccurate
More Delicate with Grayscale
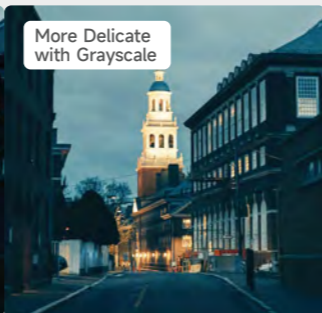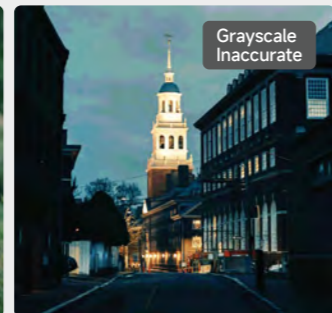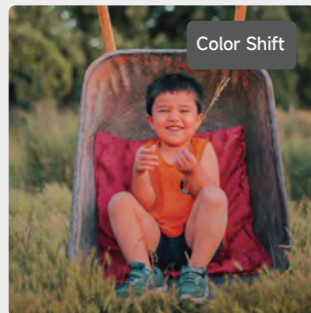
Dynamic Booster

Based on the input content, highlight expansion and shadow purification are carried out to process the SDR source into HDR-level display effect, with deep blacks and clear brightness.
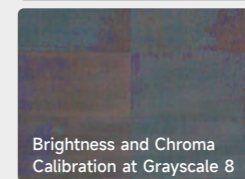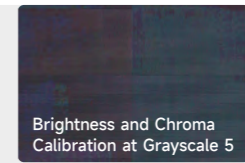
Typical Display Effect
More Details & Contrast
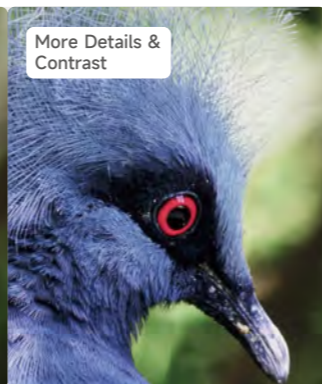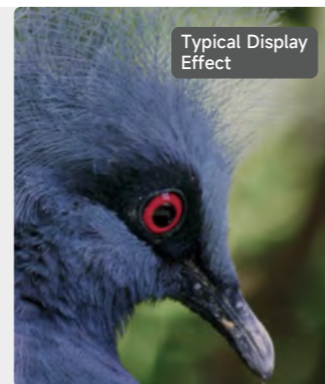
Adaptive Calibration

Adaptive calibration can accurately and dynamically adjust the brightness compensation coefficient according to the content of the screen in real time, effectively solving the color cast problem when composite colors are shown at the MLED screen, and restore the pure image texture.

Color Block On Screen
Pure & Uniformity
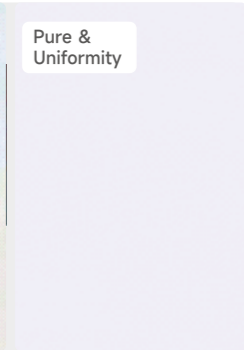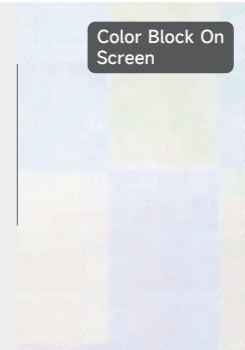
Multi-layer Full Grayscale Calibration

Based on the nonlinear features of the MLED screen, multi-layer full grayscale calibration can make each pixel of each grayscale has its own compensation coefficient so that the screen is uniform and delicate in different grayscale of the screen.

Brightness and Chroma Calibration at Grayscale 5
Full Grayscale Calibration at Grayscale 5
Brightness and Chroma Calibration at Grayscale 8
Full Grayscale Calibration at Grayscale 8
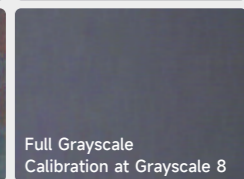
Thermal Compensation

Based on the real-time analysis for the heating features of the screen, accurate thermal compensation is performed through the display features at different temperatures, which effectively solves the color cast problem caused by the uneven heat distribution of the screen and ensures the screen is consistent without color cast.

Uneven heat dissipation
Thermal Characteristics be eliminated
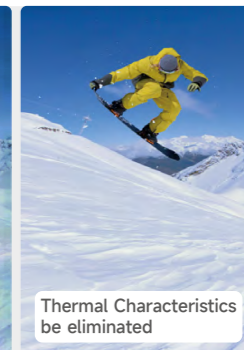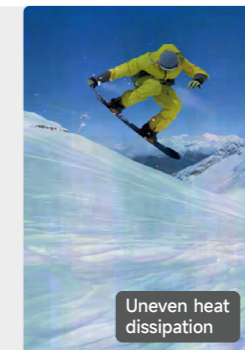
* The above image quality algorithm technologies must be achieved with receiving cards such as A8s Pro and A10s Pro or control chip such as NS6323A.

Intelligent High-speed Interface Chip Solution

For the commercial display and consumer-level application scenarios that MLED is about to enter, the innovation adopts high-speed interface chips so that the screen can be performed stably and intelligently in different environments.

## Standard Interface Highly Compatible

Traditional Interface Solution

Different Pixel Pitches
With Different Interface Sizes
Difficult to Management and Maintenance

P1.56 Module
P0.9 Module
P0.78 Module

High-speed Interface Chip Solution

Different Pixel Pitches
With Standard Interface Size
Easy to Management and Maintenance

P1.56 Module
P0.78 Module
P0.9 Module
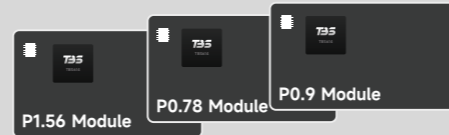
Adopting CDR and LVDS Transmission Technology, Signal More Stable

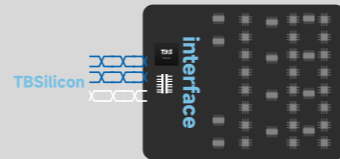**Traditional Interface Solution**

Traditional TTL Used for Signal Transmission
Limited Anti-interference Capability
Unstable Signal Transmission

TTL
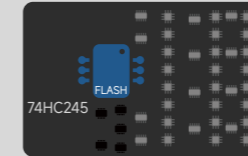interface
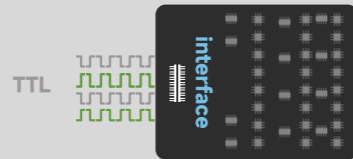
High-speed Interface Chip Solution

Adopting CDR and LVDS Transmission Technology
Fewer Signal Cables
Make the Signal Transmission More Stable

TBSilicon
interface

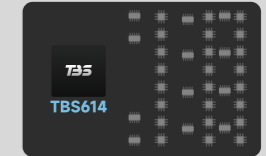## Intelligent Storage, One-stop Service

Traditional Interface Solution

External Storage Chip
Single Storage Content

74HC245
FLASH

High-speed Interface Chip Solution

Built-in Storage Module
Multiple Storage Contents

TBS614

Full Link Monitoring, Accurate Positioning

Traditional Interface Solution

Only the running status before the receiving card can be monitored.
The module running status cannot be monitored.
The intelligent warning display is not supported.
Unable to guide how to solve the problem.

Dead Pixel
Receiving Card
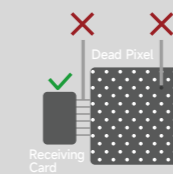
High-speed Interface Chip Solution

Running status can be monitored at the full link pixel level.
Can monitor module running status in real time.
Cooperate with Nova Cloud to realize intelligent forewarning display.
Providing accurate problem positioning and solution.

Dead Pixel
Receiving Card
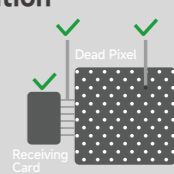
Power Saving at Blank Screen, Quick Wake Up

Traditional Interface Solution

The blank screen cannot be monitored.
Power-on process takes about 15 seconds.
The blank screen has high power consumption.

Power Saving
Power On

High-speed Interface Chip Solution

The power saving state is enabled when a blank screen is detected.
The startup with blank screen takes about 5 seconds.
Power consumption at blank screen is almost "0".

Power Saving
Power On

Calibration Solution

MLED

Accurate Acquisition Minimal Interaction

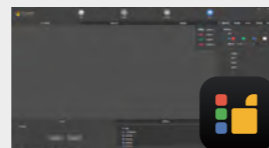32 Million Pixel Ultra High Resolution.

CIE-XYZ filter, which is in line with human eye perception characteristics, makes MLED pixel brightness and chroma acquisition more accurate.

The brand new Calcube software makes the calibration easier and more convenient.
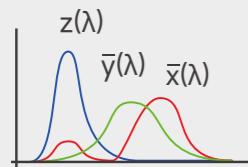
C3200
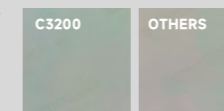Scientific Level Camera

CalCube
Calibration Software

CIE-XYZ
Filter

Brightness: ±2%
Chrominance: ±0.03%

$z(\lambda)$
$\bar{y}(\lambda)$ $\bar{x}(\lambda)$

Different Grayscales with Good Uniformity

Calibration at High Grayscale

Calibration at grayscale 200 with C3200 camera are more delicate while traditional calibration has color blocks.

C3200　OTHERS

Calibration at Low Grayscale

Calibration at grayscale 20 with C3200 camera are more delicate and smoother while traditional calibration cannot reach this level.
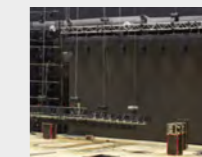
C3200　OTHERS
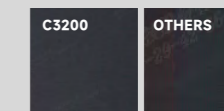
Strong Universality and Wide Application

Support cabinet calibration and full screen calibration, which can be applied to SMD, COB and COG calibration and has high adaptability.

SMD COB COG
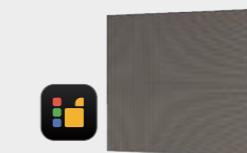
Cabinet Calibration　　**Full Screen Calibration**

Extremely Fast Calibration for Higher Efficiency

1.7fps High-speed Acquisition.
Gigabit Network Transmission, Faster and More Stable.
Adopting the super resolution imaging calibration solution, one calibration area only needs 9 photos to complete the image acquisition.

4K

C3200
0.5 Hours

Digital Camrea
4 Hours

MLED # Intelligent Equipment Solution

MLED display module solved the mass production difficulties such as "MLED display Uniformity", "Black mosaic phenomenon", "side viewing consistency", and "massive transfer quality detection and repair" after processing by NovaStar intelligent equipment group at the factory , helping industry partners achieve standardization and large-scale manufacturing of MLED displays, and promoting the explosion of industrial value.

MLED Module Defect Detection Equipment

High efficiency detection of module failure to improve module delivery yield.

MLED Module Automatic Repair Equipment

Accurate repair of module dead pixel to improve the overall yield of finished products.

MLED Module Level Automatic De-Mura Equipment

Improve module uniformity, spare parts of screen are ready to use, no need for second full-screen calibration.

Blackness Mosaic Inspection And Sorting Equipment

Module-level ink color sorting, restoring the black texture of display.

Side View Inspection And Sorting Equipment

Module level side viewing detection and sorting to improve the side viewing effect of screen.

Applied Scenario

Conference Room

TU Series

High-end TV

HHS T MTEN

MA50

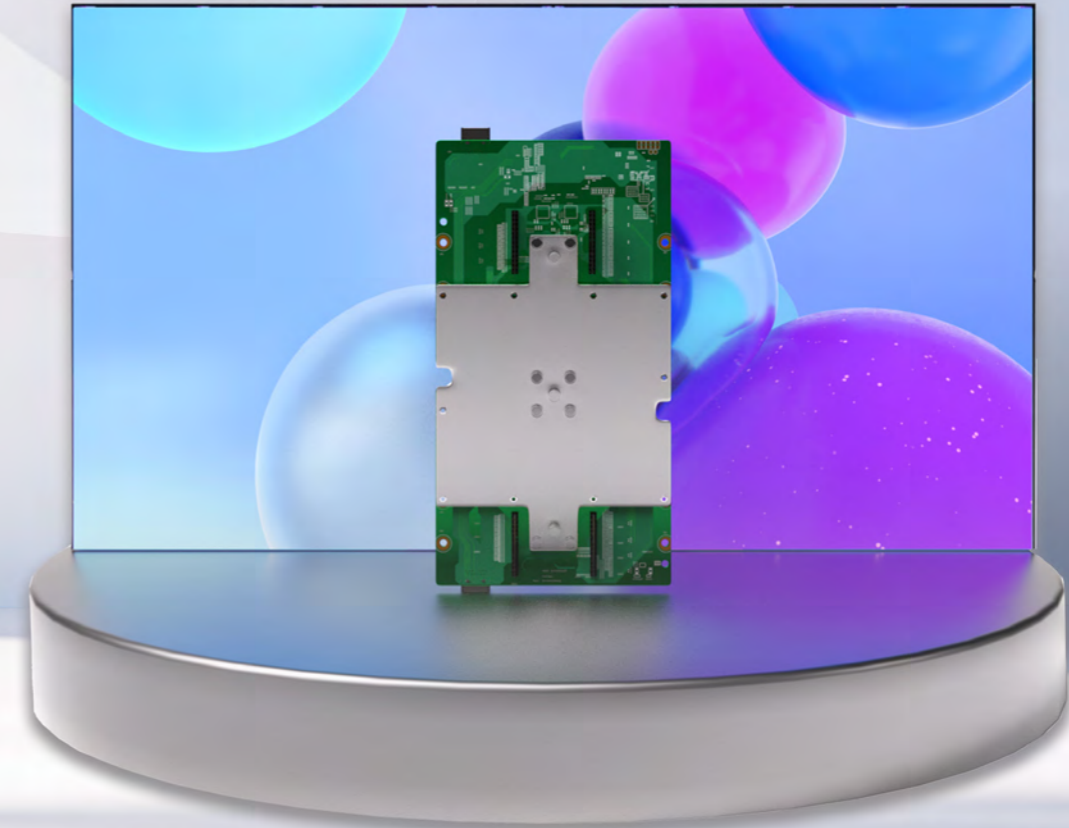KT Series

Virtual Studio

COEX Series

Indoor High-end Installation

Sector S3

MX6000 Pro

THREE-IN-ONE
INTEGRATED DISPLAY
CONTROL SOLUTION

Industry Situation

1. The abundance of components increases supply chain management costs.
2. Diverse cabinet specifications, low standardization, and complex inventories contribute to obsolescence.
3. Insufficient component integration leads to high costs for production, transportation, warehousing, installation, and maintenance.

To address these challenges, NovaStar introduces an integrated LED solution to help manufacturers and clients improve these industry situation.

Solution Introduction

Three-in-one integrated solution combines control and power systems, significantly enhancing LED product integration by streamlining accessories. The LED panel becomes a simplified, integrated product with only the cabinet, module, and three-in-one control board.

NovaStar addresses the issue of diverse components in the SMD fixed installation market with the BR600-N three-in-one integrated solution, promoting the integration and standardization of LED displays.

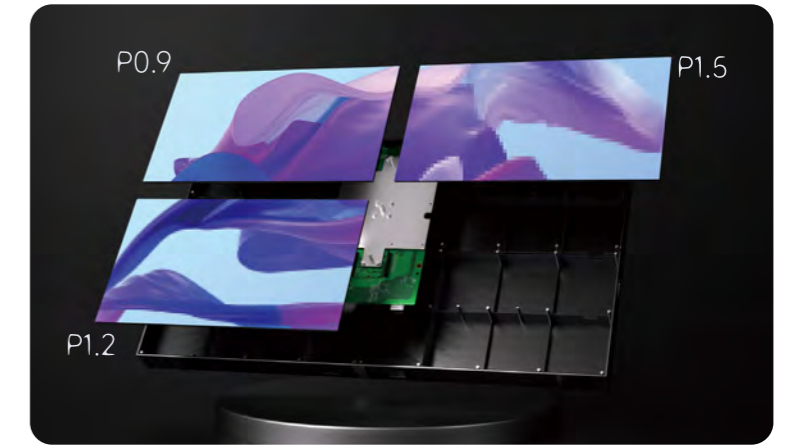# Solution Benefits

Fixed Installation - BR600-N
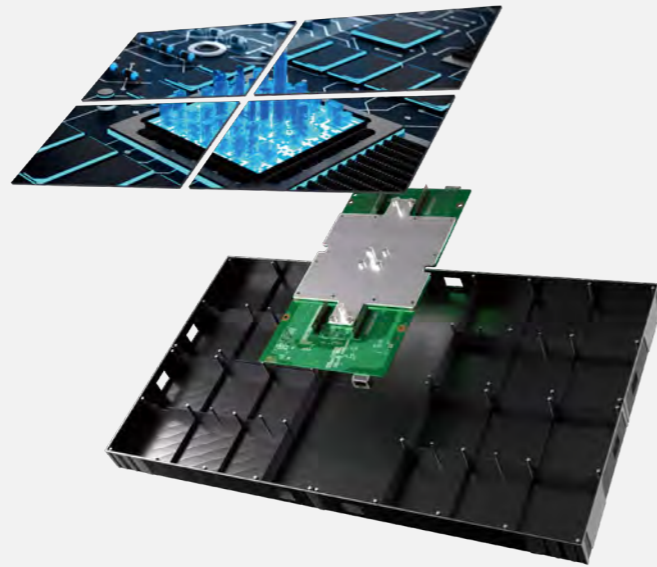
Facilitating product standardization and streamlining inventory—BR600-N.

Supports 32 parallel data groups, a loading capacity of 512×512, and a 150W power supply. It is compatible with P0.9 and above pixel pitch products, reducing HUB inventory types, lowering inventory costs, and supporting product standardization.

Complete machine assembly, doubling efficiency—"Install the board, screw on, and attach the modules" can complete the installation of a single cabinet in three steps, improving factory assembly and on-site installation efficiency.
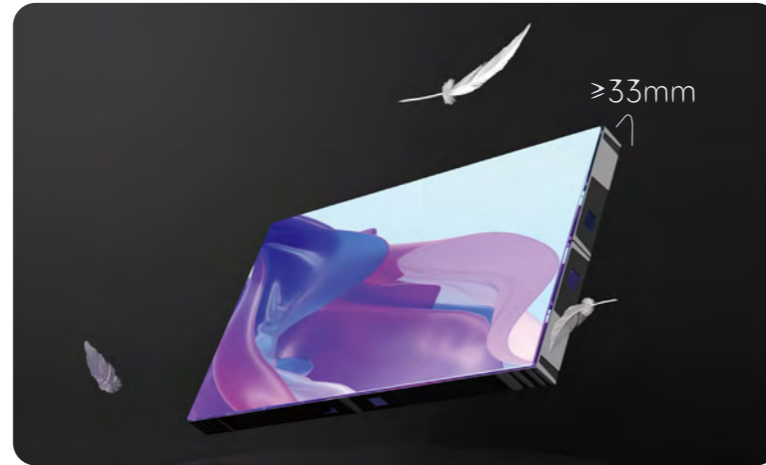
Specifications

Sleek integration, ultra-thin—BR600-N adapts to casing thicknesses as slim as 33mm, making it ideal for high-end applications like home theaters and commercial displays.

Floating connector design, eliminates seams—BR600-N allows a flexible 0.5mm lateral movement, eliminating seams and improving the displaying quality.

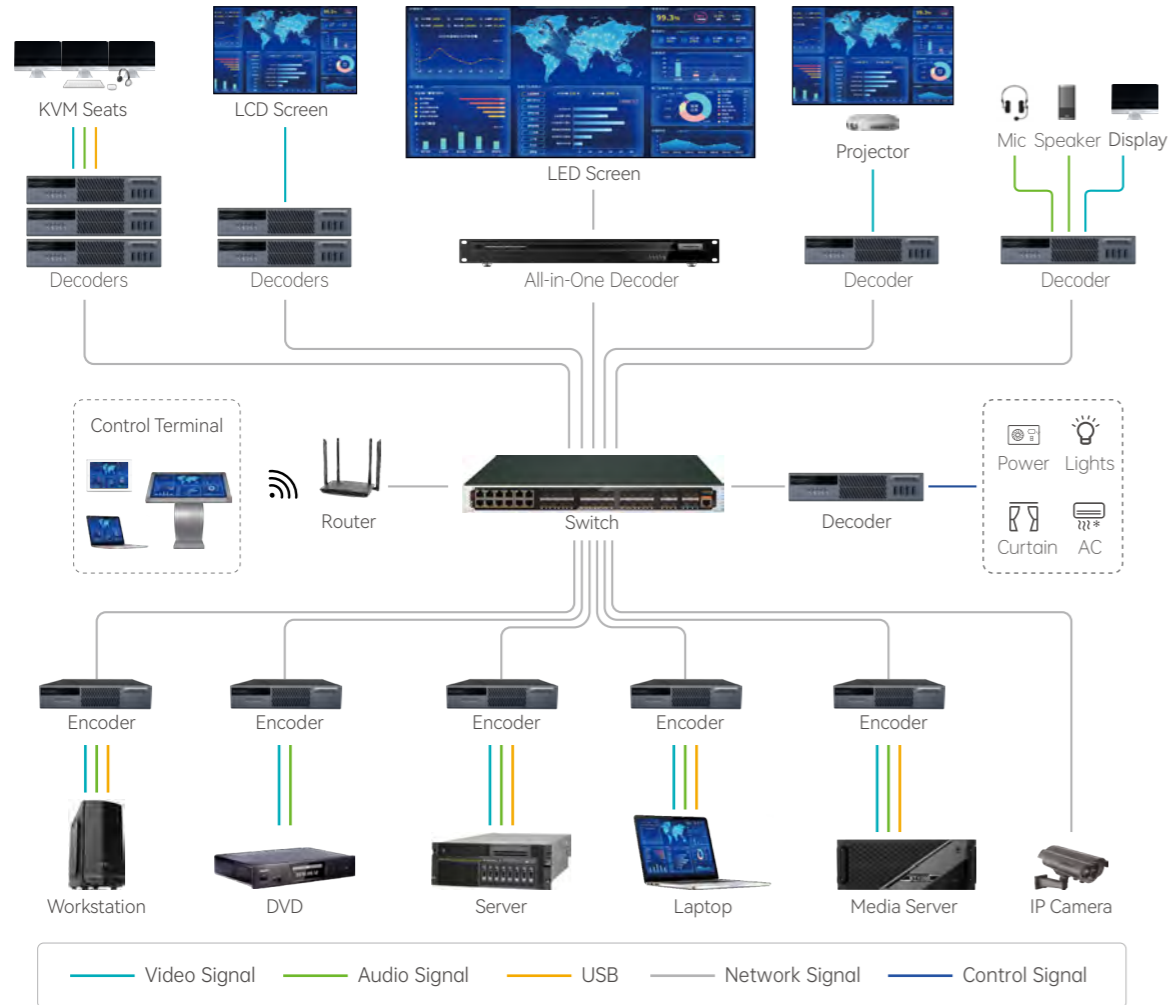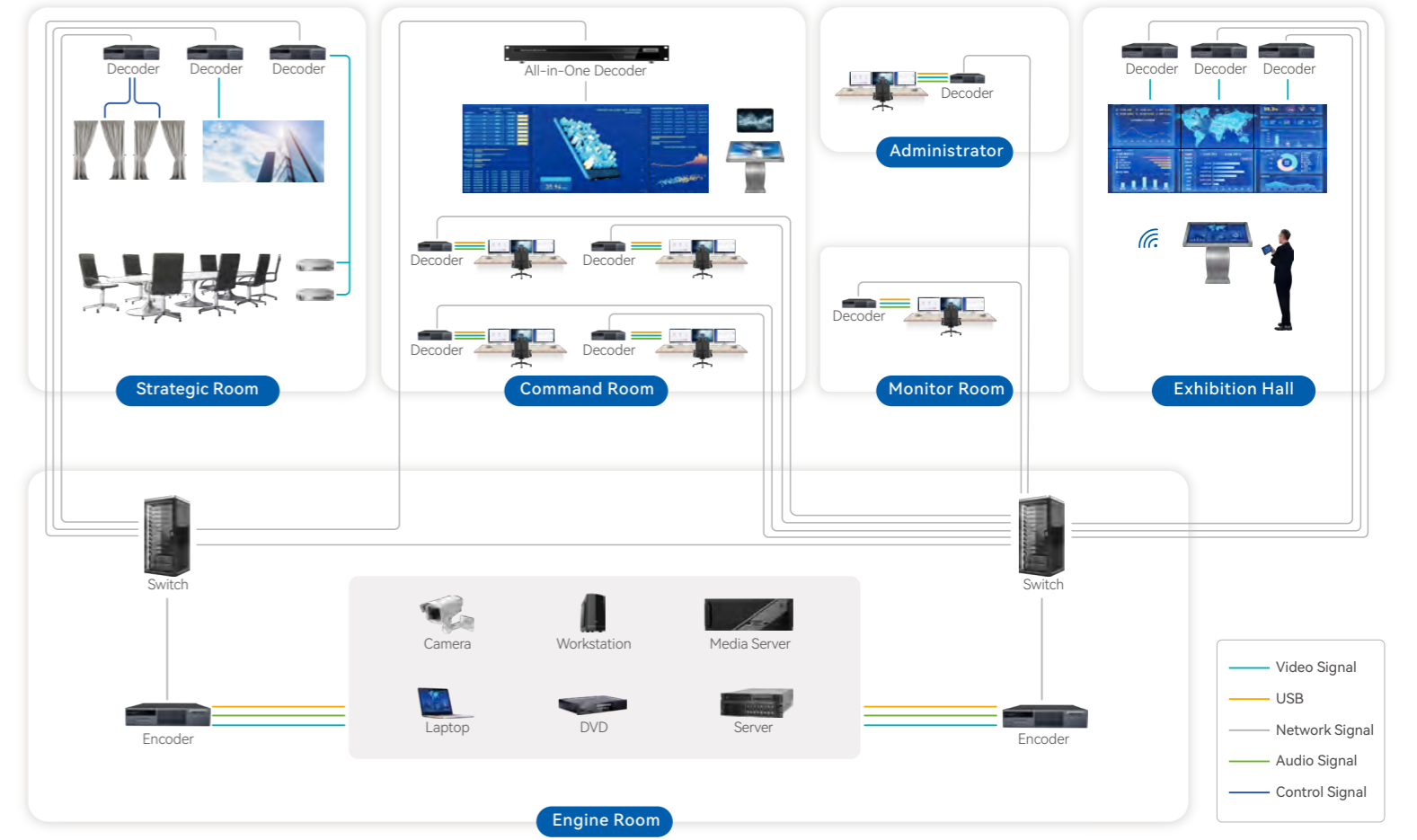|	Product	BR600-N
Control System	Loading Capacity	512×512@60Hz
	Parallel RGB Data Groups	32groups
	HUB interface	Floating Connector×4
	Temperature, Voltage, Communication Monitoring	√
	Pixel Level Brightness and Chroma Calibration	√
	Mapping	√
	Individual Gamma Adjustment for RGB	√
	18Bit+	√
	Color Management	√
	Image Rotation in 90° Increments	√
Electric Specification	Input Voltage Range	AC 90V - 264V
	Rated Input Voltage	100 - 240V, 50/60Hz
	Rated Output Voltage	4.1V - 4.3V
	Output Current Range	40A (Max)
	Efficiency	88%Max (220V input full load)
	Output Protection	Overvoltage Protection, Short Circuit Protection, Overcurrent Protection

MG SERIES

AV OVER IP SYSTEM

MG Series AV over IP system is a distributed management and control system based on network, nodes and digitization. The system utilizing low bandwidth, providing low-latency and lossless audio and video experience, breaking the limitations of the traditional centralized deployment mode. It is suitable for decentralized deployment of audio and video interconnection applications across floors, regions and networks. The system integrates audio and video long-distance digital transmission, signal switching, KVM and screen management. Working with the visual Web management system, visual control software for Pads and KVM system, which can be applied in various visual application scenarios such as command centers, large conference communication centers, monitoring centers, data centers and dispatch centers.

System Topology Diagram

KVM Seats

LCD Screen

LED Screen

Projector

Mic Speaker Display

Decoders

Decoders

All-in-One Decoder

Decoder

Decoder

Control Terminal

Router

Switch

Decoder

Power Lights

Curtain AC

Encoder

Encoder

Encoder

Encoder

Encoder

Workstation

DVD

Server

Laptop

Media Server

IP Camera

— Video Signal — Audio Signal — USB — Network Signal — Control Signal

Multi-Scenario • Solution Diagrams

Decoder Decoder Decoder

All-in-One Decoder

Decoder

Decoder Decoder Decoder

Administrator

Decoder

Decoder

Decoder

Monitor Room

Strategic Room

Command Room

Decoder

Decoder

Decoder Decoder

Exhibition Hall

Switch

Switch

Camera

Workstation

Media Server

Laptop

DVD

Server

Encoder

Encoder

Engine Room

— Video Signal
— USB
— Network Signal
— Audio Signal
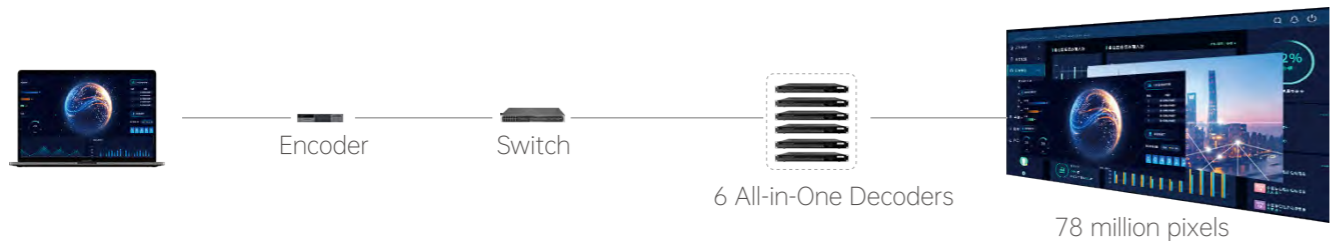— Control Signal

CORE ADVANTAGES

All-in-One Highly Integrated

Combine the decoder and sending card into one device with a maximum 6.5 million pixels loading capacity that supports arbitrary cabling and splicing.
All-new MGT2000 supports 20 ports with maximum 13 million pixels loading capacity.
It's more reliable with half quantity of wires; easier with merge operation; more economical with half in size; more environmentally friendly with low-carbon energy.

Traditional Distributed + Sending Card Solution:

Encoder   Switch

30 Decoders   30 Sending Cards

78 million pixels
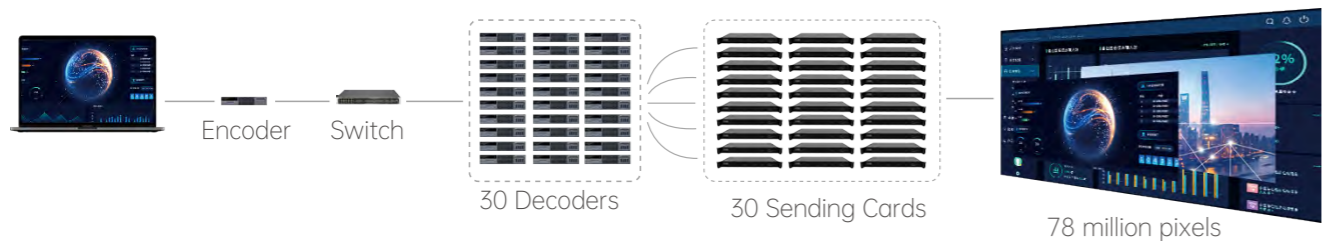
All-in-One Distributed Solution:

Encoder   Switch

6 All-in-One Decoders

78 million pixels

Professional Splicing with No-tearing

Traditional   NetSync+NovaSync

Creating professional nanosecond synchronization that truly stands the test of the naked eye and camera by NetSync plus NovaSync double synchronization technique that combines both software and hardware.

High Image Quality and Low Latency

30FPS

60FPS

The system supports full link 4K@60Hz from input to encoding, decoding, and then to the output display, which makes the image transmission free of distortion and more dynamic.

CORE ADVANTAGES

The system supports 10bit 4:4:4 encoding. Compare to the general 8bit 4:2:0 encoding，it's got a smoother grayscale gradient and better maintained the original color saturation.

8bit 4:2:0

10bit 4:4:4

8bit 256 Color Gray Scale

10bit 1024 Color Gray Scale
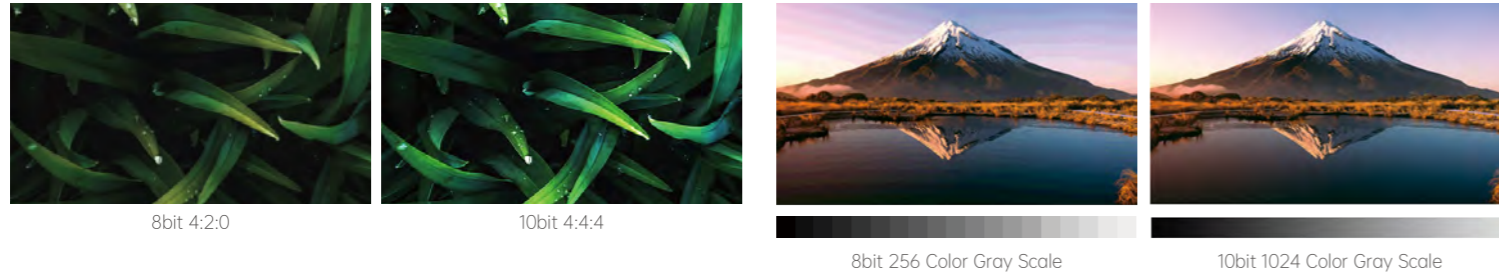
Secure system with Decentralized

The system is decentralized without central server and it can be operated even exposed to minor damage which is more stable and secure.

Stable,
Secure,
Reliable

Page 69 / 70

Diversified Displays Supported

The system supports both LED and LCD.
The LED screen supports a fully custom resolution, maximum width up to 16384, maximum height up to 8192.
And for the LCD, the system supports image border compensation correction.
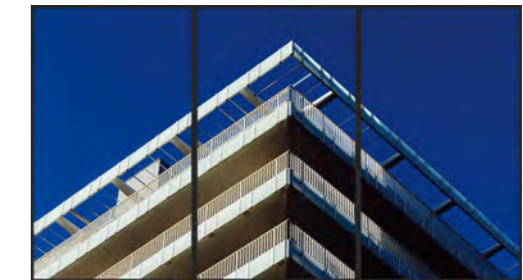

Max Width: 16384
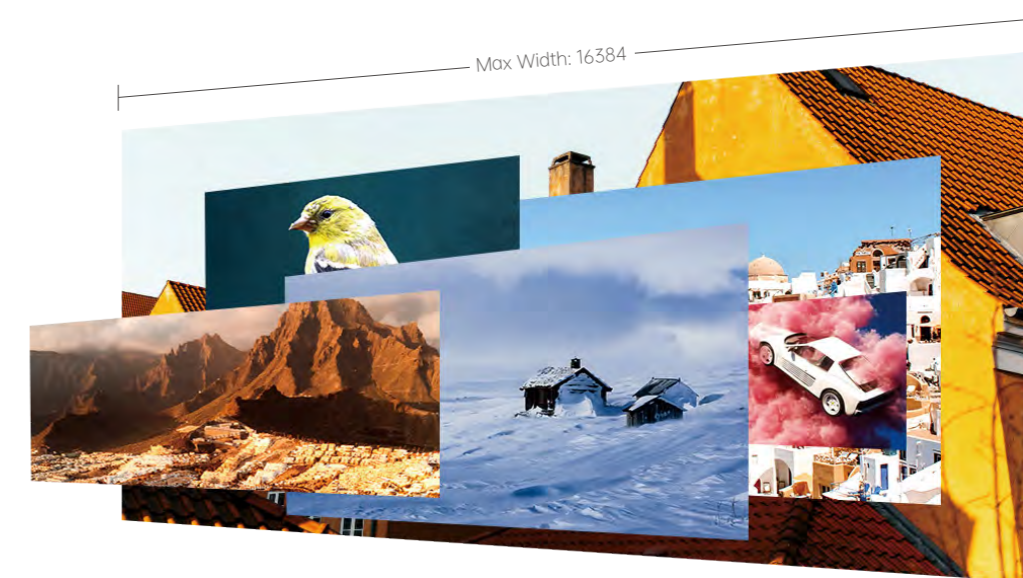
Traditional Display

Image Border Compensation Correction

PRODUCT FEATURES

Super Resolution Splicing is More Convenient

New Multi-card source splicing allows displaying a large amount of information with frame-level synchronization.

Source Layer Playback

Supports automatic playbak of a single layer based on specified time and customizable window display.

Easy to Verify Information

New added marker setting function, and supports font, size, color settings, displayed with the source clearly and distinctly.


Remote Control

New added PAD hard reverse control, no need to install software, it can remotely operate the device desktop interface with clear picture and extremely low latency, bringing a smooth control experience.

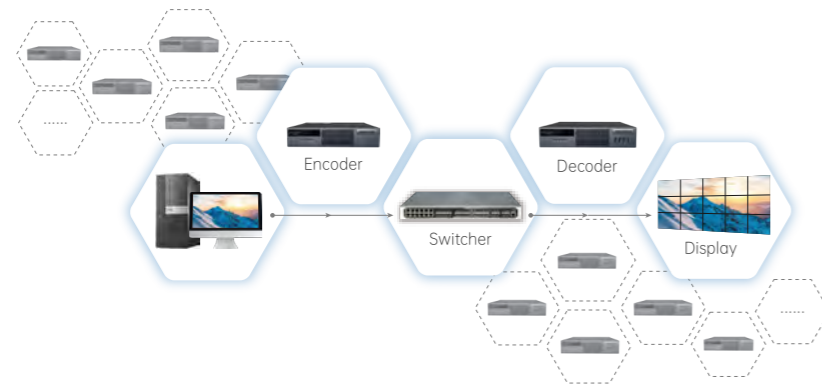Control

PRODUCT FEATURES

Connect the World with One Network Cable

The system supports full networking of multiple commands, such as video, audio, control and third-party control.
Only one network cable/fiber is required for system interconnection.

HDMI   DVI   SDI   DP

VGA   3.5mm   6pin Terminal   IP

RX

TX
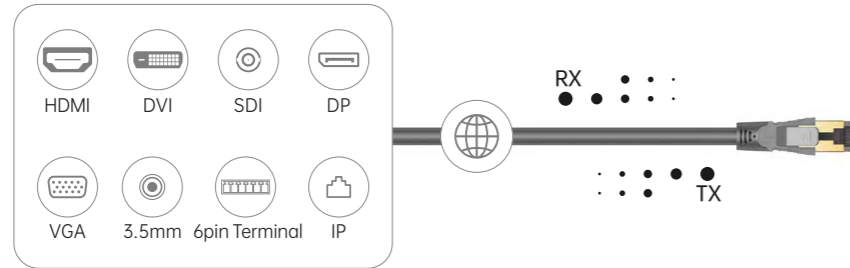
Flexible Deploy with Unlimited Capacity Expansion

Bandwidth configuration can be flexibly adjusted. Capacity expansion can add encoders/decoders, and achieve cross-domain resource sharing.

Encoder

Decoder

Switcher

Display

Efficient with Multiple IPC

Fully supports ONVIF, RTSP and other protocols; Compatible with many brands such as Hikvsion, Dahua, and Uniview, so that it can directly access without trans-coding.

Fully Control with KVM

Supports different resolutions displays (including 4K ultra-wide monitors), KVM resolution settings. Supports multiple screens for one person, one screen for multiple windows. Also supports on-screen keyboard, touch screen, mouse scrolling, multi-screen spanning, reminders, and free DPI settings. It also supports USB pass-through and many other functions.

Mouse without Borders

Mouse Slide Screen

Mouse Reminder
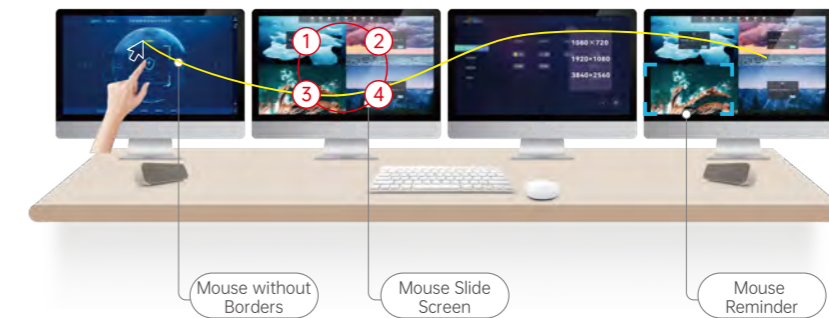
PRODUCT FEATURES

Powerful Integrated with Comprehensive Control

The system supports various third-party control peripherals such as Series Port, IR Port and RELAY Port; integrated control of sound, light, machine and electricity. It also supports remote switching machine.

Fine Scaling with SuperView 3.0 Technology

The system adopts NovaStar's SuperView 3.0 Scaling Algorithm. It's able to do the reconstruction of the picture details, to ensure that the zoom image is sharp and clear.
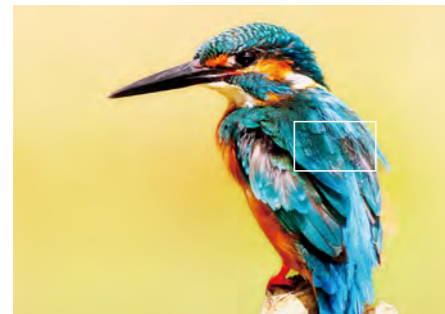
General Zoom In

SuperView III Zoom In

General Zoom Out

SuperView III Zoom Out

HD Background Image with Practical Subtitles

The system supports UHD (maximum width up to 16384) point-to-point base images to achieve a stunning visual effect. It also supports the dynamic banner with full-color subtitles, welcome slogans, emergency notifications and some other needs.
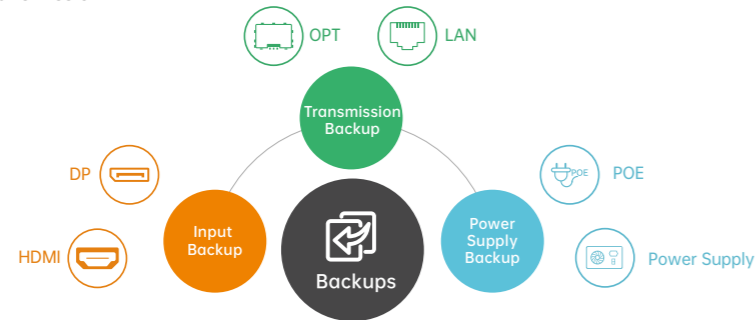
WELCOME TO NOVASTAR

One-click Pre-plan, Preset Playback

Two playback modes: Preset Timing Playback and Cycle Playback.

Preset Timing Playback

Cycle Playback

30mins

30mins
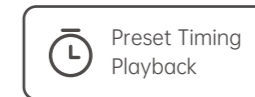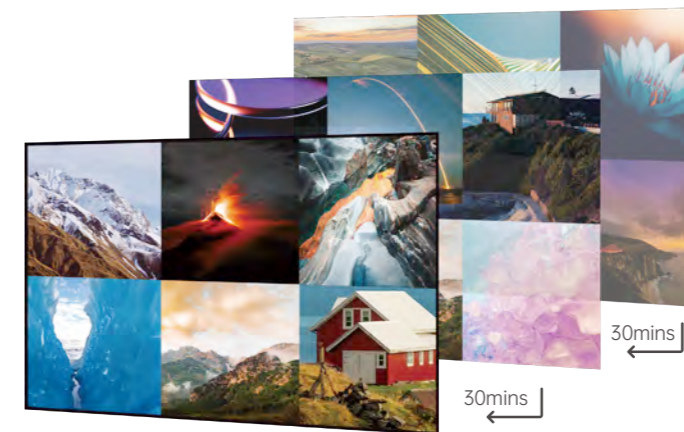
PRODUCT FEATURES

Full Chain Backup

The system supports signal source hot backup, OPT and RJ45 backup, POE and external power supply redundancy backup to secure the transmission.

Multi-level Management with Data Encryption

The system supports multi-level user management and permissions layered; it also supports control instruction encryption and USB transmission encryption. In order to comprehensive guarantee system information security.
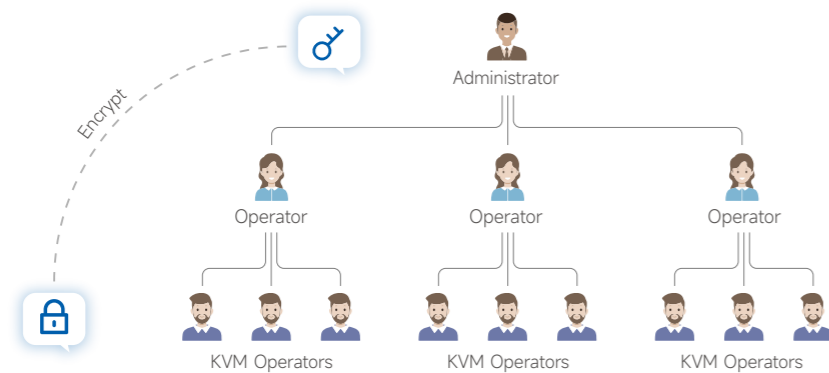
Status Monitoring with Exception Warning

It supports comprehensive monitoring of system running status, timely warning of abnormal situations.
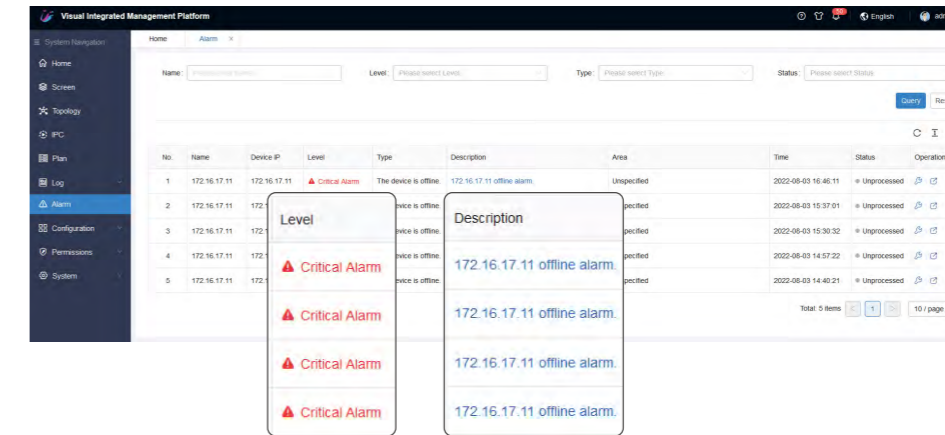
Device name search and instant location of the target device.

Specifications

Encoder & Decoder

	MG420 Encoder	MG421 Decoder
CODEC	1×4K×2K@60Hz Encode	1×4K×2K@60Hz or 2×4K×2K@30Hz or 4×1920×1080@60Hz Decode; 8×1920×1080@30Hz Decode
Video Port	1×DP1.2 Input and 1×HDMI2.0 Input; 1×LOOP Output, DP1.2/HDMI2.0 Output; Max. Width 8,192 Pixels, Max. Height 7,680 Pixels.	1×HDMI2.0 Output; Supports MAX 4K×2K@60Hz; Custom Resolution: Max. Width 8,192 Pixels, Max. Height 7,680 Pixels.
Audio Port	1×3.5mm Stereo Input/Output; Support Audio and Video Synchronous/Asynchronous Output	
OPT/LAN Port	1×LAN, Supports PoE;1×OPT; Supports the LAN and OPT as Backup for Each Other.	
USB Port	1×USB-A; 1×USB-B; For KVM Signal Access.	2×USB-A 2.0; 4×USB-A 3.0; Supports KVM keyboard and mouse access.
Third-party Port	Supports 1×RS485, 1×RS232, 1×IR Input, 1×IR Output , 2×I/O, 1×Relay	
Others	Video Encoding	Video Decoding, KVM, Display Control
Algorithm & Protocol	Supports H.265, H.264 decoding mode, and support H264/H 265 optional; Supports uncompressed audio stream or AAC decoding; Supports access to audio and video data conforming to protocols such as TCP, UDP, RTSP, RTP and ONVIF.	

Specifications

All-in-One Decoder

|	MGT1000	MGT2000
CODEC	1×4K×2K@60Hz or 2×4K×2K@30Hz or 4×1920×1080@60Hz Decode	1×4K×2K@60Hz or 2×4K×2K@30Hz or 4× 1920×1080@60Hz Decode; 8× 1920×1080@30Hz Decode
Video Port	10×RJ45 LED Output; Custom Resolution, Max. Width 10,240 Pixels, Max. Height 8,192 Pixels. Total Capacity 6.5 million.	20×RJ45 LED Output; Custom Resolution, Max. Width 16,384 Pixels, Max. Height 8,192 Pixels. Total Capacity 13 million.
Audio Port	1×3.5mm Stereo Input/Output; Support Audio and Video Synchronous/Asynchronous Output	
OPT/LAN Port	1×LAN; 1×OPT; Supports Mutual Backup Between the LAN and OPT	
USB Port	2×USB-A 2.0	
Third-party Port	Supports 1×COM, 1×IR Input, 1×IR Output, 1× I/O, 1×Relay	Supports 1×RS485, 1×RS232, 1×IR Input, 1×IR Output, 2×I/O, 1×Relay
Others	Video Decoding, LED Display Control, Free Cabling	
Algorithm & Protocol	Supports H.265, H.264 decoding mode, and support H264/H 265 optional; Supports uncompressed audio stream or AAC decoding; Supports access to audio and video data conforming to protocols such as TCP, UDP, RTSP, RTP and ONVIF.	

Visual Intelligent Control Platform (VICP)

One-stop Centralized Management and Control Solution

Intelligent management and control in all scenarios. Multiple devices such as video broadcast control, large-screen switch control and environment control are connected, managed and scheduled in a unified manner. Simplify system operation and management for users.
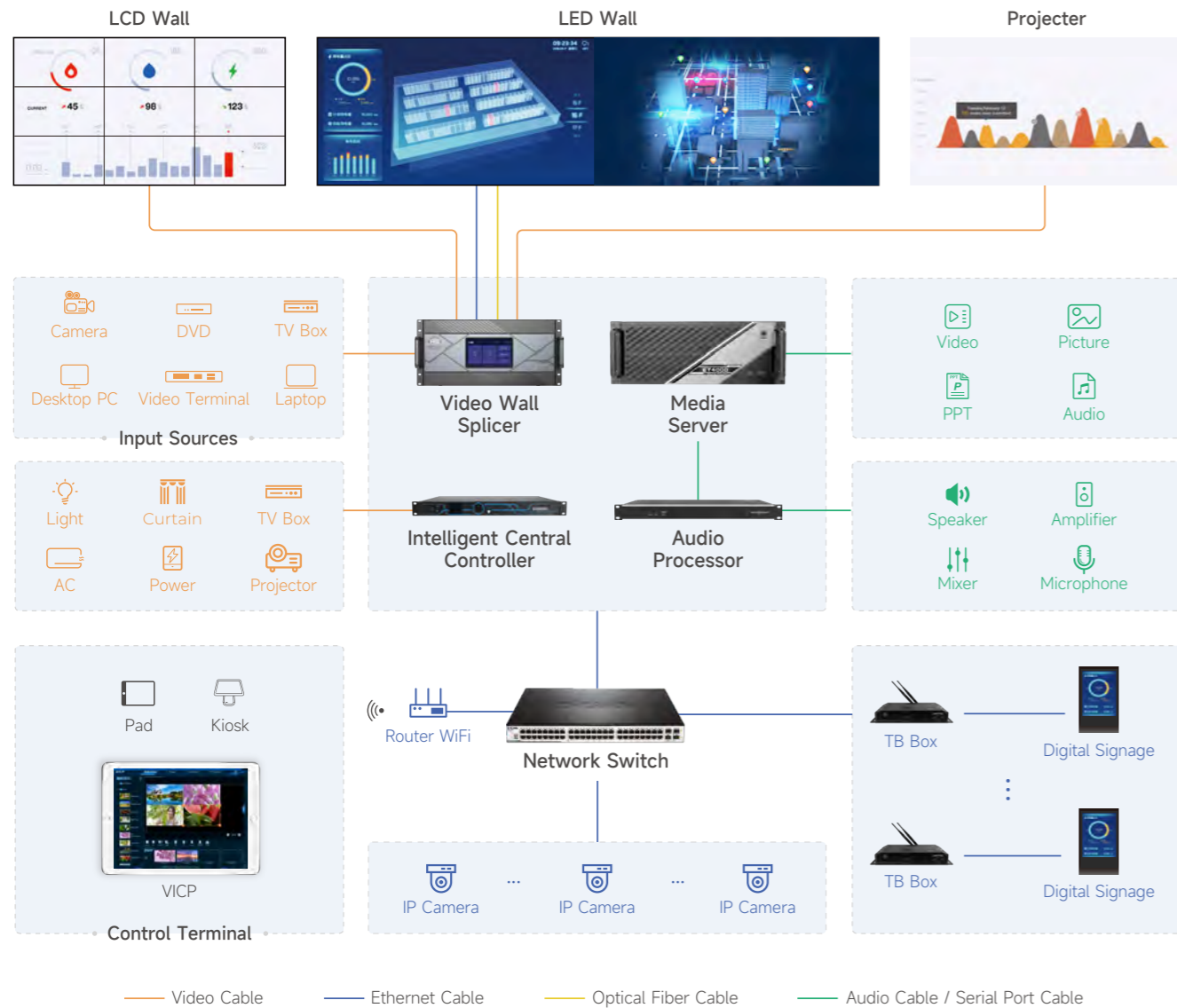
FULL-SCENE VISUAL CONTROL

Real-time display of ET4000/ET2000-G and H series input preview, monitoring, layout etc.; and it can switch media program, scene and signal source with one-click. Also support IPC preview and one-click PTZ Control.

LCD Wall

LED Wall

Projecter

Input Sources
- Camera
- DVD
- TV Box
- Desktop PC
- Video Terminal
- Laptop

- Light
- Curtain
- TV Box
- AC
- Power
- Projector

Video Wall Splicer

Media Server

Intelligent Central Controller

Audio Processor

- Video
- Picture
- PPT
- Audio

- Speaker
- Amplifier
- Mixer
- Microphone

Control Terminal
- Pad
- Kiosk
- VICP

- Router WiFi
- **Network Switch**
- IP Camera
- IP Camera
- IP Camera

- TB Box
- Digital Signage
- TB Box
- Digital Signage

— Video Cable   — Ethernet Cable   — Optical Fiber Cable   — Audio Cable / Serial Port Cable

Remote Desktop

Software KVM, flexibility and efficiency.

Audio Input/Output Adjustment

Coordinate with DAP series audio processor for audio adjustment.

Release Media on Digital Signages

Coordinate with TB series controllers, to control and release medias on multiple digital signages.

Components of the System

Video Splicing Processor

H2、H5、H9、H15、H20

Media Server

ET4000、ET2000-G

Intelligent Control Processor

Vunit2000、H_STD I/O Card

Digital Audio Processor

H-DAP44、H-DAP88、H-DAP1616

Multi Media Player

TB30、TB50、TB60

Visual Intelligent Control Platform

VICP   VICP LITE
(Apple Store, Google Store)

Visual Interface Designer

VI Designer
(Contact NovaStar Team to Get it)