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NovaStar
NEW
SOLUTIONS
2025

NOVASTAR

CONTENT

MLED

DISPLAY INTEGRATED SOLUTION

Renew the vision
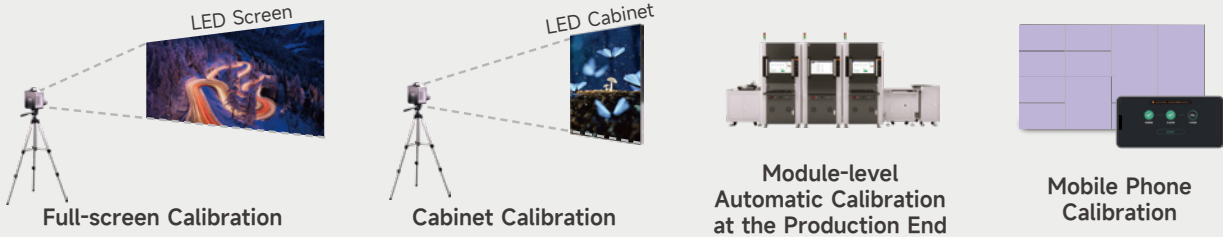Expand the boundaries of LED display applications
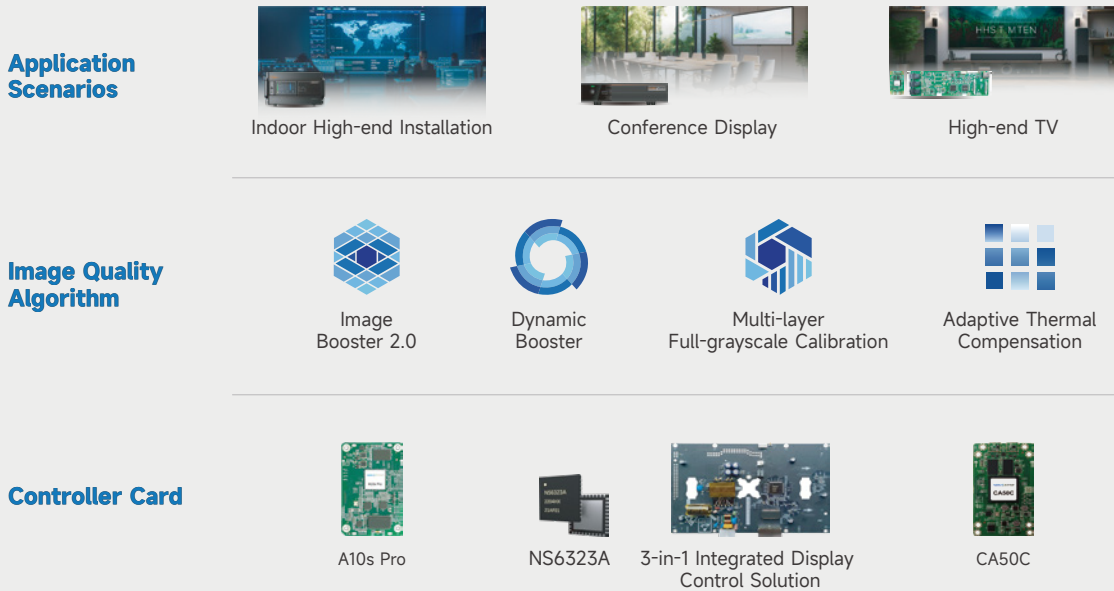
MLED Integrated Solution

The MLED (Mini & Micro LED) display products, based on packaging technologies such as COB, MIP, and COG, bring new development opportunities to the industry, leading LED displays into a number of new blue ocean markets. These new markets present fresh challenges in terms of image quality and maintenance convenience. In response, NovaStar, with its advanced algorithms, focuses on the unique characteristics of MLED displays and new application scenarios, offering a series of innovative solutions aimed at driving rapid growth across the entire industry.

MLED Calibration Solution

LED Screen

LED Cabinet

Full-screen Calibration

Cabinet Calibration

Module-level Automatic Calibration at the Production End

Mobile Phone Calibration

MLED Playback & Control Solution

Application Scenarios

Indoor High-end Installation

Conference Display

High-end TV

Image Quality Algorithm

Image Booster 2.0

Dynamic Booster

Multi-layer Full-grayscale Calibration

Adaptive Thermal Compensation

Controller Card

A10s Pro

NS6323A

3-in-1 Integrated Display Control Solution

CA50C

Image Quality Enhancement Algorithm
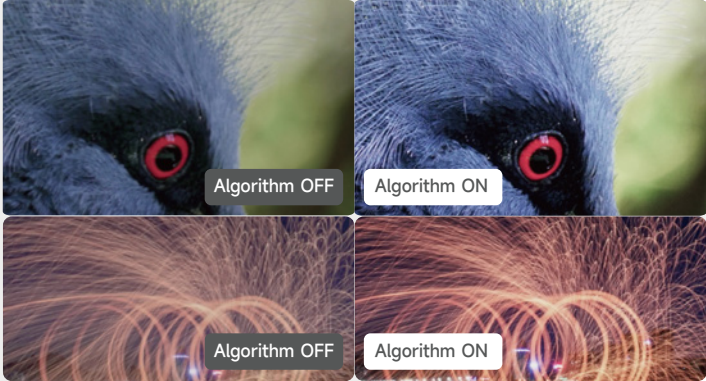
MLED

Image Booster 2.0

Through the color management technology of the Image Booster, it enables flexible switching between color gamuts such as Rec.2020, DCI-P3, Rec.709, and other custom color gamuts. The color chromatism $\triangle E < 2$, accurately restoring the true colors of the signal source.

With 22bit+ and fine grayscale technology, it enhances the grayscale levels of the display by 64 times, making the grayscale performance more delicate and smooth.

Algorithm OFF | Algorithm ON
Algorithm OFF | Algorithm ON
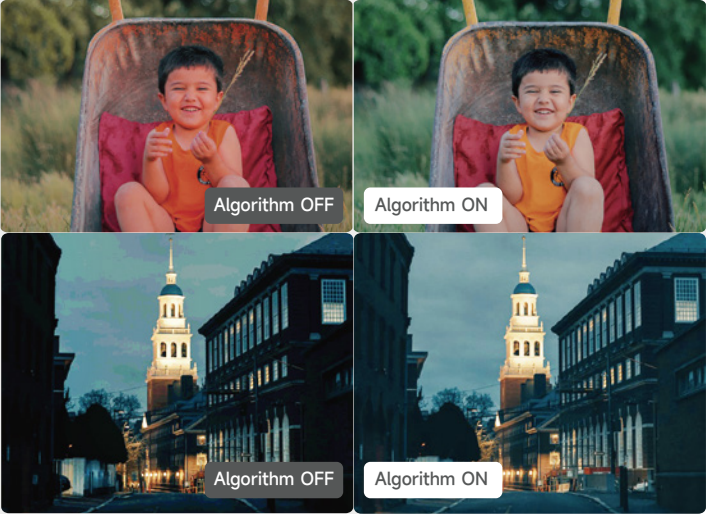
Dynamic Booster

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.

Algorithm OFF | Algorithm ON
Algorithm OFF | Algorithm ON

Multi-layer Full-grayscale Calibration

The uniformity calibration can be carried out for the nonlinear characteristics of the MLED display, so that each pixel of each grayscale has its own unique brightness compensation coefficient, so that all grayscales of the LED screen can be uniform and delicate, and no longer worry about the problem uniformity under the low grayscale.

Brightness and Chroma Calibration Greyscale 5 | Multi-layer Full Greyscale Calibration Greyscale 5
Brightness and Chroma Calibration Greyscale 8 | Multi-layer Full Greyscale Calibration Greyscale 8

Adaptive Thermal Compensation

Based on the analysis of the thermodynamic characteristics model of the LED cabinet, the system dynamically calculates the changes in thermal characteristics of the cabinet in real time and adjusts the thermal compensation coefficient accordingly. This effectively addresses issues such as color temperature drift caused by uneven heat dissipation of the screen. NovaStar's industry-first adaptive thermal compensation technology ensures that the color and color temperature of the cabinet are always accurately presented.

Heat Dissipation Effect | Adaptive Thermal Compensation Effect

Color Temperature Drift <100K
Uniformity Deviation <3%
Brightness Loss <5%

* The COEX series controllers, when paired with A10s Pro, CA50E, XA50 Pro, can all achieve adaptive thermal compensation technology.

* The above image quality algorithm technologies can only be implemented when paired with the A10s Pro, A8s Pro receiver cards, or the NS6323A control chip.

Intelligent High-speed Interface Chip Solution

For the commercial display and consumer application scenarios that MLED is about to enter, the innovative use of high-speed interface chips allows the LED screen to operate stably and intelligently in different environments.

Standard Interfaces, Highly Compatible

Traditional Interface Solution

Modules with different pixel pitches
Different interface sizes
Difficult management and maintenance

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

High-speed Interface Chip Solution

Modules with different pixel pitches
Same interface sizes
Easy management and maintenance

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

## CDR and LVDS Transmission Technology, More Stable Signals

Traditional Interface Solution

Using traditional TTL for signal transmission
Limited anti-interference ability
Unstable signal transmission
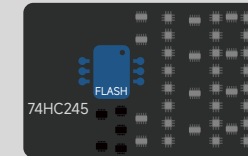
TTL
interface
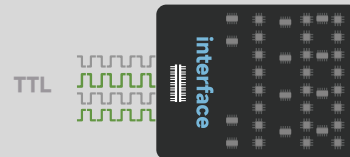
High-speed Interface Chip Solution

Using CDR, LVDS transmission technology
Fewer signal transmission lines
More stable signal transmission

TBSilicon
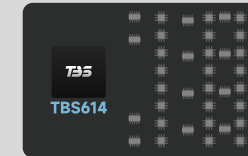interface
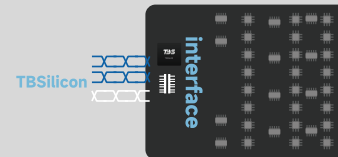
Intelligent Storage, One-Step Setup

Traditional Interface Solution

External storage chip
Single storage content

74HC245
FLASH

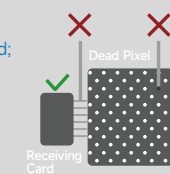**High-speed Interface Chip Solution**

Built-in storage chip
Multiple storage contents

TBS614

Full-Link Monitoring, Accurate Fault Location

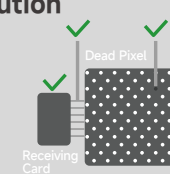**Traditional Interface Solution**

Can only monitor the link before the receiving card;
Cannot monitor the module's operating status;
Does not support intelligent fault warning;
Unable to provide troubleshooting guidance.

Receiving Card
Dead Pixel

High-speed Interface Chip Solution

Supports full-link pixel-level monitoring of module information;
Real-time monitoring of module operating status;
Works with NovaCloud to enable intelligent fault warning;
Provides precise fault location and solutions.

Dead Pixel
Receiving Card

Black Screen Energy Saving, Quick Wake-up

Traditional Interface Solution

Not support black screen detection and activate power consumption mode.

Power-on startup time of approximately 15s.
Relatively high power consumption during black screen mode.

Power Saving
Power On
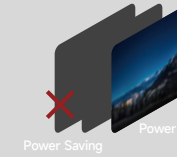
High-speed Interface Chip Solution

Support black screen detection and activate power consumption mode.

Black screen startup time of approximately 5s.
Almost 0 Power consumption during black screen mode.

Power Saving
Power On

Calibration Solution

MLED

Precise Calibration, Ultra-simple Interaction

61 million pixels ultra-high resolution

Uses CIE-XYZ filters tailored to human eye perception characteristics, ensuring more accurate pixel brightness and color collection for MLED

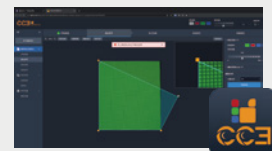All-new CC3 calibration software of fully featured, providing more efficient and precise calibration

CC60
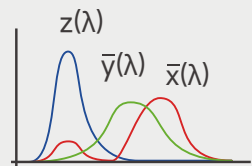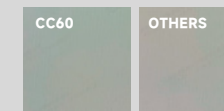Scientific Calibration Camera

CC3
Calibration Software

CIE-XYZ
Filter

Brightness: ±2%
Chroma: ±0.002

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

Different Grayscales, Uniform and Consistent

High grayscale calibration

CC60 calibration provides smoother transitions in high grayscales, whereas traditional calibration shows color blocks.

CC60   OTHERS

Low grayscale calibration

CC60 calibration offers finer and smoother transitions in low grayscales, surpassing the capabilities of traditional calibration.

CC60   OTHERS
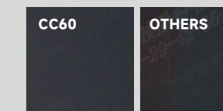
Strong Versatility, Applicable

Supports both cabinet calibration and full-screen calibration, applicable to SMD, COB, and COG calibration, offering high adaptability.

SMD   COB   COG
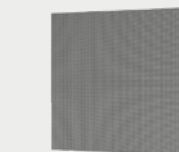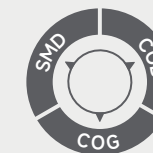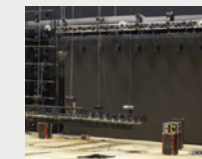
Cabinet Calibration   Full-screen Calibration

Rapid Calibration, Efficiency Leaps Forward

High-speed acquisition
Stable transmission
Higher resolution in a single acquisition
Faster calibration process

4K
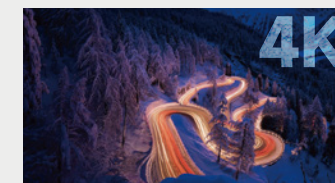
CC60
🕐   0.25 Hours

Digital Camrea
🕐   4 Hours

MLED Intelligent Equipment Solutions

After the MLED display module is processed at the factory through the NovaStar intelligent equipment group, it solved the mass production dificulties such as "MLED display Uniformity", "Black mosaicphenomenon", "side viewing consistency", and "massive transfer quality detection and repair" after processing byNovaStar intelligent equipment group at the factory , helping industry partners achieve standardization and large-scalemanufacturing 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 theoverall 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.

Side View Inspection and Sorting Equipment

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

Application Scenarios

Conference Display

TU Series

High-end TV

MA50

KT Series

Virtual Studio

COEX Series

Indoor High-end Installation

MX6000 Pro

COEX SERIES

NovaStar has been consistently devoted to delivering the superior visual experience and innovation for users.
Here comes the COEX Series solution. The design concepts are as follow.

C for Creative & Connective

O for Open

E for Extensible

X for Infinite possibilities

8K Modular Design
LED Processors

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
Input Card Options		MX_4×HDMI 2.0 input card / MX_4×DP 1.2 input card / MX_4×12G-SDI input card MX_2×HDMI 2.1 input card / MX_2×DP 1.4 input card / MX_1×DP 1.4+HDMI 2.1 input card MX_1×SMPTE ST 2110(25G) input card / MX_2×SMPTE ST 2110(25G) input card	
Output Card Options	1G	MX_4×10G SFP+ output card (Work with Armor series card)	
	5G	MX_1×40G QSPF+ output card (Work with XA50 Pro / CA50E)	
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 / Blackburst	
Input Bit Depth		8bit / 10bit / 12bit	
Image Booster		√ (*Exclusively supported by A8s-N and A10s Pro)	
Adaptive Thermal Compensation		√ (*Exclusively supported by A10s Pro)	
Multi-layer Full Grayscale Calibration		√ (*Exclusively supported by A10s Pro)	
Color Management		Color Replacement, 14CH Color Correction, Color Curve, 3D LUT	
No Rectangle Limitation		√ (*Exclusively supported by A5s Plus, A7s Plus, A8s-N and A10s Pro)	
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 the custom firmwares of A10s Pro and IC.)	
Multi Mode		√	
3D		√	

MX Series
LED Processors

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
Inputs	3×HDMI 2.0, 1×DP 1.2 1×12G-SDI	1×HDMI 2.0, 1×HDMI 1.4 1×DP 1.1, 2×3G-SDI LOOP	2×HDMI 1.3, 1×3G-SDI	1×HDMI 1.3
Outputs	20×EtherCON, 4×10G OPT 3×HDMI 2.0 LOOP 1×12G-SDI LOOP, 1×SPDIF	10×EtherCON, 2×10G OPT 1×HDMI 2.0 LOOP, 1×HDMI 1.4 LOOP 2×3G-SDI LOOP, 1×SPDIF	6×EtherCON, 2×10G OPT 2×HDMI 1.3 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 mode; All-In-One Controller			
Layers	4	3	3	1
Genlock	√	√	√	/
Input Bit Depth	8bit / 10bit / 12bit	8bit / 10bit	8bit / 10bit	8bit / 10bit (Optional)
Image Booster	√ (*Exclusively supported by A8s, A8s-N, A10s Pro)			
Dynamic Booster	√ (*Exclusively supported by A10s Pro)	/	/	/
Adaptive Thermal Compensation	√ (*Exclusively supported by A10s Pro)			
Full Grayscale Calibration	√ (*Exclusively supported by A10s Pro)			
HDR	HDR10 / HLG	HDR10 / HLG	/	/
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 the custom firmware of A10s Pro and IC.)	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 the custom firmware of A10s Pro and IC.)	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 the custom firmware of A10s Pro and IC.)	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 the custom firmware of A10s Pro and IC.)
3D	√	/	/	/
More Features	No Rectangle Limitation, Low Latency (<1ms) , Multi Mode, Art-Net / SNMP			

COEX HARDWARE

5G Solution
LED Processors

MX2000 Pro

MX6000 Pro

CX40 Pro

Specifications

Product Model	MX6000 Pro	MX2000 Pro	CX40 Pro
Rack Unit	6U	2U	2U
Max. Input /Output Cards	8	2	/
Max. Loading Capacity	141 Million	35.38 Million	9 Million
Input Options	MX_4×HDMI 2.0 input card / MX_4×DP 1.2 input card / MX_4×12G-SDI input card MX_2×HDMI 2.1 input card / MX_2×DP 1.4 input card / MX_1×DP 1.4+HDMI 2.1 input card MX_1×SMPTE ST 2110(25G) input card / MX_2×SMPTE ST 2110(25G) input card		2×HDMI 2.0 1×DP 1.2 2×12G-SDI
5G Output Options	MX_1×40G QSFP+ output card		8×5Gbps EtherCON 1×40Gbps QSFP+
Control Interface	1G Ethernet		
Control Protocol	TCP/IP, SNMP		
Layers	Up to 32×4K layers	Up to 8×4K layers	Up to 3×4K layers
	Note: 4×4K layers per output card		
Genlock	Tri-level, Bi-level / Blackburst		
Input Bit Depth	8bit / 10bit / 12bit		
Image Booster	√		
Dynamic Booster	×	×	√
Adaptive Thermal Compensation	√		
Multi-layer Full Grayscale Calibration	√		
Color Management	Color Replacement, 14CH Color Correction, Color Curve, 3D LUT		
No Rectangle Limitation	√		
HDR	HDR10 / HLG		
Brightness Overdrive	√		
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 the custom firmwares of IC.)		
Multi Mode	√		
3D	×		

COEX Series
Receiving Cards
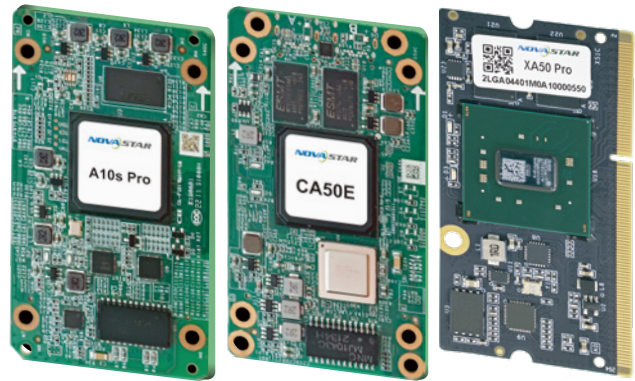
Product Model	A10s Pro	CA50E	XA50 Pro
Bandwidth	1G	5G	5G
Connector	High-density Connector	High-density Connector	DDR3
Loading Capacity	512×512	512×768	512×1024
Image Booster		√	
Dynamic Booster		√	
Adaptive Thermal Compensation		√	
Multi-layer Full Grayscale Calibration		√	
HDR (HDR10 / HLG)		√	
Adaptive Frame Rate		√	
Mapping		√	
Monitoring (Temperature/Voltage/Bit Error Detection)		√	
RGB Parallel Data Group	32	32	40
Serial Data Groups		64/128	

VMP
Vision Management Platform

COEX SOFTWARE

Intelligent Monitoring
Detect risks before happen

Users can monitor from the 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 for 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 output 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!

COEX SOFTWARE
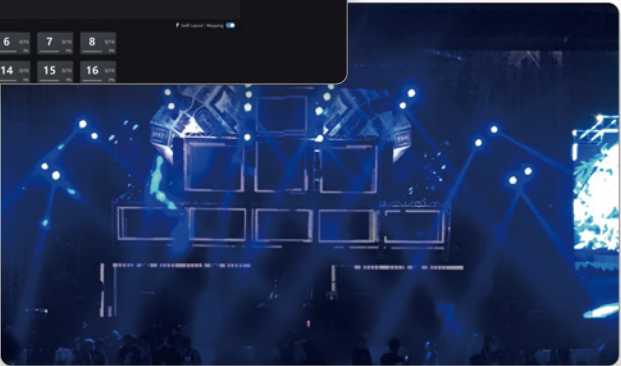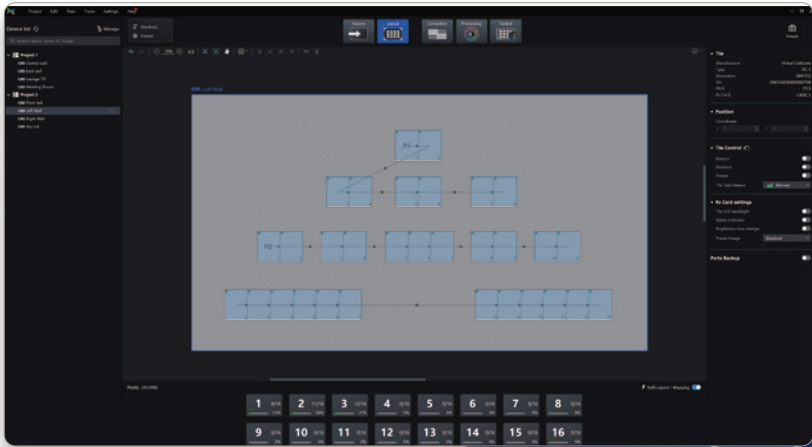
Efficient Group Management

All devices are grouped by screens, making multiple screen management easier and more efficient than before.
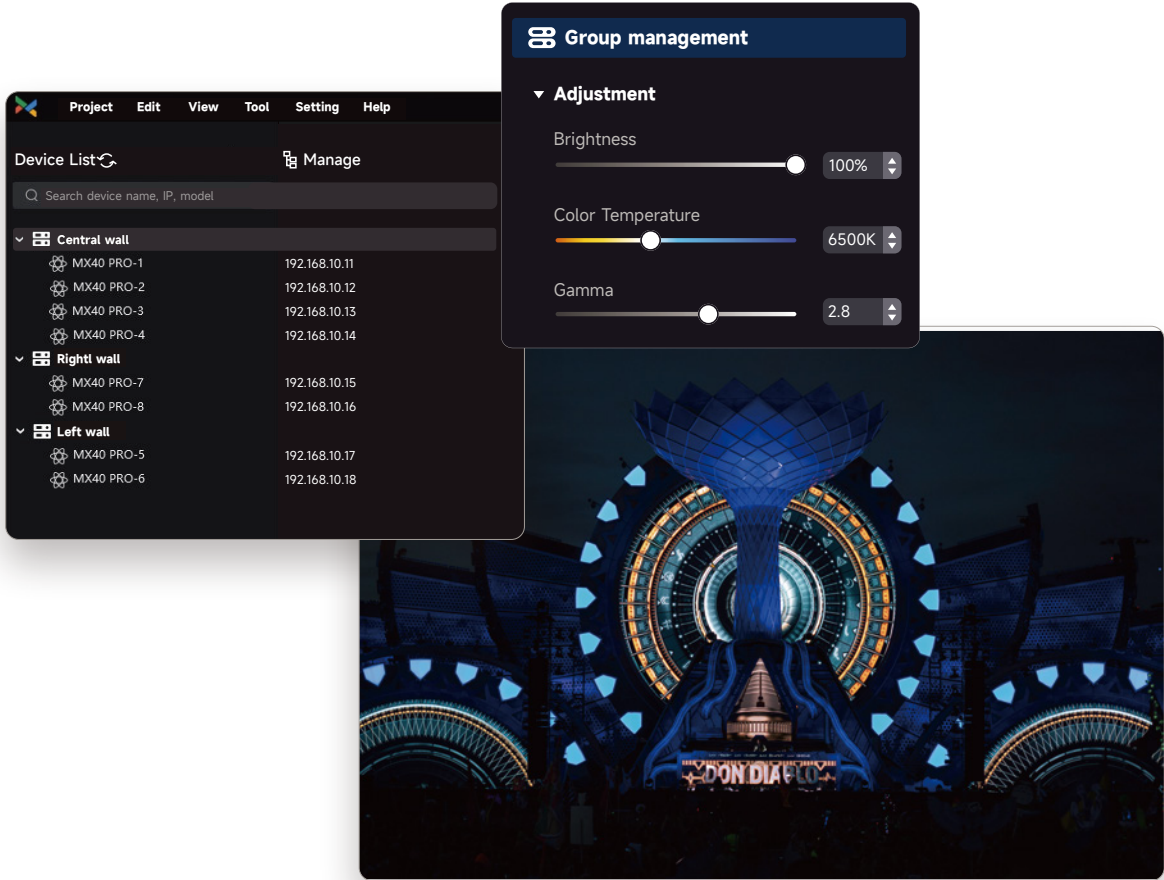
Visualized Seam Correction & Multi-batch Adjustment

Seam correction and multi-batch adjustment can be completed rapidly with an interactive and visualized design.
Based on the software, users can visually locate and select the seams simply by using the mouse, and then adjust the seams on the screen directly, greatly improving efficiency.
Multi-batch adjustment coefficients can be copied and applied to other cabinets of the same batch, or saved as a file, allowing users to transfer settings to other cabinets, significantly enhancing work efficiency.

Scenario Presets

Users can save all parameters of inputs and outputs into presets which provide users with quick and easy retrieval through a single click.

PRESET 1   PRESET 2   PRESET 3
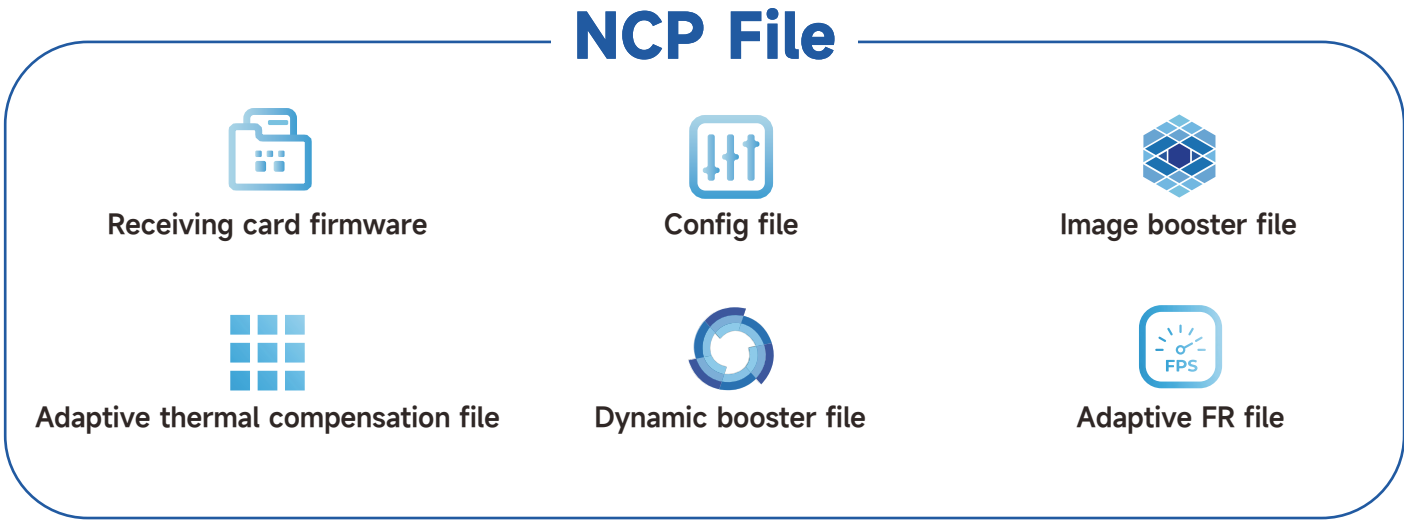
Key Features

→

NCP All-in-one Package

All parameters set in LED manufacturers to get the best performance

NCP is a file package designed to enhance display performance and simplify maintenance for users.
It can include firmware, configuration file, image booster file, thermal compensation file, dynamic booster file, adaptive frame rate file, and multi-mode file.
Users can specify detailed requirements to LED suppliers, eliminating concerns about file management.
Note: Some functions depend on the driver IC and control system hardware.

NCP File

| Receiving card firmware | Config file | Image booster file |
| Adaptive thermal compensation file | Dynamic booster file | Adaptive FR file |

COEX FEATURES

Image Booster

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

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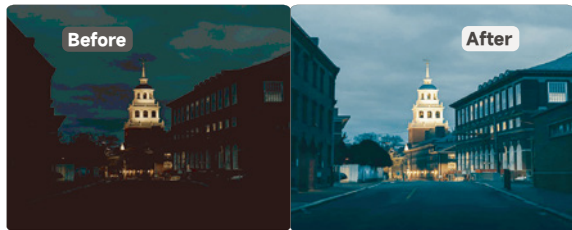
More Realistic Color
Fully automated color standardization, calibration and verification, self-adapts to color gamut.

Before | After
△E<2
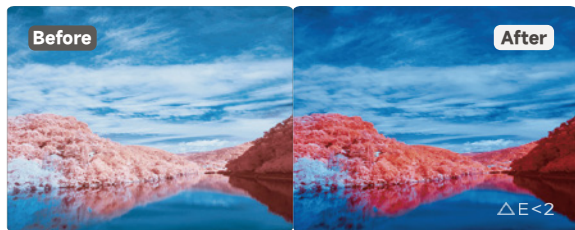
Dynamic Booster

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 bright areas and no loss of detail in shadows.
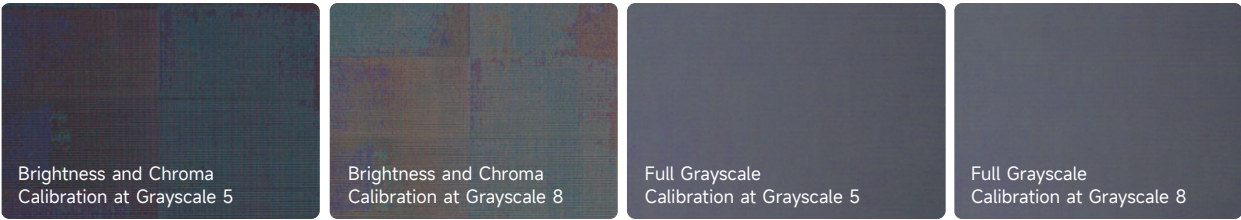
Before | After

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

Test items
Kwh

100%
Dynamic Booster

60%
Dynamic Booster
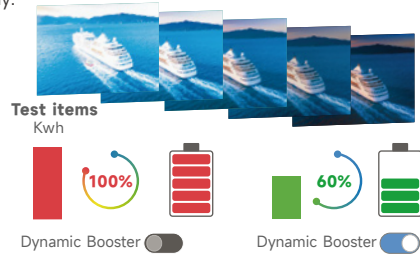
Multi-layer Full Grayscale Calibration

Deliver stunning image quality with uniform grayscale

By generating the exclusive calibration coefficients for every grayscale, multi-layer full grayscale calibration keeps Mini LED and Micro LED screens always uniform especially in the low 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

Adaptive Thermal Compensation

No color shifting of your LED display

Real-time thermal analysis of LED displays enables precise thermal compensation, effectively addressing color shifts caused by uneven heat dissipation across the screen. NovaStar offers the industry's first adaptive thermal compensation technology that maintains color temperature and brightness even after calibration.

Uneven heat dissipation | Adaptive Thermal Compensation

Professional Color Management

Creative Unleashed

Color Replacement

14 CH Color Correction

Color Curves

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. Users can customize frame rates from 23.94Hz to 240Hz, of which the stepping value is accurate to 0.01Hz.

120.00
143.86
144.00
240.00
23.98
24.00
25.00
29.91
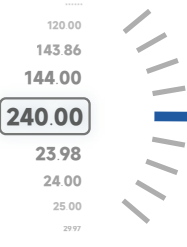
Shutter Fit

Capture every frame perfectly

Utilizing technologies such as Genlock, phase offset and shutter fit, the 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
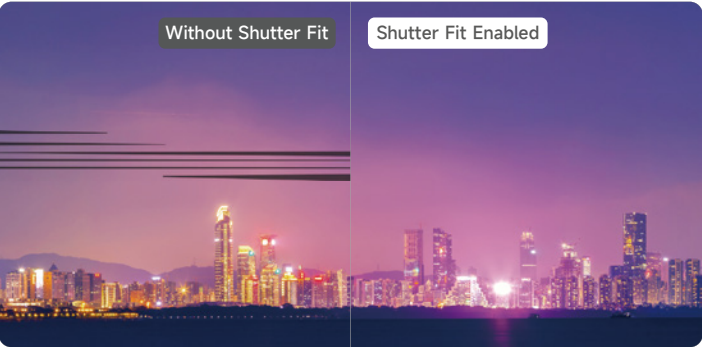
*Note: Available for specific driver ICs.

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
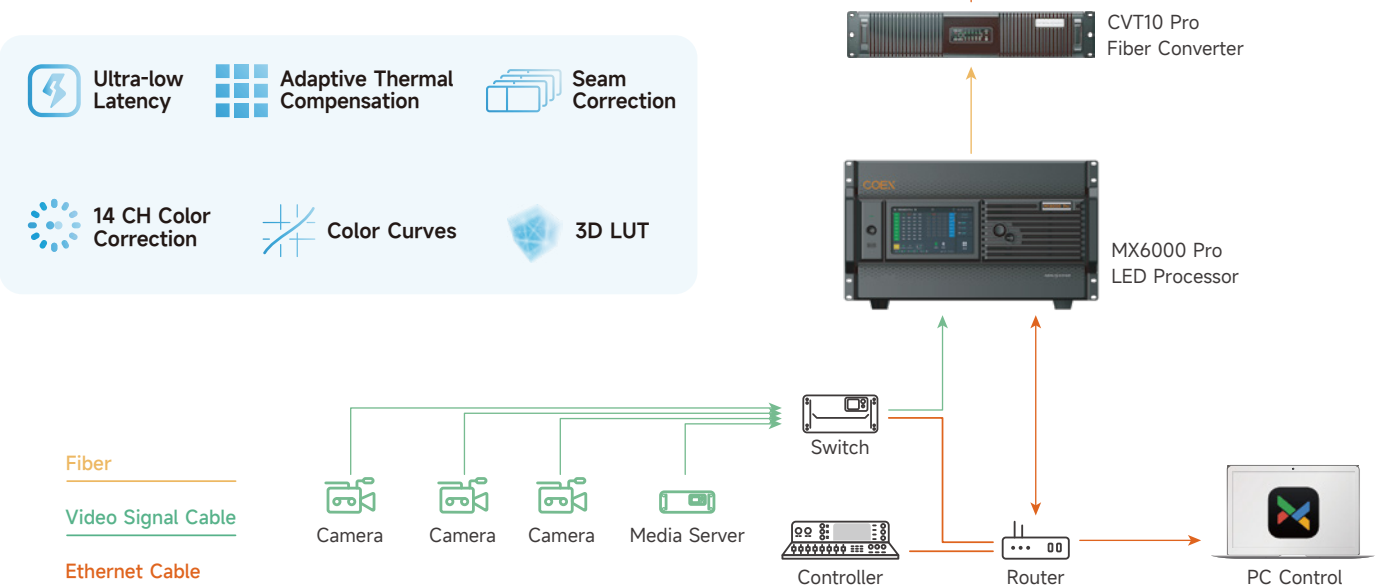
TOURING RENTAL SOLUTION

NovaStar Touring Rental Solution is user-friendly, and has many professional functions. With easy cable wiring and modular design, it effortlessly handles tasks of large loading capacity and 4K-level input/output or 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 removal and installation. With lightweight equipment and straightforward wiring, it effortlessly handles tasks of large payload capacity and 4K-level input/output or 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	Adaptive Thermal Compensation	Seam Correction
14 CH Color Correction	Color Curves	3D LUT

Fiber

Video Signal Cable

Ethernet Cable

Switch

Camera Camera Camera Media Server

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 shape of curved screen or dome screen). 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.
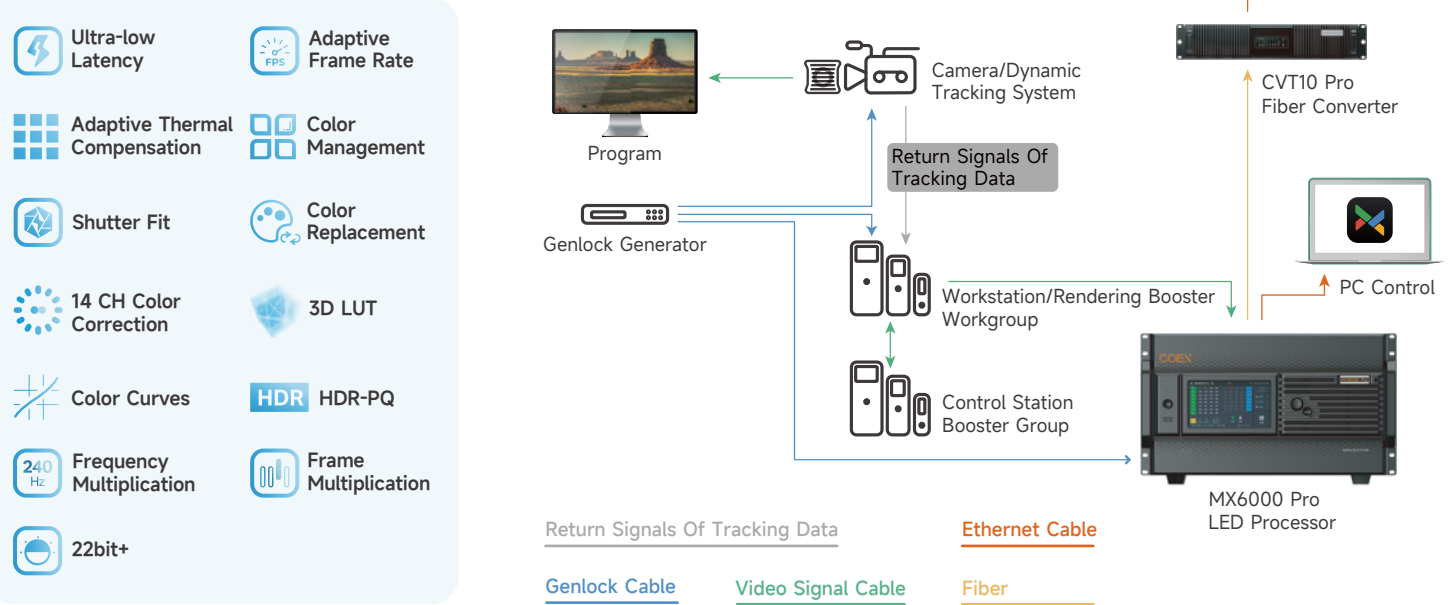
Therefore, large studios have strict requirements for the functionalities, image quality, and system stability of the control system. Besides, large studio screens usually have high resolution, and often encounter challenges such as multiple devices management and too-complex structures.

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 choose to use 4K or 8K input cards. 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
Adaptive Thermal Compensation	Color Management
Shutter Fit	Color Replacement
14 CH Color Correction	3D LUT
Color Curves	HDR HDR-PQ
240Hz Frequency Multiplication	Frame Multiplication
22bit+	

Program

Camera/Dynamic Tracking System

Return Signals Of Tracking Data

Genlock Generator

Workstation/Rendering Booster Workgroup

Control Station Booster Group

CVT10 Pro Fiber Converter

PC Control

MX6000 Pro LED Processor

Return Signals Of Tracking Data — Ethernet Cable

Genlock Cable — Video Signal Cable — Fiber

SMALL TO MID-SIZE xR / VP SOLUTION

The small to mid-size xR/VP scenario refers to construct a compact multi-screen

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

This scenario combines virtual reality and extended 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
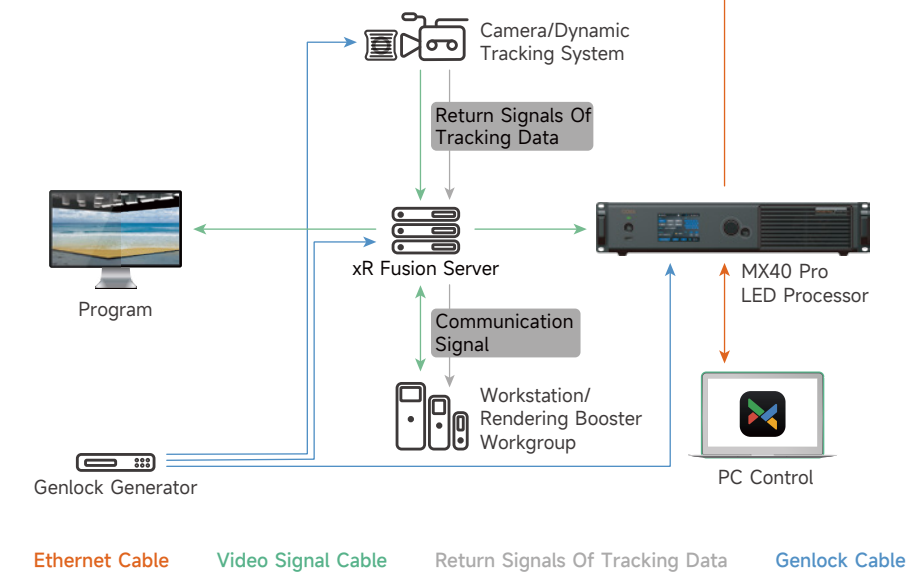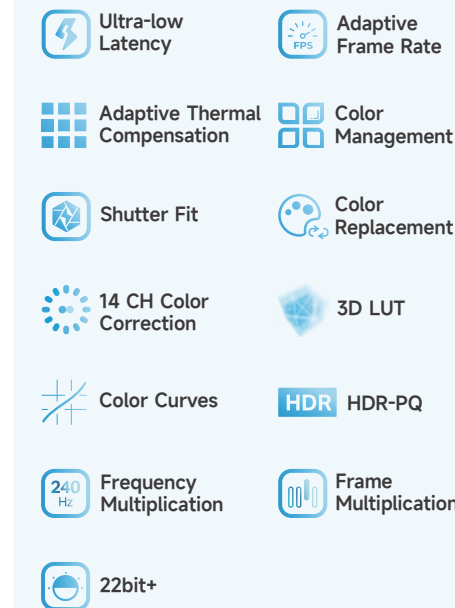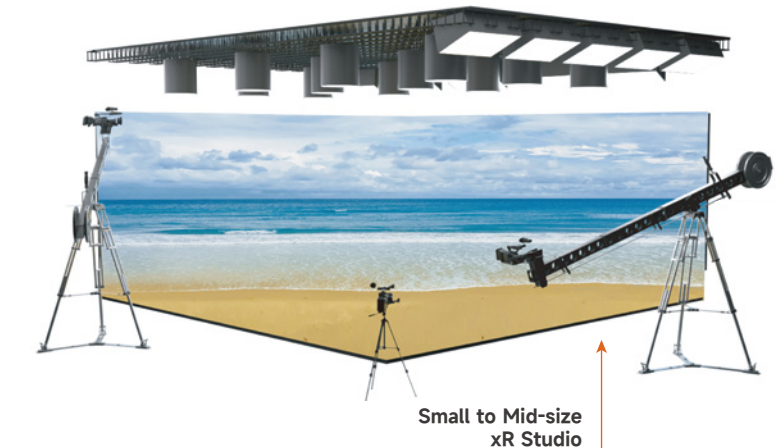
video sources on the screen and synchronizing with peripherals such as blending servers and cameras. Therefore, in xR shooting scenarios, the control system is expected to fulfill various functional requirements, including user-friendly software operation, flexible color processing, precise grayscale 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. It creates a shooting environment that fully equals real world.

Small to Mid-size xR Studio

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

Camera/Dynamic Tracking System

Return Signals Of Tracking Data

xR Fusion Server

Program

Communication Signal

MX40 Pro LED Processor

Workstation/ Rendering Booster Workgroup

Genlock Generator

PC Control

Ethernet 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 resolutions, 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.
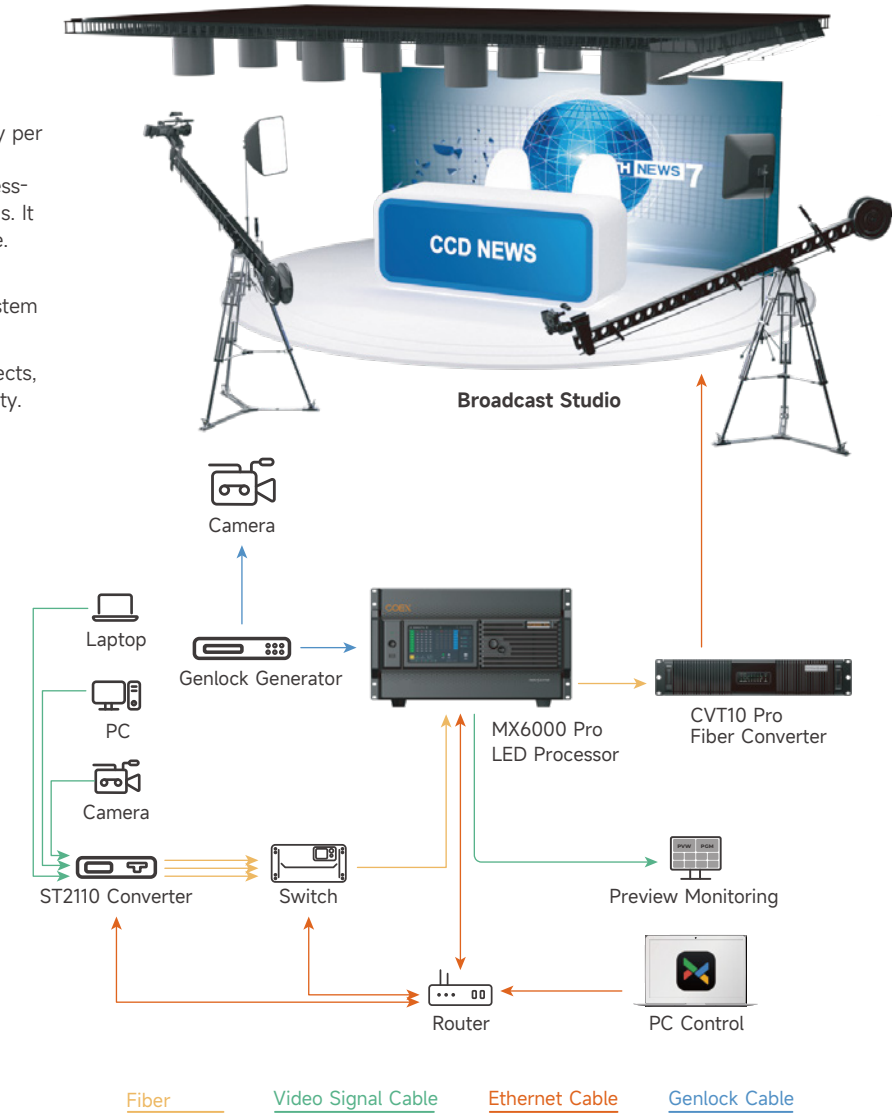
Solution Introduction

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
	Adaptive Thermal Compensation	GEN	Phase Offset
	Shutter Fit		Color Replacement
	14 CH Color Correction		Image Booster
	Color Curves		3D LUT
SMPTE	ST 2110	HDR	HDR-PQ
	Frame Multiplication	240 Hz	Frequency Multiplication

Broadcast Studio

Camera

Laptop

Genlock Generator

PC

Camera

ST2110 Converter

Switch

MX6000 Pro LED Processor

CVT10 Pro Fiber Converter

Preview Monitoring

Router

PC Control

Fiber   Video Signal Cable   Ethernet Cable   Genlock Cable

Visual Intelligent Control Platform (VICP)

INTELLIGENTLY   **EFFICIENTLY**   **SIMPLY**   **VISUALLY**
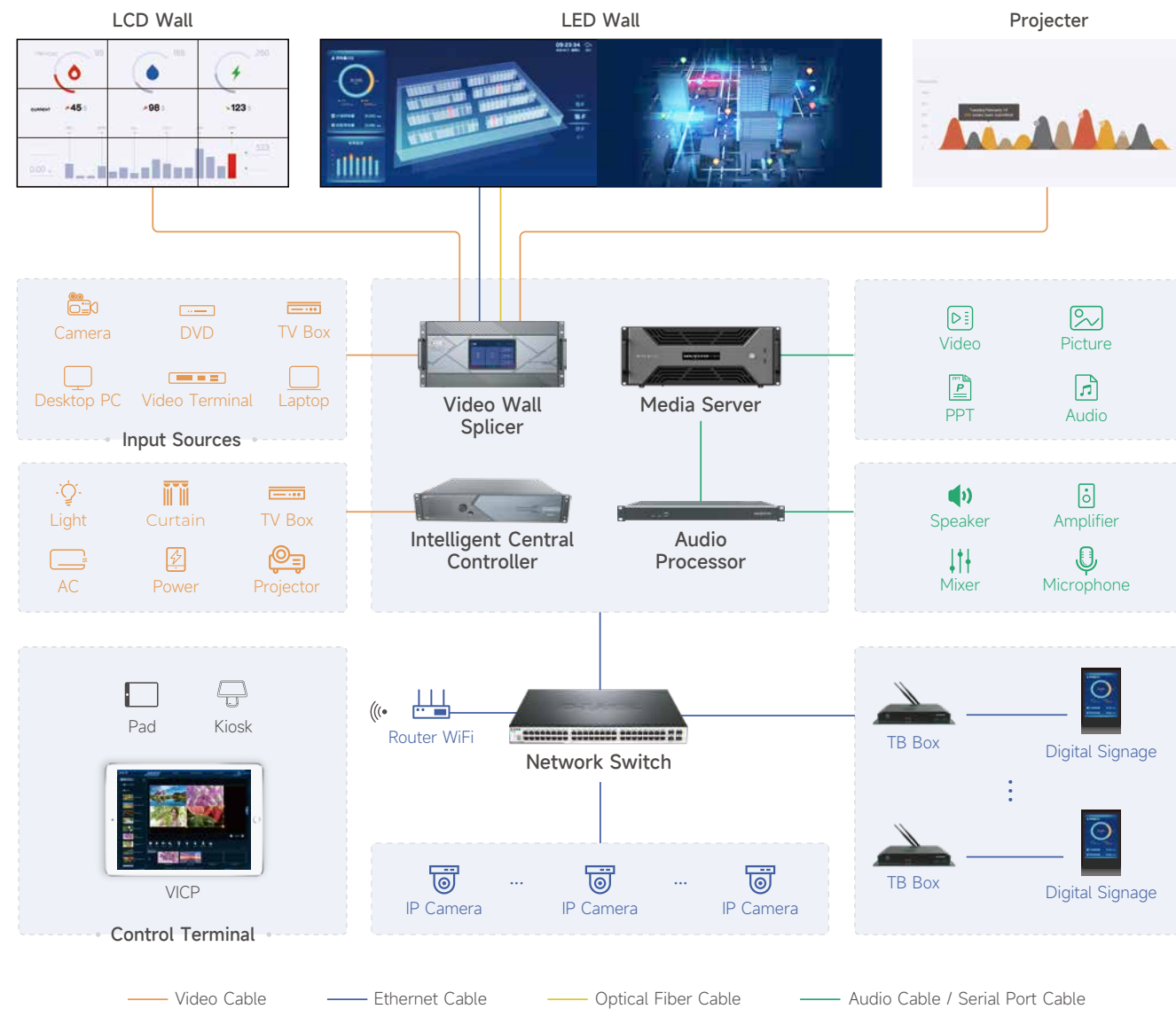
One-stop Centralized Management and Control Solution

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.

LCD Wall

LED Wall

Projecter

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

Video Wall Splicer

Media Server

- Video
- Picture
- PPT
- Audio

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

Intelligent Central Controller

Audio Processor

- Speaker
- Amplifier
- Mixer
- Microphone

- 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

FULL-SCENE VISUAL CONTROL

Real-time display of ET1S-G, ET2S-G, ET4S-G, ET16S-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.

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

ET1S-G、ET2S-G、ET4S-G、ET16S-G

Intelligent Control Processor

Vunit3000

Digital Audio Processor

H-DAP44、H-DAP88、H-DAP1616

All-In-One Controller

VX400Pro、VX600Pro、VX1000Pro、VX2000Pro

Multi Media Player

TB30、TB50、TB60

Visual Intelligent Control Platform

VICP
(Apple Store, Google Store)

Visual Integrated Management Platform

VIMP
(Windows, Linux)

Visual Interface Designer

VI Designer
(Contact NovaStar Team to Get it)

New VX Pro Series

Revolutionary Upgrade, Ultimate Intelligent Control

NovaStar's newly upgraded VX Pro series is an all-in-one controller combining video processing and LED controlling. The functions are freshly upgraded and a new 20-Ethernet-port device is added. The loading capacity of the whole series of products covers 2.6 million-13 million, which is free to choose.

The product's industrial-grade casing, robust video processing and transmission capabilities make it suitable for complex operating environments. It is widely utilized in high-end rental, stage control and engineering applications for fine-pitch LED screens.

Solution Topology

4K Layer 4K Layer

2K Layer 2K Layer 2K Layer 2K Layer

...

Tablet-VICP

Router PC-Unico

Long Distance
Transmission

Audio | Control | DP | SDI | HDMI 2.0 | HDMI 1.3 | PIXELHUE | Monitor | Power
Console | Processor | Source | Source | | | Switcher | |

—— Ethernet Cable   —— Video Cable   —— Audio Cable
—— Control Cable   —— Optical Fiber Cable   —— Power Cable
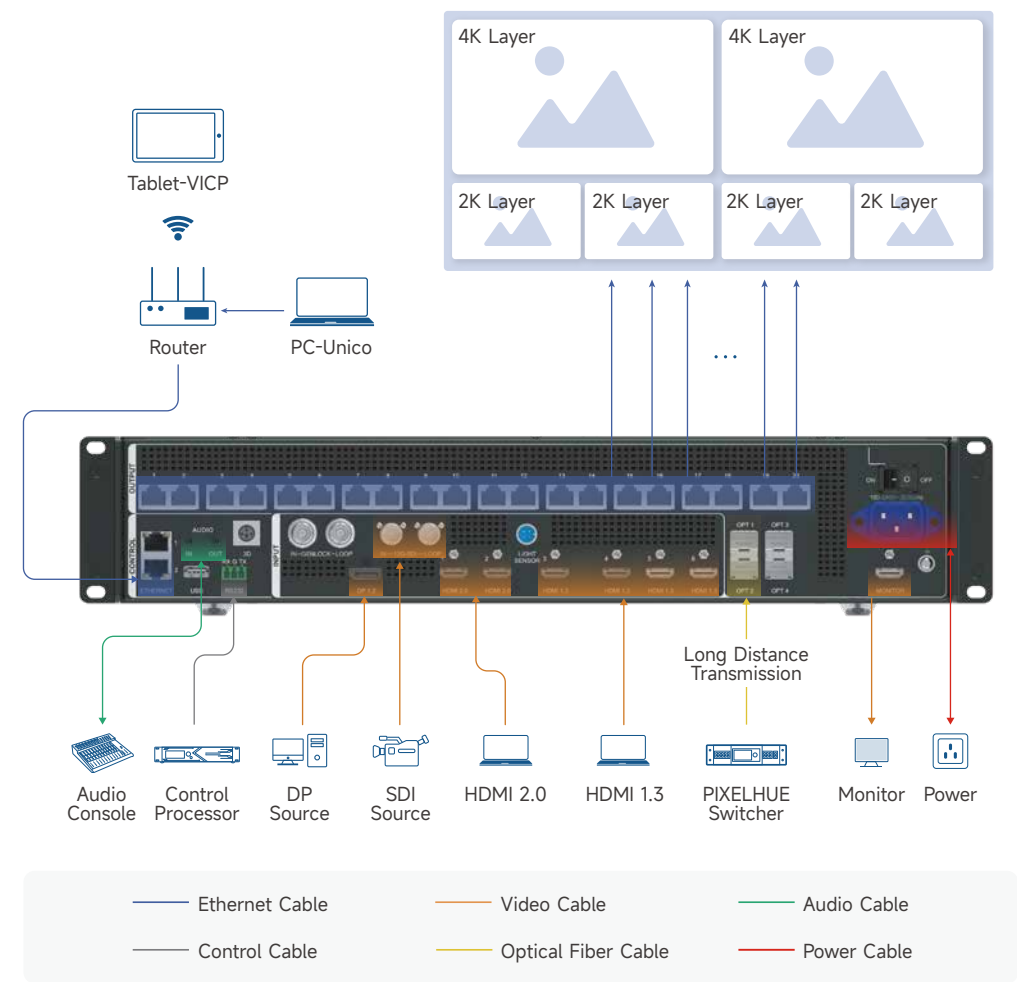
Core Features

Real 4K Inputs

The entire series is equipped with HDMI 2.0 interfaces,
making image clearer.

HDMI 2.0

Loading Capacity Beyond 4K

· One device, 20 Ethernet ports, 13 million pixels.
· Maximum width of 16,384 pixels and maximum height
  of 8,192 pixels.

16,384

13 million pixels
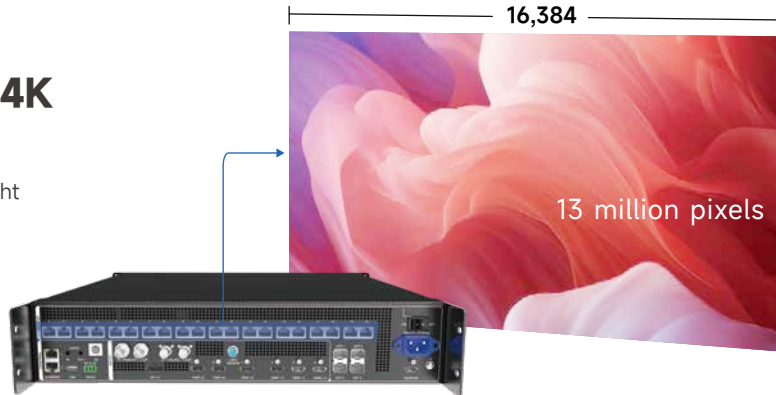
Multiple Layers and Presets

· VX2000 Pro supports 12 × 2K layers, others support 6 × 2K layers.
· Increased preset quantity up to 256.

USB Playback

Insert a USB drive for instant plug-and-play convenience and use a USB source as an input source, allowing for convenient testing and video playback.

Free Topology

Without rectangle restriction, loading capacity is calculated based on the physical cabinet, enhancing Ethernet port utilization and making configuration easier.

(*Specific receiving cards are required.)

End-to-End Backup

Complete full-link backup ensures stability on-site.

Device Backup

OPT Port Backup

Ethernet Port Backup

Input Source Backup

Backup Test
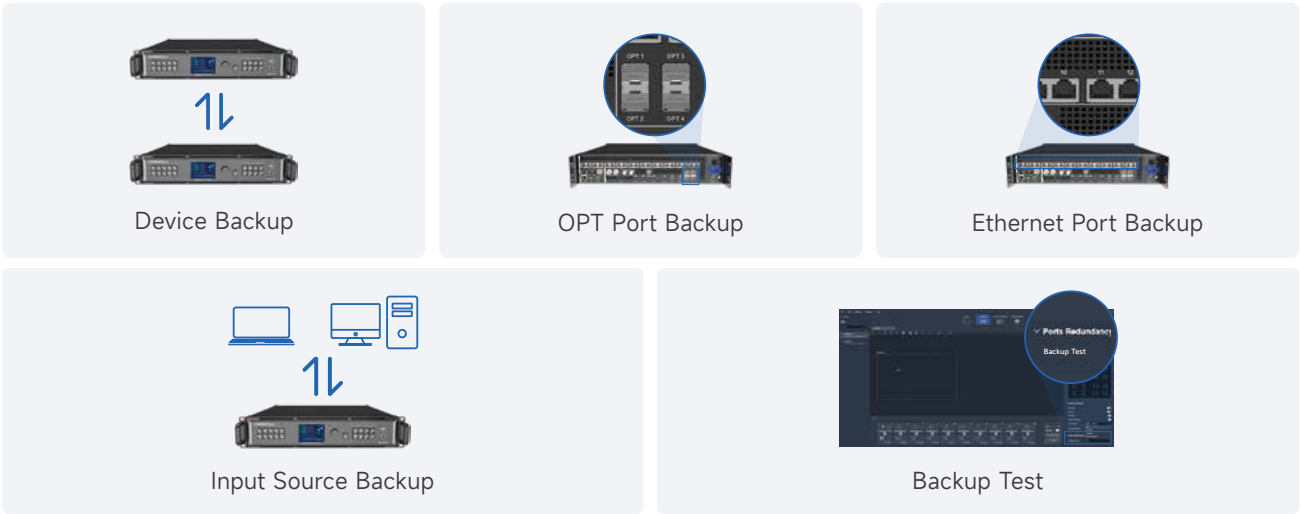
Three Working Modes

Video controller mode, Fiber Converter mode and ByPass mode.

Video Controller Mode

Fiber Converter Mode

ByPass Mode

Multiple Operation Methods

Use VICP App, front panel and Unico to switch inputs and presets, adjust brightness and so on easy, friendly and convenient.

VICP

Router

Brand New Software B/S Structure

Compatible with macOS, Windows and Web;
One software controls all;
Visualized control interfaces. User-friendly experience.

Unico

1

2

3

4
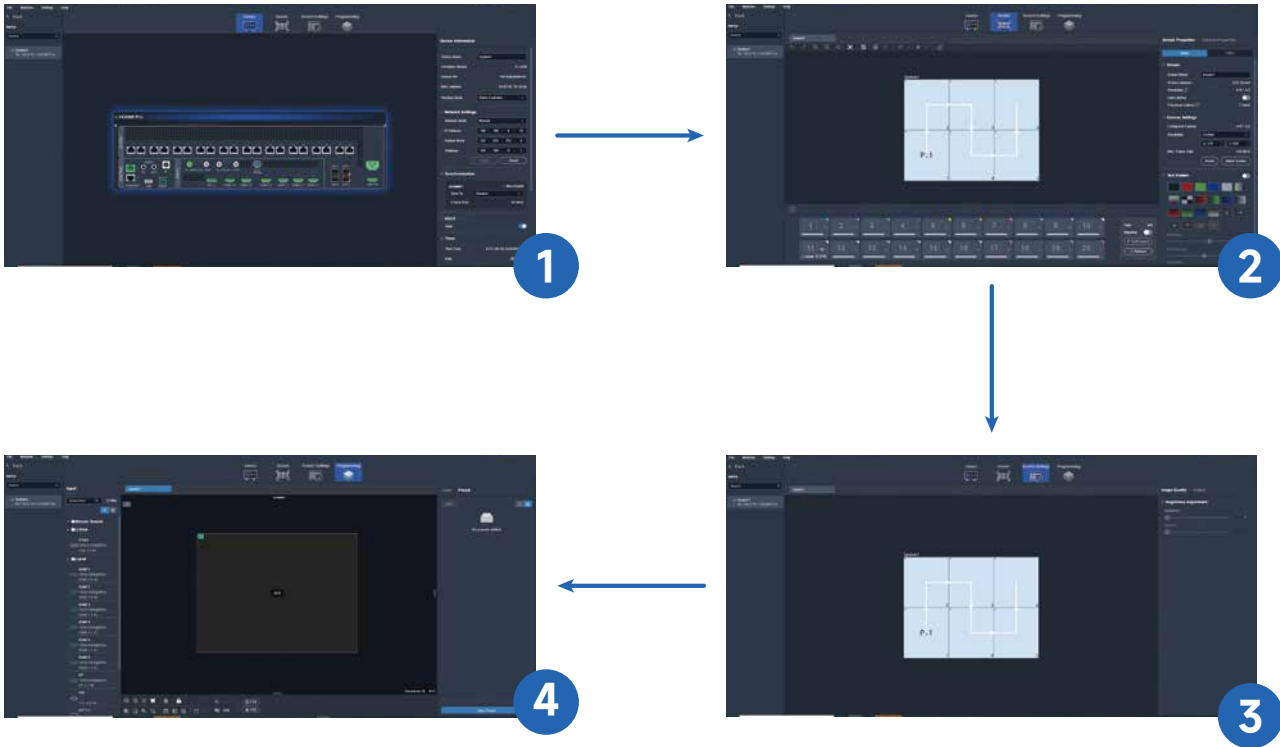
Independent Audio Connector

Supports switching between independent audio and accompanying audio, no requirement for additional audio device.

Audio Player   PC   Laptop

——— Video Cable   ——— Audio Cable

Flexible Fiber Solution

10G OPT ports, self-adaptive input/output, optical transmission of LED signals and video signals, optical signal and network signal backup, flexible and reliable.
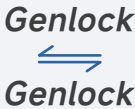

PIXELHUE Switcher

CVT10   CVT10

LED   LED

——— Ethernet Cable   ——— Optical Fiber Cable
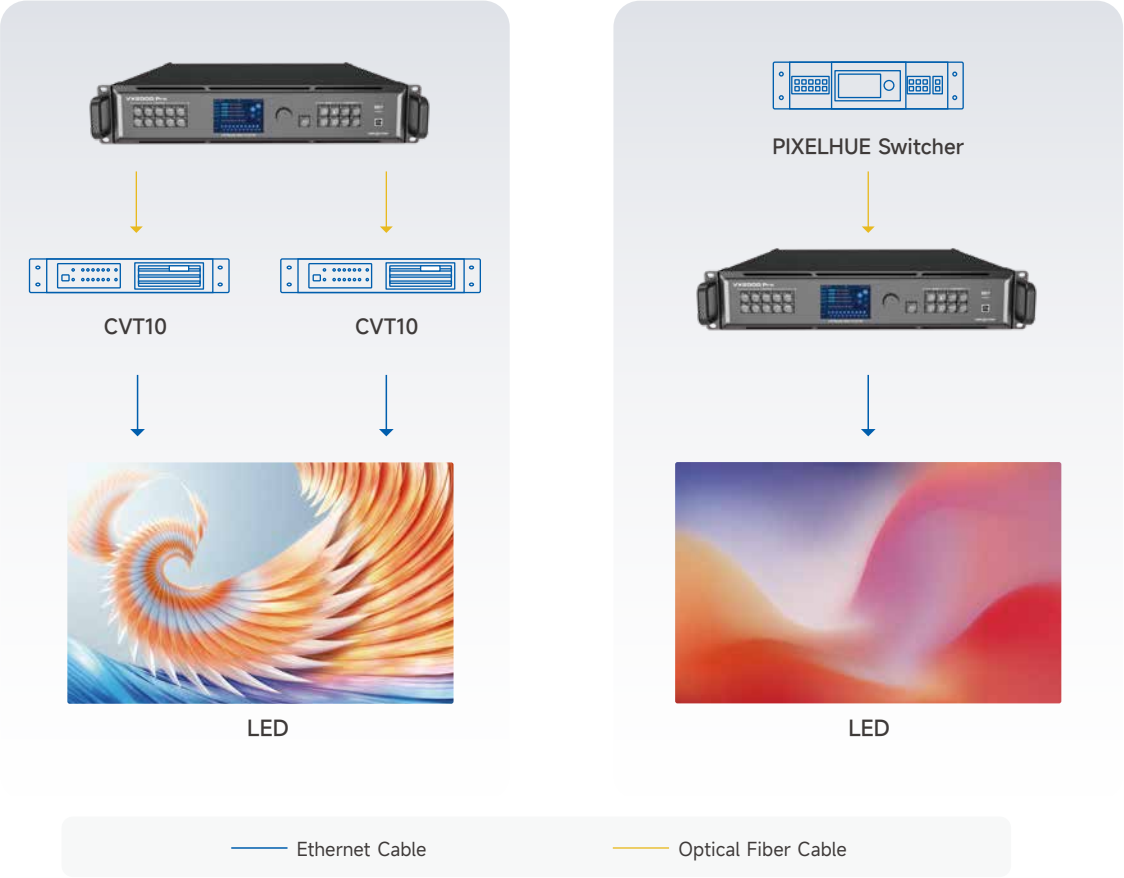
More Functions

3D	**Central Control (RS232)**
Genlock ⇄ Genlock	**Low Latency**
Light Sensor	**144Hz** Decimal Frame Rate

Specifications

Product Model	VX400 Pro	VX600 Pro	VX1000 Pro	VX2000 Pro
Loading Capacity	2.6 Million	3.9 Million	6.5 Million	13 Million
Maximum Width(Pixel)	10240	10240	10240	16384
Maximum Height(Pixel)	8192	8192	8192	8192
Input Ports	1 × HDMI 2.0(IN&LOOP) 2 × HDMI 1.3 1 × 3G-SDI(IN&LOOP) 1 × 10G OPT 1 × USB3.0	1 × HDMI 2.0(IN&LOOP) 2 × HDMI 1.3 1 × 3G-SDI(IN&LOOP) 1 × 10G OPT 1 × USB3.0	1 × HDMI 2.0(IN&LOOP) 2 × HDMI 1.3 1 × 3G-SDI(IN&LOOP) 1 × 10G OPT 1 × USB3.0	1 × DP 1.2 2 × HDMI 2.0 4 × HDMI 1.3 1 ×12G-SDI(IN&LOOP) 2 × 10G OPT 1 × USB3.0
Output Ports	Ethernet Port × 4 OPT × 2	Ethernet Port × 6 OPT × 2	Ethernet Port × 10 OPT × 2	Ethernet Port × 20 OPT × 4
Independent Audio IN&OUT	3.5mm IN&OUT	3.5mm IN&OUT	3.5mm IN&OUT	3.5mm IN&OUT
Previewing Port	1 × Monitor(HDMI1.3)	1 × Monitor(HDMI1.3)	1 × Monitor(HDMI1.3)	1 × Monitor(HDMI1.3)
Layers	6 × 2K	6 × 2K	6 × 2K	12 × 2K
Presets	256	256	256	256
Synchronization Settings	Video Input Source	Video Input Source, Genlock		
U-Disk	Supports USB Playback and Upgrade			
More Functions	Light Sensor, Low Latency, Output Quality Settings, and Image Mosaic			
Control Methods	USB, TCP/IP			
Software Control	NovaLCT, Unico, VICP APP			

ET SERIES
MEDIA SERVER

The NovaStar media server is specifically designed for permanent display applications, such as media showrooms, conference rooms, and data centers.
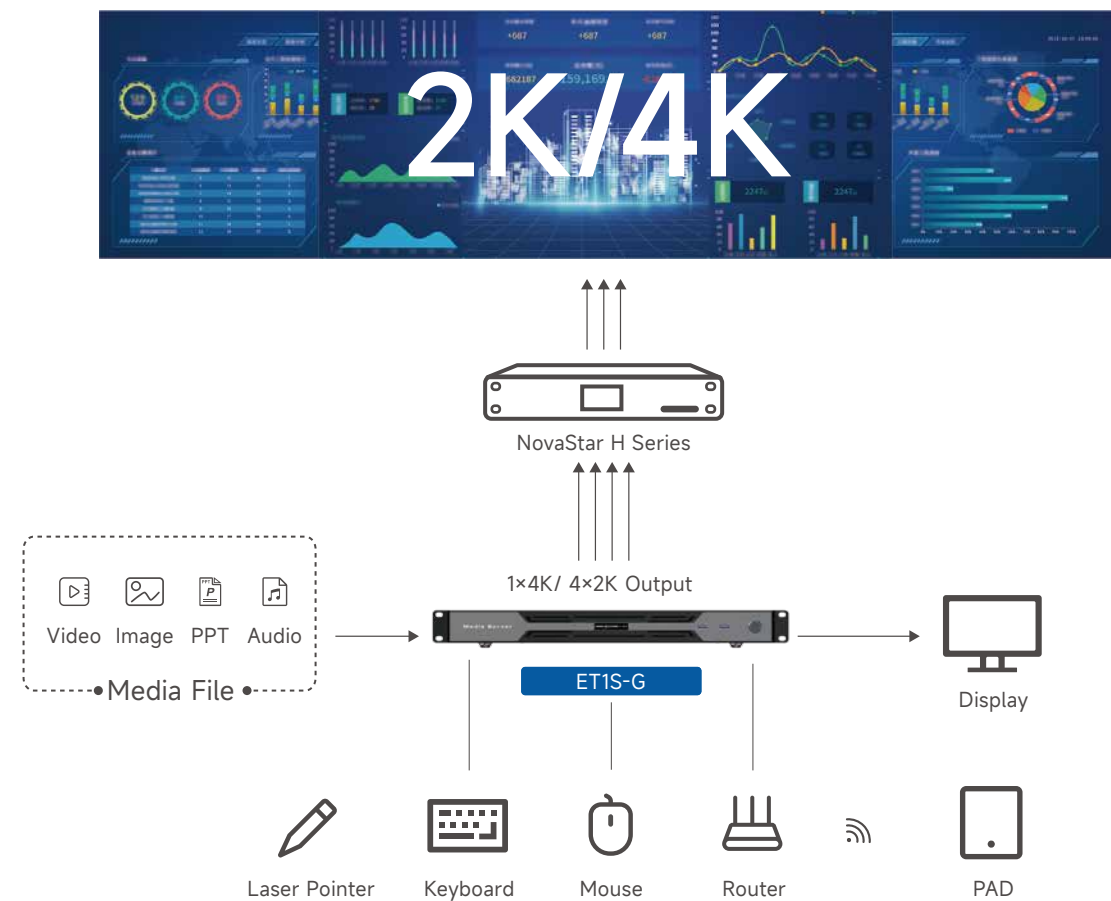It supports ultra-high resolution, pixel-by-pixel display with diverse creative splicing options.
Paired with professional media playback and control software, it delivers powerful audio-visual processing and media scheduling capabilities, while also offering users convenient stage management and a fully visualized machine interface.

Typical Topology
2K/4K Fixed Installation Scenarios

2K/4K

NovaStar H Series

1×4K/ 4×2K Output

Media File
Video Image PPT Audio

ET1S-G

Display

Laser Pointer Keyboard Mouse Router PAD

Multi-function Integration，Simplified

Integrating powerful features such as professional playback software, playback control computers, protocol command, and conversion devices.

Playback Software Computer Conversion Device Protocol Command

Hot-swappable Interface with Seamless Display

The interface supports EDID Lock and ESD Protection, ensuring video playback with hot-swapping capabilities that prevent screen flicker or disruption.

EDID LOCK ESD Protection

Typical Topology
Dual 4K Display

NovaStar H Series

2×4K Output

ET2S-G

Media File

Video   Image   PPT   Audio

Laser Pointer   Keyboard   Mouse   Router   PAD
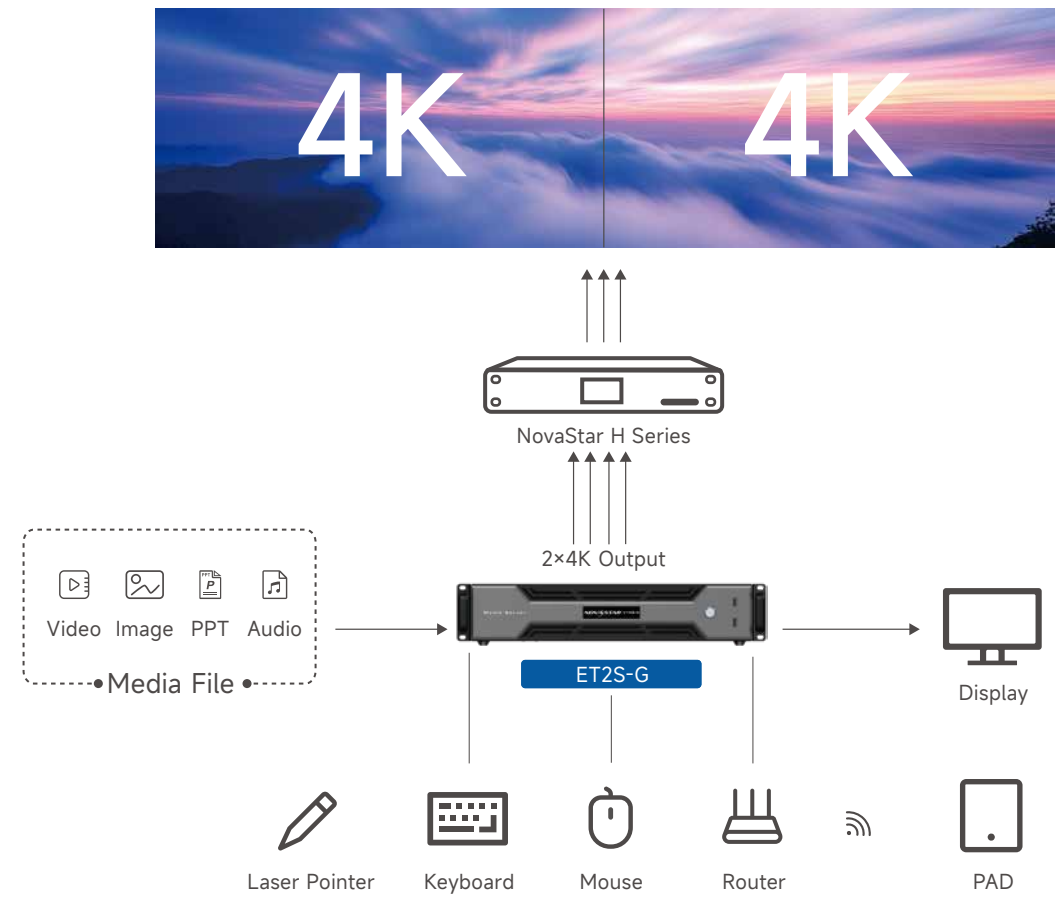
Display

Dual 4K Output with Smooth Hardware Decoding

Supports dual 4K processing and output, meeting display requirements for one 8K1K or two 4K2K large screens. GPU-accelerated rendering enables smooth playback of 8K2K@60fps video with hardware decoding
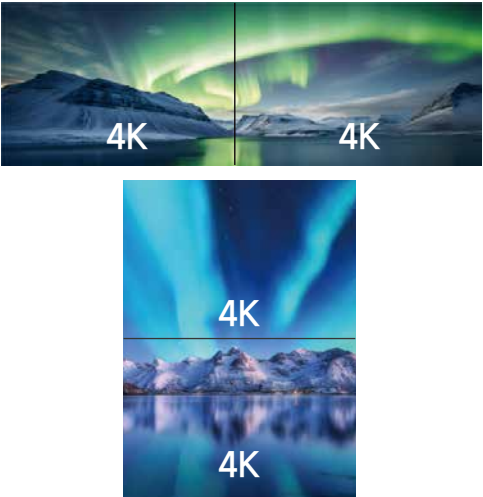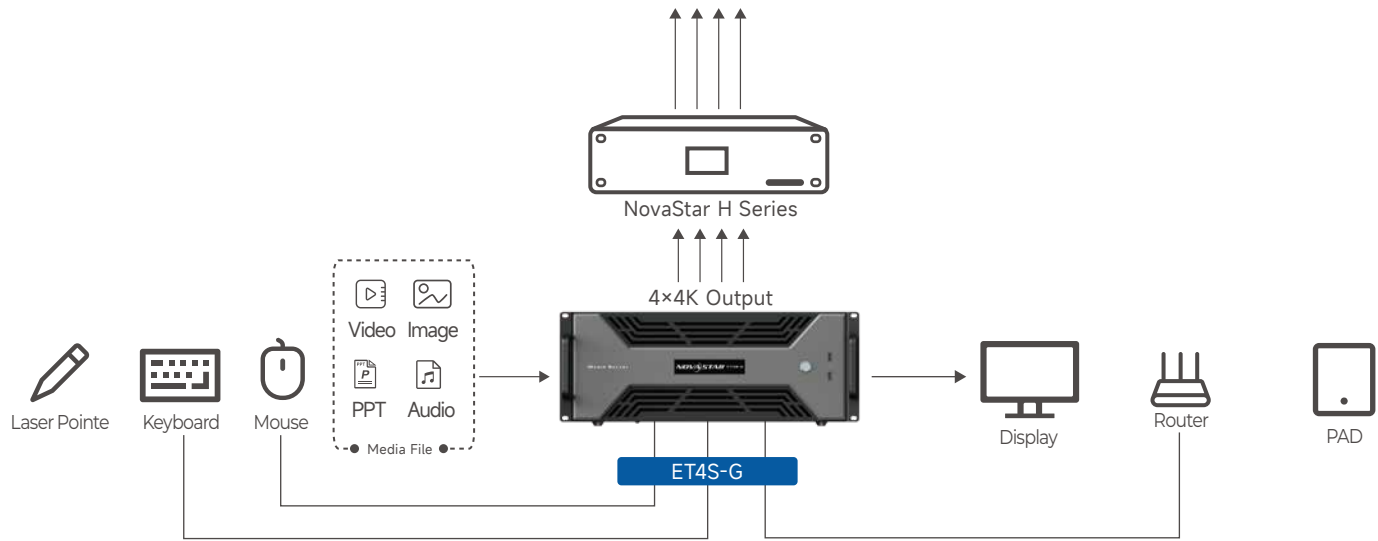
HDR High-Definition Display for Clearer Large-Screen Images

HDR high dynamic range provides higher contrast and rich color performance, delivering ultra-clear and realistic visual effects.
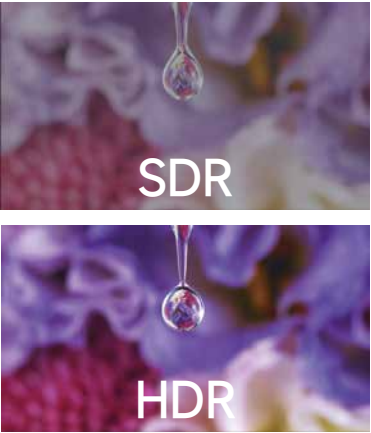
Typical Topology
8K Ultra HD Display

8K

NovaStar H Series

4×4K Output

Video Image

PPT Audio

Media File

ET4S-G

Laser Pointe   Keyboard   Mouse   Display   Router   PAD

8K Hardware Decoding Delivers Ultra-clear and Smooth Playback

Supports 7680×4320@60HZ video hardware decoding with GPU accelerated rendering, ensuring smooth playback of high-definition video without stuttering or frame loss.
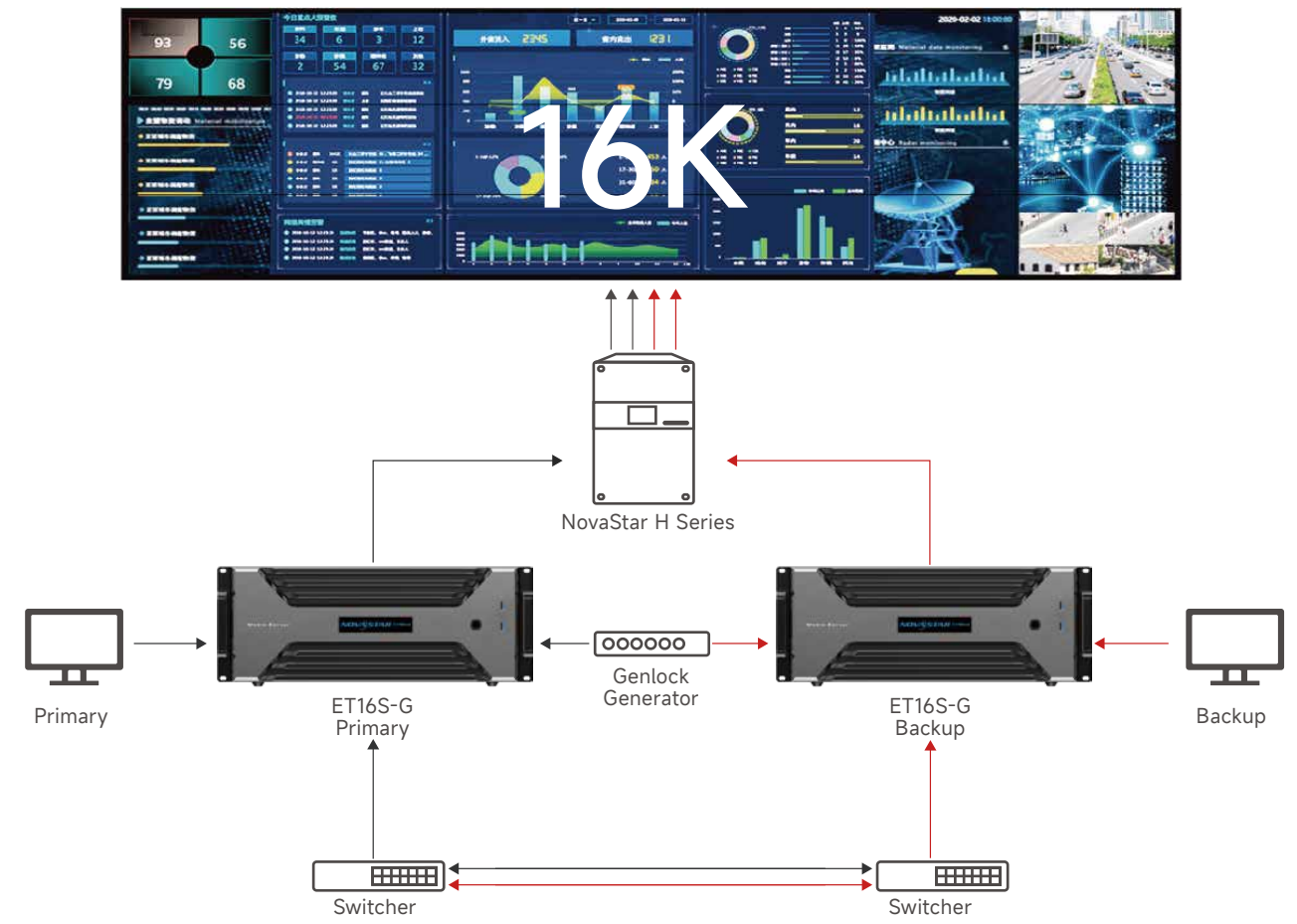

1920×1080   2560×1600   3840×2160
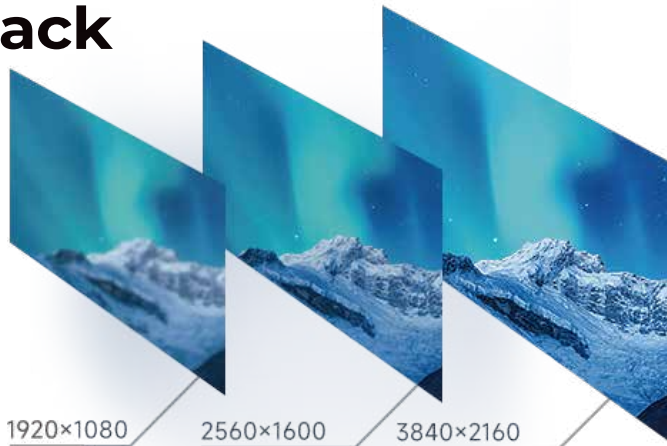
Immersive Exhibition Applications Unlimited Creativity

Innovative 3D mapping without the needs for custom medias. Simplifies on-site debugging, enabling one-click panoramic content display on irregular immersive screens.

3D Mapping   Panoramic Effects
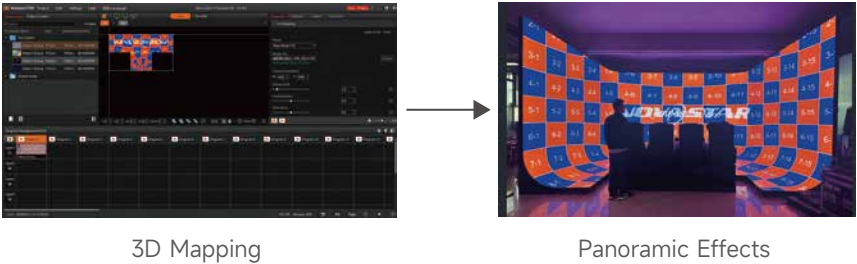
Typical Topology
Ultra 8K HD Display + Hot Backup

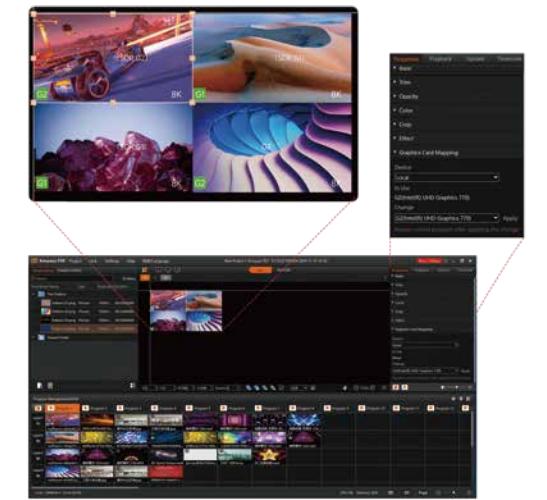# Multi-Machine Cascade Frame Synchronization and Unlimited Cascade

Based on the playback software FSD frame synchronization technology, this system achieves frame-synchronized output across multiple machines. It offers microsecond-level synchronization (less than 1.6μs), ensuring fast, tear-free images. comprehensive hot backup enables seamless and imperceptible main-backup switching (less than <1.6μs).
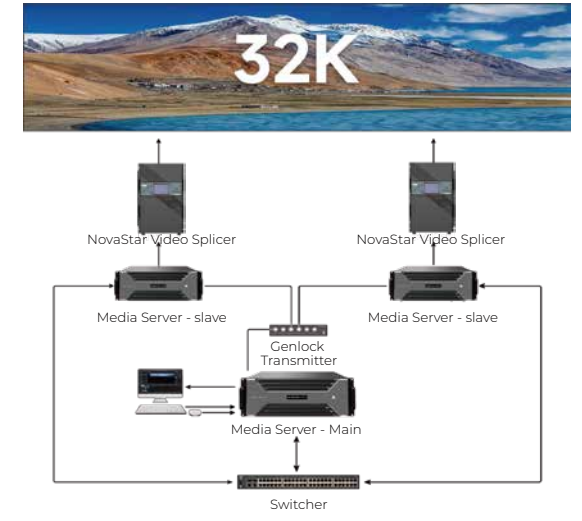
Professional Playback Control Software: Visual Mixing Playback

Drag and drop materials freely with real-time preview playback. Unlimited layers with arbitrary layout;
Visual editing for primary-backup and primary-slave configurations, making it user-friendly and easy to operate.

Specifications

Product Model	ET1S-G	ET2S-G	ET4S-G(P2)	ET4S-G(A4)
Chassis	1U	2U	4U	
Memory Size	16G (DDR4)	16G (DDR4)	32G (DDR4)	
CPU	AMD Ryzen 5600H	12th Gen Intel® Core (i5 12400)	12th Generation Intel® Core Processor(i7 12700)	
Storage	M.2 SSD 250GB	M.2 SSD 500GB	250GB M.2 SSD (System Driver) , 1TB M.2 SSD (Storage Driver)	
Grapgic Card Model	Integrated Graphics	MPGT400	MPG2200	HPG4000
Loading Capacity	4096×2160@60Hz	2×4096×2160@60Hz	4×4096×2160@60Hz	
Decoding Capacity	1 layer of 4K@60 or 4 layers of 2K@60	1 layer of 8K@30 or 2 layers of 4K@60	1 layer of 8K@30 or 2 layers of 4K@60	1 layer of 8K@60 or 4 layers of 4K@60
Program Quantity	Unlimited	Unlimited	Unlimited	
Layer Quantity	Up to 4 layers and 1 audio layer	Up to 8 layers and 1 audio layer	Up to 12 layers and 1 audio layer, with supported for expandability	
EDID Lock	√	√	√	
Cascading	√	√	√	
Frame Synchronization Splicing	/	/	/	/
Dual-machine backup	/	/	/	/
Ipad Control	√	√	√	
Protocol Control	√	√	√	
Operation System	Windows 10 Enterprise LTSC	Windows 10 Enterprise LTSC	Windows 10 Enterprise LTSC	
Software	Kompass FX1	Kompass FX2	Kompass FX3 (Dongle Included)	
Media Type	Video, audio, picture, subtitle, PPT, web page, NDI, streaming media, collection playback, digital clock	Video, audio, picture, subtitle, PPT, web page, NDI, streaming media, collection playback, capture card, digital clock	Video, audio, picture, subtitle, PPT, web page, NDI, streaming media, collection playback, capture card, digital clock, sequence frame	

Product Model	ET16S-G(2A4)	ET16S-G(3A4)
Chassis	4U	
Memory Size	64G (DDR4)	128G (DDR4)
CPU	Single Intel Xeon Gold Processor	Dual Intel Xeon Gold Processor
Storage	1TB M.2 SSD	1TB M.2 SSD (System Driver) , 960GB U.2SSD (Storage Driver)
Grapgic Card Model	2x HPG4000 1xMPGT400 1xSync Card	3x HPG4000 1xMPGT400 1xSync Card
Loading Capacity	8× 4096×2160@60Hz	12×4096×2160@60Hz
Decoding Capacity	2 layers of 8K@60 or 8 layers of 4K@60	3 layers of 8K@60 or 12 layers of 4K@60
Program Quantity	Unlimited	
Layer Quantity	12 layers (24 layers with 2 graphics cards, 36 layers with 3 graphics cards, 48 layers with 4 graphics cards) and 1 audio layer, with supported for expandability	
EDID Lock	√	
Cascading	√	
Frame Synchronization Splicing	√	
Dual-machine backup	√	
Ipad Control	√	
Protocol Control	√	
Operation System	Windows 10 Enterprise LTSC	
Software	Kompass FX3 (Dongle Included)	
Media Type	Video, audio, picture, subtitle, PPT, web page, NDI, streaming media, collection playback, capture card, digital clock, sequence frame	

SERIES

DESIGN IT
YOUR WAY.

Most integrated
Modular design
4K / 8K and more
Extreme user friendly

Modular Design

Input cards

HDMI2.1&2.0&1.4&1.3
Fiber input
DP1.4&1.2 & 1.1
3G & 12G SDI
DVI
IP stream
NDI
ST2110
OPT
Audio

Output cards

16×RJ45+2×OPT
20×RJ45
MVR card
4×OPT
4×HDMI1.3
4×DVI
1×HDMI2.0
4×3G SDI
1×12G SDI
4×HDBaseT
2×Audio

Highly Integrated

1 Device
416 Million Pixels
80×4K Inputs or 160 x2K Inputs
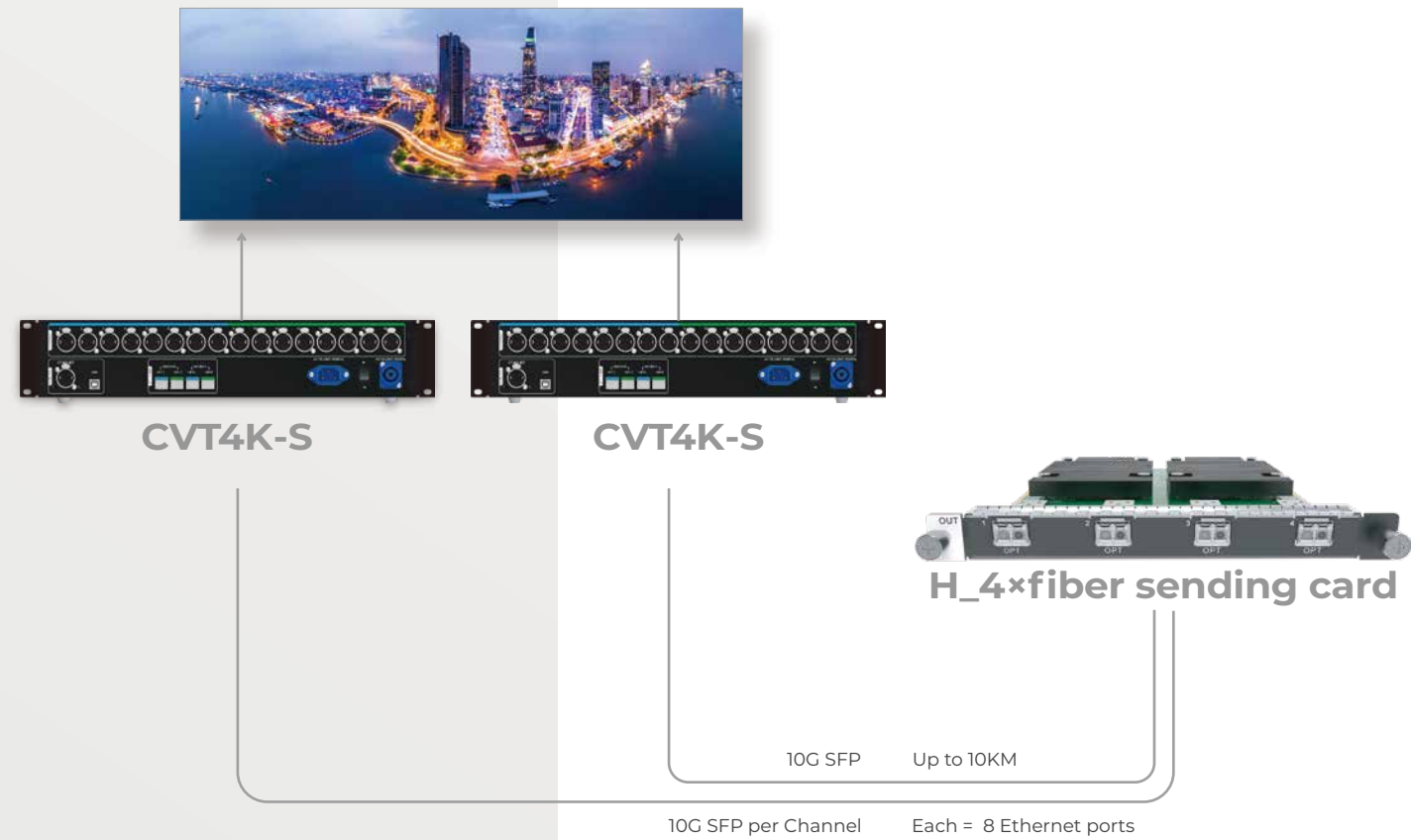
Video over IP

SMPTE ST2110, NDI, HDBaseT

 SMPTE ST 2110

 NDI

 HDBT BASE-T

Visual Control

Drag and play

★ VICP   Apple Store Google Store

Free Layers

SIZE & POSITION

16×2K per output card
4×4K per output card

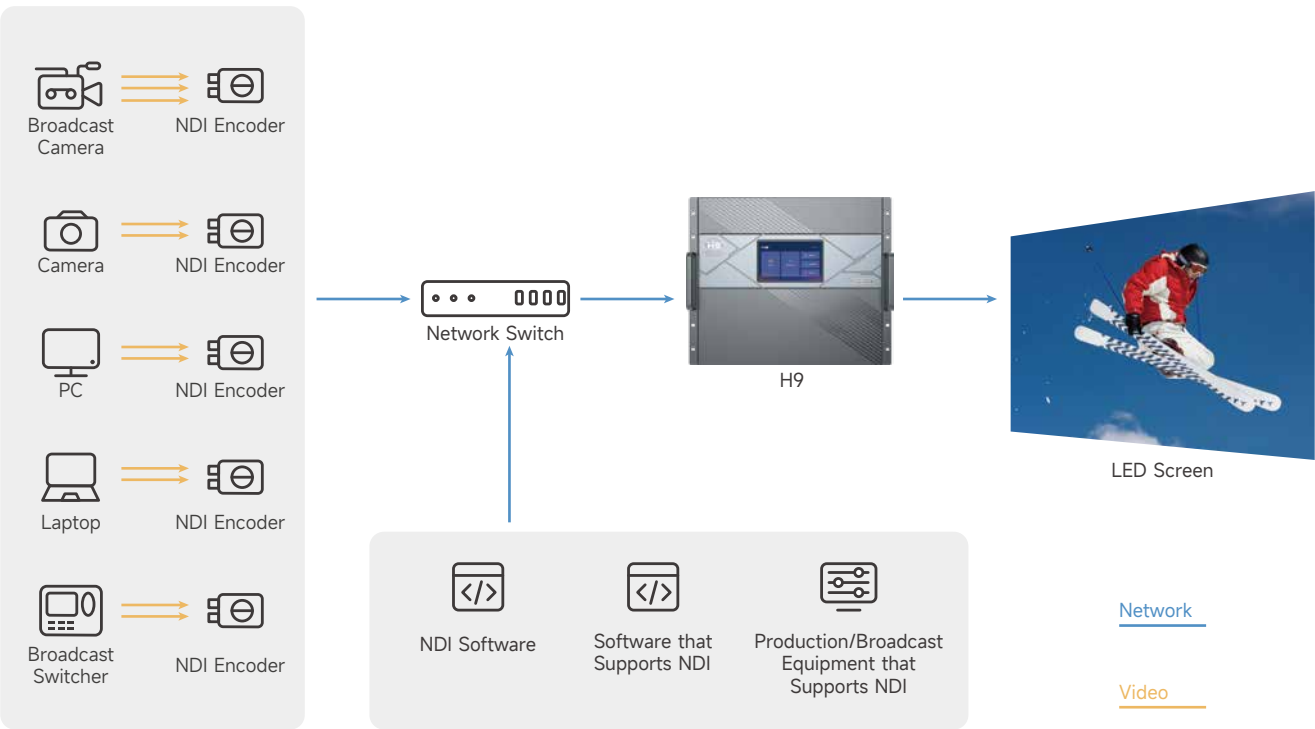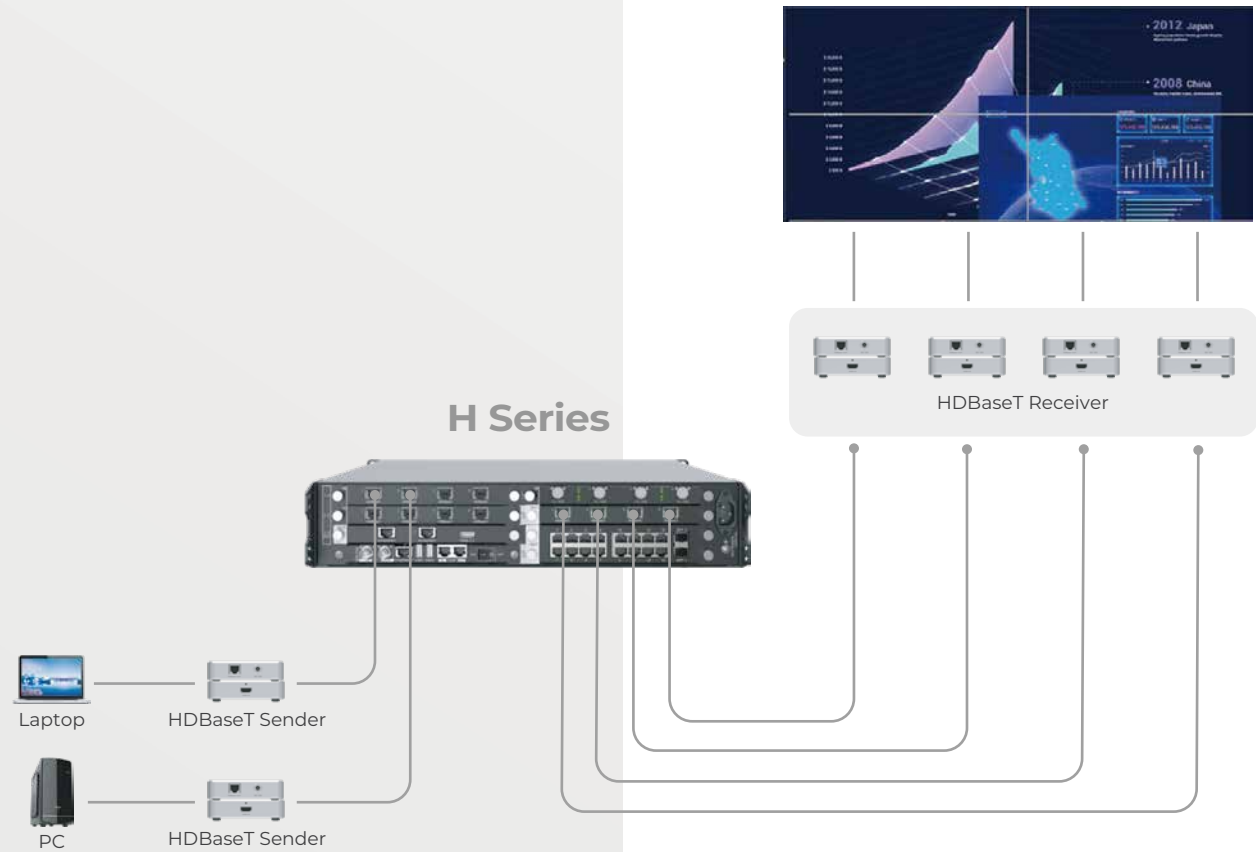# Fiber Solution

Audio Solution

CVT4K-S

CVT4K-S

H_4×fiber sending card

10G SFP   Up to 10KM

10G SFP per Channel   Each = 8 Ethernet ports

Speaker

LED/LCD Display

Amplifier

Audio Processor

H Series

HDMI (With Audio)

Laptop

DP (With Audio)

Audio

PC

Audio Player
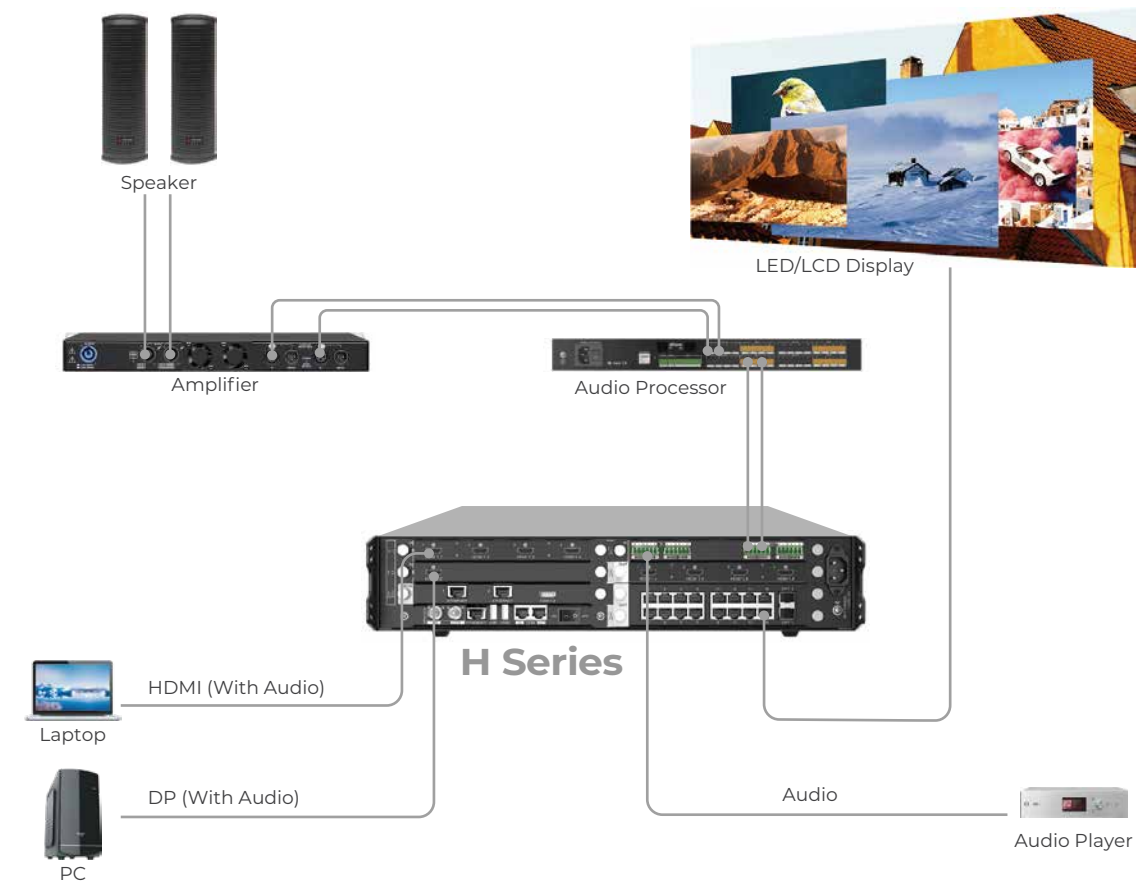
ST2110 Solution

NDI Solution

Broadcast Studio

H9

Laptop

PC

Camera

Camera

ST2110 Converter

25G Router

Genlock Generator

Broadcast Camera — NDI Encoder

Camera — NDI Encoder

PC — NDI Encoder

Laptop — NDI Encoder

Broadcast Switcher — NDI Encoder

Network Switch

H9

LED Screen

NDI Software

Software that Supports NDI

Production/Broadcast Equipment that Supports NDI

Network

Video

HDBaseT Solution

Selection Guide

H Series

Laptop — HDBaseT Sender
PC — HDBaseT Sender

HDBaseT Receiver

	H2	H5	H9	H9 (Enhanced)	H15	H15 (Enhanced)	H20
Chasis	2U	5U	9U	9U	15U	15U	20U
Max. Input Cards	4 input cards	10 input cards	15 input cards	15 input cards	30 input cards	30 input cards	40 input cards
Max. Output Cards	2 output cards	3 output cards	5 output cards	10 output cards	10 output cards	16 output cards	20 output cards
Max. Layers	32 Layers	48 Layers	80 Layers	160 Layers	160 Layers	160 Layers	320 Layers
Max, Loading Capacity (4-Port Fiber card)	41.6 million pixels	62.4 million pixels	104 million pixels	208 million pixels	208 million pixels	332.8 million pixels	416 million pixels

TU SERIES

INTELLIGENT CONTROL SOLUTION

4K Smart Playback Control
Excellent Vision at Hand

TU SERIES

INTELLIGENT PLAYBACK CONTROL PROCESSOR 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.

Input Source

Switch the input source for change the display content.

Android •   HDMI1   HDMI2

Mobile informatization, Cloud-based, Intelligent

Massive Loading Capacity, Free Wiring

2 models to choose from: 20 × RJ45 port and 6 × RJ45 port, with loading capacities ranging from 2.6 million to 13 million pixels
A single device supports: Max. Width 16384 pixels; Max. Height 8192 pixels
Free wiring, no rectangle limitation

Ultra-large Loading Capacity
13 Million

Max. Width
16384 Pixels

Max. Height
8192 Pixels

13 Million Pixels

3.9 Million Pixels

2.6 Million Pixels

Enhanced Image
Renewed Sensory Experience

AI Image
Enhancement

AI algorithm intelligently recognizes playback content and conducts frame-by-frame fine-tuning, comprehensively optimizing color saturation, brightness, sharpness, and dynamic compensation, recreating exceptional image quality.
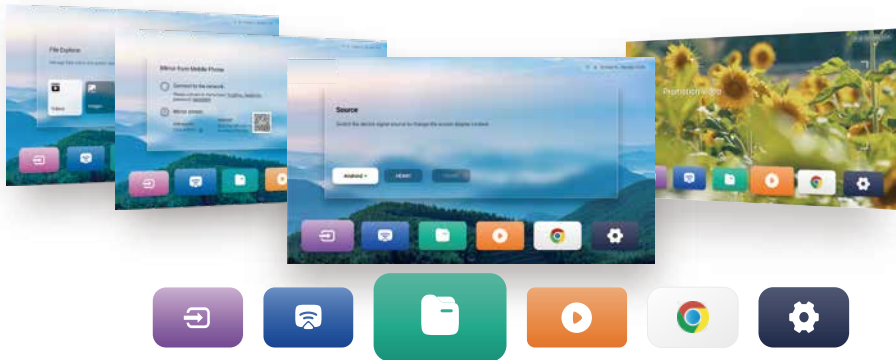

Full-link HDR
Image Quality

Wider color gamut, higher contrast, and richer details. No overexposure in highlights, no loss of details in shadows, presenting a vivid and lifelike realistic vision.
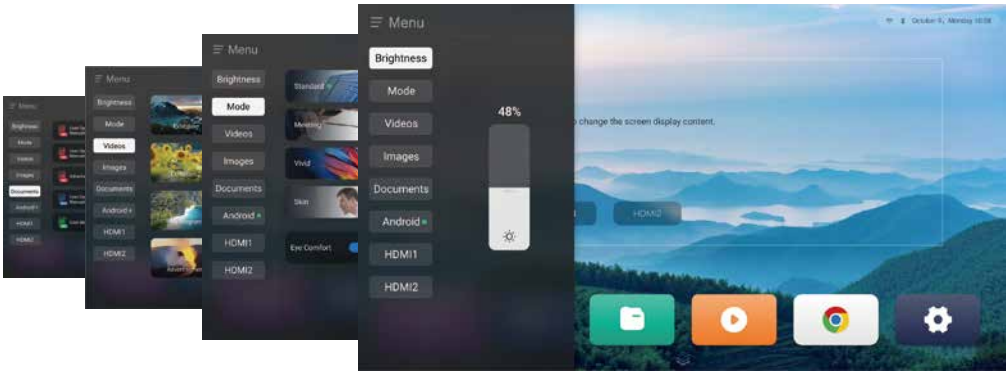

Extreme Experience
Smooth and Easy

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

Multiple Playback Control Methods

Intelligent Remote Control
Editing and playback control in three simple steps
New ways of playback with on-demand streaming

USB Drive Display
Plug and play, simplify playback control

APP Smart Control
It can realize LAN/remote program editing, scheduling, publishing and playback control through mobile APP, which is convenient to interact with LED screens.

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

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.
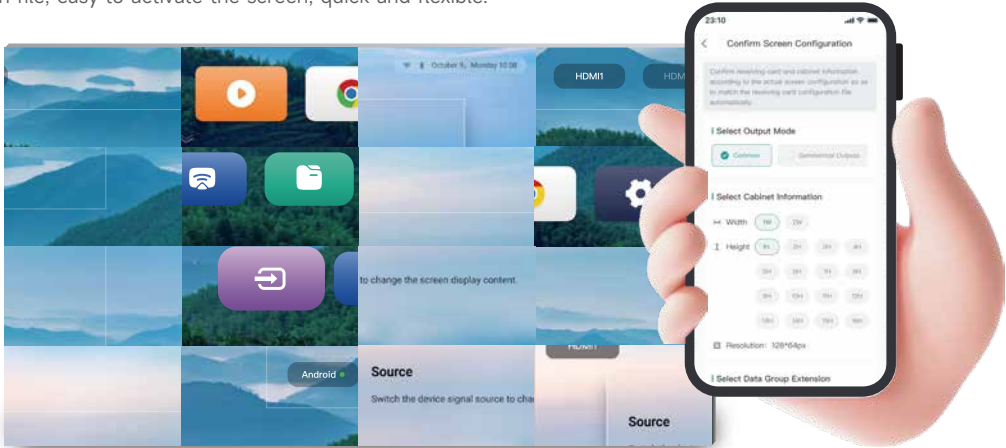
TU solution:

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.
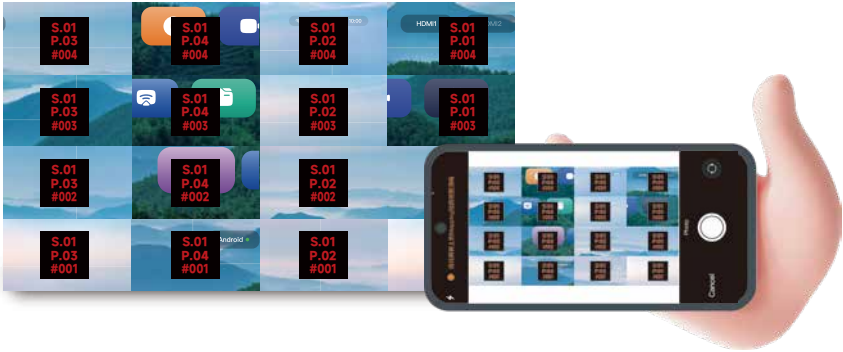
Eliminates the Bright & Darkness Lines Full-screen Accurate Calibration

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.
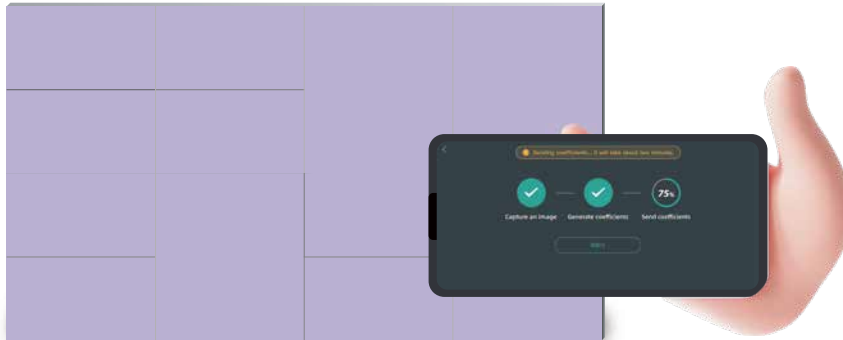
Full Operation and Maintenance Full Angle Monitoring

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.
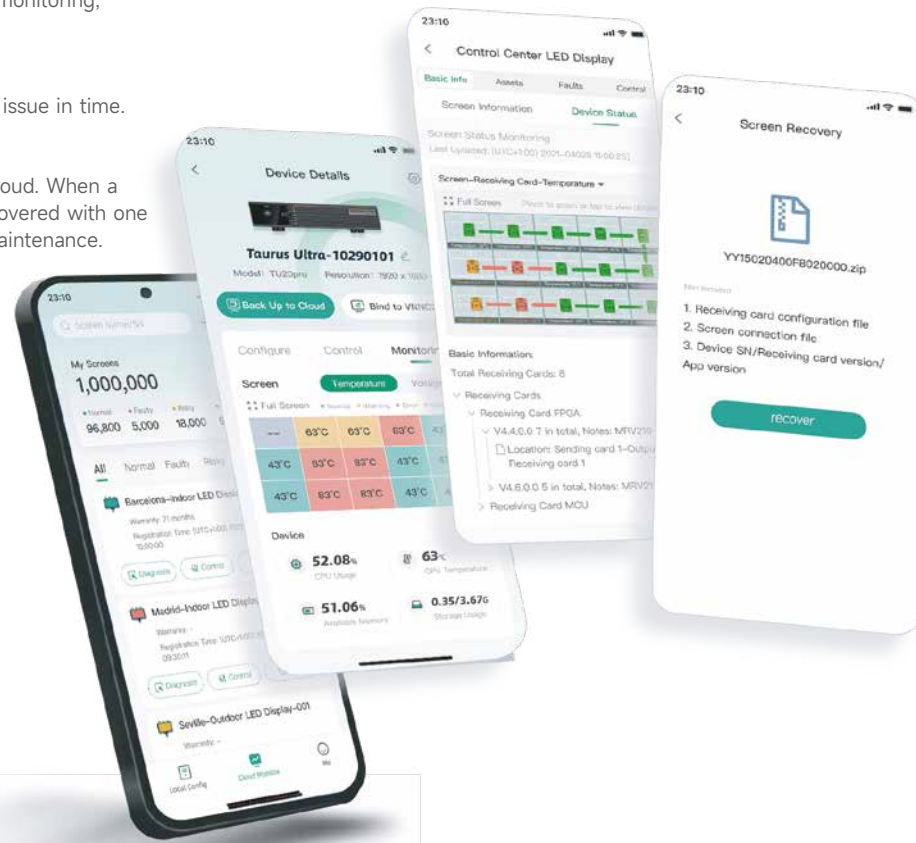
High-end Hardware Hardcore Performance

Powerful performance, Stable and Smooth

Built in octa-core 64-bit CPU and 4*A73+4*A53 ARM processor, maximun dominant frequency 2.2GHz.
8GB large RAM, 128GB massive storage, paired with Android 13 system, DBDM Wi-Fi 6 — ensuring long-term stable system operation.
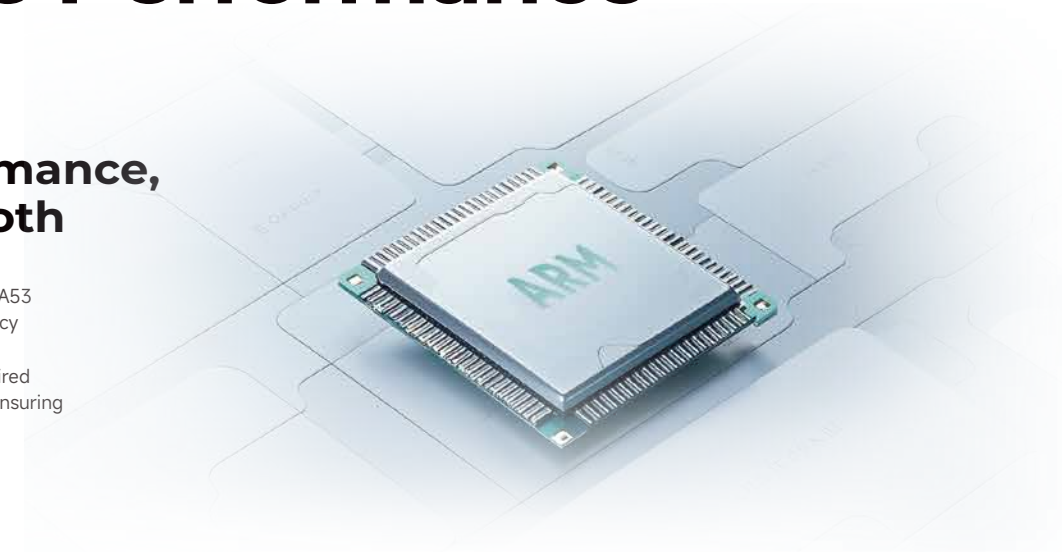
Feature-rich, Comprehensive, and Flexible

Abundant input, output, and control ports. It supports various peripherals to meet the needs of different scenarios such as conferences, advertising media, and exhibition halls.

Controller   Pickup   Sensor   Speaker   Camera
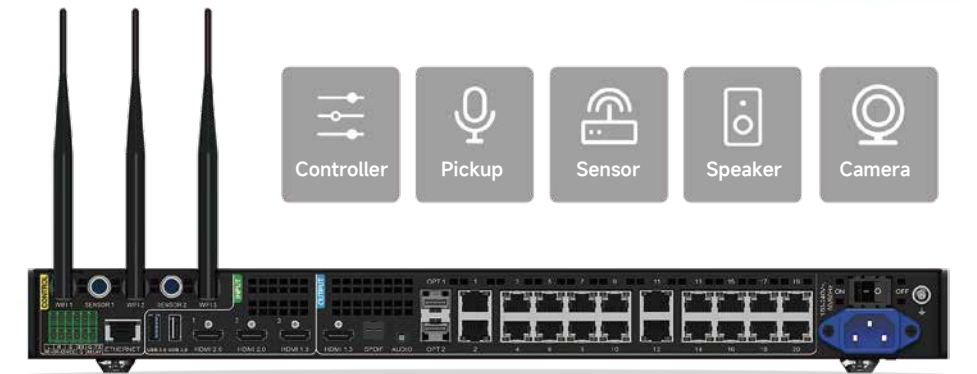
Practical Functions
Applicable to Various scenarios

Conference Room

Enterprise Exhibition Hall

Report Hall

Brand Store

Shopping Mall

Advertising Media

Specifications

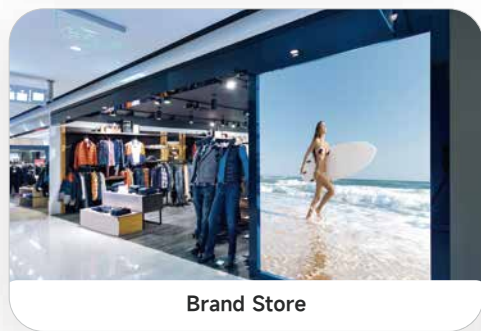| Product Model	TU15 Pro	TU20 Pro	TU4K Pro
Dimensions	211.7mm×185.0mm×50.6mm	211.7mm×185.0mm×50.6mm	445.0mm×383.0mm×49.9mm
Input Voltage	100-240V~, 50/60Hz, 3A Max	100-240V~, 50/60Hz, 3A Max	100-240V~, 50/60Hz, 2.5A Max
Standby Power Consumption	Overall power consumption≤0.5W	Overall power consumption≤0.5W	Overall power consumption≤0.5W
Loading Capacity	2.6 Million	3.9 Million	13 Million
Max. Width&Height	Max. Width 4096 pixels; Max. Height 1920 pixels	Max. Width 4096 pixels; Max. Height 1920 pixels	Max. Width 16384 pixels; Max. Height 8192 pixels
Android	Android 11	Android 11	Android 13
Wi-Fi	Wi-Fi6 (AP); Wi-Fi5 (Station)	Wi-Fi6 (AP); Wi-Fi5 (Station)	Wi-Fi6 (AP); Wi-Fi5 (Station)
Memory Space	4GB/32GB	4GB/32GB	8GB/128GB
Input Ports	2×HDMI1.3; 3×USB2.0	2×HDMI1.3; 3×USB2.0	2×HDMI2.0; 1×HDMI1.3; 2×USB2.0; 1×USB3.0; 12G-SDI(IN-LOOP)x1
Output Ports	4×RJ45; 1×HDMI1.3; 1×3.5mm Audio Output; 1×SPDIF	6×RJ45; 1×HDMI1.3; 1×3.5mm Audio Output; 1×SPDIF	20×RJ45; 2x10G OPT; 1×HDMI1.3; 1×3.5mm Audio Output; 1×SPDIF; 1x Phoenix Contact Audio Output
Control Ports	1×RJ45; 1×RS232; 1×Sensor	1×RJ45; 1×RS232; 1×Sensor	1×RJ45; 1×RS232; 2×Sensor; GENLOCK(IN-LOOP)x1
Intelligent Playback Control	Remote, APP, USB Drive	Remote, APP, USB Drive	Remote, APP, USB Drive
Wireless Mirroring	Support Type-C/ wireless USB adaptor, Support Windows / iOS / Android multiple platform mirroring	Support Type-C/ wireless USB adaptor, Support Windows / iOS / Android multiple platform mirroring	Support Type-C/ wireless USB adaptor, Support Windows / iOS / Android multiple platform mirroring
Whiteboard	Support (combined with infrared frame)	Support (combined with infrared frame)	Support (combined with infrared frame)
Intelligent Voice Control	Support	Support	Support
Free Scaling	Support	Support	Support
Effect Adjusting	Support (Standard, Soft, Theater, Meeting)	Support (Standard, Soft, Theater, Meeting)	Support (Standard, Meeting, Vivid, Skin)
One-click Eye Protection	Support	Support	Support
Launcher Customization	Support	Support	Support
Boot Animation Customization	Support	Support	Support

MBOX SERIES

MINI LED CONTROL PC SOLUTION

Outstanding Performance
Unlocking New Horizons

MBOX600 Pro

developed by NovaStar, is an LED display controller that integrates the functions of an industrial PC and a sending card. It supports up to 2.6 million pixels and can be widely used in unattended scenarios like outdoor fixed screens. This controller can monitor and manage the SNMP system, offering professional system monitoring and operation management services for specialized advertising media display users. Managed via a web application, it provides users with versatile control and ease of use in every scenario. This solution boasts comprehensive scalability, delivering a robust server to unlock the system's full potential. It is designed to meet users' diverse secondary development and innovation needs.

LED DOOH

Indoor Advertisement Display

Rail Transit
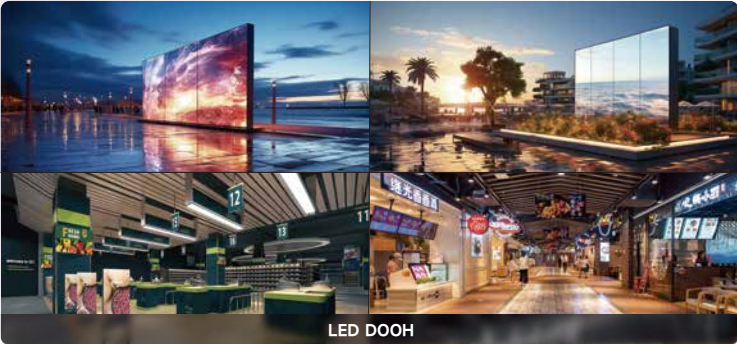
Innovative Integration Stable and Reliable

Integrated Design:
Industrial PC + Sending Card

Reduced system wiring for simpler setup and enhanced reliability.

Traditional Solution:

PC   Controller

MBOX Solution:

MBOX600Pro

Complex Environment Handle with Ease

Industrial-grade cooling ensures stable operation even in extreme conditions.

-20°C~60°C°

Flagship Configuration
Powerful Performance

Flexible Networking

RS232   1000M   (wifi)   4G/5G

Outstanding Performance

Windows10   intel   Windows11

Rich Interface

Portable Design
Efficient Configuration

Free Wiring

All-new hardware architecture, no more capacity waste from leaving blank. Free from rectangle limitation, helping maximize the loading capacity of controllers.

1   8/16   9%

2   8/16   9%

Intuitive Web Interface Software Free from System Constraints

- Supports Windows and Linux System.

Windows   Linux

- Web-based interface software for easier and more convenient screen configuration. (e.g., remote network configuration, sending configuration files and screen connection diagrams)

Feature-rich Flexible Application

Synchronous/Asynchronous Dual Modes

Supports HDMI 1.3 synchronous source input, with one-click switching between synchronous and asynchronous sources.

Synchronous Playback Display   Asynchronous Playback Display

Content Management System

Rich Peripherals

Intelligently senses ambient light and receiving card temperature to automatically adjust LED display brightness.
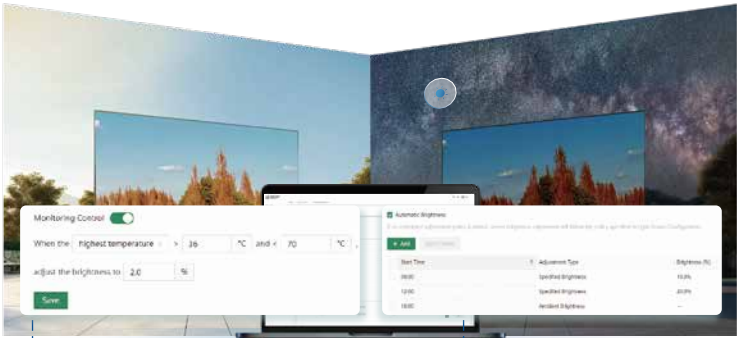
【Temperature Monitoring】Regulation Strategy

Automatic protection to prevent the display temperature from getting too high.

【Specific Brightness】, 【Ambient Brightness】Regulation Strategy

Simple, flexible setup, suitable for actual environment.

Flexible Scaling Supported

Pixel level scaling, up to 2.6 million pixels;
Width range: 64-4096; Height range: 64-1920.

LED Display

Advertising Display

64

4096

Dual-Screen
Asynchronous Display

Supports one HDMI 1.3 output, which
can be used for LED display monitoring
or display a different image from the
LED display.

LED OUT   HDMI OUT

Full Operation and Maintenance Worry-free Stability

Cloud Service
Intelligent Control

• **Monitoring and Maintenance, Anytime and Anywhere**

Real-time monitoring of screen operation
status, pre-warning of the potential risk.

• **Troubleshooting, Faster and Accurate**

Promptly provides fault alarms, diagnosis, and
pinpointing, enabling quicker issue resolution.

• **Cloud Backup, One-click Recovery**

The configuration files are backed up to the
cloud, allowing for one-click recovery in case of
a fault. This greatly improves the efficiency of
after-sales maintenance.
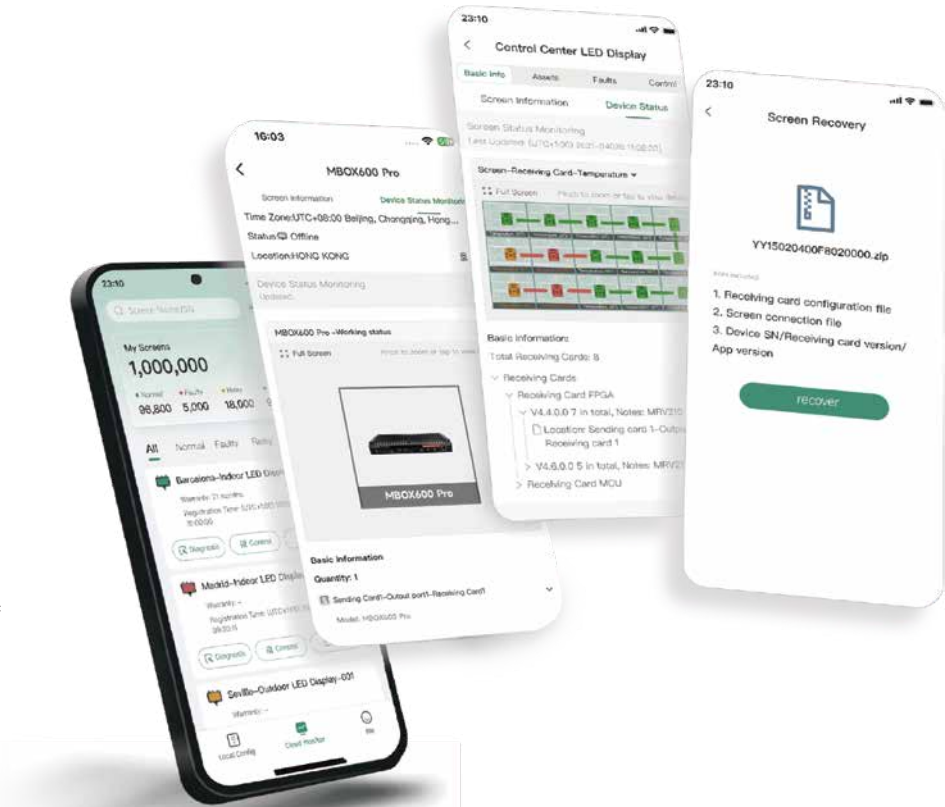
SNMP System Monitoring

Supports SNMP V2, V3, reducing management costs and improving management efficiency.

MBOX600 Pro

Module-level Information Monitoring
Receiving Card Status
Module Status
Controller Input Source Status
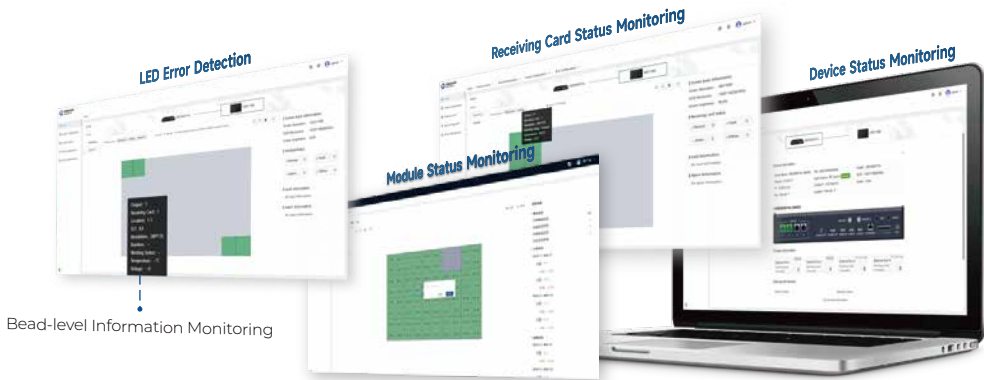Sensor Information Capture

Trap Detection Alarm
Overview Reporting of Overall Status
Detailed Reporting of Abnormal Status

Monitoring Threshold Settings
Temperature Threshold
Voltage Threshold
Periodic Settings

SNMP
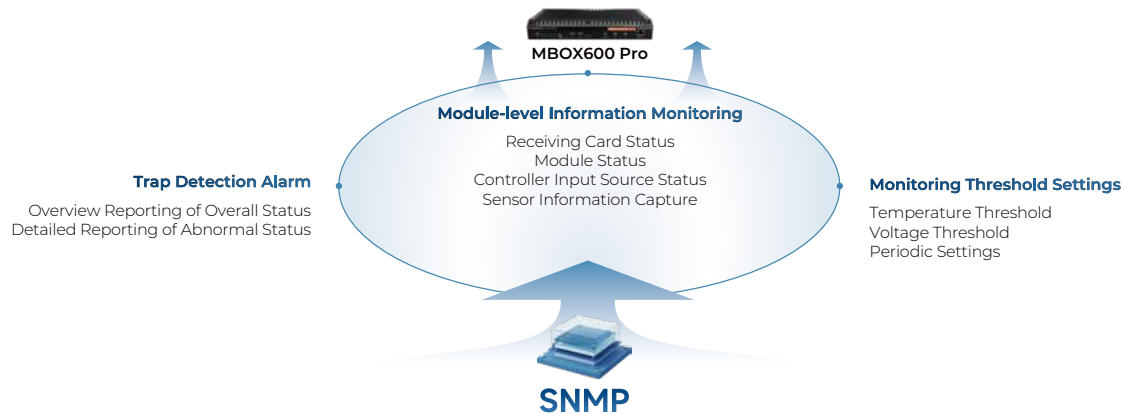
Remote Monitoring, Precise Location

Real-time display status acquisition over LAN via web interface,visualized operations and maintenance, precise error location.

LED Error Detection

Receiving Card Status Monitoring

Device Status Monitoring

Module Status Monitoring

Bead-level Information Monitoring

Specifications

Product Model	MBOX600 Pro
Size	319.0mm×135.9mm×45.5mm
Input Voltage	DC 12V 7A
Stand-by Power Consumption	≈1.6w
Loading Capacity	2.6 Million
Maximum Width & Height	Maximum Width: 4096 Maximum Height: 1920
OS	Windows: Windows 10 IoT Enterprise Linux: ubuntu20.04
Wi-Fi	WiFi(Station) , WiFi 5, 2.4G/5G
CPU	Intel® Processor N97
Storage	4G/128G、8G/256G
Input Ports	1 × HDMI 1.3 2 × USB 2.0 2 × USB 3.0
Output Ports	4 × RJ45 1 × HDMI 1.3 1 × 3.5mm Audio
Control Ports	2 × Gigabit Ethernet Port 1 × RS232 2 × Sensor Port
Free Scaling	Support
SNMP	Support
Remote Control	Support

LCB SERIES

LCD/LED MULTIMEDIA SOLUTION
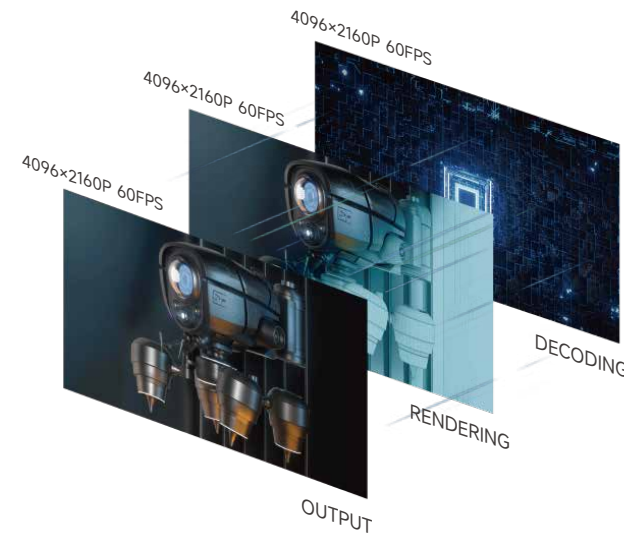
Exquisite Visuals
Intelligent Presentations

More Clear
Real 4K Vision

Decoding → Rendering → Playback Output

Full-link 4K@60Hz
Revealing every fine detail
Showcasing the beauty of intricacy

4096×2160P 60FPS

4096×2160P 60FPS

4096×2160P 60FPS

DECODING

RENDERING

OUTPUT

More Flexible
HDMI Dual-modeOutput

HDMI 2.0
Adaptive and custom dual-mode output
Various display media
Flexible matching options

LCD
Adaptive Mode

LED
Custom Mode

More Convenient
USB Remote Control

By connecting the controller via USB interface
users can remotely control screen brightness, power, and switches
No computer required, more convenient to use

USB Cable

More Practical Functions

Android 11.0
Safer and Smoother

Ultra-large Storage
2GB RAM+32GB Storage

Synchronous Playback
NTP Time Synchronization,
RF Time Synchronization,
GPS Time Synchronization

Multiple Networking Options
RJ45 1000MPS
WIFI AP/STA、4G/5G

4096
Maximum Loading Capacity
Video Resolution up to 4096

Intelligent Control
Supports VNNOX MEDIA
VNNOX, Viplex Express,
Viplex Handy

Application Scenarios

Typical Scenario for LCD Advertising Displays

PC(paired with Viplex Express)   WIFI   LCB4K   HDMI   LCD Display

Typical Scenario for LED Fixed Installations

LCB4K Multimedia Player

More Clear, More Flexible, More Convenient

PC(VNNOX Media)   WIFI   LCB4K   USB / HDMI   MCTRL4K   Network Cable   LED Display
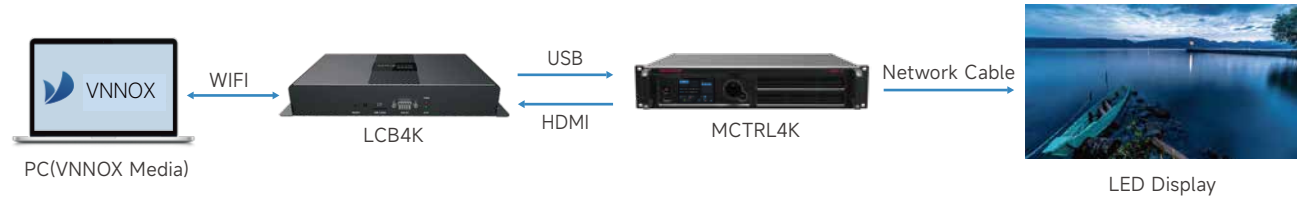
Specifications

Product Model		LCB2K	LCB4K
Basic Info	Size	123.0mm×89.0mm×29.5mm	274.3mm×139.0mm×40.0mm
	Net Weight	255.4g	1.1kg
	Input Voltage	DC 12V，2A	100-240V~，50/60Hz，0.6A
	Stand-by Power Consumption	NA	NA
Loading Capacity	Max Loading Capacity	Max 1920×1080@60HZ	Max 4096×2160@60HZ
	Max Width/Max High	4096(Max Width),3840(Max High)	4096(Max Width),4096(Max High)
Hardware Configuration	Android	11	11
	CPU	4 Core A55 Processor/1.3GHz	4 Core A55 Processor/1.8GHz
	Storage	1GB/16GB	2GB/32GB
	WIFI	2.4GHZ, Switchable AP&STA	2.4GHZ, Switchable AP&STA
	4G Module	Support(Optional)	Support(Optional)
	Input Port	USB 3.0×1	USB 3.0×1 USB 2.0×1 RS232×1
	Output Port	1×HDMI1.4 1×Audio	1×HDMI2.0 1×Audio
	Contro Port	1×USB3.0（Type A) 1×USB（Type C) 1×RJ45 100MPS	1×USB3.0（Type A) 1×USB2.0（Type A) 1×USB（Type B) 1×RJ45 1000MPS
Display Effect	Free Scaling	Support	Support
	Number of Layers	1×4K, 2×1080P, 4×720P, 4×480P or 6×360P	2×4K, 6×1080P, 10×720P or 20×360P
	Effect Adjustment	NA	Brightness, Color temperature (Support LED only)
	Synchronized Broadcast	NTP/LORA(Optional)/GPS(Optional)	NTP/LORA(Optional)/GPS(Optional)
Platform/NovaStar Software	Viplex Express	Support	Support
	Viplex Handy	Support	Support
	VNNOX Media	Support	Support
	VNNOX Care	Support	Support
Certifications		CE, WPC	CE, WPC

TCC SERIES

FULL-COLOR ASYNCHRONOUS CONTROLLER SOLUTION

The Industry-first
Full-color Asynchronous Controller
with 16 HUB75E Connectors

TCC160

TCC160 Full-color Asynchronous Controller

It adopts NovaStar's brand-new asynchronous control system, integrating both sending and receiving capabilities. It features 16×HUB75E connectors, supports cascading with receiving card, and can handle ultra-long screen (maximum width of 8192 pixels). Equipped with industrial-grade SOC chips, and the network design of AP and STA dual modes, the stable operation of the system is guaranteed.

The product features true 4K video hardware decoding, exceptional frame synchronization, and precise sync even during extended playback. It also supports VNNOX Media and VNNOX Care, enabling easy cross-regional cluster management of screens. With just one single card, various small-scale scenarios can be effortlessly handled.

Upgraded Specifications
Enhanced Loading Capacity

Ultra-large Loading Capacity

Equipped with 16×HUB75E connectors, the maximum loading capacity of per TCC160 is 512×512 (260,000) pixels. The maximum load can reach 650,000 points when it is cascaded with the receiving card.

65W
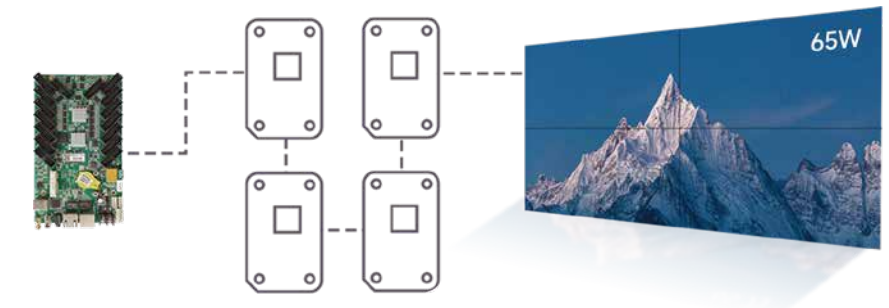
Ultra-long Display

8192

Maximum width for ultra-long screen -- 8192 pixels, meeting various ultra-long screen application scenarios.

Industrial-grade Design Stable Operation

Industrial-grade SOC Chips

The equipment can operate normally under extremely cold -40℃ and extremely hot 80℃.
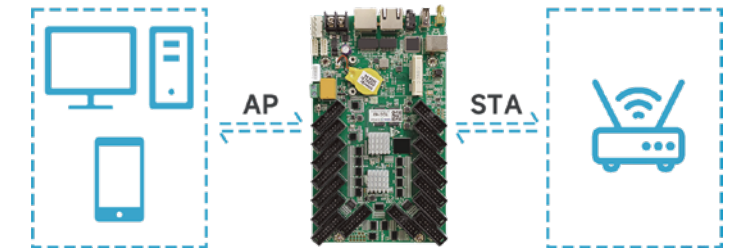
5V-12V

Industrial-grade design of pressure and interference resistance.

Technology Empowered Performance Revolutionized

AP+STA: Always Online

Dual mode design, supporting both WiFi AP and WiFi STA to ensure the stability of device connection to the greatest extent.

4K Video Hardware Decoding

It supports 4K video hardware decoding with no delays, delivering clear image quality and enhanced advertising impact.

2G+32G Ultra-large Memory

The 4K video can be played smoothly, without being stuck, and many types of media materials can be stored in large capacity.

Industry-leading Frame Synchronization

The decoder automatically calibrates the internal clock, maintaining frame-level synchronization even during extended operation.
Pixel-level synchronization accuracy, perform excellent even in smartphone cameras
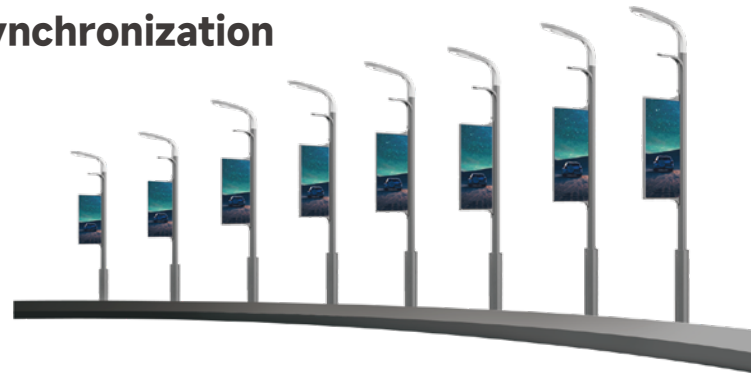
Flexible Control Everything in Charge

Multi-Functional USB Drive: Convenient Application

Supports USB Playback and Upgrade

Precise Targeting Accurate Delivery

A single card can support a vehicle-mounted screen, enabling real-time vehicle location monitoring and route playback.
It supports targeted ad placement by region, matching the demographic attributes of the area to enhance targeting accuracy.

Flexible Networking Fast and Efficient

It supports multiple networking methods including 4G, Wi-Fi, and Ethernet, ensuring convenient and efficient setup and maintenance.
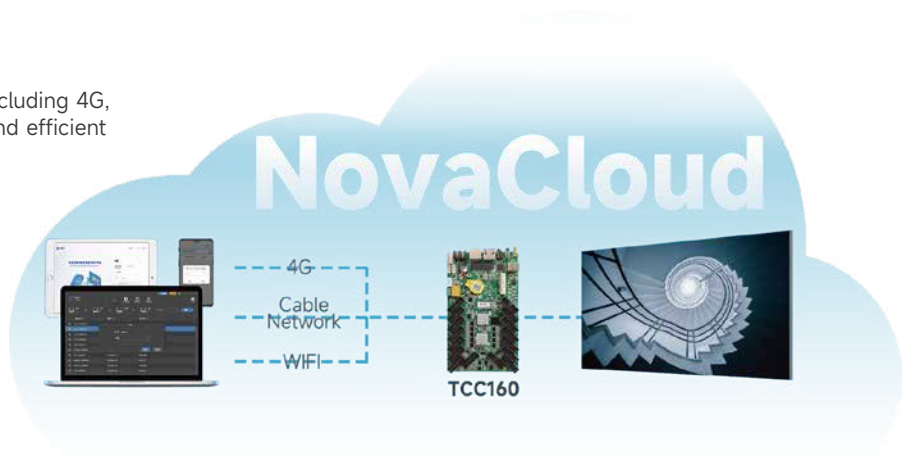
Remote Control OTA Upgrades

Remote firmware updating, improving screen management efficiency.
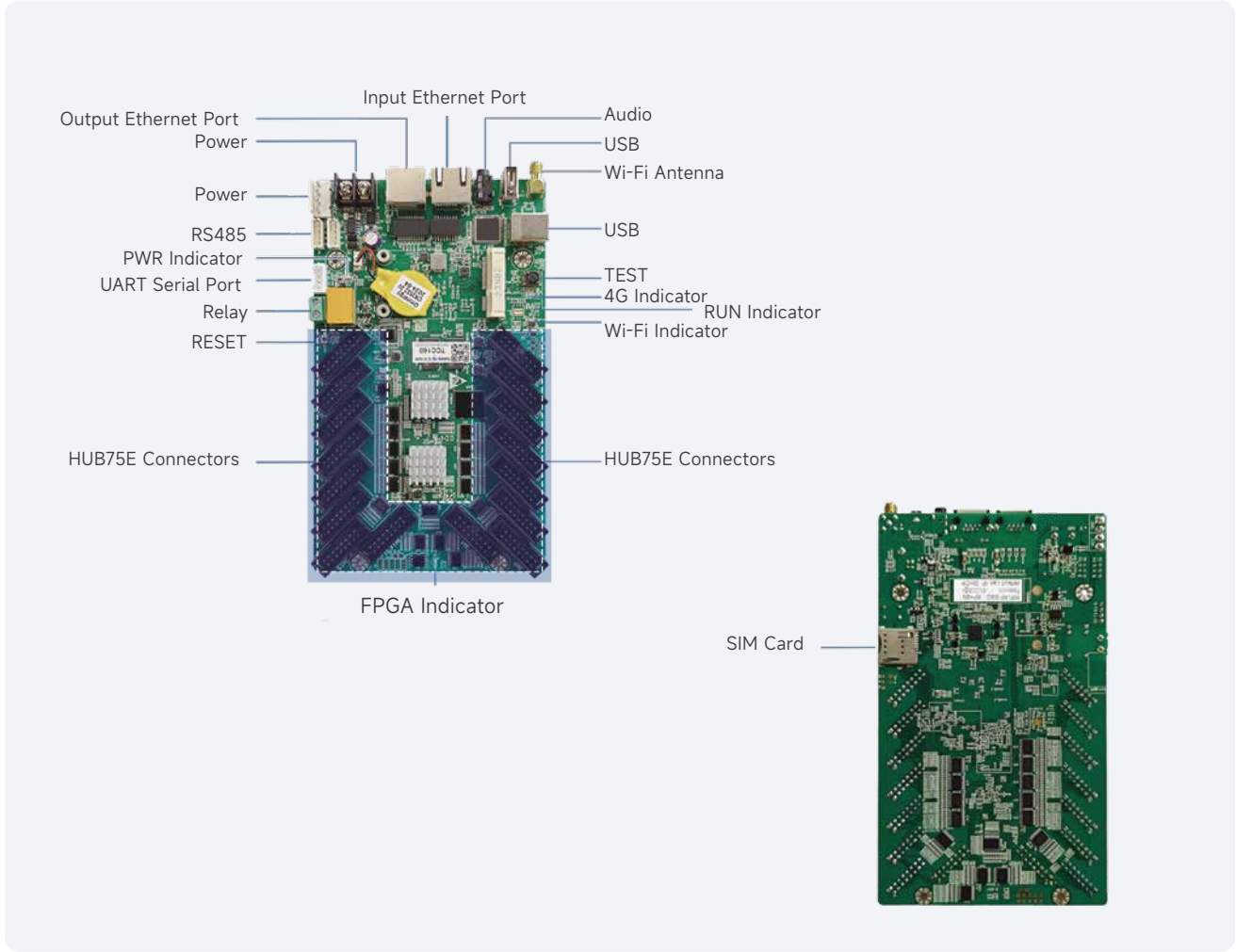

Application Senarios

Cross-region cluster management of screens is easily achieved. Various small-scale scenarios can be effortlessly handled with one card.

Storefront Screens

Vehicle-mounted Screens

Community Screens

Lamp-post screens

Appearance

- Output Ethernet Port
- Power
- Input Ethernet Port
- Audio
- USB
- Wi-Fi Antenna
- Power
- RS485
- PWR Indicator
- UART Serial Port
- Relay
- RESET
- USB
- TEST
- 4G Indicator
- RUN Indicator
- Wi-Fi Indicator
- HUB75E Connectors
- HUB75E Connectors
- FPGA Indicator
- SIM Card

Specifications

Product Module	TCC160
Loading Capacity	A single card unit supports 260,000 pixels; Cascading mode supports 650,000 pixels
Loading Capacity	2GB + 32GB
Operating Temperature	-40℃-80℃
Input Voltage	5V-12V
Maximum Power Consumption	12W
Maximum Width & Height	Maximum width for ultra-long screen: 8192 pixels Maximum height for ultra-long screen: 2560 pixels
Storage Expansion by USB Drive	Up to 128G
Storage Expansion by USB Drive	Supports H.265, AVS2, H.264, H.263, VP8, MPEG4, MPEG2 MP, MPEG1 MP, VC1 SP, xvid, Sorenson, AVS/AVS+, JPEG, and other common video encoding formats Supports playback of 1 stream of 4K video, 3 streams of 1080p video, 8 streams of 720p video, 10 streams of 480p video, or 10 streams of 360p video
Audio	1×3.5mm Audio Output
Cable Network	100M Ethernet Port
Wi-Fi	Standard 2.4 GHz Wi-Fi, Wi-Fi AP and Wi-Fi STA can be turned on at the same time.
4G Module	Optional
HUB75E Connectors	16 connectors
Sensor	2 connectors
Relay	2-Pin relay control switch for screen remote control
Intelligent Playback Control	Support
Cloud Access	Support
Secondary Development	SDK interface