XR Series

Extend Reality LED Screen

XR is a set of image space synthesis technology with LED screen as the background. It is an application practice of the concept of Virtual Production. It can be used as an upgrade scheme of green-screen shooting technology for film and television production and program live broadcast.

Through the camera real-time tracking technology, real-time rendering technology, and multi-screen broadcast control management technology, the virtual scene picture presented on the LED screen and the "real character" in front of the screen maintain a correct three-point perspective relationship under the camera's perspective. The other pictures are synthesized in real time through the "foreground overlay" (AR) technology, and finally the "real character" is placed in the virtual world to achieve the visual effect of combining virtual and real.

Brochure | Product Video | Installation Video | Contact

What is XR?

XR(full name Extended Reality) technology is a technology that integrates and interacts with real people & props and virtual scenes through camera tracking and real-time image rendering technologies, so that the display medium (LED screen) and virtual scenes outside the display medium can be integrated in real time, thus creating a sense of infinite space.

Widely used in: advertising production, TV/movie shooting, e-sport games, variety shows, conferences, party shows, model shooting, digital virtual exhibition hall and other application scenarios.

How does XR work in production?

In XR production, a high-quality LED screen (usually rendered as a 3-sided or curved screen) simultaneously displays a 3D virtual environment pre-loaded by a render Engine (often using Unreal Engine or Notch), and these LED screens form the background for a film shoot or live event. When a precise camera tracking system was added, the camera began to move around the real and virtual elements seamlessly combined within the LED environment, giving the viewer the illusion of integration and immersion through the camera's perspective.

Advantage-1
The production cost is greatly reduced

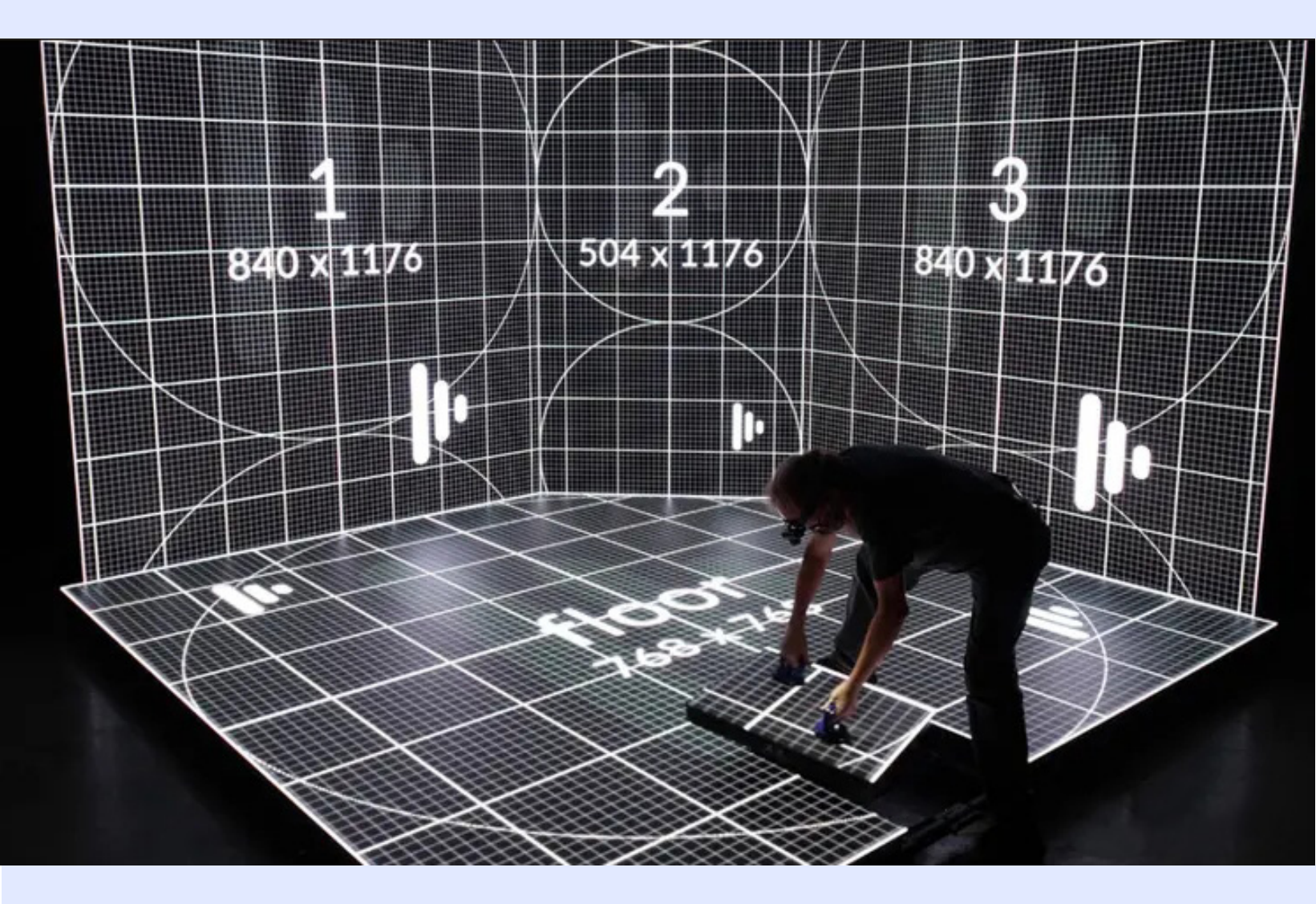
Actors, hosts or producers can see the virtual environment on the spot, so that they can adjust and guide the performance or shooting on the spot, reducing the time and budget spent in post-production. In addition, virtual production solves the crew transportation costs and environmental waiting costs of location shooting, in short, you can reproduce and modify the required environment at any time without having to wait for rain or sunset.

Advantage-2
Close to the real world light reflection

Lighting is provided by the LED display in the XR field, which facilitates the seamless integration of real people into the virtual environment and reduces the time for further lighting adjustments. This is especially suitable for shooting real objects with high reflection, which can provide real environmental reflection information and illumination without post-synthesis.

Advantage-3
Infinite expansion of space and immersive production

Through the virtual engine or rendering server, make a infinite space that is not limited to the LED display, and make different scenes, and realize the rapid switch of scenes to meet different virtual production requirements. Actors or hosts interact with the environment in an immersive space and produce real movies and shows through a converged server.



Advantage-4 Fast lens correction

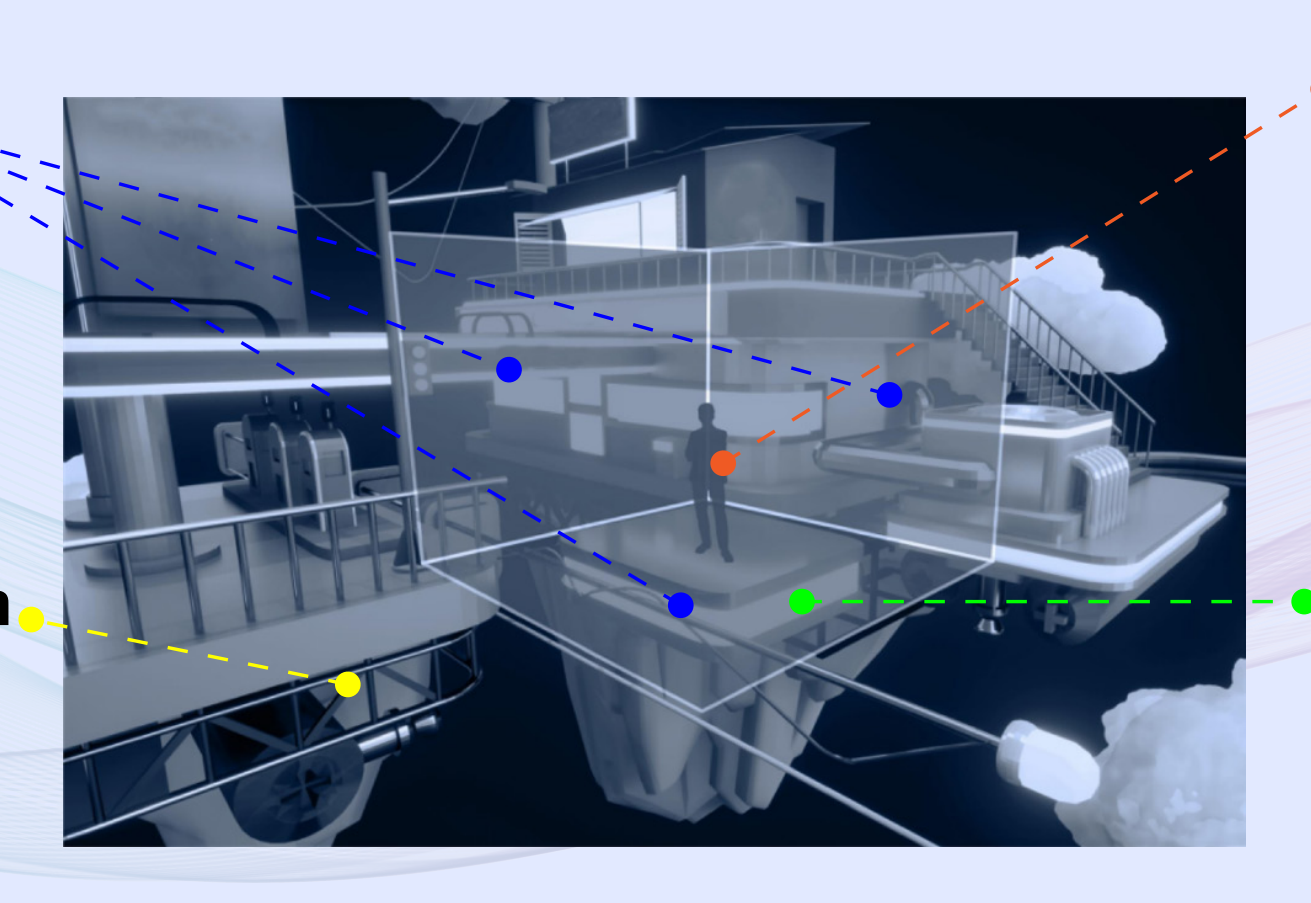
With traditional green screen shooting, the correction time of the virtual camera often takes several hours, while the correction time of the virtual camera tracking system on the XR camera takes only a few minutes, which greatly reduces the interruption and preparation time for screen shooting, and making it possible to shoot multiple scenes and dialogues in a short time.

LED screen display area

The real screen display serves as the background of the subject while providing a good ambient light on the side of the character.

Off-screen virtual extension

When the viewing range of the camera field Angle is larger than the display range of the LED screen, the virtual world can be extended by superimposing AR images in the off-screen area.



Subject to be photographed

The foreground objects includ but are not limited to people, such as cars, stage props, etc., especially materials with a certain reflective effect, suitable for using XR virtual shooting technology.

Foreground screen

The superimposed display is displayed on the camera shooting screen and is generally obscured in front of the real person, highlighting the spatial sense of the composite image of the entire scene.

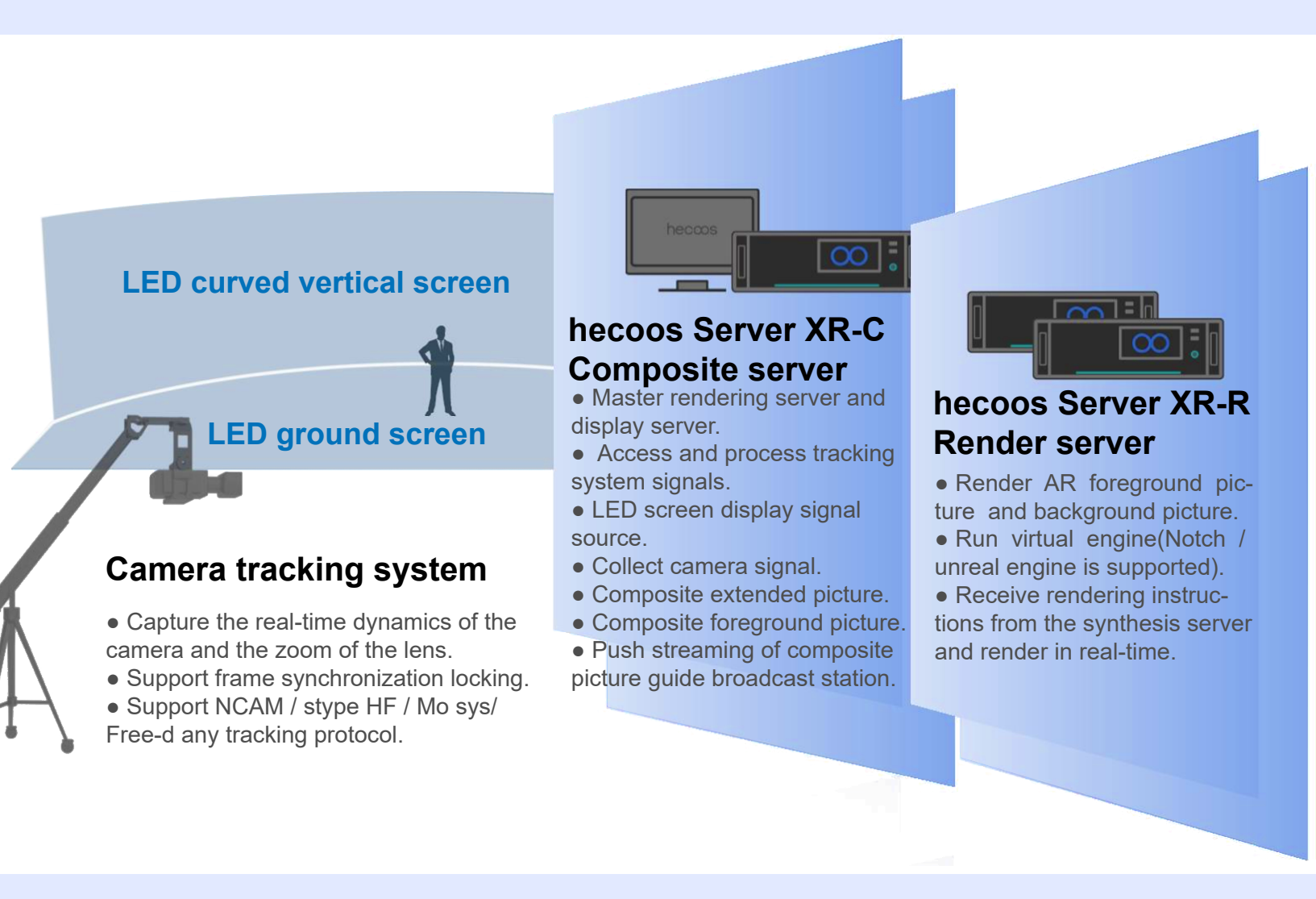
Main Devices and Functions

LED screen

- Background screen display.
- Display synchronization between screen groups.
- Receive the broadcast control screen of the server.
- Select appropriate point spacing parameters.

Camera

- Supports real-time streaming of images to the server acquisition card.
- Supports zoom and focal length capture.
- Support frame synchronization locking.
- (zoom and focus aregenerally captured by the encoder equipped with the tracking system)



Camera tracking system

- Capture the real-time dynamics of the camera and the zoom of the lens.
- Support frame synchronization locking.
- Support NCAM / stype HF / Mo sys/ Free-d any tracking protocol.

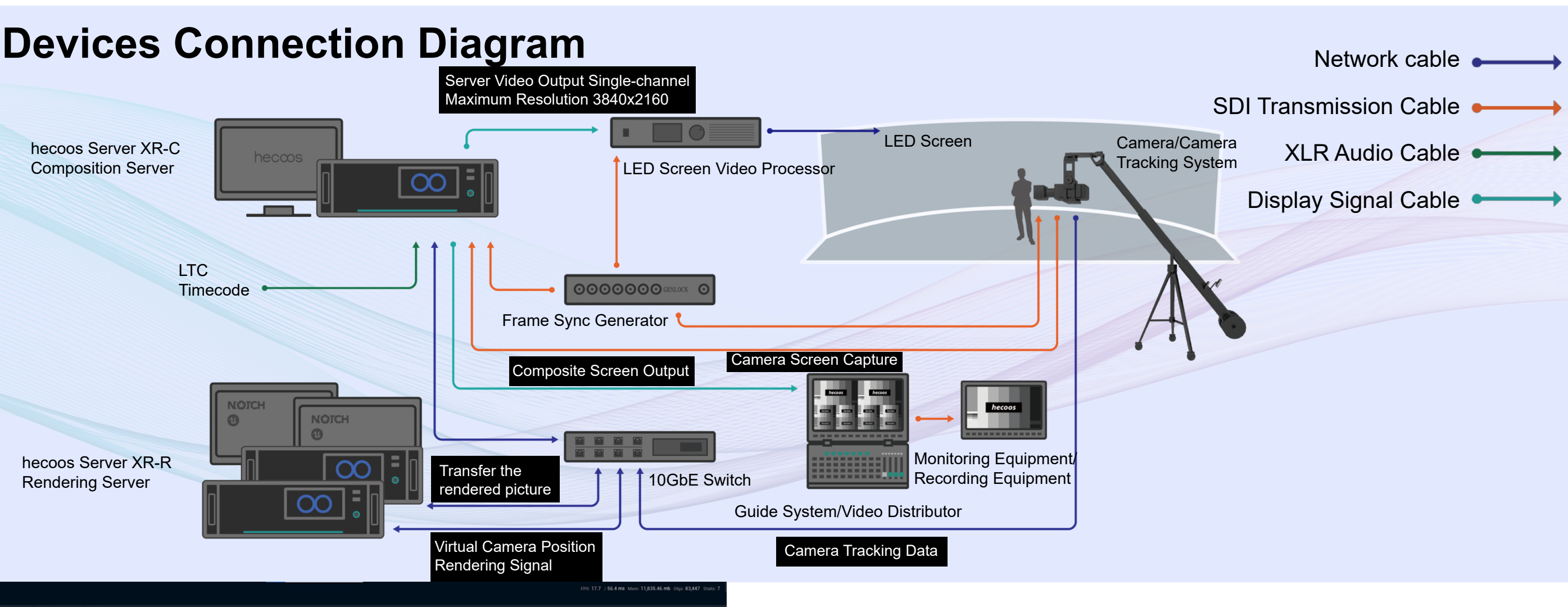
hecoos Server XR-C Composite server

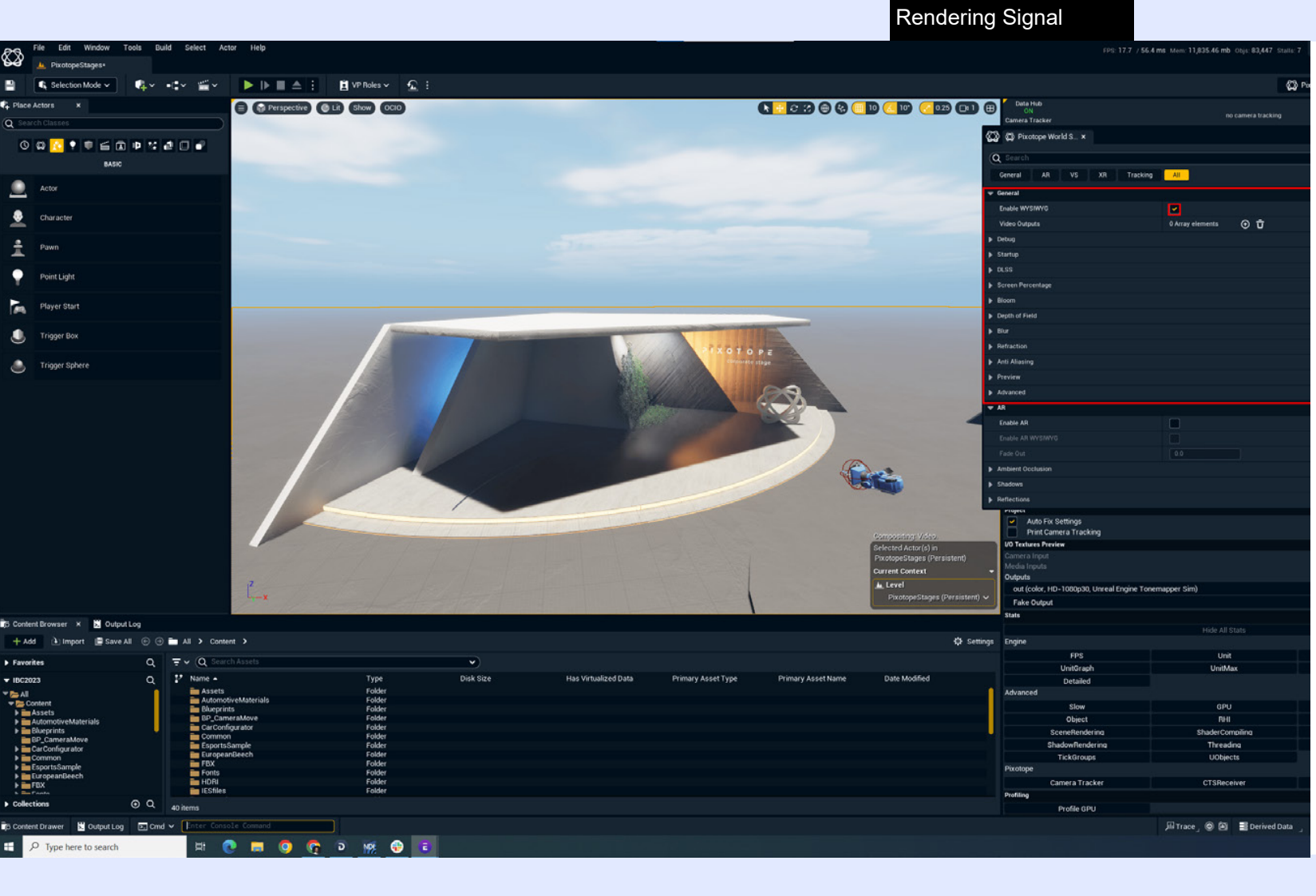
- Master rendering server and display server.
- Access and process tracking system signals.
- LED screen display signal source.
- Collect camera signal.
- Composite extended picture.
- Composite foreground picture.
- Push streaming of composite picture guide broadcast station.

hecoos Server XR-R Render server

- Render AR foreground picture and background picture.
- Run virtual engine(Notch / unreal engine is supported).
- Receive rendering instructions from the synthesis server and render in real-time.

Main Devices Connection Diagram



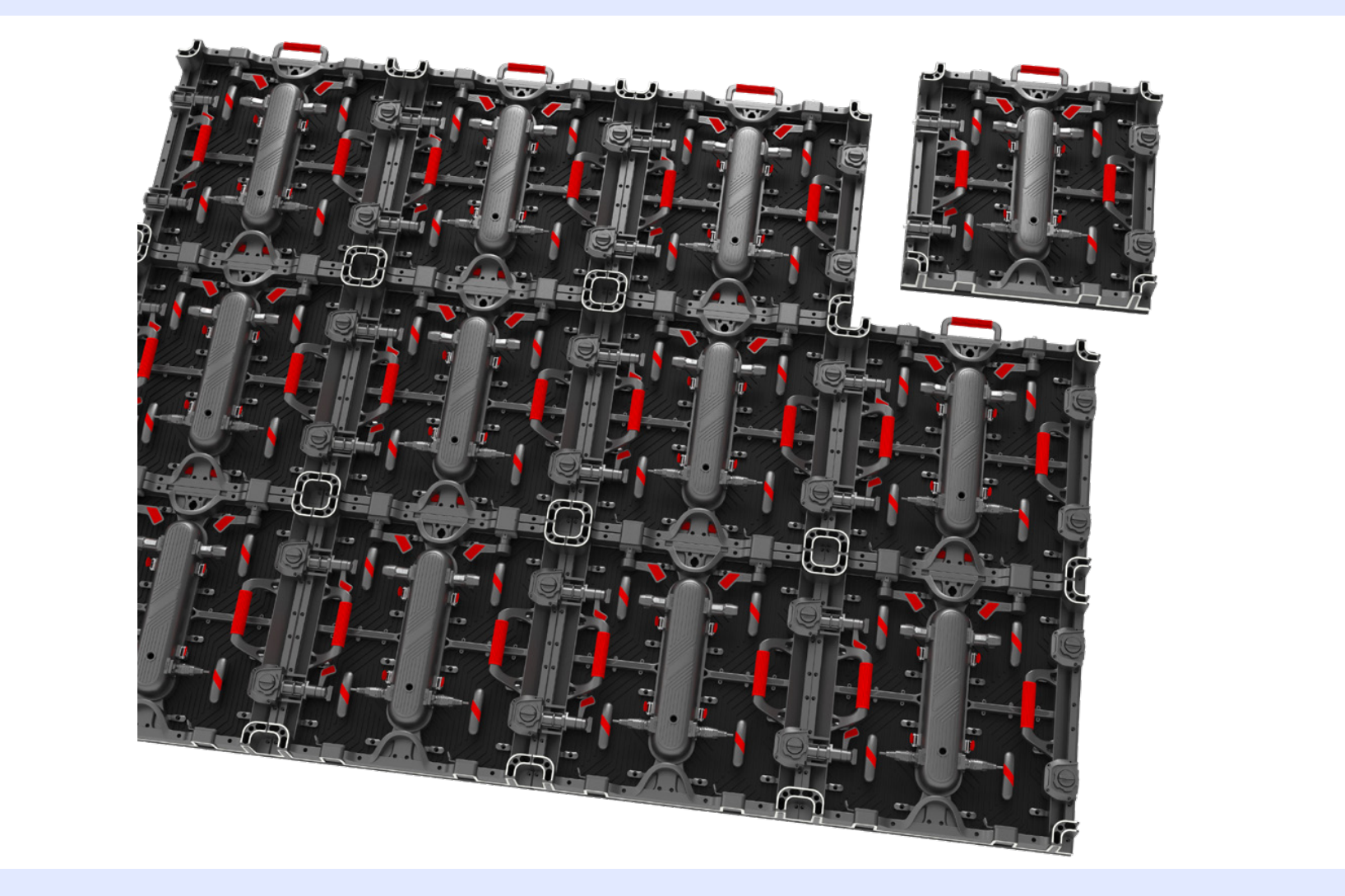


XR mainstream equipment and software

Virtual engine / Render Server: Unreal Engine, Notch
Converged server: Disguise
Camera Tracking System: Mo-sys, Stype, BlackTrax, Optitrack, Vicon
Virtual studio operating platform: Disguise, Pixotope, Zero Density, Brain Storm
LEDFUL provides detailed consulting services.

Born for XR Solution
-- LEDFUL XR Series

- Support HDR
- Super High Refresh Rate -- 7680Hz
- Super High Grey Scale -- 22bits
- Super High Frame Rate -- 144Hz
- Super High Contrast Ratio -- 10000:1
- Indoor High Brightness -- 1500nits
- Color gamut range DCI-P3 percentage -- 90%

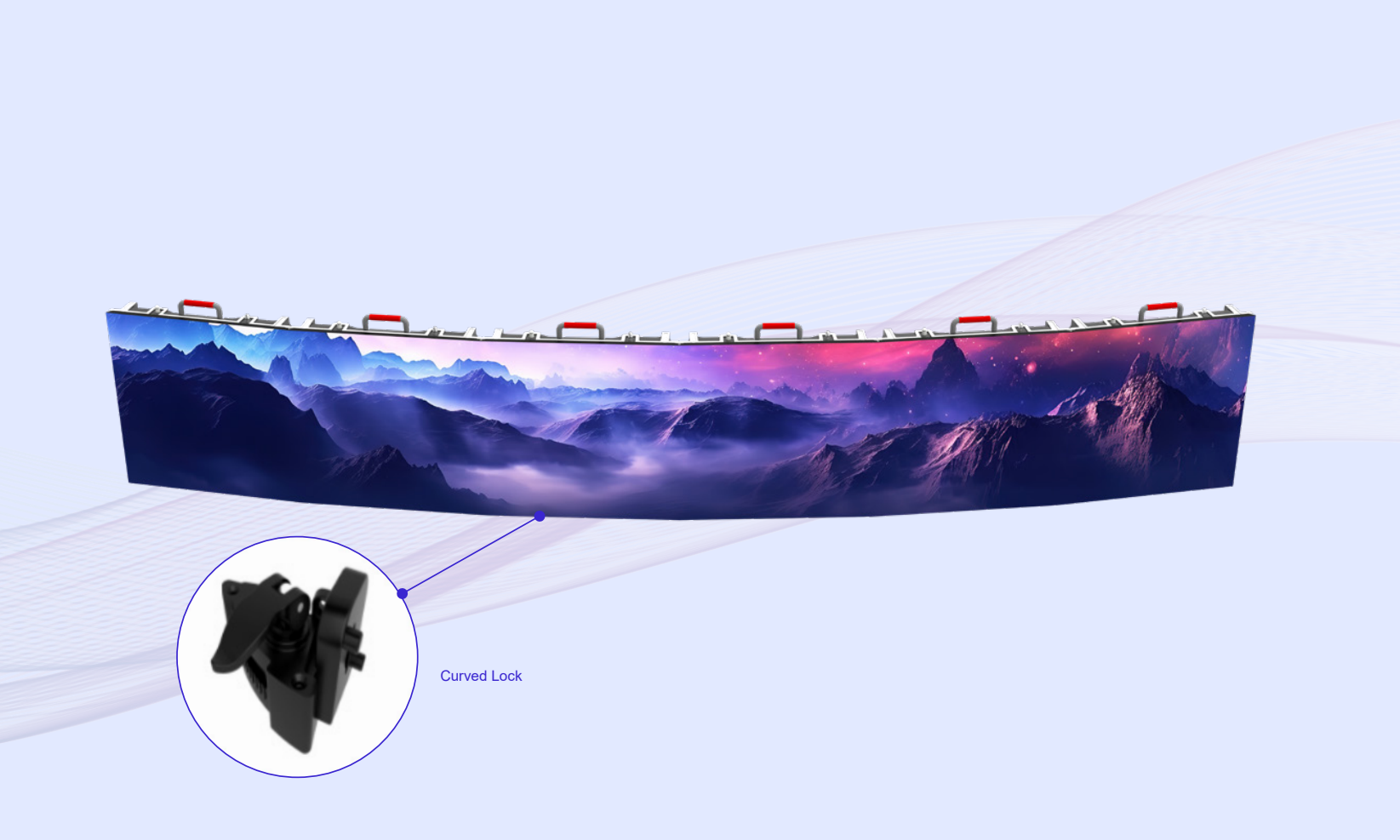


Easy Installation

- Cable Free
- One-second Exchangeable Control Box
- Quick Lock, Top Handle, Module Handles for Easy Installation.

Curved Design

High Precision Curving Makes Perfect Immersive XR Effect.



Project-1 Music MV

3-Sided giant LED room display makes totally virtual space, makes music videos more creative and attractive.

Project-2 Film Production

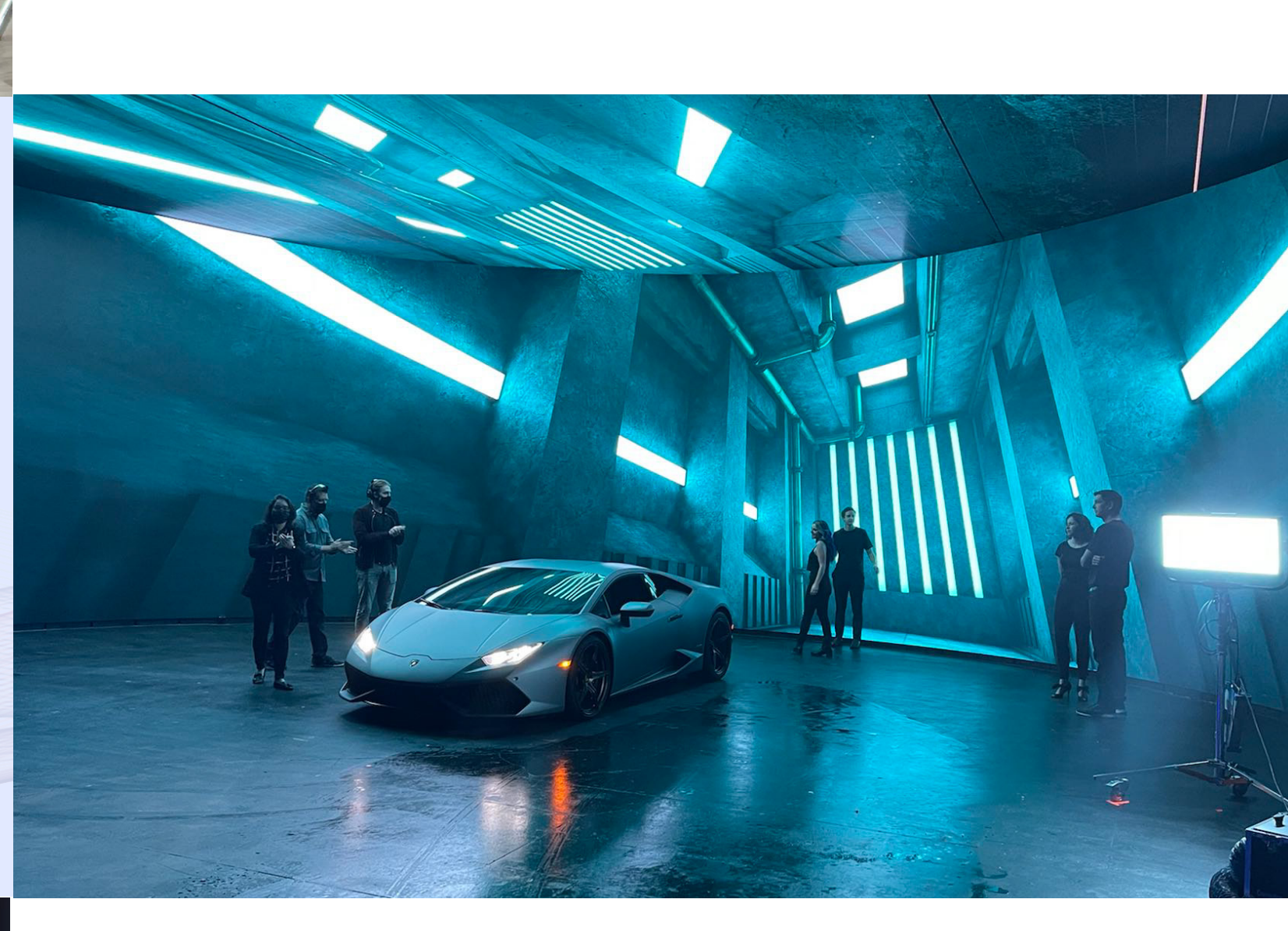
Film production is more and more inclined to XR production, rather than the traditional green screen, LED display can design different scenes and virtual space, with the performance of the characters, a high-end special effects movie can be made more easily.

Project-3 TV Interview

LED display and virtual space as the background, reduce the time and expense of prop preparation, and quickly switch backgrounds.

Project-4 Auto Show

The stage, lighting and LED screen background make the auto show more atmospheric and technological.



Project-5 Advertising Production

Film production is more and more inclined to XR production, rather than the traditional green screen, LED display can design different scenes and virtual space, with the performance of the characters, a high-end special effects movie can be made more easily.

Project-6 Special Effect

Through XR technology, you can make different special effects, actions, etc., and these special effects have a more prominent performance in different environments.

Parameters

Professional XR solution

Model	XR1.9 **Professional** XR solution	XR2.3 **Professional** XR solution	XR2.6 **Professional** XR solution	XR2.6 **Top** XR solution	VI2.6 **Premium** XR solution	VI2.6 Standard XR solution
Pixel Pitch(mm)	1.95	2.315	2.6	2.6	2.6	2.6
Encapsulated LED	Kinglight	Kinglight	Kinglight	Nationstar	Kinglight	Kinglight
Pixel Matrix Per Sq.m	262,144	186,624	147,456	147,456	147,456	147,456
Pixel Configuration	SMD1515	SMD1515	SMD1515	SMD1515	SMD1515	SMD1515
Brightness (nits)	1500	1500	1500	1500	1300	900
Scan	1/8	1/9	1/8	1/8	1/16	1/32
Frame rate (Hz)	144HZ				50/60HZ	50/60HZ
Grey Scale (bit)	22bit				16bit	16bit
Color gamut range DCI-P3 percentage	90%				75%	50%
Receiver Card	A10SPRO				A5S	A5S
Control System	Novastar MX40 + GENLOCK synchrolock					NovastarVideo Processor
Module Dimension	250x250mm					
Cabinet Dimension	500x500mm					
Cabinet Material	Die Casting Aluminum					
Cabinet Weight	7.5KG					
Max Power Con. (W/sqm.)	800W					
Ave Power Con. (W/sqm.)	100~200W					
Service Access	Front / Rear Access					
Driving IC	MBI5264					
Refresh Rate (HZ)	7680					
Contrast Ratio	10000 : 1					
Viewing Angle (H / V)	160° / 160°					
IP Rate	IP43					
Operation Temperature	－20℃ ~ +60℃					
Operation Humidity	10% ~ 90%					
Input Voltage (AC)	AC90-264V, 47-63Hz					

* Specifications and photos are subject to change without prior notice.