

MC8K Pro

LED MEDIA RENDERING SERVER

Display-side rendering, four 4K outputs and multi-server synchronization

4 × 4K60

PROGRAM OUTPUTS

SYNC II

FRAME SYNC

20C / 28T

INTEL CPU

M2

MEDIA SOFTWARE



RENDERING • FRAME SYNC • FOUR-4K OUTPUT • CAVE MAPPING

Multi-node operation | Point-to-point output | Timeline playback | Live inputs

SECTION 01

PRODUCT OVERVIEW

A display-side LED media rendering server with four 4K program outputs and synchronized multi-node operation.

The MC8K Pro is a display-side rendering server built on a high-performance processor, industrial motherboard and NVIDIA professional graphics platform. Four DisplayPort 1.4 program outputs, each supporting up to 3840 × 2160 @ 60 Hz, can feed four LED Sending Controllers for independent displays or mapped regions of one large-format canvas. Quadro Sync II and online frame synchronization support coordinated multi-server rendering without visible tearing.

4 × 4K60

PROGRAM OUTPUTS

Four DisplayPort 1.4 channels

SYNC II

FRAME SYNC

Quadro Sync II synchronization card

20 / 28

CORES / THREADS

High-performance Intel processor

16 GB

DDR5 MEMORY

System and project workspace

SYSTEM ROLE

ROLE	MC8K Pro CAPABILITY
Display-side rendering node	Receives coordinated projects and renders assigned media and mapped LED output regions.
On-board playback and rendering	Decodes media and renders the mapped output through an NVIDIA professional graphics platform.
Four 4K program outputs	Provides four DisplayPort 1.4 channels, each supporting up to 3840 × 2160 @ 60 Hz.
Multi-node frame sync	Uses Quadro Sync II and online frame synchronization for synchronized, tear-free multi-server output.
Creative mapping	Supports content splitting, reassembly, geometric warping, rotation and CAVE perspective conversion.
Operations	Provides scheduling, unattended startup, remote power functions, third-party control integration and device monitoring.

PRODUCT CLASSIFICATION MC8K Pro is an LED media rendering server (display-side server), not the system's dedicated control-side server. In a distributed system, a control-side media server can coordinate one or more MC8K Pro render nodes; downstream LED Sending Controllers remain required.

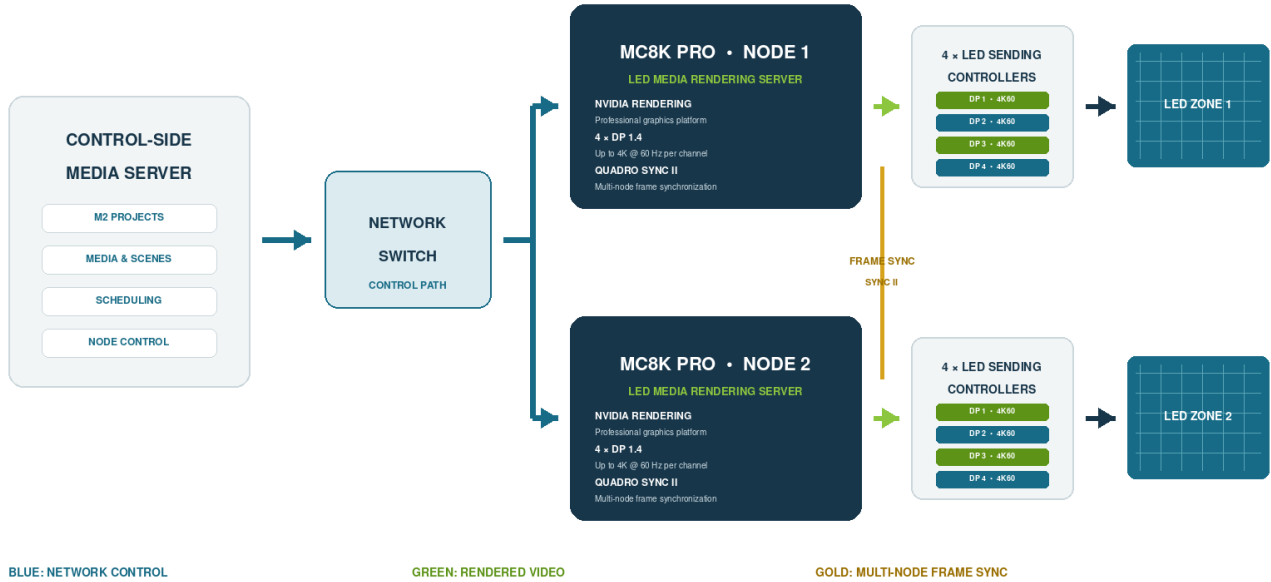
SECTION 02

DISTRIBUTED SYSTEM ARCHITECTURE

Separate control-side coordination from display-side rendering while synchronizing multiple output nodes across one LED canvas.

DISTRIBUTED MEDIA-CONTROL AND RENDERING ARCHITECTURE

A control-side server manages projects while synchronized MC8K Pro display nodes render the LED program outputs.



COMPONENT RESPONSIBILITIES

COMPONENT	PRIMARY RESPONSIBILITY
Control-side media server	Manages media, projects, scenes and coordinated node operation through the network control path.
Network switch	Interconnects the control-side server and MC8K Pro rendering nodes for system control and project coordination.
MC8K Pro rendering node	Performs display-side playback/rendering and provides four DP 1.4 program-output channels.
Quadro Sync II	Supports output-frame alignment between synchronized MC8K Pro rendering nodes.
LED Sending Controller	Accepts one rendered video output, converts it into LED display data and drives the receiving-card network.
LED display system	Receiving cards, modules and cabinets reproduce the mapped image within the configured LED-control capacity.

TOPOLOGY BOUNDARY The supplied specification supports synchronized multi-server deployment but does not state the maximum node count, control-network speed, sync cabling or external timing formats. Confirm the project topology before commissioning.

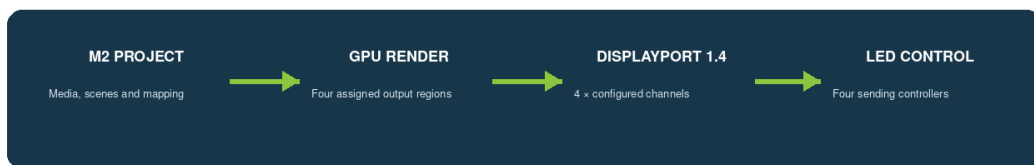
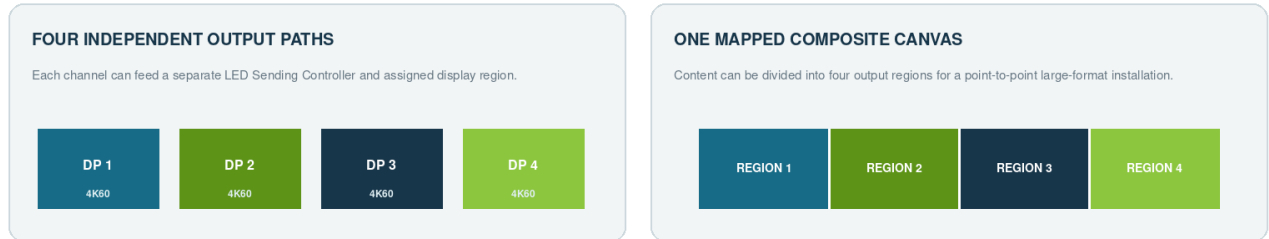
SECTION 03

FOUR-4K OUTPUT WORKFLOWS

Use four independent 4K program outputs for separate displays or assigned regions of a mapped composite installation.

FOUR-4K NATIVE-RESOLUTION OUTPUT WORKFLOW

Each of the four DisplayPort 1.4 program outputs supports up to 3840 × 2160 @ 60 Hz.



Output assignment and pixel mapping are configured in the complete media-server and LED-control workflow.

SUPPORTED OUTPUT MODES

- Four DisplayPort 1.4 program-output channels, each supporting up to 3840 × 2160 @ 60 Hz.
- Four independent LED display paths, each feeding a separate LED Sending Controller.
- One large-format composite installation whose content is divided into four mapped output regions.
- Different LED displays managed in batches while retaining independent programs or playback control.
- Irregular, angled or composite LED surfaces that require custom splitting, mapping and geometric correction.
- Native-resolution 1:1 pixel mapping within the video-format and LED Sending Controller capacity of each output path.

OUTPUT-FORMAT CLARIFICATION The source defines four DP 1.4 outputs at up to 4K @ 60 Hz per channel. The model name does not by itself establish a single native 8K output connector or a separate aggregate LED pixel-load figure.

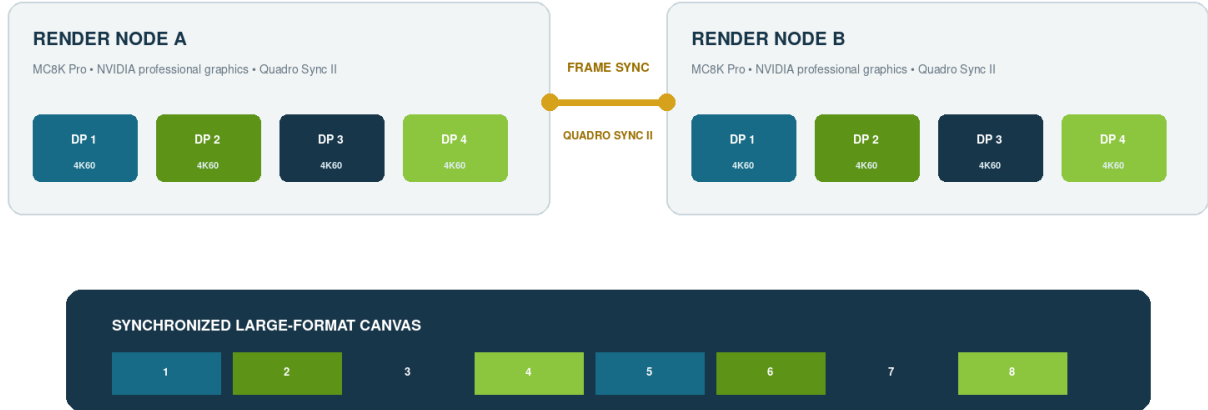
SECTION 04

MULTI-SERVER FRAME SYNCHRONIZATION

Align multiple MC8K Pro rendering nodes for a continuous large-format canvas without inter-node tearing.

MULTI-SERVER FRAME SYNCHRONIZATION

Online frame sync and Quadro Sync II align outputs across synchronized MC8K Pro rendering nodes.



Illustrative two-node topology. The source does not state the maximum node count, sync cabling or external timing formats.

SYNCHRONIZATION FUNCTIONS

FUNCTION	CAPABILITY
Online frame synchronization	Aligns output frames during multi-server operation.
Quadro Sync II	Provides the stated synchronization-card platform for coordinated professional graphics output.
Multi-server synchronized playback	Keeps mapped regions from multiple rendering nodes temporally aligned.
Tear-free composite canvas	Reduces visible discontinuity and tearing across output boundaries in a synchronized installation.
Controller / controlled-node modes	Supports coordinated server operation and compatible third-party console integration.

SYNCHRONIZATION BOUNDARY The source identifies Quadro Sync II and multi-server frame synchronization but does not specify supported node count, timing-reference formats, sync connectors or cable requirements.

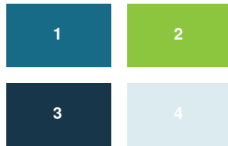
SECTION 05

CREATIVE MAPPING & CAVE WORKFLOWS

Prepare standard content for irregular, angled and immersive LED surfaces through slicing, geometric transformation and CAVE perspective conversion.

CREATIVE MAPPING AND GEOMETRY TOOLSET

SLICE & REASSEMBLE



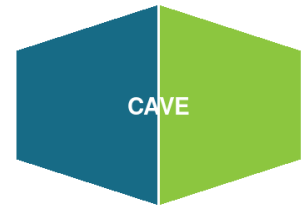
Divide one source into independent regions and rebuild the final composition.

WARP & ROTATE



Apply geometric transformation and rotation for angled or irregular surfaces.

CAVE PERSPECTIVE



Convert conventional video into a mapped CAVE perspective workflow.

MAPPING FUNCTIONS

FUNCTION	APPLICATION
Arbitrary splitting and reassembly	Divides source imagery into independent regions and reconstructs the final display composition.
Geometric warping	Transforms content geometry to fit angled, skewed or non-planar display surfaces.
Image rotation	Rotates mapped regions to match the physical orientation of display sections.
Saved slicing projects	Stores multiple mapping projects and switches them through the control system.
CAVE perspective conversion	Converts standard planar video into a perspective-mapped workflow for compatible CAVE installations.
HDR playback	Supports playback of HDR video content within the configured system workflow.

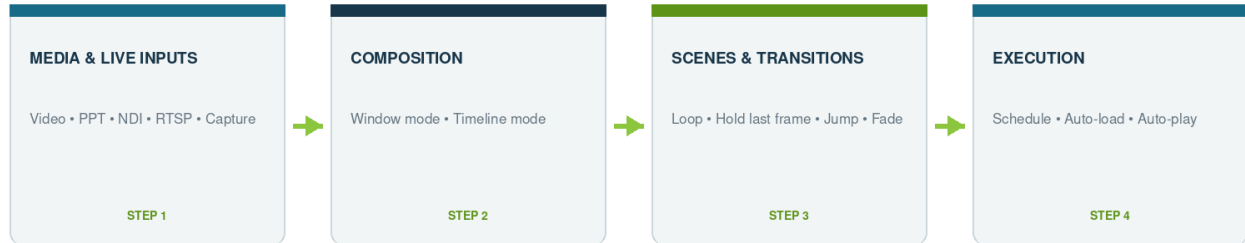
PROJECT VALIDATION Final results depend on the complete render, output and LED mapping chain. Verify every surface from the intended audience viewpoint before acceptance.

SECTION 06

PLAYBACK, SCENES & SCHEDULING

Build programs in window or timeline mode, control scene behavior and automate playback for attended or unattended operation.

PROGRAM CREATION AND PLAYBACK CONTROL



PROGRAM SCENES No fixed scene-count limit is stated in the source specification.

POWERPOINT Presentation playback supports page control from a compatible presentation remote.

PLAYBACK CONTROL

FUNCTION	BEHAVIOR
Window mode	Builds a composition from independently placed content windows.
Timeline mode	Arranges media and scene events along a time-based program sequence.
Scene count	No fixed program-scene limit is stated in the source specification.
Playback actions	Loop playback, hold the last frame and jump to another program.
Scene transitions	Fade-in and fade-out transitions between programs.
Scheduled tasks	Starts selected programs according to a configured schedule.
PowerPoint	Plays PowerPoint presentations and supports page control from a presentation remote.

SECTION 07

MEDIA FORMATS & LIVE INPUTS

Combine high-performance media codecs, network streams, presentations and optional capture-card signals in one program environment.

MEDIA, STREAMING AND CAPTURE INPUTS

HAP FAMILY

Hap • Hap Q • Hap Alpha

H.264

MOV • AVI • MP4 containers

NETWORK VIDEO

NDI and RTSP inputs

CAPTURE CARDS

Optional HDMI / SDI capture

PRESENTATIONS

PowerPoint playback and page control

HDR VIDEO

HDR media playback workflow

Format support may also depend on codec profile, media characteristics and the installed capture hardware.

FORMAT AND INPUT REFERENCE

CATEGORY	SUPPORTED ITEMS / CONDITION
High-performance codecs	Hap, Hap Q and Hap Alpha
General video codec	H.264
Video containers	MOV, AVI and MP4; additional mainstream formats may be supported by the software environment
Network video	NDI and RTSP inputs
Physical capture	Capture-card inputs; HDMI and SDI capture cards are optional
Presentations	PowerPoint playback with compatible page-control remote
Dynamic range	HDR video playback

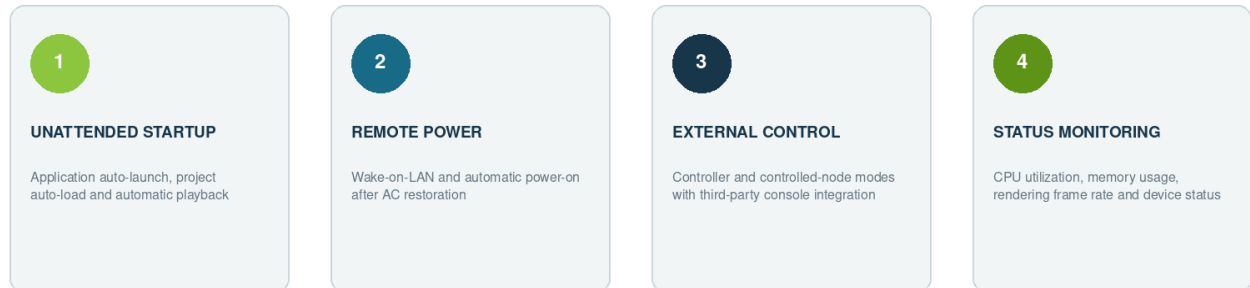
CAPTURE HARDWARE HDMI and SDI inputs require the corresponding optional capture card. They are not built into the standard rear I/O panel shown in this specification.

SECTION 08

AUTOMATION, CONTROL & MONITORING

Support unattended startup, remote power functions, third-party console integration and real-time health monitoring.

AUTOMATION, EXTERNAL CONTROL AND MONITORING



OPERATOR PROTECTION The software interface can be locked at any time to reduce accidental operation.
Scheduled operation still requires correctly configured power, networking, video outputs and LED controllers.

OPERATIONAL FUNCTIONS

FUNCTION	CAPABILITY
Automatic application startup	Launches the media control software automatically after system startup.
Project auto-load / auto-play	Loads the configured project and begins playback without manual operator action.
Controller / controlled-node modes	Supports coordinated server control and integration with compatible third-party control consoles.
Wake-on-LAN	Allows the server to be awakened through a configured network connection.
AC-recovery auto-start	Automatically powers on after AC is restored when the rear-panel selector is enabled.
System monitoring	Monitors server status, CPU utilization, memory usage and rendering frame rate.
Interface lock	Locks the software interface to reduce accidental operation.

SECTION 09

FRONT PANEL

Local restart, power and high-speed USB access on the 4U media-rendering server chassis.



Front-panel interface map. Product image is for reference; delivered appearance may vary.

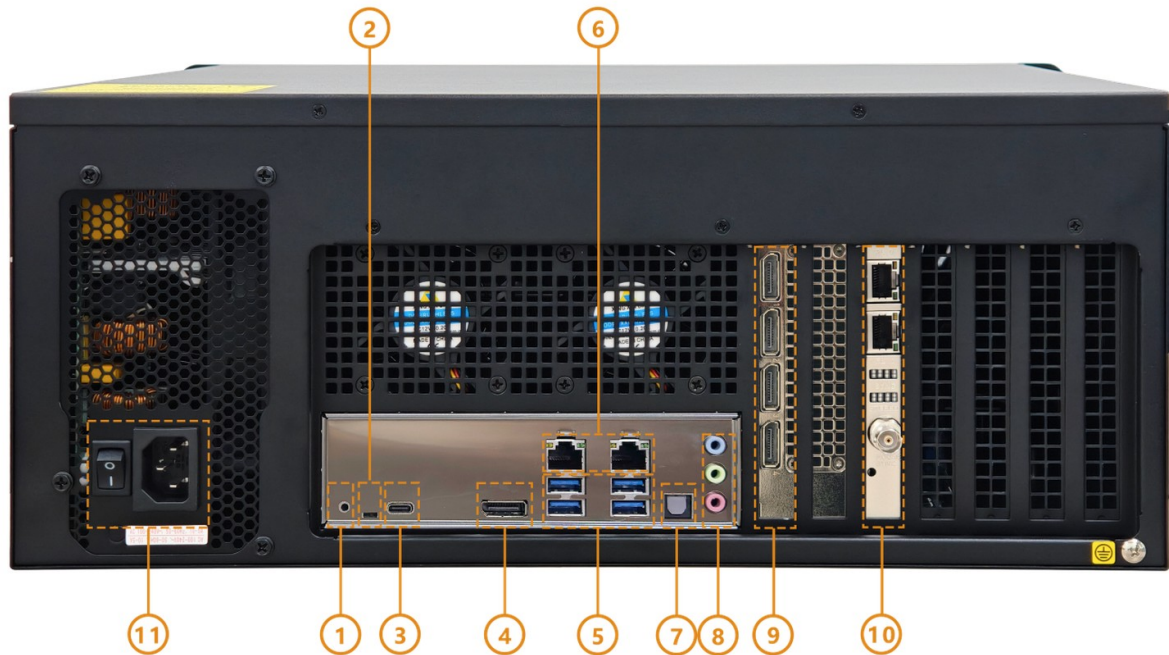
NO.	ITEM	FUNCTION
1	System restart button	Restarts the server hardware.
2	Power button	Turns the server on or initiates the configured power action.
3	2 × USB 3.0	Convenient front-panel connection for supported storage devices and peripherals.

SERVICE ACCESS Keep the front ventilation path clear and allow space for rack handles, USB devices and maintenance access.

SECTION 10

REAR PANEL

Motherboard I/O, four DisplayPort program outputs, Quadro Sync II, network, audio and universal AC power connections.



Rear-panel interface map. Product image is for reference; delivered appearance may vary.

NO.	INTERFACE	FUNCTION
1	BIOS recovery	One-touch BIOS recovery control.
2	AC-recovery auto-start switch	Left: disabled; right: enabled.
3	USB Type-C	One USB Type-C interface.
4	DisplayPort 1.2	Local setup/service display output, up to 3840 × 2160 @ 60 Hz.
5	4 × USB 3.0	High-speed USB connections for supported peripherals and storage.
6	2 × LAN	Network control and communications; supports Wake-on-LAN.
7	Optical digital audio	Supports 5.1-channel digital audio transmission.
8	Analog audio	Line input (blue), line output (green) and microphone input (pink).
9	4 × DisplayPort 1.4	Four program-output channels, each supporting up to 3840 × 2160 @ 60 Hz.
10	Quadro Sync II	Synchronization card for coordinated multi-server professional graphics output.
11	AC input	AC 100–240 V, 50/60 Hz.

SECTION 11

INTERFACE SPECIFICATIONS

Operational limits and intended use for the program outputs, synchronization, service display, network, audio and power connections.

INTERFACE	QTY.	SPECIFICATION / USE
DisplayPort 1.4	4	Four program-output channels, each supporting up to 3840 × 2160 @ 60 Hz.
DisplayPort 1.2	1	Motherboard display output for local setup/service; maximum stated format 3840 × 2160 @ 60 Hz.
Quadro Sync II	1	Synchronization card for multi-server output-frame alignment.
Front USB	2	USB 3.0 Type-A interfaces.
Rear USB	4	USB 3.0 Type-A interfaces.
USB Type-C	1	USB Type-C interface; protocol generation is not stated.
LAN	2	Ethernet connections for control and system communications; supports Wake-on-LAN.
Optical audio	1	Optical digital audio output supporting 5.1-channel transmission.
Analog audio	3 jacks	Line input (blue), line output (green) and microphone input (pink).
AC power input	1	AC 100–240 V, 50/60 Hz.

OUTPUT-PATH CLARIFICATION

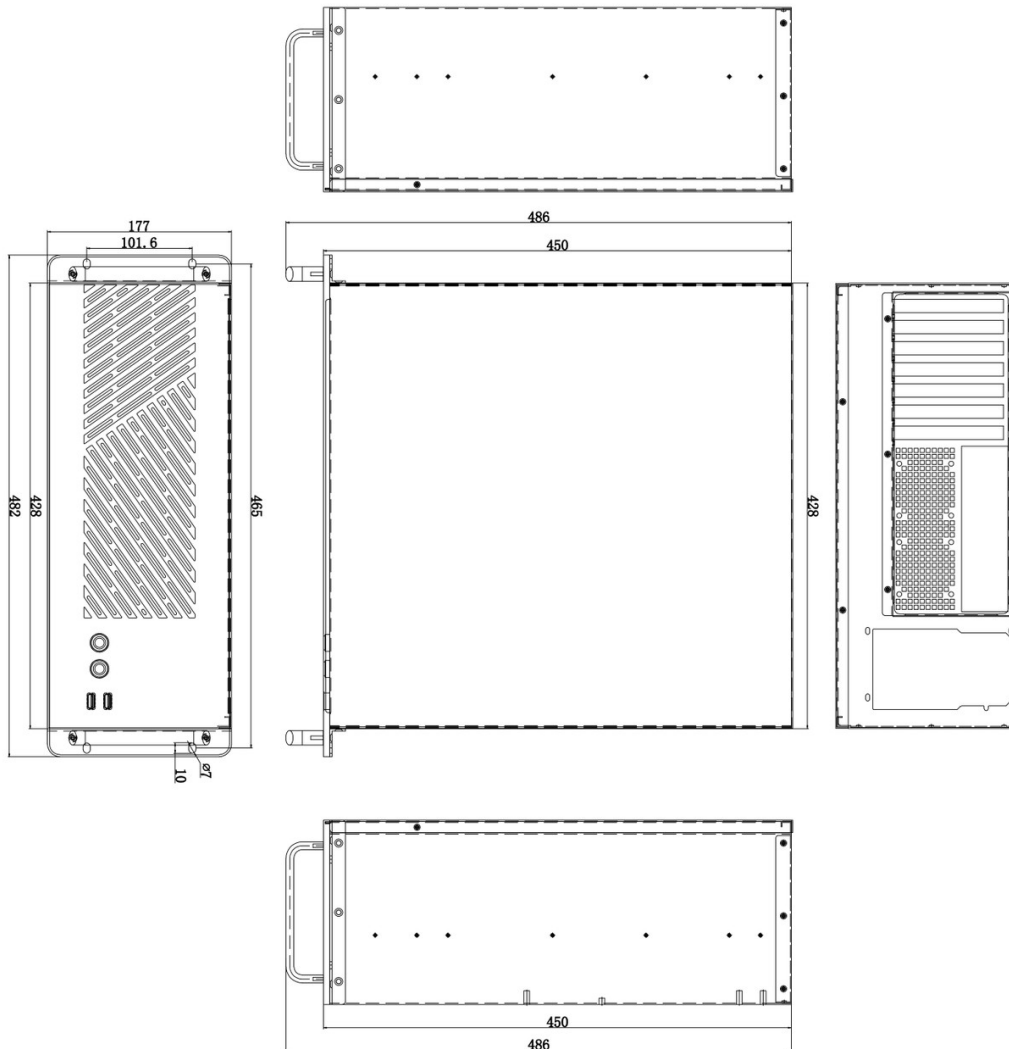
- All four DisplayPort 1.4 connectors are defined program outputs intended to feed downstream LED Sending Controllers.
- Each DP 1.4 program-output channel supports up to 3840 × 2160 @ 60 Hz.
- DisplayPort 1.2 is a separate motherboard display connection for local setup/service and is not one of the four program outputs.
- Quadro Sync II provides synchronization functionality; it is not a video-output connector.
- Optional HDMI/SDI capture interfaces are installed as capture cards and are separate from the standard motherboard I/O listed above.
- The LAN port speed is not stated in the source specification; confirm project-specific network-performance requirements.

DESIGN RULE Size each video-output format, adapter/cable path, LED sending controller and downstream receiving-card load as one complete signal chain.

SECTION 12

MECHANICAL DIMENSIONS

Standard 4U rackmount form factor for control-room and equipment-rack integration.



Mechanical dimensions. Units: mm. Drawing tolerance: ± 0.3 mm.

PARAMETER	SPECIFICATION
Overall dimensions	482 mm (W) × 486 mm (D) × 177 mm (H)
Rack height	4U
Main chassis body width	428 mm shown in the mechanical drawing
Main chassis depth	450 mm shown in the mechanical drawing
Net weight	11.8 kg
Drawing tolerance	± 0.3 mm

RACK INTEGRATION Allow clearance for front and rear airflow, AC power, network cabling, four DisplayPort program cables, synchronization hardware, service display/audio connections and maintenance access.

SECTION 13

HARDWARE & SYSTEM SPECIFICATIONS

Display-side media rendering, synchronized multi-node output and M2 playback-software configuration.

CATEGORY	PARAMETER	SPECIFICATION
Product	Product name	LED Media Rendering Server
Product	Model	MC8K Pro
Platform	Motherboard	Professional industrial motherboard; model not stated
Program output	Configured channels	4 × DisplayPort 1.4
Program output	Maximum per channel	3840 × 2160 @ 60 Hz
Graphics	GPU	NVIDIA professional graphics card; model not stated
Synchronization	Sync card	Quadro Sync II
Processor	CPU	Intel processor, 20 cores / 28 threads
Memory	System memory	16 GB DDR5
Storage	Internal storage	1 TB high-speed M.2 solid-state drive
Optional capture	Input hardware	HDMI or SDI capture card
Service display	Local connection	1 × DisplayPort 1.2, up to 3840 × 2160 @ 60 Hz
Power	Power supply / rated power	650 W
Chassis	Form factor	4U industrial rackmount server chassis
Software	Media platform	M2 media control and playback software

CONFIGURATION NOTES

- The MC8K Pro configuration specifies four DP 1.4 program-output channels, each up to 4K @ 60 Hz.
- The model name does not by itself establish a single native 8K video-output format.
- Quadro Sync II supports synchronized multi-server operation; the source does not state sync wiring or node-count limits.
- LED load capacity depends on the selected output format, LED sending controller and downstream receiving-card configuration.
- Media-decoding performance depends on codec, resolution, frame rate, bit rate, project complexity and concurrent tasks.
- Confirm optional capture-card type, quantity and driver compatibility when HDMI or SDI input is required.

SPECIFICATION BOUNDARY The source states four video channels at up to 4K @ 60 Hz per channel; it does not state a single native 8K connector format or a separate aggregate LED pixel-load figure.

SECTION 14

GENERAL SPECIFICATIONS

Electrical, environmental, physical, packaging and standard-accessory data.

CATEGORY	PARAMETER	SPECIFICATION
Electrical	Input voltage / frequency	AC 100–240 V, 50/60 Hz
Electrical	Rated power	650 W
Operating environment	Temperature	0°C to 40°C
Operating environment	Humidity	0% to 80% RH, non-condensing
Storage environment	Temperature	–10°C to 60°C
Storage environment	Humidity	0% to 95% RH, non-condensing
Mechanical	Dimensions	482 × 486 × 177 mm (W × D × H)
Mechanical	Net weight	11.8 kg
Packaging	Gross weight	16 kg including accessories and packaging
Packaging	Outer carton dimensions	615 × 565 × 275 mm
Standard accessories	Included items	1 × AC power cord; 1 × media-control software license dongle; 1 × certificate of conformity

POWER NOTE Actual power consumption may vary with operating conditions, installed hardware, project load, environment and system settings.

DEPLOYMENT CHECKPOINTS

- Provide a correctly grounded AC circuit within the specified input range.
- Confirm rack depth, rail/support method, airflow direction and rear-cable clearance before installation.
- Confirm all four DisplayPort cable paths and the accepted input formats of the downstream LED Sending Controllers.
- Confirm the multi-server synchronization topology, Quadro Sync II requirements and project-specific cabling before installation.
- Record the final M2 project, node role, output assignment, LED mapping, synchronization and startup behavior during handover.

SECTION 15

INSTALLATION, SAFETY & DOCUMENT CONTROL

Electrical safety, environmental handling and revision traceability for the MC8K Pro specification.

INSTALLATION & SAFETY

- High voltage: the product operates from AC 100–240 V. Installation and servicing must be performed by qualified personnel.
- Disconnect AC power before opening the chassis, changing internal hardware or performing service work.
- Prevent liquids, metal fragments and other conductive objects from entering the enclosure.
- Operate the server in a dry, clean and well-ventilated environment within the stated temperature and humidity limits.
- Do not obstruct the front or rear ventilation openings; maintain sufficient clearance for heat removal.
- Connect the protective earth and use a properly grounded rack and AC distribution system.
- Secure data and project backups before BIOS recovery, software servicing or hardware replacement.
- Verify the rear AC-recovery auto-start selector and Wake-on-LAN configuration before enabling unattended operation.

ELECTRICAL HAZARD This equipment contains hazardous AC voltages. Do not remove the chassis cover while power is connected.

DOCUMENT CONTROL

DOCUMENT VERSION	RELEASE DATE	CHANGE DESCRIPTION
V4.0	2025-07-15	Initial release of the updated specification.
V4.1	2026-06-03	Interface specifications updated.

SPECIFICATION BASIS This English edition is based on the supplied Chinese MC8K Pro Multimedia Server Specification V4.1 and preserves the stated hardware, interface, mechanical and environmental limits.

NOTICE Specifications, installed components, software functions and product appearance may change with revision. Confirm critical project requirements before deployment.

After-Sales Service Hotline: 400-881-3531

Website: www.mooncell.com.cn

Professional LED Display Control Systems

Specifications and product appearance are subject to change without notice.

