

MC4K-2

ALL-IN-ONE LED MEDIA SERVER

Integrated control, playback and dual-4K output for LED display systems

2 × 4K60

VIDEO OUTPUTS

NVIDIA

PRO GRAPHICS

20C / 28T

INTEL CPU

M2

MEDIA SOFTWARE

**CONTROL • PLAYBACK • RENDERING • DUAL-4K OUTPUT**

Native-resolution output | Creative mapping | Timeline control | Live inputs

SECTION 01

PRODUCT OVERVIEW

An all-in-one LED media server integrating media control, playback rendering and two configured 4K video outputs.

The MC4K-2 combines M2 media control, high-performance playback and professional GPU rendering in one 4U platform. Two configured Mini DisplayPort 1.4 output channels, each supporting up to 3840 × 2160 @ 60 Hz, can feed two LED sending controllers for native-resolution 1:1 display on two 4K LED screens or for mapped output across creative and irregular LED installations.

2 × 4K60
VIDEO OUTPUTS

Two configured Mini DP 1.4 channels

NVIDIA
PRO GRAPHICS

Professional GPU rendering platform

20 / 28
CORES / THREADS

High-performance Intel processor

16 GB
DDR5 MEMORY

System and project workspace

SYSTEM ROLE

ROLE	MC4K-2 CAPABILITY
Integrated media control	Manages media, projects, scenes, schedules and multiple LED displays through M2 software.
On-board playback and rendering	Decodes media and renders the mapped output through an NVIDIA professional graphics platform.
Dual-4K output	Provides two configured Mini DP 1.4 channels, each supporting up to 3840 × 2160 @ 60 Hz.
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 MC4K-2 is an all-in-one LED media server: control and display-side rendering are integrated. Downstream LED sending controllers are still required to convert its video outputs into LED display data.

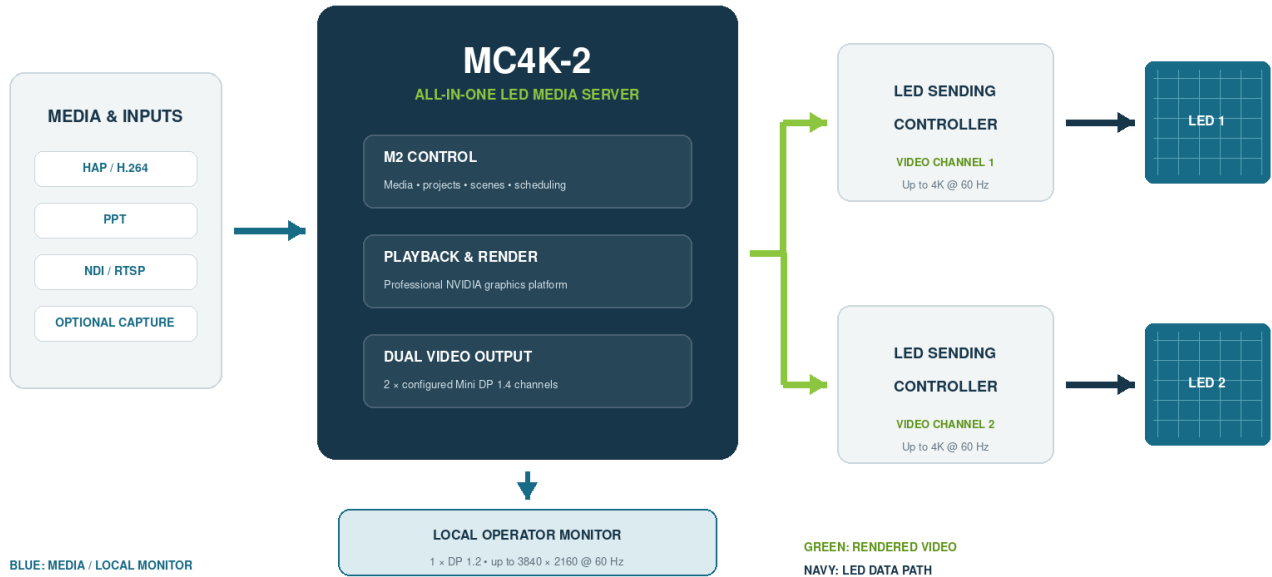
SECTION 02

INTEGRATED SYSTEM ARCHITECTURE

Media control and rendering are performed inside MC4K-2; LED sending controllers remain separate downstream devices.

INTEGRATED CONTROL-AND-DISPLAY ARCHITECTURE

MC4K-2 combines media control, playback rendering and two configured 4K output channels in one server.



COMPONENT RESPONSIBILITIES

COMPONENT	PRIMARY RESPONSIBILITY
MC4K-2 All-in-One LED Media Server	Manages media and projects, performs playback/rendering and provides two configured 4K video-output channels.
Local operator monitor	Connects to the motherboard DP 1.2 output for M2 operation and system monitoring.
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.

SIGNAL-PATH BOUNDARY Mini DP 1.4 carries the rendered LED video output. DP 1.2 is the local operator-monitor connection. Neither connection replaces the downstream LED sending controller.

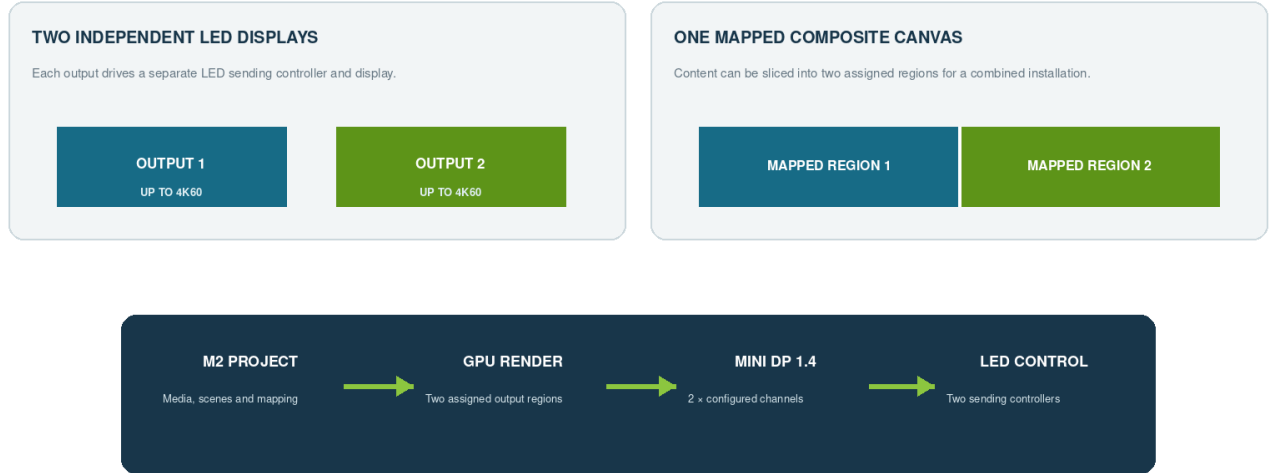
SECTION 03

DUAL-4K OUTPUT WORKFLOWS

Use the two configured outputs for independent screens or assigned regions of a mapped composite installation.

DUAL-4K NATIVE-RESOLUTION OUTPUT WORKFLOW

Each configured Mini DP 1.4 output 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

- Two independent LED displays, each fed from one configured Mini DP 1.4 output at up to 3840 × 2160 @ 60 Hz.
- One composite installation whose content is divided into two mapped regions and assigned to the two outputs.
- 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-COUNT CLARIFICATION The rear panel shows four physical Mini DP 1.4 connectors, while the MC4K-2 product specification defines two configured output channels. It does not state four active 4K outputs; confirm the assigned ports in the delivered configuration.

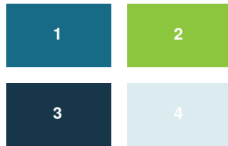
SECTION 04

CREATIVE MAPPING & CAVE WORKFLOWS

Prepare content for irregular, angled and immersive LED surfaces without constraining the project to a conventional rectangular canvas.

CREATIVE MAPPING AND GEOMETRY TOOLSET

SLICE & REASSEMBLE



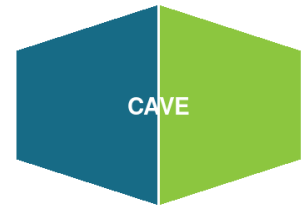
Divide one source into independent regions and rebuild the final composition.

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 conventional video into a perspective-mapped workflow for compatible CAVE installations.
HDR playback	Supports playback of HDR video content within the configured system workflow.

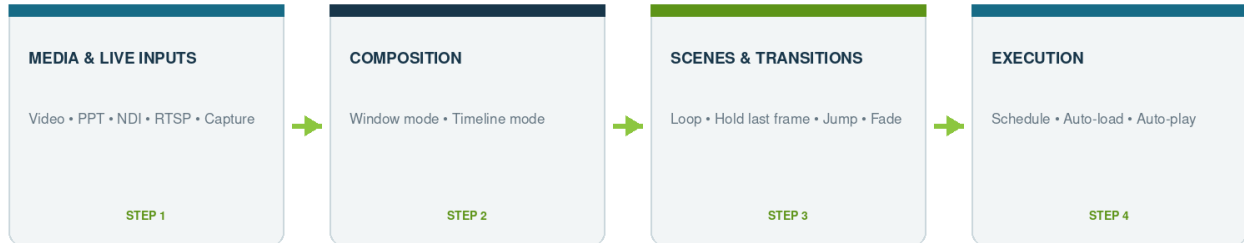
PROJECT VALIDATION Final results depend on the complete render, output and LED mapping chain. Verify every surface from the intended audience viewpoint before acceptance.

SECTION 05

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 06

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

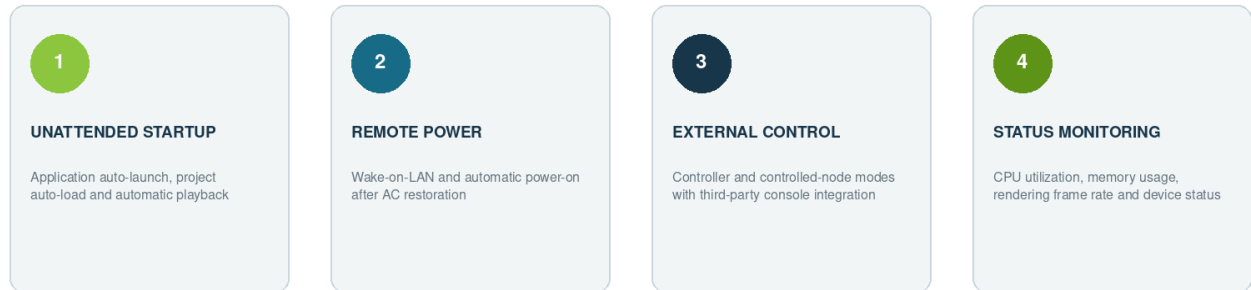
CAPTURE HARDWARE HDMI and SDI inputs require the corresponding optional capture card. They are not built into the standard rear I/O panel shown in this specification.

SECTION 07

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 08

FRONT PANEL

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



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

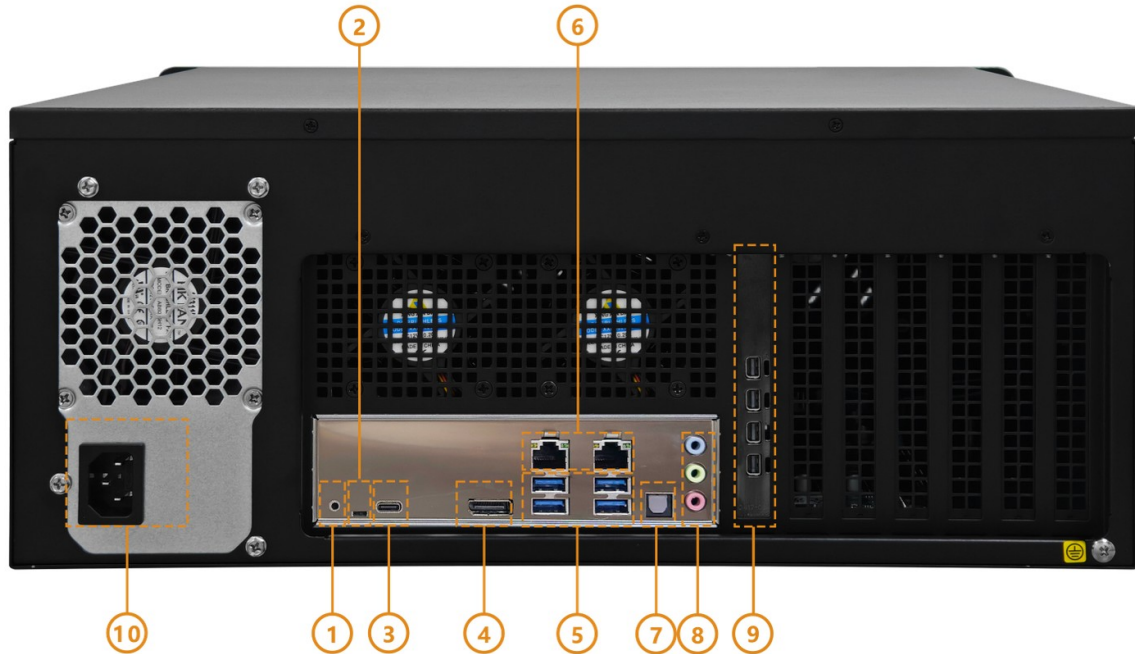
NO.	ITEM	FUNCTION
1	System restart button	Restarts the server hardware.
2	Power button	Turns the server on or initiates the configured power action.
3	2 × USB 3.0	Convenient front-panel connection for supported storage devices and peripherals.

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

SECTION 09

REAR PANEL

Motherboard I/O, two configured Mini DP outputs, 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 monitor 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 × Mini DP 1.4 connectors	MC4K-2 is specified for two configured video-output channels, each up to 4K @ 60 Hz.
10	AC input	AC 100–240 V, 50/60 Hz.

SECTION 10

INTERFACE SPECIFICATIONS

Operational limits and intended use for the video-output, operator, network, audio and power connections.

INTERFACE	QTY.	SPECIFICATION / USE
Mini DisplayPort 1.4	4 phys.	Rear connectors; MC4K-2 specifies 2 configured video-output channels, each up to 3840 × 2160 @ 60 Hz.
DisplayPort	1	DP 1.2 local monitor output; maximum stated format 3840 × 2160 @ 60 Hz.
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 line input	1	Blue 3.5 mm audio input.
Analog line output	1	Green 3.5 mm audio output.
Microphone input	1	Pink 3.5 mm microphone input.
AC power input	1	AC 100–240 V, 50/60 Hz.

OUTPUT-PATH CLARIFICATION

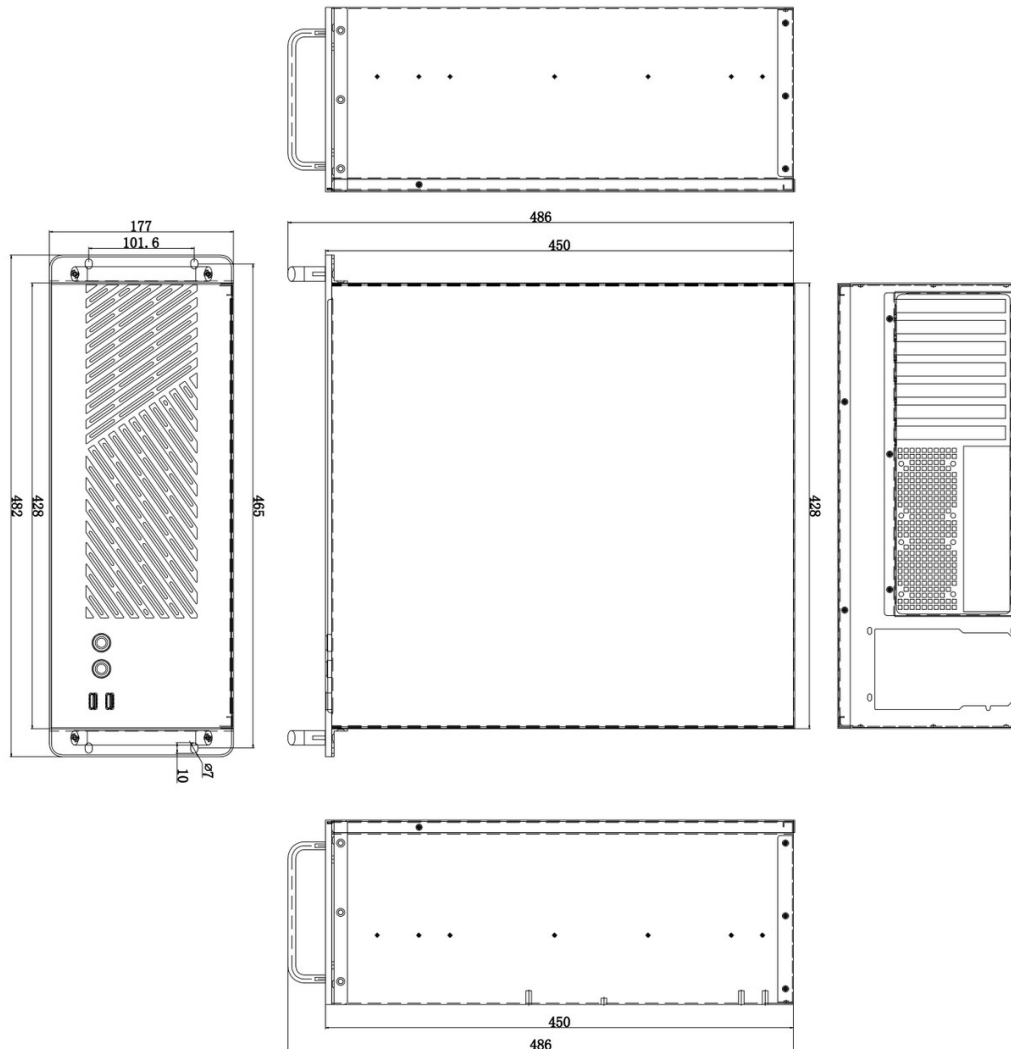
- The two configured Mini DP 1.4 channels are the rendered video outputs intended to feed LED sending controllers.
- Four physical Mini DP connectors are visible, but the source defines two configured output channels rather than four active 4K channels.
- DisplayPort 1.2 is the MC4K-2 local operator-monitor connection and is separate from the two media-output channels.
- 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 11

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, Mini DP adapters/cables, monitor/audio connections and service access.

SECTION 12

HARDWARE & SYSTEM SPECIFICATIONS

Integrated media control, playback, rendering, video output and M2 software configuration.

CATEGORY	PARAMETER	SPECIFICATION
Product	Product name	All-in-One LED Media Server
Product	Model	MC4K-2
Media output	Configured channels	2 × Mini DisplayPort 1.4
Media output	Maximum per channel	3840 × 2160 @ 60 Hz
Graphics	GPU	NVIDIA professional graphics card; model not stated
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
Operator display	Local monitor	1 × DisplayPort 1.2, up to 3840 × 2160 @ 60 Hz
Power	Power supply / rated power	300 W
Chassis	Form factor	4U industrial rackmount server chassis
Software	Media platform	M2 media control and playback software

CONFIGURATION NOTES

- Four physical Mini DP connectors are shown; the MC4K-2 configuration specifies two output channels.
- 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 two video channels at up to 4K @ 60 Hz per channel; it does not state a separate aggregate LED pixel-load figure.

SECTION 13

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	300 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	15.3 kg including accessories and packaging
Packaging	Outer carton dimensions	615 × 565 × 275 mm
Standard accessories	Video cables	2 × Mini DP-to-DP cables; 1 × Mini DP-to-HDMI cable
Standard accessories	Other 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 the required Mini DP adapter/cable path and the input formats supported by each LED sending controller.
- Record the final M2 project, output assignment, LED mapping, slicing configuration and startup behavior during handover.

SECTION 14

INSTALLATION, SAFETY & DOCUMENT CONTROL

Electrical safety, environmental handling and revision traceability for the MC4K-2 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	2026-06-03	Initial release of the updated specification.

SPECIFICATION BASIS This English edition is based on the supplied Chinese MC4K-2 Multimedia Server Specification V4.0 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.

