ET16S-G

Media Server

Specifications

Change History

Version	Release Date	Description
V1.1.0	2024-11-30	• Updated the product selection section. • Added the optional items section.
V1.0.0	2024-10-31	First release

Introduction

The ET16S-G media server is the latest offering from NovaStar, boasting a 16K ultra-high resolution, pixel-to-pixel screen loading, and multiple high-performance graphics cards.

Equipped with a powerful workstation motherboard, Intel Xeon processor, and ECC high-speed memory, the ET16S-G enables flawless frame-synchronized output of four graphics cards. A single ET16S-G media server can replace four traditional media servers with single graphics card configurations, while also having the ability to link multiple servers for frame-synchronized mosaic and backup, perfect for meeting the requirements of ultra-high resolution displays exceeding 16K.

Incorporating the latest version of Kompass FX3 multimedia playback software, the ET16S-G showcases its ability to hardware decode up to four channels of 8K60fps high-definition video content simultaneously, giving full play to the decoding and rendering capabilities of all available GPUs. Furthermore, it offers a range of functionalities, including multi-channel audio and video playback and processing, visual media management and program arrangement, as well as output partitioning and reorganization, enabling seamless control and creative display in mosaic configurations using multiple graphics cards.

With all these advanced features, the ET16S-G is well-suited for various fixed installation scenarios requiring exceptional resolution and powerful playback control, such as large-scale outdoor advertising displays, naked-eye 3D, immersive experiences, data centers, and exhibition showcases.

Certifications

CE, FCC, IC, CB, KC, RoHS

If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact NovaStar to confirm or address the problem.

Otherwise, the customer shall be responsible for the legal risks caused or NovaStar has the right to claim compensation.

Features

- A single device supports up to 16K×8K output capacity, ultra-high resolution video decoding and pixel-to-pixel display

- Free partitioning, reorganizing and rotating of multiple outputs for irregular screen configuration, unleashing your creative mosaic ideas

- A single output can be split into up to 64 partitions, allowing for quick mapping settings and ultra-wide screen configuration

- Playback of up to 12 layers and 1 audio simultaneously

- Visualized program arrangement and management

- Live and pre-edit modes

  - The program editing and playback are in sync in live mode

  - Edit the programs before displaying them on the screen in pre-edit mode

- Media library management, including videos, images, PowerPoint slides and audio files

- Media file sorting

- Media file batch import

- NDI sources, website sources, sources from capture devices, streaming media sources, and text sources supported

- Media collection configurations

- PowerPoint slides, streaming media and web page playback

- Support using a laser pointer for moving between PowerPoint slides

- Multi-screen management and control support

- Sequence frame configuration and playback in BMP, TIFF, TGA, JPG, and PNG formats

- External LTC and MTC timecode input for precise and synchronized playback control

- Playback progress management

- Shortcut key for program jumping and auto jumping settings

- Configurable layer size and priority

- Main KV and main KV jumping settings

- Main media based playback progress management

- Crossfade on program switching

- Layer mask, cropping, keying, blurring and opacity adjustment

- Hardware decoding supported

- One-click FTB

- Auto startup of built-in software on system power on, auto program playback on software startup

- Compatible with NovaStar's Visual Intelligent Control Platform, enabling a

highly efficient and user-friendly control experience

Appearance

Front Panel

No.	Area	Function
1	Power button	Turn on or turn off the device.
2	USB	2x USB 3.0 • Connect to the mouse and keyboard. • Insert a USB drive for importing media files.

Rear Panel
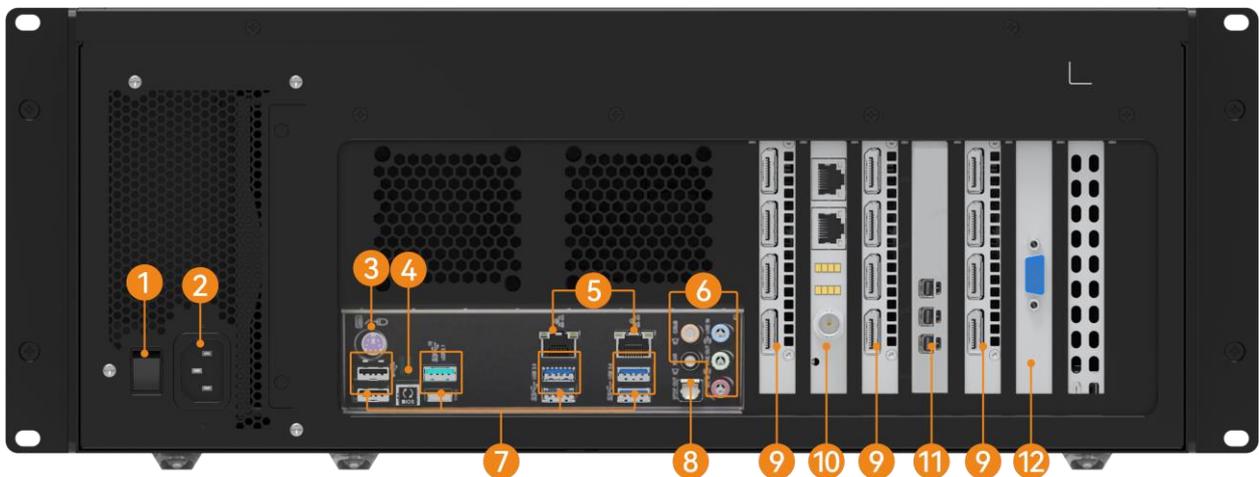
> **Note**
>
> All product pictures shown in this document are for illustration purpose only. Actual product may vary.

No.	Area	Description
1	Power button	Power on or power off the device.
2	Power	Connect to an external power source.
3	PS/2	Connect to the mouse and keyboard.
4	USB BIOS Flashback button	For the BIOS program update of the motherboard
5	RJ45	2x RJ45 connectors for Ethernet networking
6	3.5 mm audio	• 1x MIC IN: 3.5 mm microphone input connector • 1x Line IN: 3.5 mm external audio input connector • 3x Line OUT: 3.5 mm audio output connectors for 6 channel connections
7	USB	• 2x Type-A USB 2.0 • 1x Type-A USB 3.1 Gen2 • 1x Type-C USB 3.1 Gen2 • 4x Type-A USB 3.1 Gen1 Connect to the mouse and keyboard or insert a USB drive.
8	Optical port	S/PDIF digital audio output
9	Output	Graphics card slots At most four graphics cards can be configured. Single card output: • Up to 4x 5120×2880@60Hz outputs • Four connector mosaic output, with a maximum total width or height of 16384 pixels • Single connector width: 480−8192 pixels • Single connector height: 300−8192 pixels **Note** • The graphics card does not support irregular mosaic layouts.

10	Sync card	• 2x RJ45
		Accept a frame lock signal and output the signal.
		• 1x BNC
		Accept an external sync signal.
		• LED indicators
		Indicate the statuses of the sync signal connections.
11	Control UI	3x Mini DP
		• Max single connector output: 4096×2160@60Hz
		• Connect to a monitor for displaying the software user interface.
12	VGA	1x VGA
		Only used for display software interface and system installation during production

The mosaic layout must be 1×2, 1×3, 1×4, 2×2, 2×1, 3×1 or 4×1.

• The output resolutions of the graphics card connectors that are used for mosaic must be the same.

Hardware/Software

Power supply	Great Wall 1300 W
CPU	Intel Xeon Gold Processor
Memory	ECC DDR4 high-speed memory
Hard drive	High-speed SSD
Motherboard	ASUS workstation motherboard
Keyboard & Mouse	Keyboard and mouse suit
OS	Windows 10 Enterprise LTSC
Built-in software	Kompass FX3 software with licensing dongle

Product Selection

Model	Configuration	Graphics Card

ET16S(2A4)-G	• Processor: 1x Intel Xeon Gold Processor
	• Memory: Default 64 GB, expandable
	• Hard drive: Default 1 TB high-speed SSD
	• Sync card: 1x Sync Card II
	• 8x DP cables
	• 2x Type-C to DP adapters
		• 2x HPG4000
		  Single card spec:
		  – Video memory: 8 GB GDDR6, 256 bit
		  – Smooth playback of 1x hardware-decoded 8K×4K@60fps SDR video files
		• 1x MPGT400

ET16S(3A4)-G	• Processor: 2x Intel Xeon Gold Processors
	• Memory: Default 128 GB, expandable
	• Hard Drive: Default 1 TB + 960 GB high-speed SSDs
	• Sync card: 1x Sync Card II
	• 12x DP cables
	• 3x Type-C to DP adapters
		• 3x HPG4000
		  Single card spec:
		  – Video memory: 8 GB GDDR6, 256 bit
		  – Smooth playback of 1x hardware-decoded 8K×4K@60fps SDR video files
		• 1x MPGT400

ET16S (Dual CPU)-G	• Processor: 2x Intel Xeon Gold Processors
	• Memory: Default 128 GB, expandable
	• Hard Drive: Default 1 TB + 960 GB high-speed SSDs
		• Graphics card is optional, which can be selected from Optional Items.
		  – HPG4000, select max 4
		    Each includes 1x Type-C to DP adapter and 4x DP cables.
		  – HPGA5000, select max 2
		    Each includes 4x DP cables.
		  – HPGA6000, select max 2
		    Each includes 4x DP cables.
		• MPGT400, required for multi-card synchronization
		• Server sync card, required for multi-server synchronization

Optional Items

The following table lists the optional items that you need to purchase from NovaStar separately.

| Graphics Card and Sync Card	Description
Graphics Card MPGT400	 3x miniDP For displaying the software user interface only, not for output
Graphics Card HPG4000	 3x DP 1.4, 1x Type-C • Up to 4x 5120×2880@60Hz outputs • Four connector mosaic output, with a mosaic width or height of up to 16384 pixels • Single connector width: 480–8192 pixels • Single connector height: 300–8192 pixels • Playback of 1 layer of 8K×4K@60fps SDR video (hardware-decoding) • Memory: 8 GB • Type: GDDR6 • Bit width: 256 bit **Note** When this graphics card is selected, the package includes a Type-C to DP adapter.
Graphics Card HPGA5000	 4x DP 1.4

Graphics Card and Sync Card	Description
	• Up to 4x 5120×2880@60Hz outputs • Four connector mosaic output, with a mosaic width or height of up to 16384 pixels • Single connector width: 480–8192 pixels • Single connector height: 300–8192 pixels • Playback of 2 layers of 8K×4K@60fps SDR video (hardware-decoding) • Memory: 24 GB • Type: GDDR6 • Bit width: 384 bit
Graphics Card HPGA6000	 4x DP 1.4a • Up to 4x 5120×2880@60Hz outputs • Four connector mosaic output, with a mosaic width or height of up to 16384 pixels • Single connector width: 480–8192 pixels • Single connector height: 300–8192 pixels • Playback of 3 layers of 8K×4K@60fps SDR video (hardware-decoding) • Memory: 48 GB • Type: GDDR6 • Bit width: 384 bit **Note** • The graphics card does not support irregular mosaic layouts. The mosaic layout must be 1×2, 1×3, 1×4, 2×2, 2×1, 3×1 or 4×1. • The output resolutions of the graphics card connectors that are used for mosaic must be the same.
Sync Card	 The sync card must work with the HPG4000, HPGA5000 and HPGA6000
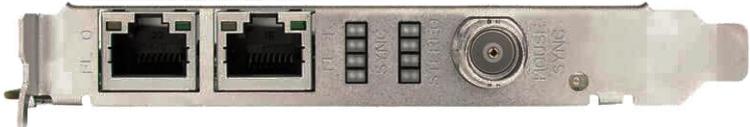
| Graphics Card and Sync Card	Description

	graphics cards.
	
	 • 2x RJ45
	
	   Accept a frame lock signal and output the signal.
	
	 • 1x BNC
	
	   Accept an external sync signal.
	
	 • LED indicators
	
	   Indicate the statuses of the sync signal connections.

Applications
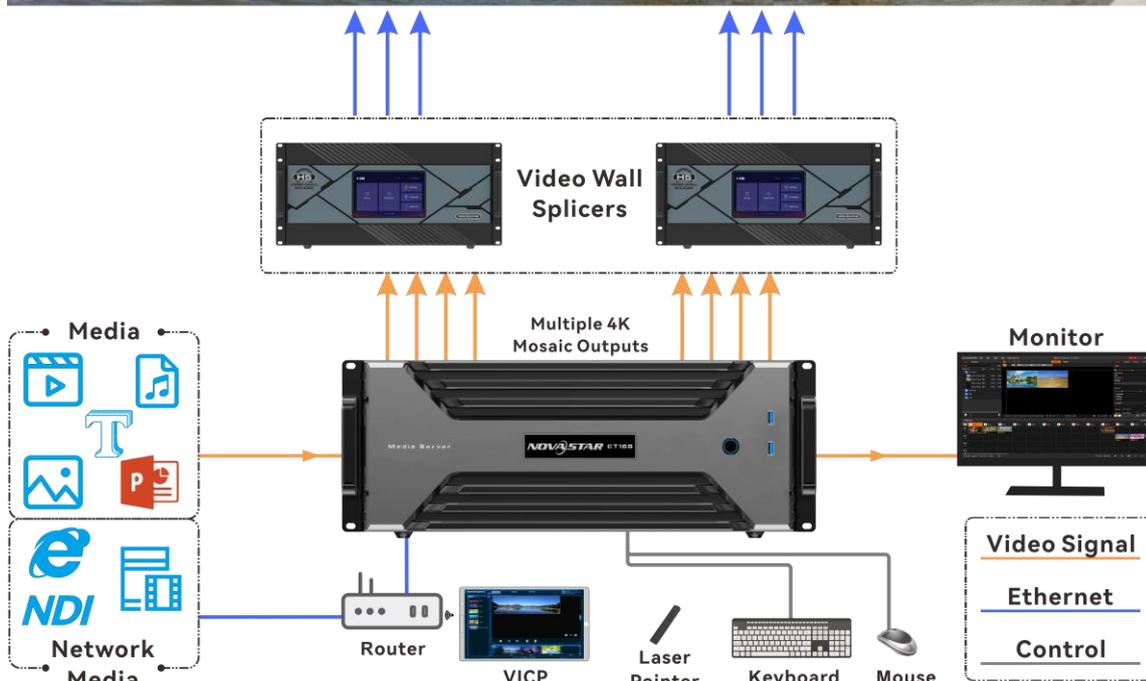
📄 **Notes**

• This product can only be placed horizontally. Do not mount vertically or upside-down.

- The product can be mounted in a standard 19-inch rack capable of withstanding at least four times the total weight of the mounted equipment. Four M5 screws should be used to fix the product.

Dimensions
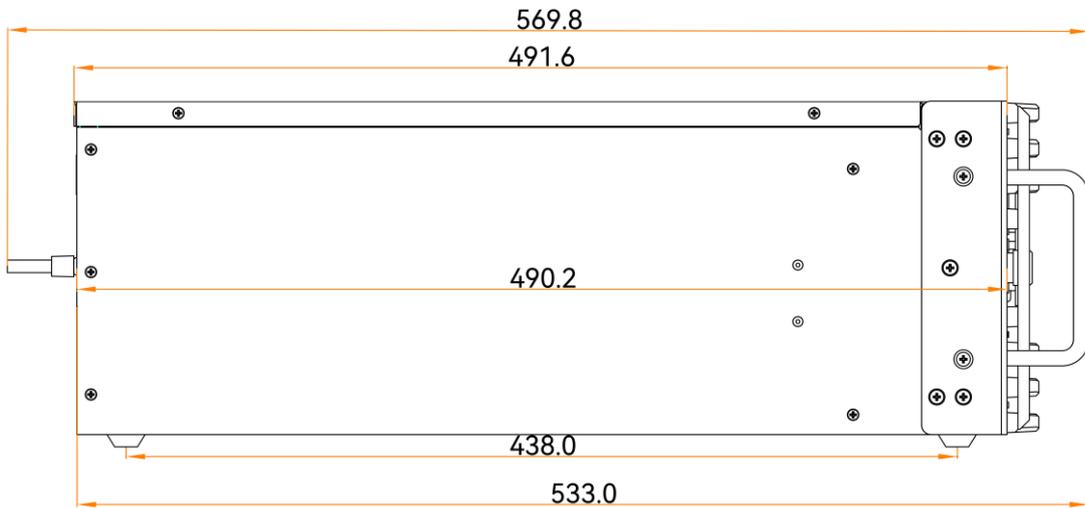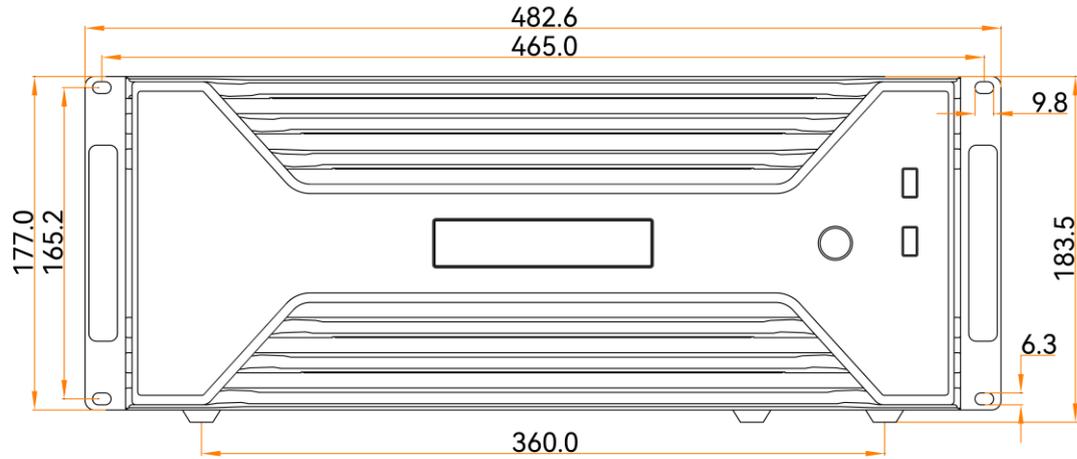
Tolerance: ±1   Unit: mm

Specifications

Electrical Characteristics	Power connector	200–240V~, 8A 50/60Hz
	Max power consumption	1100 W
Operating Environment	Temperature	0℃ to +40℃
	Humidity	0% RH to 80% RH, non-condensing
Storage Environment	Temperature	−10℃ to +60℃
	Humidity	0% RH to 95% RH, non-condensing
Physical Specifications	Dimensions	482.6 mm × 183.5 mm × 569.8 mm
	Net weight	17.9 kg
	Gross weight	24.5 kg
Packing Information	Packing box	1x Power cable 1x Mini DP to HDMI cable 1x Keyboard and mouse suit 1x VGA to HDMI cable 1x Certificate of Approval 1x Safety Manual 📄 **Note** Cables and adapters from the product selection are not included in this packing list.
	Accessories	735 mm × 660 mm × 300 mm

Media File Types and Formats

The ET16S-G supports the decoding of various common video coding formats, such as H.264, H.265, MPGE-4/2 and WMV.

Type	Format
Video	H264, H265 (HEVC), MPEG-1/2/4, AV1, VC-1, ProRes, MJPEG, VP8/9, WMV7/8/9
Image	jpg, jpeg, bmp, png, gif, ico
Audio	mp3, aac, flac, amr, ape, wav, wma
Office	PowerPoint, Excel, Word, PDF

📄 **Notes**

Recommended video coding formats:

- 4K < resolutions ≤ 8K, width or height ≤ 8192 pixels: H.265 (HEVC) or VP9 recommended

- Resolutions ≤ 4K: H.264 (AVC) recommended

- When the video size exceeds 8K, it is recommended to split the video into multiple files for playback.

For a better image quality experience, the following video bitrates are recommended.

- Recommended video bitrates for SDR uploads – single media server and single graphics card:

Type	Video Bitrate Standard Frame Rate (24 Hz, 25 Hz, 30 Hz)	Video Bitrate High Frame Rate (48 Hz, 50 Hz, 60 Hz)
4320 (8K)	75 to 90 Mbps	110 to 135 Mbps
2160 (4K)	35 to 45 Mbps	53 to 68 Mbps
1440 (2K)	16 Mbps	24 Mbps
1080p	8 Mbps	12 Mbps

- Recommended video bitrates for SDR uploads – multiple media servers and multiple graphics cards (frame synchronization required):

Type	Frame Rate	Video Bitrate	Video Coding
4320 (8K)	60 Hz	30 Mbps	H.265
2160 (4K)	60 Hz	30 Mbps	H.264

 Note

If frame synchronization output is not required in the application scenario that has multiple media servers and multiple graphics cards, please refer to the recommended video bitrates for SDR uploads – single media server and single graphics card.

Notes and Cautions

Notes For Battery

- The battery is not intended to be replaced.

- Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery can result in an explosion.

- Leaving a battery in an extremely high temperature surrounding environment can result in an explosion or the leakage of flammable liquid or gas.

- A battery subjected to extremely low air pressure may result in an explosion or the leakage of flammable liquid or gas.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful

interference in which case the user will be required to correct the interference at his own expense.

Others

This is Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Official website
www.novastar.tech

Technical support
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