Panasonic

KAIROS

Kairos Core 200 AT-KC200L1 for Innovative Live Video Production in SDI

Flexible and Diverse Video Production

GPU-based video processing enables multi-layer configurations not limited by the number of MEs or keys, a canvas function that enables use of irregular aspects such as 32:9 and portrait, and support for flexible resolution settings not bound by standard formats.* With such capabilities and more, KAIROS ensures highly flexible and diverse video production.

* Requires software version 2.0 or later, and supports for both ST 2110 and HDMI input/output. Supports resolutions up to 9.8 megapixels.
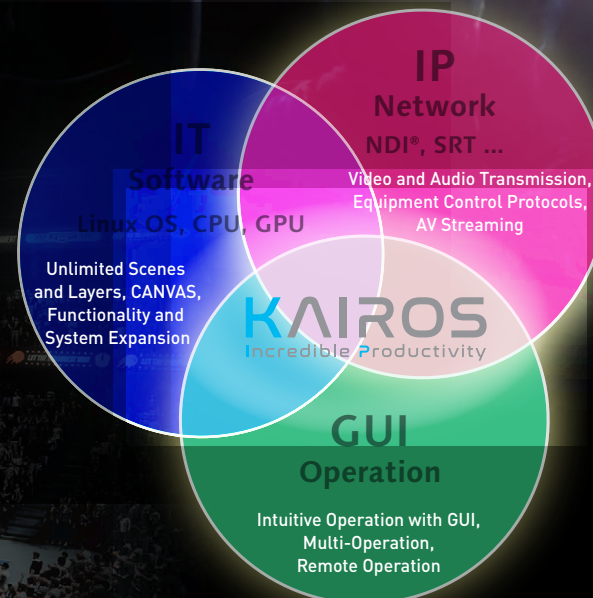
Increased Efficiency and Productivity

With a network connection, a single system can be operated via multiple control panels or intuitive GUI software. And KAIROS supports Multiple Core Control,*1 enabling two mainframes to be operated from a single control panel. Remote operation, pre-building of scenes (effects) and training using the Kairos Emulator*2 are also possible.

*1: Requires Kairos Software Ver. 1.8 or later. *2: Requires Kairos Software Ver. 1.7 or later.

High Flexibility and Expandability

Support is available for a wide variety of video inputs and outputs, including not only SDI baseband, but also IPs such as ST 2110,* SRT and NDI®. The software-based open-architecture enables easy integration with external devices and third-party systems through software upgrades.

*2: Please contact your distributor for details on using ST 2110 inputs and outputs.

IP
Network
NDI®, SRT ...
Video and Audio Transmission, Equipment Control Protocols, AV Streaming

IT
Software
Linux OS, CPU, GPU
Unlimited Scenes and Layers, CANVAS, Functionality and System Expansion

KAIROS
Incredible Productivity

GUI
Operation
Intuitive Operation with GUI, Multi-Operation, Remote Operation
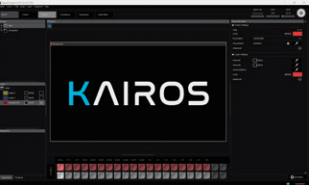
AT-KC200L1 front panel

AT-KC200L1 rear panel

•NDI® is a registered trademark of Vizrt NDI AB in the United States and other countries.
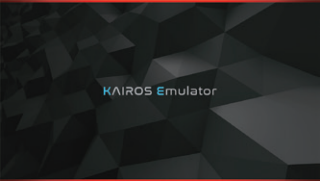
Kairos Core 200 AT-KC200L1 Specifications

General

Power Requirement:	AC IN x 2, 100-127 V/200-240 V, 50/60 Hz, Redundant power supply
Current Consumption:	10.0 A / 5.0 A
Operating/Storage Temperature:	5 to 35 ℃ / –20 to 60 ℃
Operating Humidity:	10% to 90%, no condensation
Weight:	Approx. 17.8 kg / 39.24 lb, without accessories & options
Dimensions (W x H x D):	430 mm x 176 mm x 505 mm / 16-15/16" x 6-15/16" x 19-7/8" (4 RU size) excluding protruding parts
OS:	Linux

Number of Video I/O
Please check the web for details on the number of I/O due to operation.

SDI: *1	1.5G:	24 in / 12 out (Max. 32 in / 16 out) *1
	3G:	24 in / 12 out (Max. 32 in / 16 out) *1
	4K:	12 in / 6 out (Max. 16 in / 8 out) *1
HDMI: *2		Max. 8 in or 8 out *2
ST 2110: *3	1.5G:	64 in / 40 out
	3G:	32 in / 40 out
	4K:	8 in / 10 out
ST 2022-7 Redundancy: *3		No halving of input, halving of output
NDI® High Bandwidth:		2 in / 2 out, 16 CH audio for each, HD only
SRT/RTSP/RTP/RTMP:		8 in / 2 out (only input for RTSP), HD only

Number of Audio I/O (when both Audio1 and Audio2 are used)

ST 2110: *3	64 in / 40 out
ST 2022-7 Redundancy: *3	No halving of both input/output

I/O Terminals

QSFP: *3	100G QSFP28 x 2
DisplayPort:	DisplayPort 1.4 x 4, for Multiviewer Output
LAN:	RJ-45 x 2, 1 GbE
SDI IN/OUT:	Micro BNC, 24 in / 12 out (Max. 32 in / 16 out) *1
REF IN/OUT:	Micro BNC, 3 in / 3 out (Max. 8 in / 8 out)*1
HDMI IN/OUT: *2	HDMI Type A, Max. 8 in or 8 out *2
VGA:	Dsub-15 pin, for system installation
USB:	USB 3.2 Gen1 Type-A x 4, for system installation

Video/Audio Format

4K	3840 x 2160	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p
FHD	1920 x 1080	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p, 60i, 59.94i, 50i
HD	1280 x 720	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p
SD NTSC*4	720 x 480	59.94i
SD PAL*4	720 x 576	50i
DCI 2K*4	2048 x 1080	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p
DCI 4K*4	4096 x 2160	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p
16:9*4	1366 x 768, 1600 x 900	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p
4:3*4	640 x 480, 1024 x 768, 1400 x 1050, 1600 x 1200	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p
16:10*4	1280 x 800, 1440 x 900, 680 x 1050, 1920 x 1200, 3840 x 2400	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p
5:4*4	1280 x 1024	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p

• In addition to the above formats, supports any resolution up to a maximum of 9.8 megapixels (adjustable pixel units: 4 pixels)*4

Color Model and Bit Depth/Audio Forma

Color Space and Bit Depth:	YCbCr 4:2:2 - 8/10/12 bit, YCbCr 4:4:4 - 8/10/12 bit *4 RGB - 8/10/12 bit *4, RGBA - 8/10/12 bit *4 Key - 8/10/12 bit *4
Audio Format:	ST 2110-30 (AES67)*3, 48 kHz/24 bit

Synchronization

PTP Sync:	QSFP and GbE, both ports supported
FS (Frame Synchronizer):	All input channels, always ON (without ON/OFF)
Frame Delay	0 frame to 12 frame, by 1-frame step
Latency	Min. 1-frame

Player

Still Store:	7 GB storage, up to 4K
RAM Player:	8 CH, 32 GB storage, uncompressed *5
Clip Player:	2 CH, 400 GB storage (share with audio player), compressed, AVC-Intra/H.264/DN x HD/ProRes
Audio Player:	4 CH, 400 GB storage (share with clip player), compressed, WAV/MP3/Ogg/FLAC/AIFF

Functions
Listed functions are only a part of the features. For details, please check our website.

Multiviewer:	HD/4K x 4 out, max. 36 PiP for each Display: GPU Meter, Audio Level Meter, Clock, Vectorscope, Waveforms, etc.
Canvas:	Up to 8K (32 M-pixels)
Layer:	No restriction on the number of Layers, Scenes (ME) and Keyers, depend on GPU performance, Visible usage with GPU meter
Effect:	Luminance Key, Chroma Key, DVE(2D/2.5D), Soft Border, Corner Fix , Color Correction, Crop, Film-look Effect*6, Glow Effect*6 etc.
Transition:	Multimix, Offset Transition, Transition Effects
Macro:	Scene-Specific Macros, LUA Script Support
Color Mat:	Bicolor Wash Mat, Test Pattern
Other Functions:	Audio Mixer *7, Title Generator, Snapshot, User Management, Multi-Scene Control *11
Supported Standards and Protocols:	REST API, Ross Talk*8, TSL 5.0*3, NMOS*9, AMP, ST 2110-10*3, ST 2110-20*3, ST 2110-30*3, HTML5 Graphics*10, SNMP*6

*1: Three boards are pre-installed and one additional board can be installed.
*2: Requires the optional HDMI Input Board AT-KC20M2 or HDMI Output Board AT-KC20M3. The AT-KC200L1 can install up to two boards. The numbers of input/output shown here are the maximum numbers that can be loaded.
*3: Please contact your distributor for details on using ST 2110 input/output. Please make sure to check the specification on web for port restrictions when in use.
*4: Supported for ST 2110 input/output with software version 1.8. From software version 2.0 onward, supported for both ST 2110 and HDMI input/output. However, the number of inputs and outputs may decrease depending on the resolution used.
*5: Max. RAM capacity is reduced with SDI I/O boards, HDMI input boards, or HDMI output boards installed. The maximum capacity is reduced by 2 GB when updating to version 1.8. For details, please check our website.
*6: Requires software version 1.7.0 or later.
*7: Optional software key AT-SF005 is required.
*8: Optional software key AT-SFE01 is required.
*9: Optional software key AT-SFE03 is required.
*10: Requires software version 1.8 or later.
*11: Requires software version 2.0.
•NDI® is a registered trademark of Vizrt NDI AB in the United States and other countries.

KAIROS System Equipment

AT-SFC10
Kairos Creator (GUI Software/Software Key)
Intuitive GUI for easy configuration of inputs/outputs, scenes, layers, etc.

OS: Windows 10/11, macOS Ventura/Sonoma/Sequoia
* Please contact your distributor to purchase.

Kairos Emulator
Free software that allows production and training with Kairos Creator in offline environments such as outside the studio or at home.

OS: Windows 10/11
*Requires version 1.7.0 or after. Some functions can't use on Kairos Emulator.

AT-KC10C1
Kairos Control (Control Panel), Standard type

AT-KC10C2
Kairos Control (Control Panel), Compact type

KAIROS Option

AT-KC20M1 SDI I/O Board	Equipped with eight SDI input terminals, four output terminals and REF IN/OUT. One board can be installed to the AT-KC200L1.*1
AT-KC20M2 HDMI Input Board	Equipped with four HDMI input terminals. Two boards can be installed to the AT-KC200L1.*1
AT-KC20M3 HDMI Output Board	Equipped with four HDMI output terminals. Two boards can be installed to the AT-KC200L1.*1
AT-SFTC10 Touch Control Panel Software	Intuitive touch-screen operation for video selection via multi-viewer.*2
AT-SFCM10 Kairos Core Manager *3	Backup, media synchronization and data transfer with multiple Kairos Core units possible.*2
AT-SF005 Audio Mixer Option	Synthesize, tune and control up to 16 assignable video sources, each with their 16 audio channels.
AT-SFE01 RossTalk Option	Supports RossTalk Xpression character-generator protocol.
AT-SFE03 NMOS Option	Please contact your distributor for details on using ST 2110 inputs and outputs.
Kairos Creator Subset Software*2	Kairos Media, Kairos Painter and Kairos Audio Mixer *4 Free for Kairos Creator users.

*1: Installation on the main frame is carried out by the dealer. Always consult your dealer for installation.
*2: Operating system requirements: Windows 10 or 11, macOS not supported.
*3: Free for use with up to two Kairos Core units; a licence must be purchased for use with three or more units.
*4: The AT-SF005 Audio Mixer Option is required.

•RossTalk, Ross and XPression, are trademarks or registered trademarks of Ross Video Limited.
•NMOS (Networked Media Open Specifications) is a protocol standardized by AMWA (Advanced Media Workflow Association) for controlling and managing devices via IP networks.

KAIROS Alliance Partners

Update
An update list of KAIROS Alliance partners and test-verified devices can be found on the website.

KAIROS Support Webpages

Update	**Update**
FAQ	Tutorial Videos
facebook	Contact Details

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Specifications are subject to change without notice.

For more information, please visit Panasonic web site https://pro-av.panasonic.net/en/

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