Panasonic

KAIROS CORE 1000 SWITCHER / MAINFRAME / SERVER

KAIROS CORE 1000: KC1000

KAIROS Core 1000 steps up the processing performance for a KAIROS system, effectively doubling the number of layers that can be used for the aggregate output content. This is likely to be a requirement for a system building multiple monitor walls or complex 4K content. The KC1000 is ideal for advanced scoreboard show or multiple 4K screens management for large entertainment events.

In addition to doubling the layers, the KC1000 supports 25% more independent output channels (e.g., 20 3G outputs). A production producing for an 8K screen for an arena or a public space would require the KC1000 as it supports more outputs beyond a single 8K canvas.

Multiple Core Systems

With multiple cores, a production system configured to produce a full 4K event with more than eight 4K sources can be efficiently engineered. Any KAIROS Core can see many ST 2110 source on the network and can pull through a maximum of eight 4K sources at a given time. KAIROS Control can be configured to switch out batches of 4K sources at the touch of a button. Pre-routing through the ST 2110 network this way makes it possible to work with many more than eight sources, however, additional multi-viewers would be required to monitor all active sources on the network. An additional KC100 Core can be used as a stand-alone multi-viewer if attached to a ST 2110 network for a larger KAIROS system and can view lower res versions of all the 4K sources. A Mac or PC running a KAIROS Creator license can control multiple cores by opening multiple instances. A large broadcaster, a sports venue, an advanced House of Worship or entertainment venue could achieve the needed scalability with a multiple core system to achieve a complete 4K Production workflow with rich content. Future features are planned to further enhance the capability of the KAIROS multiple core systems.

CHOOSING A KAIROS CORE:

The KAIROS Core is a processing mainframe. While the Kairos Creator is an easy-to-use desktop application for a PC or Mac, the KAIROS Core runs on an Enterprise-grade Linux server and as such, it is more stable and does not require regular OS patches or other desktop-type maintenance. KAIROS Core is designed to be up 24/7.

Inputs

Each KAIROS Core has a maximum simultaneous input set by the IP Network Bandwidth. For a 100Gb core, that means thirty two 3G-SDI inputs or eight simultaneous 12G inputs or any combination of these. This is not a limit on the overall KAIROS system, it is simply the throughput of a single core (excluding internal sources like RAM player). Additional sources on the network can become available at the touch of a button.

Streaming/Compressed Inputs and Outputs

KAIROS will accept compressed streaming inputs via the Gb control network. These inputs are decoded by the CPU, so they can be processed with the other uncompressed sources. The power of the specific KAIROS Core CPU determines the number of streaming inputs and outputs that can come in on the control network. Additional streaming inputs will require a separate gateway to decode streams and convert them to ST 2110 or base band.

Outputs

The output capacity of each KAIROS Core is determined by the GPU specific to that core. This includes both the maximum number of outputs as well as the overall number of layers for the core. Overall layers are distributed across all the outputs. A KAIROS Core with 16 outputs may not be able to build scenes with four or five layers on all 16 outputs. In addition to utilizing a more powerful KAIROS Core, a KAIROS system can be built with multiple cores on the same network.

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AT-KC1000 Specifications

GENERAL	
Power requirement	AC 100-127V/200-240V, 50Hz/60Hz,12.9A/9.5A AC1, AC2 for redundant
Operating temperature	5 to 35° C
Operating humidity	10% to 90% (no condensation)
Storage temperature	-20 to 60° C
Weight	38.36lb / 17.4kg
Dimensions (W x D x H)	17.2 x 24.4 x 3.5 in. / 438 x 621 x 43.5 mm
VIDEO FORMAT	
4K	3840/60p, 59.94p, 50p, 30p, 29.98p, 25p, 24p, 23.97p
HD	– 1080/60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p No PsF – 720/60p, 59.94p, 50p – 1080/59.94i,50i (Support only Input)
Signal processing	Y, Pb, Pr: 4:2:2 10bit. No RGB 4:4:4 support
AUDIO FORMAT	
ST2110-30 (AES67)	ST2110-30 (AES67) @ 48KHz/24bit
SYNCHRONOUS	
PTP Sync	Supports both via QSFP & LAN port
FS (Frame Synchronize)	For each CH, Always ON (No ON/OFF support)
Frame Delay	0 to 12 frame w/ 1 frame step
IP	
QSFP	QSFP x 2, 100Gbps, ST2110, NDI, PTP Sync
LAN	LAN x 2, 1Gbps
BASEBAND	
Display Port	DP1.4 x 2. For multiviewer
Gateway Port	Gateway Port x 8. Deltacast FLEX connection port
SDI	Recommended device: 12G-SDI x 1, 3G-SDI x 3. Deltacast FLEX-12G 10 (Input), FLEX-12G 01 (Output). 3G-SDI x 4. Deltacast FLEX-3G 40 (Input), FLEX-3G 04 (Output)
HDMI	Recommended device: HDMI2.0 x 1. Deltacast FLEX-HDI 10 (Input), FLEX-HDI 01 (Output).
Display Port	Recommended device: DP1.2 x 1. Deltacast FLEX-DP 10 (Input), FLEX-DP 01 (Output).
INPUT CH	
4K	Max. 8 CH
HD	Max. 32 CH
OUTPUT CH	
4K	Max. 5 CH
HD	Max. 20 CH
FUNCTION	
Layer (ME)	No restriction, depend on GPU performance
Key	No restriction, depend on GPU performance
Hardware Control Panel	AT-KC10C1G, Up to 8 unit connections, for setting memory in GUI
Still Image store	12GB, up to 4K resolution. Supports .rr, .png, .jpg, .tga, .tif, file format
RAM Player	8CH, 64GB, Uncompressed, up to 4K
Clip Player & Supported Codecs	2CH, 180GB, Compressed, up to 4K. Supports AVC-Intra, H.264. DNxHD format: Supports .rr, .png, .jpg, .tga, .tif, .mov, .mp4 file
DNxHDCodec	YUV 422 10 Bit, YUV 10 Bit LE, YUV 420 10 Bit, YUV 420 8 Bit
H264 Codec	YUV 422 10 Bit, YUV 420 10 Bit, YUV 420 8 Bit
AVC-Intra Codec	YUV 422 10 Bit, YUV 420 10 Bit, YUV 420 8 Bit
ST2110 Support	YES (ST2110-10, ST2110-20, ST2110-30)
NDI Support	2CH IN and 2CH OUT, HD video only. NDI Native only (No support for NDI|HX). Possible to use NDI and RTP/SRT/RTMP simutaneously
RTP/SRT/RTMP support	8CH IN and 2CH OUT, HD video only. H.264, # of I/O is total # of RTP/SRT/RTMP/RTSP CH. Possible to use NDI and RTP/SRT/RTMP simutaneously
RTSP support	Supports HD/4K up and down convert
I/O scalar	YES
Canvas function	Up to 4K per CH. Supports internal Canvas resolution up to 8K (32M pixels)
Delay	1 frame w/o DVE and PiP, 2 frame w/DVE and PiP
Audio Mixer	Option (AT-SF005). Max.16CH (stereo/mono) adjustment per source, mixing, routing and mute. Support master level adj. and tone generator
Title generator	Supports GFX based title editing

MULTIVIEWER	
Output format	HD / 4K switchable
Display	Max. 36 PiPs
Layout preset store	YES
GPU meter	YES
Clocks	YES
Countdowns	YES
Images	YES
Tally indicators	YES
Audio level meter	Up to 16CH display per source
MV over IP	YES
EFFECT	
Luminance Key	Linear/Additiv
Chroma Key	YES
DVE (2D) effects	Glow, Pageturn, Pageroll, etc.
Border with Softness	YES
Corner Pinning	YES
Color Correction	RGB, YUV, HSL, 3D-LUT
TRANSITION	
Multimix	YES
Offset Transitions	YES
Transition Effects	Mix, Wipe, DVE
MACRO	
Scene specific Macros	YES
LUA scripting support	YES
COLOR MATS	
Bi-Color wash mattes	YES
Test patterns	YES
TALLY	
Tally by IP protocol	Support TSL5.0 (incl. AK-UC4000) and AW-PTZ camera
External GPIO box support	Support BFE GPIO box
STANDARD / PROTOCOL / PARTNER SUPPORT	
NMOS support	Option (AT-SFE03). IS-04, IS-05. For use in Orchestrator, Automation system
AW-PTZ command	Supports Panasonic AW-PTZ camera command
REST API	Can download protocol and command list from PASS KAIROS site
GrassValley server control	Support T2 server control (AMP protocol)
Blackmagic recorder control	Support Hyper Deck Studio control (TCP/IP)
LAWO vsmSNAP panel support	AUX panel: Supports AUX bus and Macro control from LAWO vsmSNAP panels

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