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ERMAC SPU-32

FEATURES

Inputs and Outputs:

• 4 slots with image channels provide flexible configurations of:
- Display Port 1.4
- HDMI 2.0b
- 12G SDI
- ST2110 on demand
• 1 fixed image channel switching signals of DP 1.1, HDMI 1.4, DVI
• 2 slots for output interface with flexible configurations of Fiber Optic and Ethernet
• Audio IN/OUT and translate audio packets over Fiber Optic

Control interfaces:
• USB for external System Console in PC
• Remote control with TCPIP
• DMX
• System Integrate Console in Embedded computer (can reduce the number of output slots) (optional)
• WEB-Interface
• System video sync from Genlock, selected input or free run

Productivity
• 10/12-bit colors up to 8K*60 Hz / 2*4K*120 Hz resolution
• Fiber optics channels 2*40Gb with frame rates of 24…240 Hz
• 16/18/26-bit processing
• 4 image windows with fader and crossfader between them

Feedback link for:
• service functions
• diagnostics of cabinet operating parameters (working/breaking, temperature, voltages)
• reading of luminous sensor values for automatic screen brightness control

TECHNOLOGY / FUNCTIONS

Smart Gamma	- HDR (PQ, HLG, transformation PQ to HLG) - Gamma correction (regular, BT1886, custom gammas)
Automatic Calibration	- high precision Luminance and Chroma calibration - Thermal distortion correction - Seams correction - Intelligent calibration - Automatic restoration of calibration parameters
Color Space Calibration	- Color space BT709, BT2020, DCI-p3, SRGB - Smart custom - Luminescence Matching (Flattening Color Spaces) - Automatic Color Space Extension
Extended Virtual Production	- Frame mix - Shutter synchronization - VP Tracking - KeyColor
Color Models Support	- RGB, HSV - 3D LUT (on demand)

Extended 3D Functions:	- Ghosting Elimination - Switch offset - Inband Sync
MaxBit	
Edid Management	
Redundancy Management	
Extremely low latency	
Unlimited Resolution (stack SPU)	

INPUTs

Image Channel Inputs:

Quantity	Name	Bit Depth/Sampling	Resolution/Freq.
1..4	DP 1.4	8/10 bit RGB4:4:4	2560 x 1440 x 240 Hz 3840 x 2160 x 120 Hz 7680 x 2160 x 60 Hz 7680 x 4320 x 30 Hz
1..4	HDMI 2.0b	8/10 bit RGB4:4:4	3840 x 2160 x 60 Hz 7680 x 2160 x 30 Hz
1..4	12G-SDI	30 bit RGB4:2:2 24 bit RGB4:4:4	3840 x 2160 x 50/60 Hz
1	DP 1.1	8 bit RGB4:4:4	2560 x 1600 x 60 Hz
1	HDMI 1.4	8 bit RGB4:4:4	2560 x 1600 x 60 Hz
1	DVI	8 bit RGB4:4:4	2560 x 1600 x 60 Hz

Video sync Inputs:

GenLock - 1 x BNC 75 Ohms connector for external sync - SD analog black burst (bi-level) or HD trilevel
genlock source

Audio Input:

- Any SDI
- Any HDMI or DP input

OUTPUTs

Digital Video Outputs

Quantity	Name	Bit Depth	Resolution at 60 Hz
1..2 1…2	4 x 10 Gbit fiber 8 * 1 Gbit Ethernet	30 bpp	Horizontal: 16384 pxls Vertical: 8192 pxls X*Y size max.: up to 33,2 Mpx Total: 4,15 Mpx
1	Audio Output		AES/EBU Audio Packets Translations over FO

Audio Output

- AES/EBU
- Audio Packets Translations over FO

PROCESSING

Internal Processing	- 10/12-bit color depth processing. - up/down scaler, de-interlacing - Windows manager - fader and crossfader between image windows - hardware auto-configuration (including screen chain) - random LED display cabinets connection.

DIAGNOSTICS

Feedback Display Monitoring

LED module temperature; RC temperature; outside temperature; external luminance; project version, LED module manufacturing ID; etc.

Configuration and Control Software

ES Console, Screen Builder, ESSP

GENERAL DESIGN

Dimensions	19” rack, face or reverse mounting case, height – 1,5RU, depth - 240 mm
Power	100-240 VAC, 50-60 Hz, 80 Watt
Hardware Configuration	• Motherboard (up to 4 independent image channel) • DMX IN • 2 x 4 x 10G full duplex fiber optic screen link, 30/36 bpp - 2 x 8 x 1G full duplex Ethernet, 30/36 bpp
Screen Link	• Up to 64 (8 x 8FO Link) screen devices in the chain • Distance between SPU-32 and LSC - 10 km single-mode fiber

SCREEN LEVEL DEVICES

LSC 108x LED Screen Controllers (4,15 Mpx/60Hz)
• Loop-Through FO 10 GHz for Device Chain Cascade
• 8/16 Ethernet 1G output ports

PANEL LEVEL DEVICES

RC: G-32a (196kpx/60Hz), G-32i (196kpx/60Hz), G-40a/h (196kpx/60Hz), G-36Xi (520kpx/60Hz)
Loop-Through Ethernet input port for Devices Cascade
FPGA based design for flexible customization