

# 4K60P 4-In & 4-Out HDMI 2.0 Matrix Switcher



- ◆ **MDIN-C604** is a 4K60P 4-input and 4-output HDMI matrix switcher with HDCP repeater capability, where HDMI receivers and transmitters are compliant with HDMI 1.4/2.0 and HDCP 1.4/2.2/2.3.
- ◆ **MDIN-C604** supports HDR conversion, edge enhancement, color space conversion, chroma resampling, gamma correction, dithering, and SRAM based font OSD.
- ◆ **MDIN-C604** provides digital audio input and output in I<sup>2</sup>S and SPDIF format, and supports flexible audio switching among digital audio input/output and HDMI receiver/transmitter audio.
- ◆ **MDIN-C604**'s multi-port HDMI input/output and switching capabilities are suitable for 4K UHD display application such as 4K60P HDMI matrix switcher for digital signage, video wall, multi-view display, and projection display systems.

## Main Features

- ◆ Quad HDMI Receiver & Quad HDMI Transmitter
- ◆ Compliant with HDMI 1.4/2.0 & HDCP 1.4/2.2/2.3
- ◆ Fully Compliant with HDMI Repeater
- ◆ HDCP 1.4 to/from HDCP 2.x Conversion
- ◆ I<sup>2</sup>S and SPDIF Digital Audio Input & Output
- ◆ HDR Conversion
- ◆ Color Space Conversion & Chroma Resampling
- ◆ Gamma Correction
- ◆ Edge Enhancement
- ◆ Down-Scaling with x1/2 Scale Ratio
- ◆ Font OSD
- ◆ Embedded 32-bit MCU

## Specifications

### HDMI Receiver & Transmitter

Quad HDMI Receiver ports & Quad HDMI Transmitter ports
Support up to 4096x2160@60Hz, 1920x1080@120Hz Video
Max. 18Gbps per HDMI port
HDMI 1.4/2.0 compliant
250Mbps ~ 6.0Gbps per channel
Fully compliant with HDMI Repeater
DVI 1.0 backward compatible
HDCP 1.4/2.x compliant
HDCP Repeater capability
Pre-programmed HDCP 1.4 & 2.x device key
HDCP 1.4 to/from HDCP 2.x conversion
On-chip EDID RAM
RGB 4:4:4, YCbCr 4:4:4/4:2:2/4:2:0
8/10/12-bit per color component (Deep color)

### Digital Audio Input & Output

Eights sets of digital audio input and output port
8-channel I <sup>2</sup> S and 1-channel SPDIF per digital audio port
IEC 60958/61937 compatible audio interface
I <sup>2</sup> S : Up to 192KHz
SPDIF : PCM, Dolby Digital, DTS(32 ~ 192KHz)
HBR(High Bit Rate) up to 768kHz frame rate
Flexible switching among digital audio in/out & HDMI Audio

### Miscellaneous

Internal programmable PLLs
Built-in test pattern generation

### Image Processing

HDR conversion for HDR 10 & HLG
3D LUT for accurate color management
Wide Color Gamut(WCG) BT.2020
Color space conversion and Chroma resampling
YUV 4:4:4/4:2:2 to YUV 4:2:0 conversion and vice versa
Brightness, contrast, hue, saturation control
Gamma correction
High order programmable H/V peaking filter
Down-scaling with x1/2 ratio in H/V direction independently
Dithering for 12/10-bit to 10/8-bit Output

### Font OSD

SRAM based Font OSD for each input video channel
Max. 4layers of 2/4/16-color font
Fixed Font Size of 24x32, 32x32, 48x64 or 64x64
Variable Horizontal Font Size based on Fixed Font Size
Number of HxV font : Up to 128 horizontal & 64 vertical fonts
Rotation of 90 <sup>0</sup> /180 <sup>0</sup> /270 <sup>0</sup>

### MCU and Communication Interface

Embedded 32-bit MCU
External serial flash memory interface with Quad SPI master
External host interface with 4-wire SPI and 2-wire I <sup>2</sup> C

### Electrical and Mechanical Characteristics

1.0V/1.8V/3.3V supply voltage
576-ball BGA package (25mm x 25mm, 1.0mm ball pitch)