Chromatec
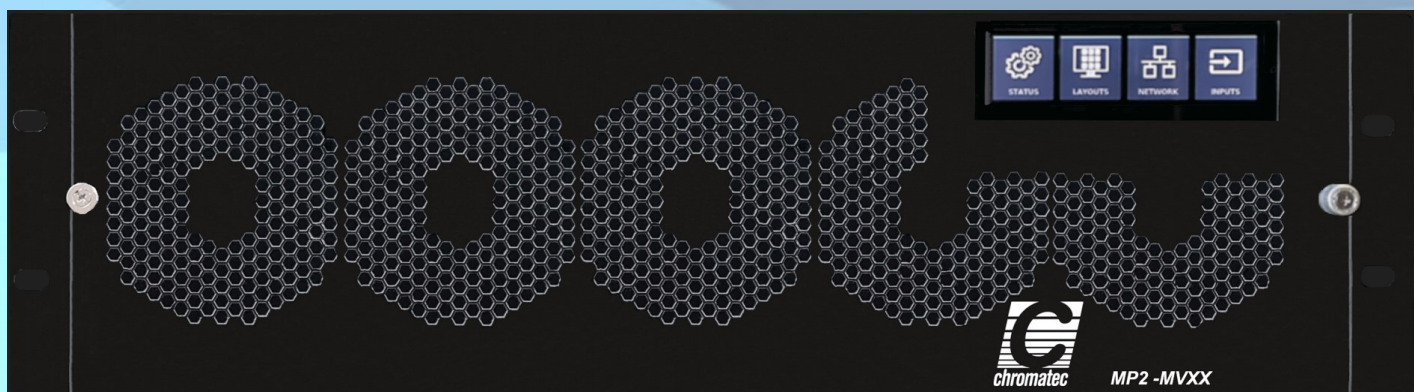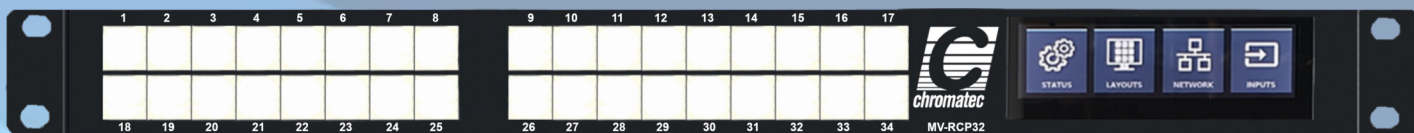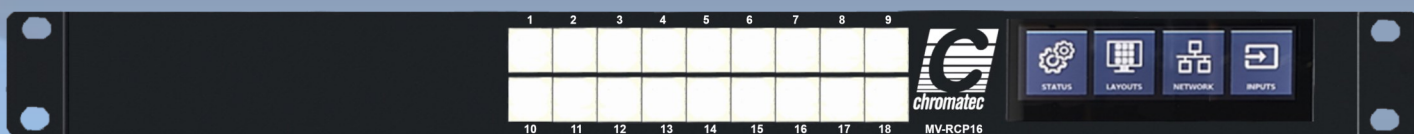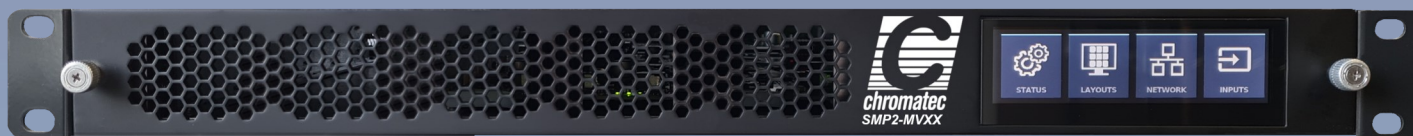# High Performance Multiviewers

Multiviewer Brochure
www.chromatec.com © 2024
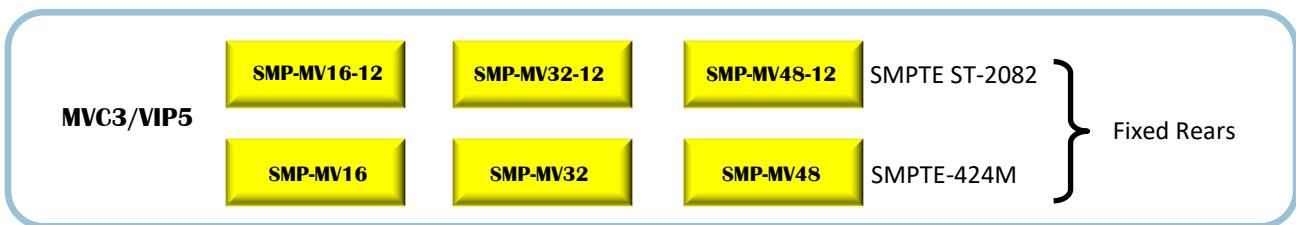
High Performance Multiviewers

Introduction

Chromatec Video Products was registered in 1986 as a manufacturer of audio and video products and was originally based in the South-East of England. Initial product success was achieved with the introduction of multi-channel audio metering for audio studios and radio stations. Products such as AM-xx and MADI-xx set new standards for analogue and digital audio metering and rapidly became the standard in prestigious organisations such as the BBC.

The transition into broadcast-standard multiviewers with audio metering was a natural step and led to collaborations with major broadcast manufacturers such as Grass Valley and Kramer Electronics. Overall, Chromatec has been making multiviewers for over twenty years with the latest products incorporating 5th-generation scaler cards.

Chromatec multiviewers are designed to run 24/7 so long-term product reliability is a key objective, products are carefully engineered, assembled and tested to the highest standard, using automotive-grade components wherever possible.

To ensure the highest quality, outsourcing product assembly was not an option. So Chromatec built a manufacturing team and invested in the technology required to assemble all products in-house.

MVC3/VIP5

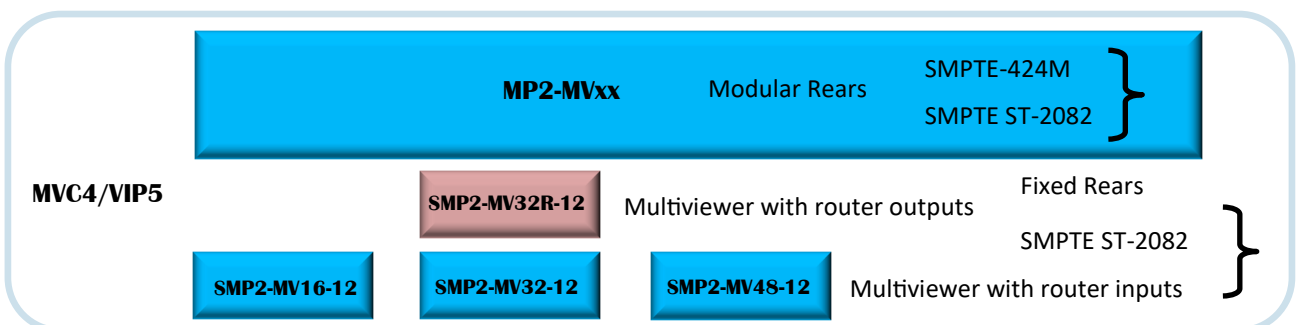| SMP-MV16-12 | SMP-MV32-12 | SMP-MV48-12 | SMPTE ST-2082 |
| SMP-MV16 | SMP-MV32 | SMP-MV48 | SMPTE-424M |

Fixed Rears

This brochure will cover the products that include the 5th generation scaler cards which are known as VIP5.
These comprise 2 product groups which have slightly different features depending on which graphics card is used in the frame. The MVC3 is used in the SMP-MVxx products whereas the MVC4 is used with the SMP2 and MP2 variants.

The SMP-MVxx is a fully-featured broadcast-quality multiviewer in 1RU format with up to 48 inputs via HD-BNC and support for inputs up to SMPTE-424M otherwise known as 3G-SDI. The SMP-MVxx-12 have the same format and IO but support inputs up to SMPTE ST-2082 otherwise known as 12G-SDI. These models both have fixed rears with simultaneous SDI and HDMI outputs as well as GPIO and network interfacing.

For 2K FHD operation - up to 8 independent outputs are supported with simultaneous SDI and HDMI outputs at 3G-SDI FHD50/59/60 resolution.
For 4K UHD operation - up to 2 independent outputs are supported with simultaneous QL-4x3G-SDI and HDMI outputs at UHD50/59/60 resolution.

MVC4/VIP5

| MP2-MVxx | Modular Rears | SMPTE-424M / SMPTE ST-2082 |

Fixed Rears

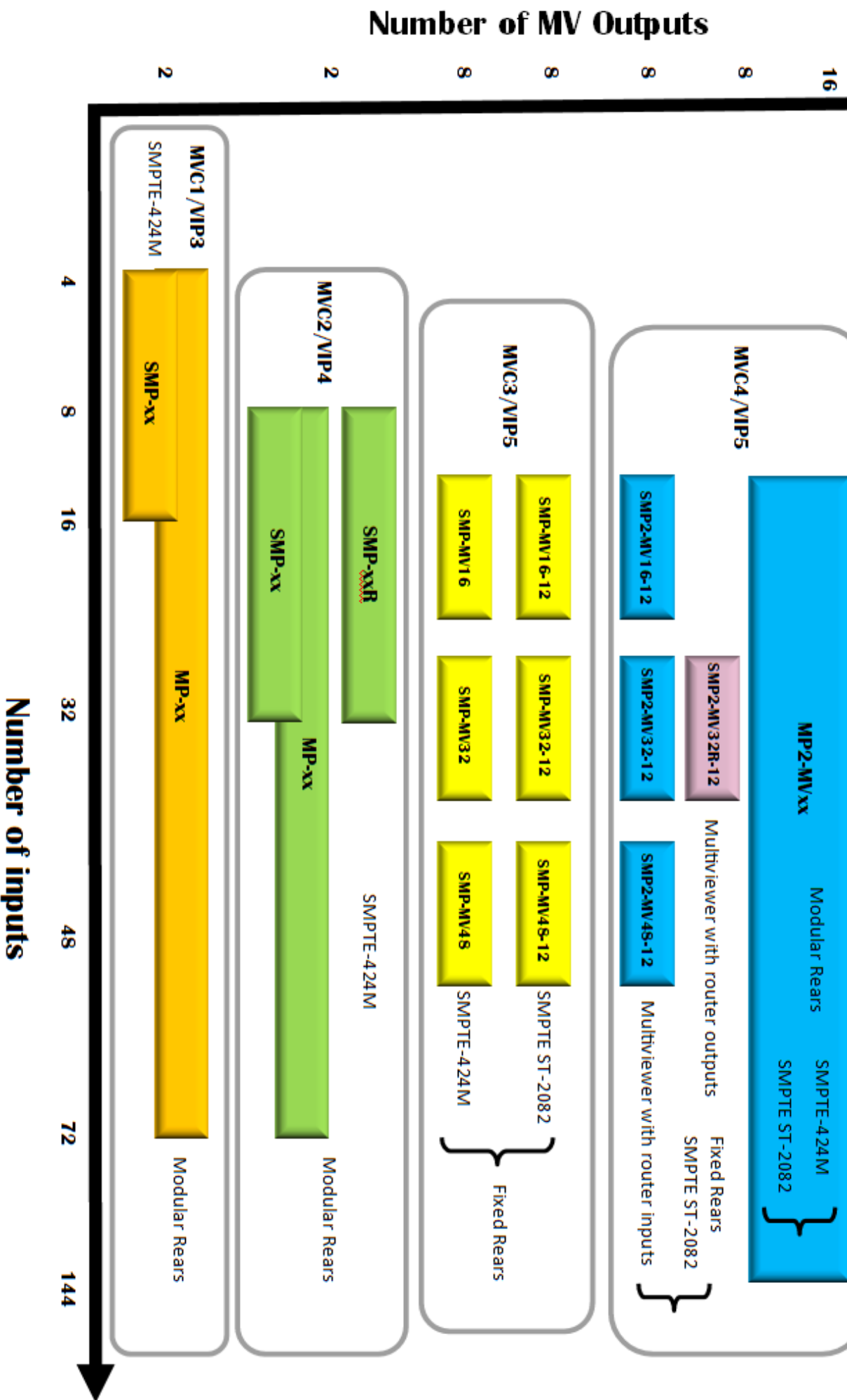| SMP2-MV32R-12 | Multiviewer with router outputs | SMPTE ST-2082 |
| SMP2-MV16-12 | SMP2-MV32-12 | SMP2-MV48-12 | Multiviewer with router inputs |

The MP2-MVxx is a fully-featured broadcast-quality multiviewer in 3RU format with up to 144 inputs and 16 outputs via HD-BNC. This modular solution offers unprecedented density and flexibility with the option to expand inputs in steps of 16 and with the addition of a second MVC4 to expand output heads from 8 to 16. Rear input cards are selected to support either SMPTE-424M or SMPTE-ST-2082 formats.

The SMP2-MV32R-12 is a fully-featured broadcast-quality multiviewer with integrated routing in 1RU format. This adds independent routing functionality to the MV potentially reducing cost and simplifying overall cabling of SMPTE ST-2082 sources.

The SMP2-MVxx-12 is a fully-featured SMPTE ST-2082 broadcast-quality multiviewer in 1RU format with up to 48 inputs and 8 outputs via HD-BNC. These models have fixed rears with simultaneous SDI and HDMI outputs similar to the SMP-MVxx models. The principal difference is that the MVC4 has an integral multiviewer router and offers single-link 12G-SDI outputs and full resolution HDMI bandwidth up to UHD50/59/60 with RGB 4:4:4 formatting.

Multiviewer Models

Number of MV Outputs

2 · 2 · 8 · 8 · 8 · 8 · 16

Number of inputs

4 · 8 · 16 · 32 · 48 · 72 · 144

MVC1/VIP3
SMPTE-424M
SMP-xx
MP-xx
Modular Rears

MVC2/VIP4
SMP-xxR
SMP-xx
MP-xx
SMPTE-424M
Modular Rears

MVC3/VIP5
SMP-MV16
SMP-MV16-12
SMP-MV32
SMP-MV32-12
SMP-MV48
SMP-MV48-12
SMPTE-424M
SMPTE ST-2082
Fixed Rears

MVC4/VIP5
SMP2-MV16-12
SMP2-MV32R-12
SMP2-MV32-12
SMP2-MV48-12
Multiviewer with router outputs
MP2-MVxx
Modular Rears
SMPTE-424M
SMPTE ST-2082
Fixed Rears
Multiviewer with router inputs

High Performance Multiviewers

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Multiviewer Models—SMP-MVxx

Front View (All Models)

Models: SMP-MV16/SMP-MV16-12

Models: SMP-MV32/SMP-MV32-12


Models: SMP-MV48/SMP-MV48-12

Order Codes

| Part Number	Description	Inputs
SMP-MV16	Multiviewer with 16x3G-SDI inputs and up to 8xSDI/4xHDMI Outputs	16xSD/HD/FHD
SMP-MV32	Multiviewer with 32x3G-SDI inputs and up to 8xSDI/4xHDMI Outputs	32xSD/HD/FHD
SMP-MV48	Multiviewer with 48x3G-SDI inputs and up to 8xSDI/4xHDMI Outputs	48xSD/HD/FHD
SMP-MV16-12	Multiviewer with 16x12G-SDI inputs and up to 8xSDI/4xHDMI Outputs	16xSD/HD/FHD/UHD
SMP-MV32-12	Multiviewer with 32x12G-SDI inputs and up to 8xSDI/4xHDMI Outputs	32xSD/HD/FHD/UHD
SMP-MV48-12	Multiviewer with 48x12G-SDI inputs and up to 8xSDI/4xHDMI Outputs	48xSD/HD/FHD/UHD
MV-12VPSU	Additional PSU 12V 450W	

High Performance Multiviewers

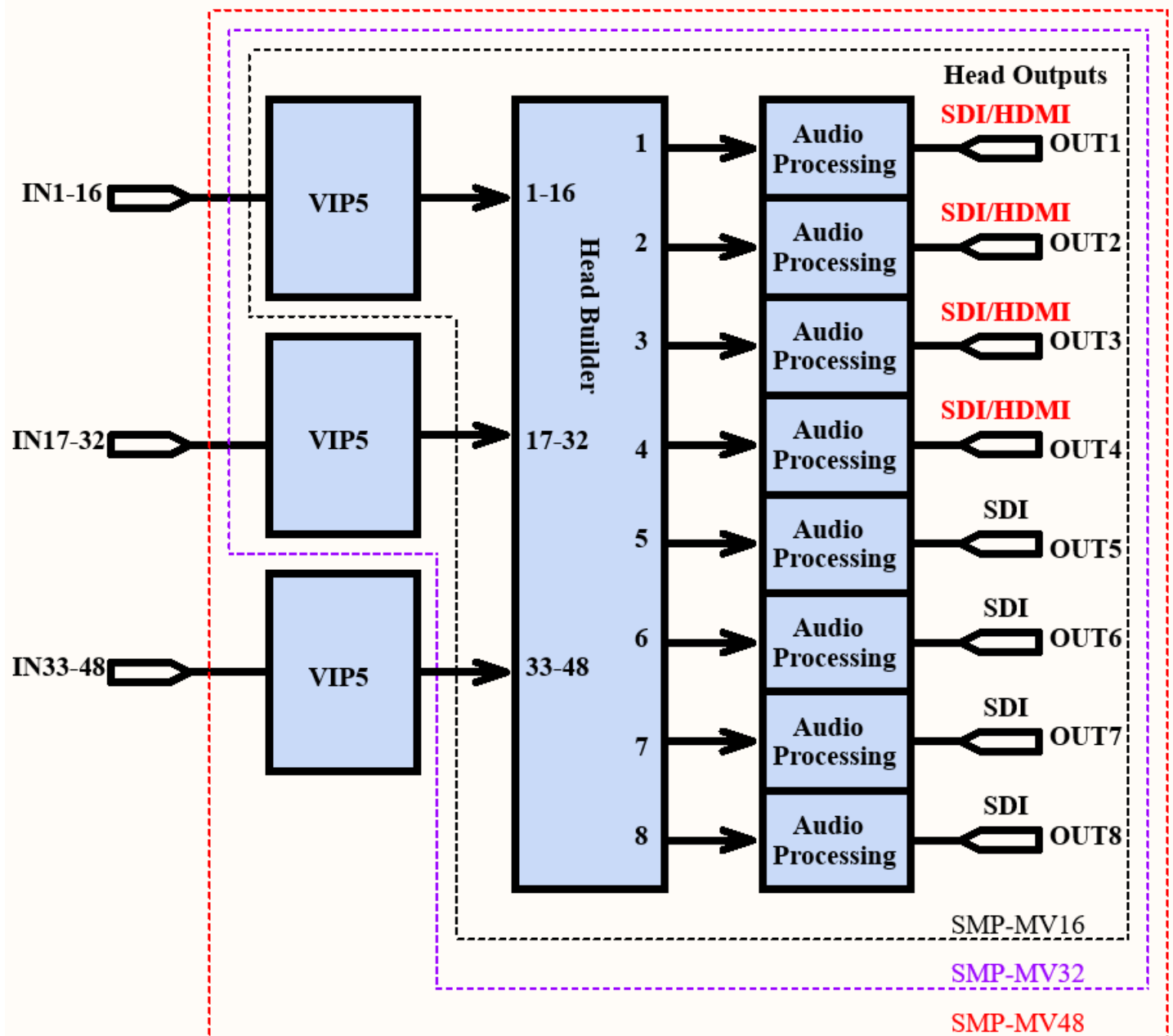## All Multiviewer Models
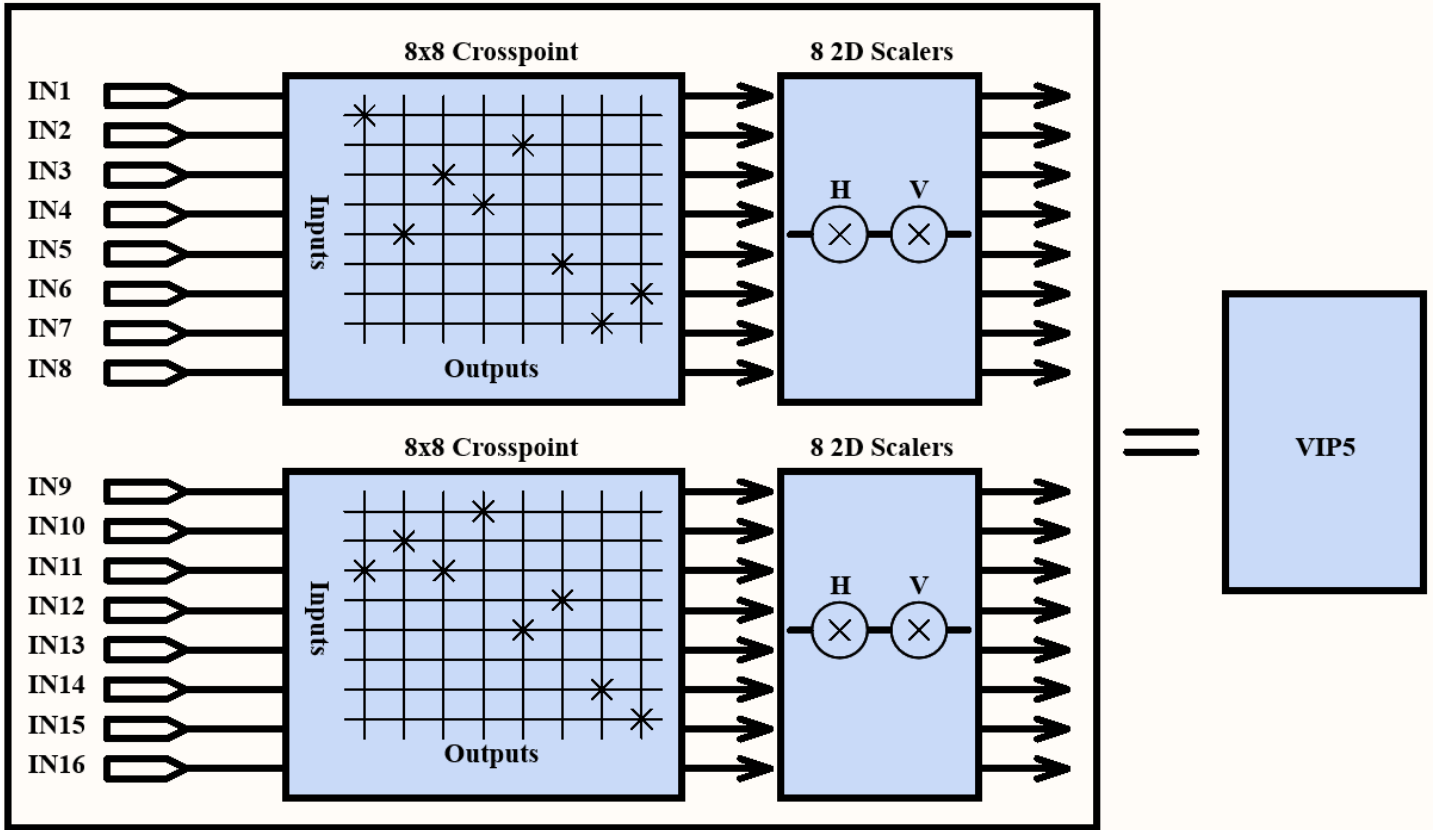
Block Diagram of VIP5 Video Scaler
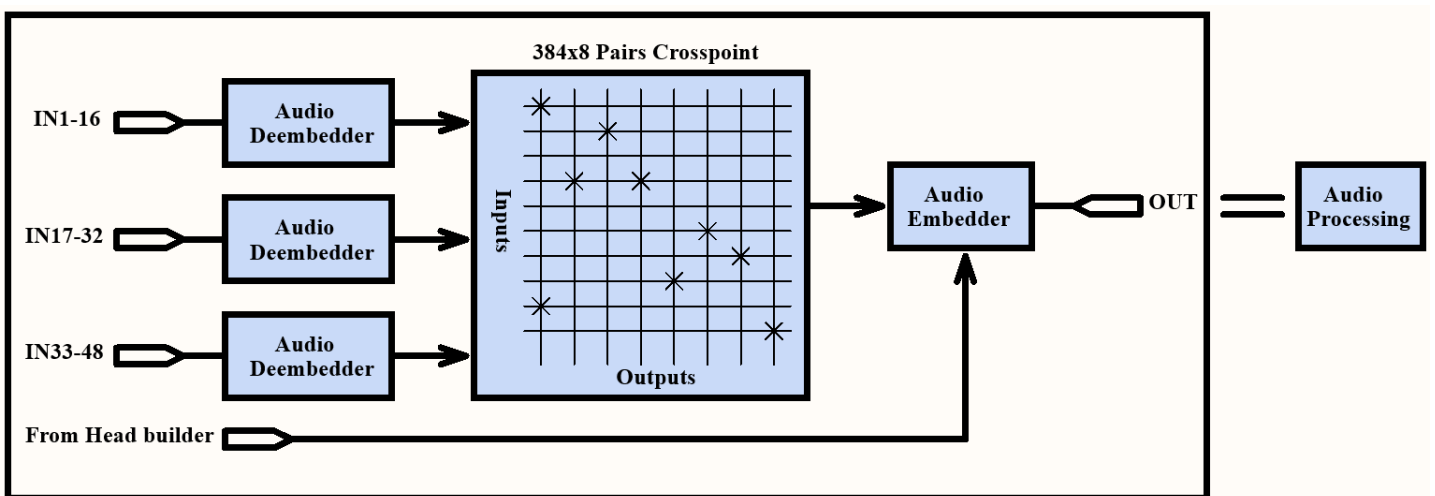
Block Diagram of audio processing

Multiviewer Models—SMP-MVxx

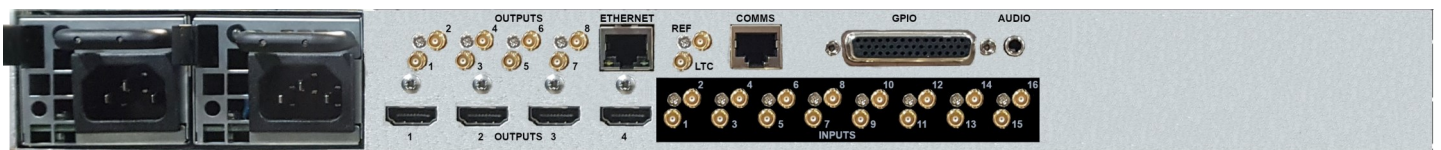
Block Diagram of SMP-MVxx Models
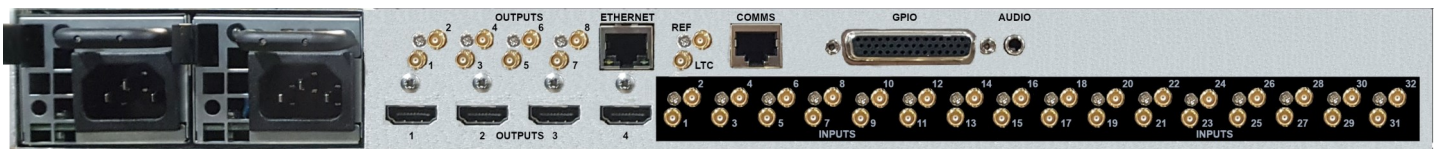
High Performance Multiviewers

Multiviewer Models SMP2-MVxx

Front View (All Models)

Models: SMP2-MV16-12

Models: SMP2-MV32-12
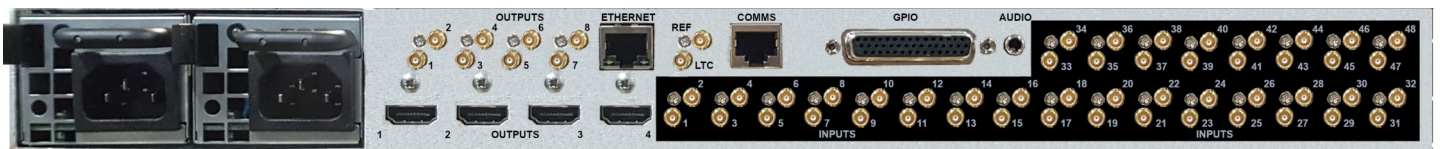
Models: SMP2-MV48-12

Models: SMP2-MV32R-12

Order Codes

Part Number	Description	Inputs
SMP2-MV16-12	Multiviewer with integrated 12G-SDI 16x16 multiviewer router 16xSDI inputs and up to 8xSDI/4xHDMI Head outputs.	16xSD/HD/FHD/UHD
SMP2-MV32-12	Multiviewer with integrated 12G-SDI 32x32 multiviewer router 32xSDI inputs and up to 8xSDI/4xHDMI Head outputs.	32xSD/HD/FHD/UHD
SMP2-MV48-12	Multiviewer with integrated 12G-SDI 32x32 multiviewer router with additional 16xSDI inputs and up to 8xSDI/4xHDMI Head outputs.	48xSD/HD/FHD/UHD
SMP2-MV16R-12	Multiviewer with integrated 12G-SDI 16x16 multiviewer router 16x12G-SDI inputs and up to 8x12G-SDI/4xHDMI 2.0 Head outputs. Integrated 12G-SDI 16x16 router with 16x12G-SDI reclocked outputs.	16xSD/HD/FHD/UHD
SMP2-MV32R-12	Multiviewer with integrated 12G-SDI 32x32 multiviewer router 32x12G-SDI inputs and up to 8x12G-SDI/4xHDMI 2.0 Head outputs. Integrated 12G-SDI 32x32 router with 32x12G-SDI reclocked outputs.	32xSD/HD/FHD/UHD
MV-12VPSU	Additional PSU 12V 450W	

High Performance Multiviewers

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Multiviewer Models—SMP2-MVxx

Block Diagram of SMP2-MVxx Models

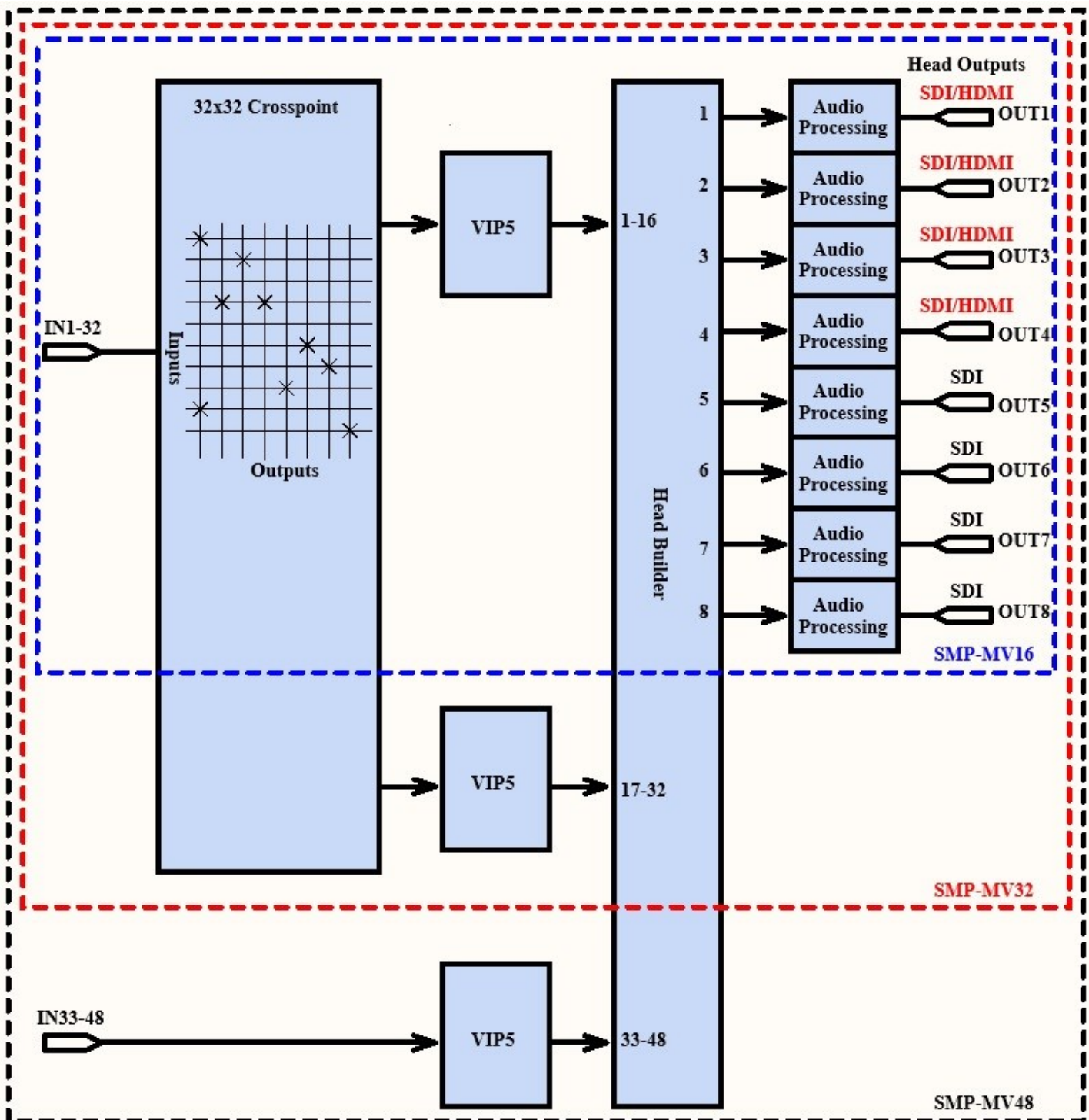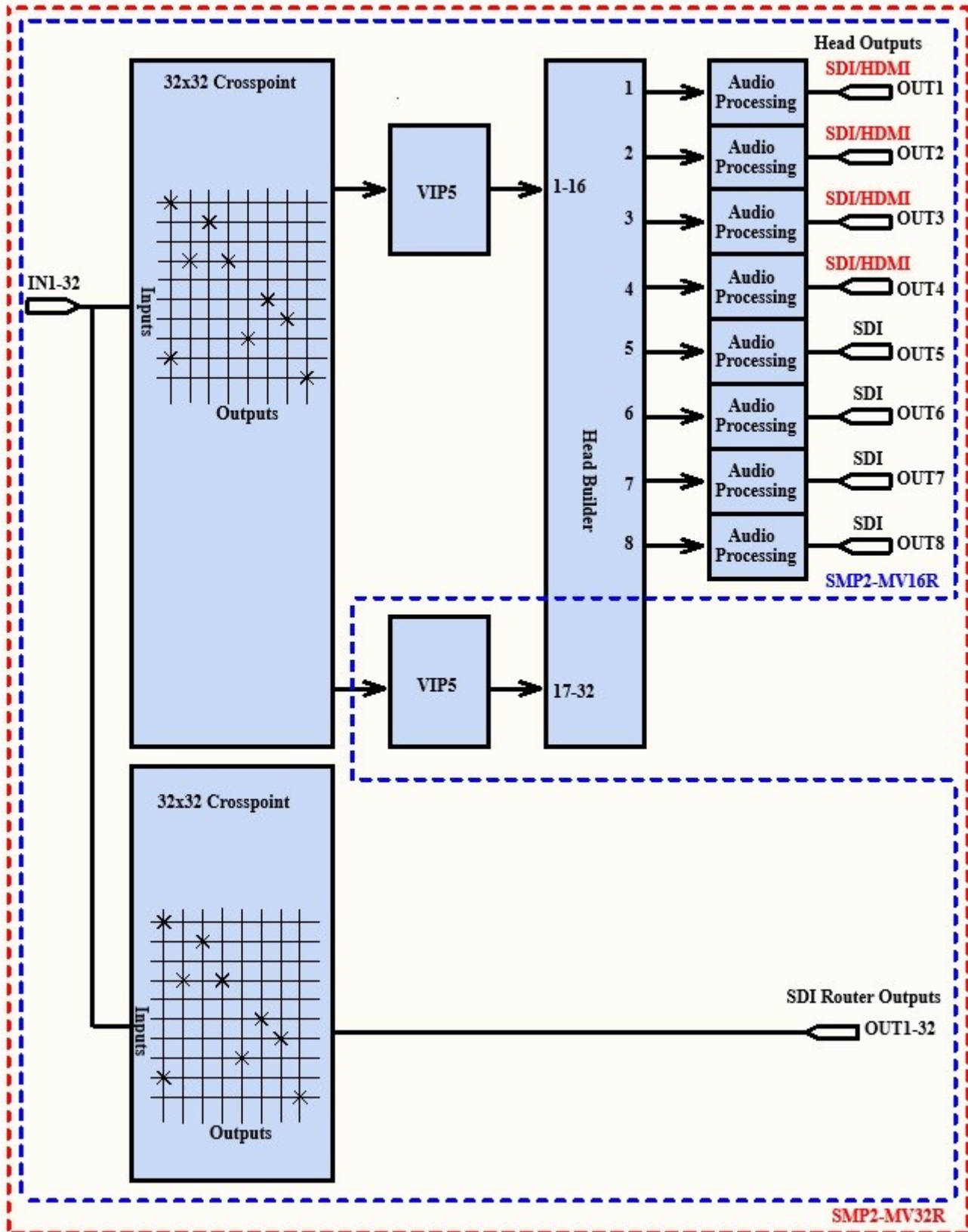# High Performance Multiviewers

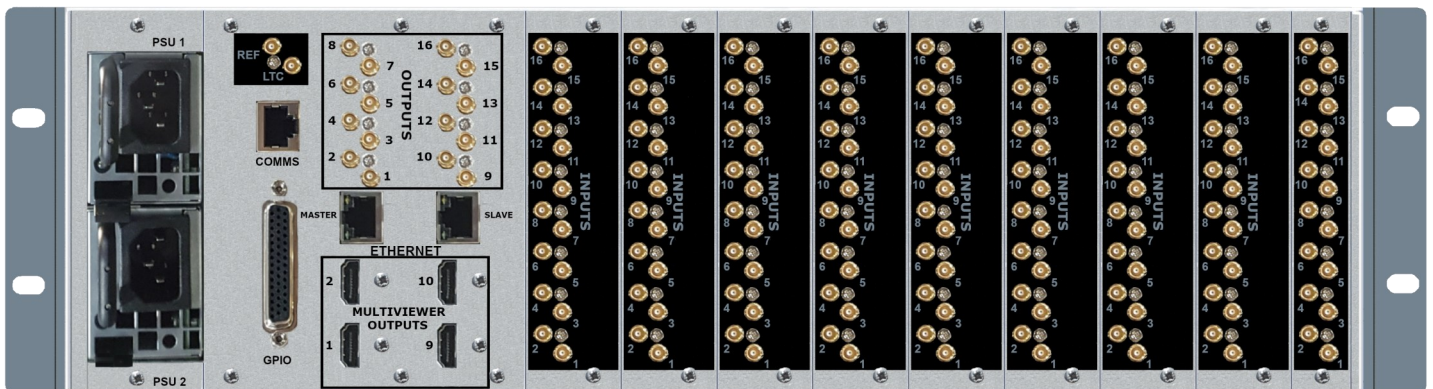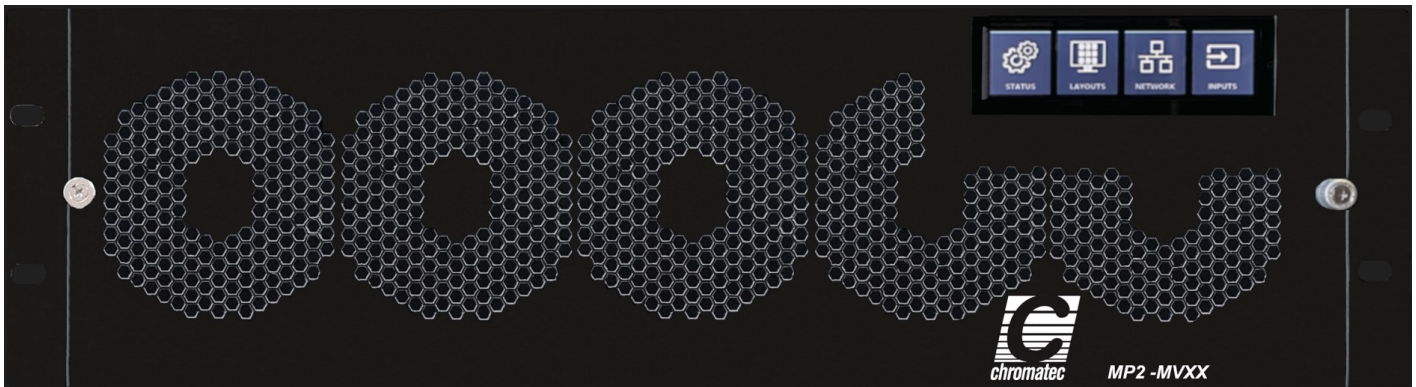## Multiviewer Models—SMP2-MVxx

Block Diagram of SMP2-MV16/32R-12 Model

High Performance Multiviewers

Multiviewer Models MP2-MVxx

Model: MP2-MVxx

Order Codes

Part Number	Description
MP2-MVxx	Base Frame Modular Multiviewer with provision for up to 144 inputs and 16 x SDI Head outputs. and GPIO/COMMS/LTC/REF. Supplied with one MVC4-SDI as standard. An additional MVC4-SDI adds a further 8 x SDI head outputs. Inputs can be added in multiples of 16 with addition of VIP5 cards and Rears. Frame includes one PSU module as standard.
MP2-MVxxH	As MP2-MVxx above with the addition of HDMI outputs using MVC4-HDMI instead of MVC4-SDI. Base frame has MVC4-HDMI as standard with 8 x SDI and 2 x HDMI head outputs. An additional MVC4-HDMI adds a further 8 x SDI and 2 x HDMI head outputs.
MVC4-SDI	MVC4 with 8 x SDI Head outputs
MVC4-HDMI	MVC4 with 8 x SDI and 2 x HDMI Head outputs.
VIP5	16 channel video scaler
VIP5-R16-3G	Rear Module card for VIP5 with 16 x HDBNC up to 3G-SDI: SMPTE424M
VIP5-R16-12G	Rear Module card for VIP5 with 16 x HDBNC up to 12G-SDI: SMPTE ST-2082
MV-12VPSU	Additional PSU 12V 450W

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Multiviewer Models—MP2-MVxx

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Block Diagram of MP2-MVxx Model
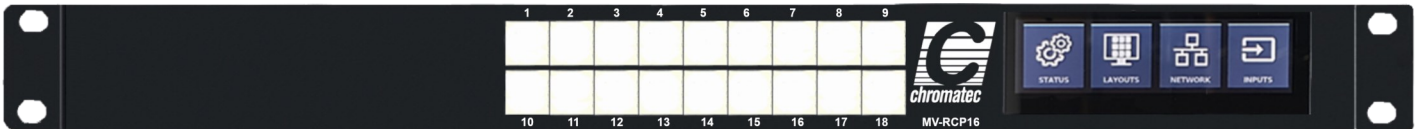
High Performance Multiviewers

Multiviewer Remote Control Panels MV-RCPxx

Model: MV-RCP16
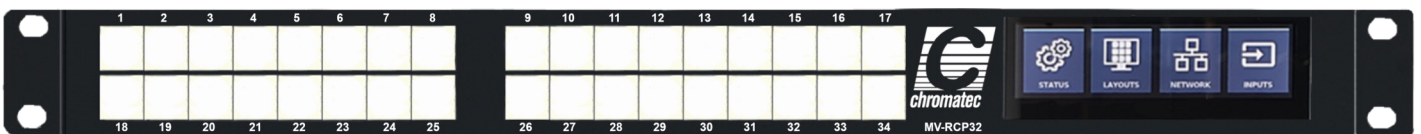
Model: MV-RCP32
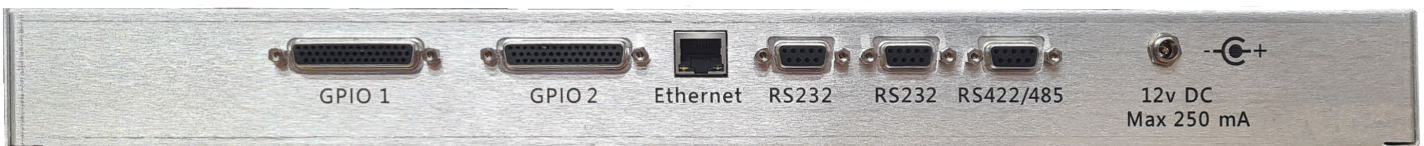
Model: MV-RCP16/32 (rear view)

Order Codes

Part Number	Description
MV-RCP16	Multiviewer remote control panel with TFT LCD and 18 switches with GPIO breakout
MV-RCP32	Multiviewer remote control panel with TFT LCD and 34 switches with GPIO breakout
RCP-12VPSU	Desktop 12V power supply with IEC 15W

Remote panel communication with the MV on a network

The MV's browser GUI provides a page for discovering remotes available on the network, which MV each one is assigned to (if any), and the ability to assign one or more of these remotes to the MV.

The TFT on the remote has similar menus to the MV's TFT where applicable - e.g. for displaying the status and selecting layouts.

Each hard button can be assigned to selecting a layout or triggering a timer, and the configuration for doing this is done from the MV's GUI.

The GPI inputs serve the same purpose, and again are configured from the MV's GUI, as are the GPI outputs which can be assigned to specific alarms.

High Performance Multiviewers

Main Menu

Toolbar

Layout Workspace

Object, Source and Layout Explorer

Quick Properties Editor

The browser GUI interface comprises the following areas:	
Main Menu	Comprising the Module, Layout, Group, Object, Grid and Help menus from which all parameters of the multiviewer can be configured
Layout Workspace	This is where Layouts are loaded for each video screen output. Existing Layouts can also be edited with Tile Objects added or removed, their Sources, Properties etc. modified as required. A Valid Workspace indicator flags any conflicts with new Tile Objects or changes made to existing tiles that are not compatible with the Layout being edited.
Toolbar	A selection of the most commonly used functions to allow for quick and easy Tile layout and Tile Object editing.
Object Source and Layout Explorer	Allows Tile Objects and Sources to be configured as well as allowing Layouts to be selected.

High Performance Multiviewers

SMP/SMP2 Frame Specification

FRAME FEATURES	DESCRIPTION
1RU Dimensions	Size: 440(W) x 44(H) x 516(D) mm Size: 483(W) x 44(H) x 516(D) mm with rack mount brackets Weight: 8 kg (two PSUs)
1RU Cooling Fans	5 fans each 40x40x20mm nominal 6-12V operating range. 10.8CFM 27.5dBA 0.092A 1.11W Sunon Vapo-Bearing technology

COMMS	DESCRIPTION
GPIO	High-density 44-way D-type. Assignable 32xGPIO Inputs, 8xGPIO Outputs
Ethernet	RJ45 LAN: 100BASE-T
Audio	1 x 3.5mm stereo audio jack
RS422 & RS485	1 x RJ45

ENVIRONMENTAL	DESCRIPTION
Temperature	0°C to 40°C
Humidity	30% to 90% (no condensation)
AC/DC Power Module	(90VAC ~ 264VAC), 50/60 Hz Safety Compliance: CB, CE, CCC, cUL, UL, TÜV
Max. Power Consumption	151.7W at 200-240VAC, 50Hz, 0.68A
Compliance	EMC – Emissions EU: EN55103-1 USA: FCCR 47 CFR: 2009, Part 15, Sub-part B (Class A) EMC – Immunity EU: EN55103-2. Safety EN: EN60950-1 USA: Tested to UL1419 (3rd Edition) Hazardous Material UK: RoHS-6 – Complies with EU Directive

High Performance Multiviewers

SMP SDI Inputs

VIDEO INPUTS	DESCRIPTION
SDI Inputs	SMP-MVxx: up to 48xSD/HD/FHD with maximum resolution of FHD50/59/60. SMP-MVxx-12: up to 48xSD/HD/FHD/UHD with maximum resolution of UHD50/59/60.
SDI Format	SMP-MVxx: SD-SDI (SMPTE259M 270Mbit/s): 525/59.94Hz, 625/50Hz HD-SDI (SMPTE292M 1.5Gbit/s) 3G-SDI (SMPTE424M 3Gbit/s Level A Mapping, Level B Dual Stream Mapping) SMP-MVxx-12: As above plus 6G-SDI (SMPTE ST2081 6Gbit/s), 12G-SDI (SMPTE ST2082 12Gbit/s)
SDI Cable Length	Using Belden 1694A: SD-SDI >350m, HD-SDI >150m, 3G-SDI >120m, 12G-SDI >50m
SDI Return Loss	Return Loss lower than -15dB up to 1.5GHz and -10dB up to 3GHz. -7dB up to 6GHz and –4dB up to 12GHz
SDI Embedded Audio	SD-SDI SMPTE-274M-A, HD & 3G SDI SMPTE 299M
SDI Connector	Dual HD-BNC 75ohm

SMP SDI/HDMI Screen Outputs

VIDEO OUTPUTS	DESCRIPTION
SDI Screen Outputs	In 2K mode up to 8 x FHD50/59/60. In 4K mode up to 2 x UHD50/59/60.
HDMI Screen Outputs	All modes output format HDMI 1.4 In 2K mode up to 4 x FHD50/59/60 RGB 4:4:4 simultaneous with SDI outputs. In 4K mode up to 2 x UHD50/59/60 YCbCr 4:2:0 simultaneous with SDI outputs.
SDI Format	HD-SDI (SMPTE292M 1.5Gbs) 3G-SDI (SMPTE424M 3Gbs)
SDI Cable Length	Using Belden 1694A: SD-SDI >350m, HD-SDI >150m, 3G-SDI >120m
SDI Connector	Dual HD-BNC 75ohm

High Performance Multiviewers

SMP2 SDI Inputs

VIDEO INPUTS	DESCRIPTION
SDI Inputs	SMP2-MVxx: up to 48xSD/HD/FHD/UHD with maximum resolution of UHD50/59/60. SMP2-MV32-R: 32xSD/HD/FHD/UHD with maximum resolution of UHD50/59/60.
SDI Format	SD-SDI (SMPTE259M 270Mbit/s): 525/59.94Hz, 625/50Hz HD-SDI (SMPTE292M 1.5Gbit/s) 3G-SDI (SMPTE424M 3Gbit/s Level A Mapping, Level B Dual Stream Mapping) 6G-SDI (SMPTE ST2081 6Gbit/s), 12G-SDI (SMPTE ST2082 12Gbit/s)
SDI Cable Length	Using Belden 1694A: SD-SDI >250m, HD-SDI >150m, 3G-SDI >100m, 12G-SDI >60m
SDI SMPTE Return Loss	Return Loss lower than -15dB up to 1.5GHz and -10dB up to 3GHz. -7dB up to 6GHz and –4dB up to 12GHz
SDI Embedded Audio	SD-SDI SMPTE-274M-A, HD & 3G SDI SMPTE 299M
SDI Connector	Dual HD-BNC 75ohm

SMP2 SDI/HDMI Screen Outputs

VIDEO OUTPUTS	DESCRIPTION
SDI Screen Outputs	In 2K mode up to 8 x FHD50/59/60. In 4K mode up to 4 x UHD50/59/60 (when configured as 4 x Quads), otherwise 2 x UHD50/59/60 for arbitrary layouts.
HDMI Screen Outputs	All modes output format HDMI 2.0 YCbCr 4:2:2 10-bit Duplicates of SDI outputs. Up to 4 x UHD50/59/60
SDI Format	8 x SDI outputs configured as: HD-SDI (SMPTE292M 1.5Gbs), 3G-SDI (SMPTE424M 3Gbs) 2 x SDI outputs when configured as: 12G-SDI (SMPTE ST2082 12Gbit/s)
SDI Cable Length	Using Belden 1694A: SD-SDI >250m, HD-SDI >150m, 3G-SDI >100m, 12G-SDI >50m
SDI Connector	Dual HD-BNC 75ohm

SMP2-MV32R-12 SDI Router Outputs

VIDEO OUTPUTS	DESCRIPTION
SDI Router Outputs	SMP2-MV32-R: 32xSDI outputs with maximum resolution of UHD50/59/60
SDI Format	HD-SDI (SMPTE292M 1.5Gbs), 3G-SDI (SMPTE424M 3Gbs) 12G-SDI (SMPTE ST2082 12Gbit/s)
SDI Cable Length	Using Belden 1694A: SD-SDI >250m, HD-SDI >150m, 3G-SDI >100m, 12G-SDI >50m
SDI Connector	Dual HD-BNC 75ohm

High Performance Multiviewers

MP2 Frame Specification

FRAME FEATURES	DESCRIPTION
3RU Dimensions	Size: 440(W) x 132(H) x 472(D) mm Size: 484(W) x 132(H) x 472(D) mm with rack mount brackets Frame Weight: 9.5 kg (two PSUs) Shipping Weight: 12.65 kg
3RU Cooling Fans	4 fans each 80x80x20mm nominal 6-12V operating range. 60 CFM 44.7dBA 0.31A 4.1W Sunon Vapo-Bearing technology 3 fans each 40x40x20mm nominal 6-12V operating range. 10.8CFM 27.5dBA 0.092A 1.11W Sunon Vapo-Bearing technology

COMMS	DESCRIPTION
GPIO	High-density 44-way D-type. Assignable 32xGPIO Inputs, 8xGPIO Outputs
Ethernet	RJ45 LAN: 100BASE-T
RS422 & RS485	1 x RJ45

ENVIRONMENTAL	DESCRIPTION
Temperature	0°C to 40°C
Humidity	30% to 90% (no condensation)
AC/DC Power Module	(90VAC ~ 264VAC), 50/60 Hz Safety Compliance: CB, CE, CCC, cUL, UL, TÜV
Max. Power Consumption	450W at 200-240VAC, 50Hz, 2.1A
Compliance	EMC – Emissions EU: EN55103-1 USA: FCCR 47 CFR: 2009, Part 15, Sub-part B (Class A) EMC – Immunity EU: EN55103-2. Safety EN: EN60950-1 USA: Tested to UL1419 (3rd Edition) Hazardous Material UK: RoHS-6 – Complies with EU Directive

High Performance Multiviewers

MP2 SDI Inputs

VIDEO INPUTS	DESCRIPTION
SDI Inputs	Up to 144xSD/HD/FHD/UHD with maximum resolution of UHD50/59/60.
SDI Format	SD-SDI (SMPTE259M 270Mbit/s): 525/59.94Hz, 625/50Hz HD-SDI (SMPTE292M 1.5Gbit/s) 3G-SDI (SMPTE424M 3Gbit/s Level A Mapping, Level B Dual Stream Mapping) 12G-SDI (SMPTE ST2082 12Gbit/s) Note: requires 12G-SDI Rear and 12G Licence.
SDI Cable Length	Using Belden 1694A: SD-SDI >250m, HD-SDI >150m, 3G-SDI >100m, 12G-SDI >60m
SDI SMPTE Return Loss	Return Loss lower than -15dB up to 1.5GHz and -10dB up to 3GHz. -7dB up to 6GHz and –4dB up to 12GHz
SDI Embedded Audio	SD-SDI SMPTE-274M-A, HD & 3G SDI SMPTE 299M
SDI Connector	Dual HD-BNC 75ohm

MP2 SDI/HDMI Screen Outputs

VIDEO OUTPUTS	DESCRIPTION
SDI Screen Outputs (each MVC4)	In 2K mode up to 8 x FHD50/59/60. In 4K mode up to 2 x UHD50/59/60
HDMI Screen Outputs	Duplicates of SDI outputs. Up to 4 x UHD50/59/60 YCbCr 4:2:2 10-bit. HDMI 2.0
SDI Format (each MVC4)	8 x SDI outputs configured as: HD-SDI (SMPTE292M 1.5Gbs), 3G-SDI (SMPTE424M 3Gbs), 2 x SDI outputs when configured as: 12G-SDI (SMPTE ST2082 12Gbit/s)
SDI Cable Length	Using Belden 1694A: SD-SDI >250m, HD-SDI >150m, 3G-SDI >100m, 12G-SDI >50m
SDI Connector	Dual HD-BNC 75ohm

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All Models: Features

AUDIO PROCESSING	DESCRIPTION
Audio meters (video pips)	Each video pip can have its own audio meters with left/right or split meters. All pairs of embedded audio can be displayed.
Audio meters (audio pips)	Audio pips can be configured up to a maximum of 512 (including video pips) with audio sources derived from the video inputs.
Embedded Audio on Outputs	SDI or HDMI outputs can be individually configured to include up to 4 pairs of embedded audio from any of the inputs.
Audio Monitoring Out	SMP/SMP2 frames only: 1 Pair of embedded audio from any input can be monitored on an 3.5mm stereo analogue line level output.

ALARMS	DESCRIPTION
Alarms	Video Loss, Video Freeze, Video Black, Over/Under, Audio Carrier Loss, Audio Silence, Audio Over/Under threshold, Audio Phase Error, Audio mono, Source Metadata (EIA-608 encapsulated in EIA-708. CC, WST, OP-47, D-VITC, ATC loss and CRC errors). Zone based monitoring inside the pip to detect video freeze and Black. Audio loudness out of range
Alarm Outputs	Hard and Soft Alarm outputs. Soft Outputs via LAN and/or SNMP
Tallies	Hard Tally (via GPIO up to a maximum of 32). Soft Tally (TSL v5.0 protocol over ethernet) with 2 tallies per tile.
Under monitor displays	Under Monitor Display (UMD) information may be generated from remote sources via the LAN operating on a remote PC or serial using TSL/Open protocols. Maximum UMD length 150 characters.
Clocks/Dates	Analogue and Digital Clocks with foreground and background colours. Date can be displayed with clocks. Clock/date display data can be derived from several sources; the system clock, NTP synchronisation, LTC, or VITC from a chosen SDI input. Time-zone and offset settings.
Timers	Programable Countdown Colour, Transition Colour and Destination Colour. Countdown timer may be setup to start at a certain time of the day or controlled by GPIO Inputs. Timer modes for single and dual GPIO inputs supporting Pause, Resume and Reset.
Battery Backup	A non-rechargeable battery ensures the time and date settings are retained if power is lost or the unit is powered down.

High Performance Multiviewers

All Models: Features continued..

REFERENCE	DESCRIPTION
Genlock reference	BB/Tri-level sync nominal 1V pk-pk HD-BNC 75Ω
Time reference	LTC input or NTP (network protocol) Nominal 1V pk-pk HD-BNC High-Pass 47uF/1K ohm.

SOURCE METADATA	DESCRIPTION
Subtitles	WST on SD-SDI or OP-47 on HD-SDI
Aspect ratio	Automatic adjustment using AFD decoding
Timecode	D-VITC and Ancillary TC SD/HD-SDI
User Logo	PNG format with storage capacity up to 50MByte
Idents	Idents, text boxes and any TrueType fonts. Any true-type font (ttf) can be installed to allow Unicode characters to be displayed correctly.

FRAME FEATURES	DESCRIPTION
AC/DC Power Supplies	Up to 2 hot-swap power supplies with current sharing and intelligent monitoring
HID colour touch screen	Colour touch 480 pixel x 128 line LCD screen with status information and control
Modular Architecture	Hot swap modular video processing cards MVC3/MVC4/VIP5 and rears (MP2-MVxx)
Remote Control	Linux OS with Integrated HTML5 browser
3rd Party Support	Grass Valley SW-P-02, SW-P-08, RollCall Open Protocol/TSL Protocol v3.1/v4.0 and v5.0
Firmware updates	Field upgradeable via IP with on screen progress meter
Fault monitoring	CSV log files accessible via LAN and browser
Layouts	Burnt-in layouts, edit and save as new layouts, recall and upload/download
Redundant PSU	Slot available for Additional hot swap PSU
SDI Connector	Dual HD-BNC 75ohm

| VIDEO PROCESSING	DESCRIPTION
Input Format detection	Automatic signal detection of input format
Video processing bit-depth	Internal bit depths and data paths are minimum 10-bit.
Video processing delay	Processing delay varies between 1 and 2 frames depending on the timing relationship between the video input and video output.
Input Formats Supported	SD-SDI: SMPTE259M, 125M: 525/60i, 625/50i YCbCr 4:2:2 1.5G-3G-SDI: SMPTE292M, 424M, 274M: 1920x1080 10-bit YCbCr 4:2:2 /60P/59.94P/50P/60i/59.94i/50i/30P/29.97P/25P/24P/23.98P 6G-12G-SDI: SMPTE2081-10, 2082-10, 2036-1: 3840x2160 10-bit YCbCr 4:2:2 /60P/59.94P/50P/30P/29.97P/25P/24P/23.98P
High Frame Rate Input	For example, each 720p360 image has 6 phases, so 5 cameras requires 30 scalers. Support for up to N/8 cameras, where N = number of inputs.
Multiple source scaling	Sources can be routed to any output with arbitrary scaling and location with the proviso that the number of unique video pips does not exceed the number of inputs.
High Dynamic Range	HLG, PQ and S-Log3 HDR formats supported. BT2100 up-mapping/down-mapping
Output Formats Supported	3G-SDI: SMPTE424M, 274M: 1920x1080 10-bit YCbCr 4:2:2 /60P/59.94P/50P 6G- 12G-SDI: SMPTE2081-10, 2082-10, 2036-1: 3840x2160 10-bit YCbCr 4:2:2 /60P/59.94P/50P/30P/29.97P/25P
Maximum pips	A maximum of 512 unique tiles can be configured per output. The maximum number of video pips is limited to the number of video sources.

High Performance Multiviewers

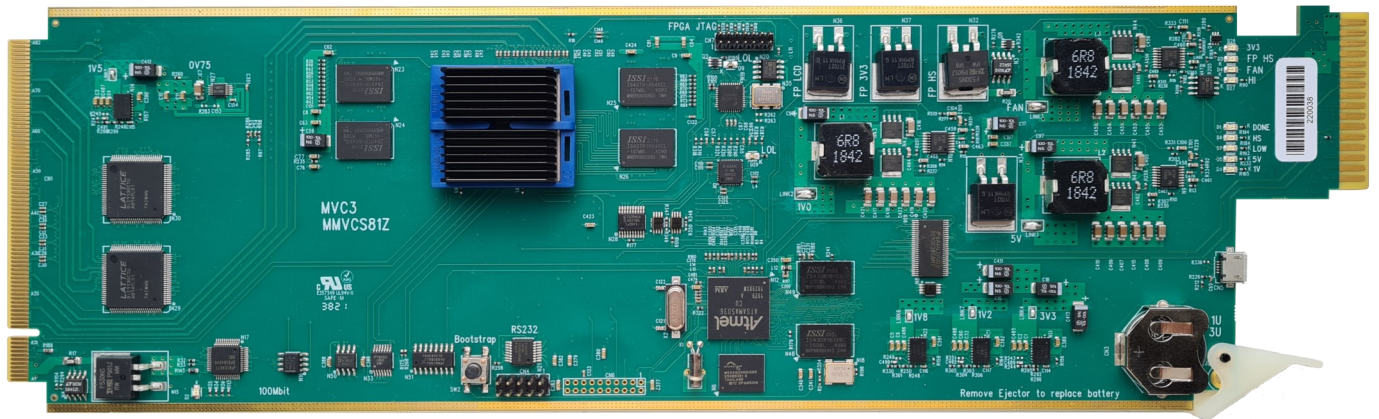## SMP-MVxx/SMP2-MVxx Dimensions
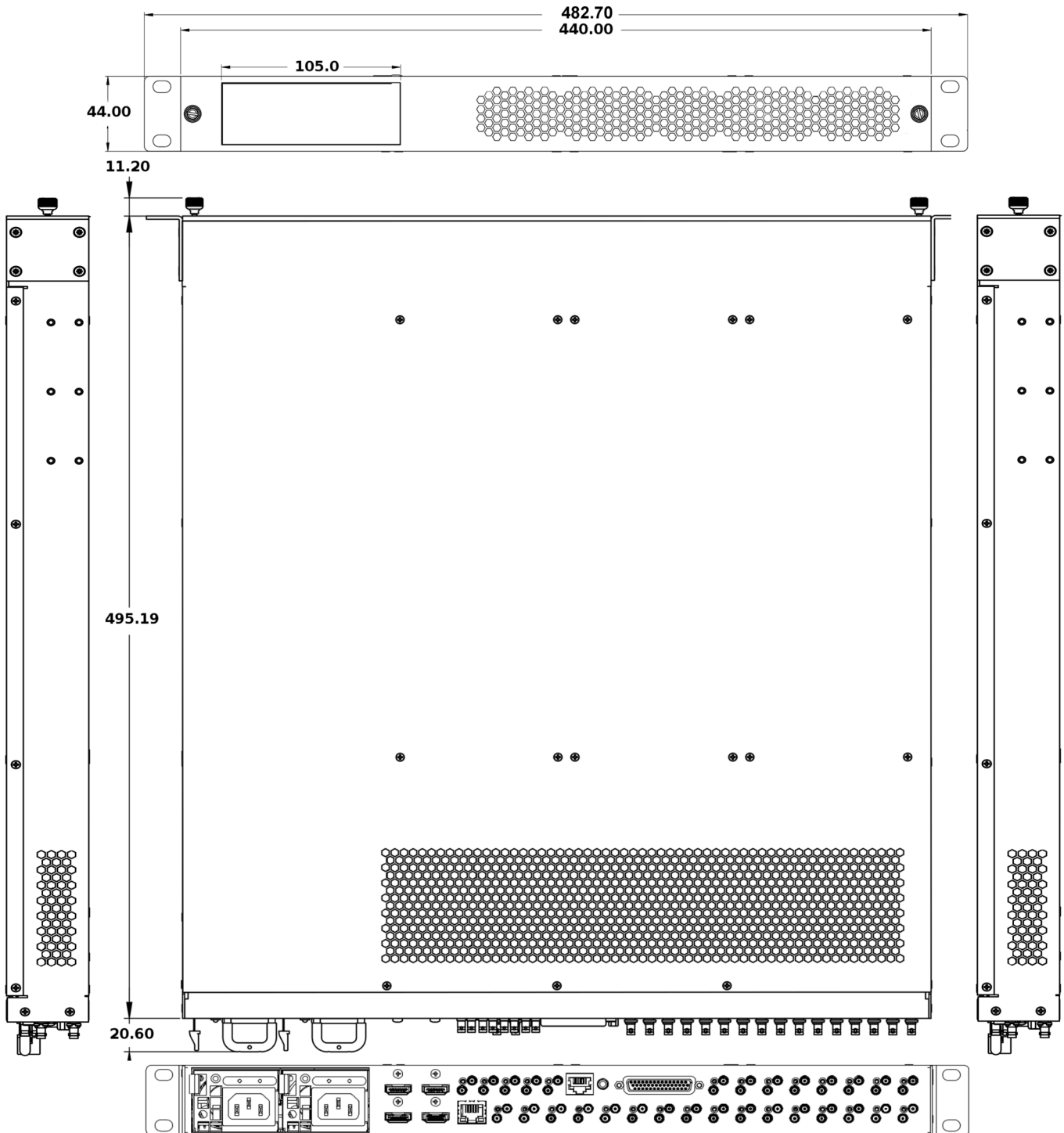
MP2-MVxx Dimensions
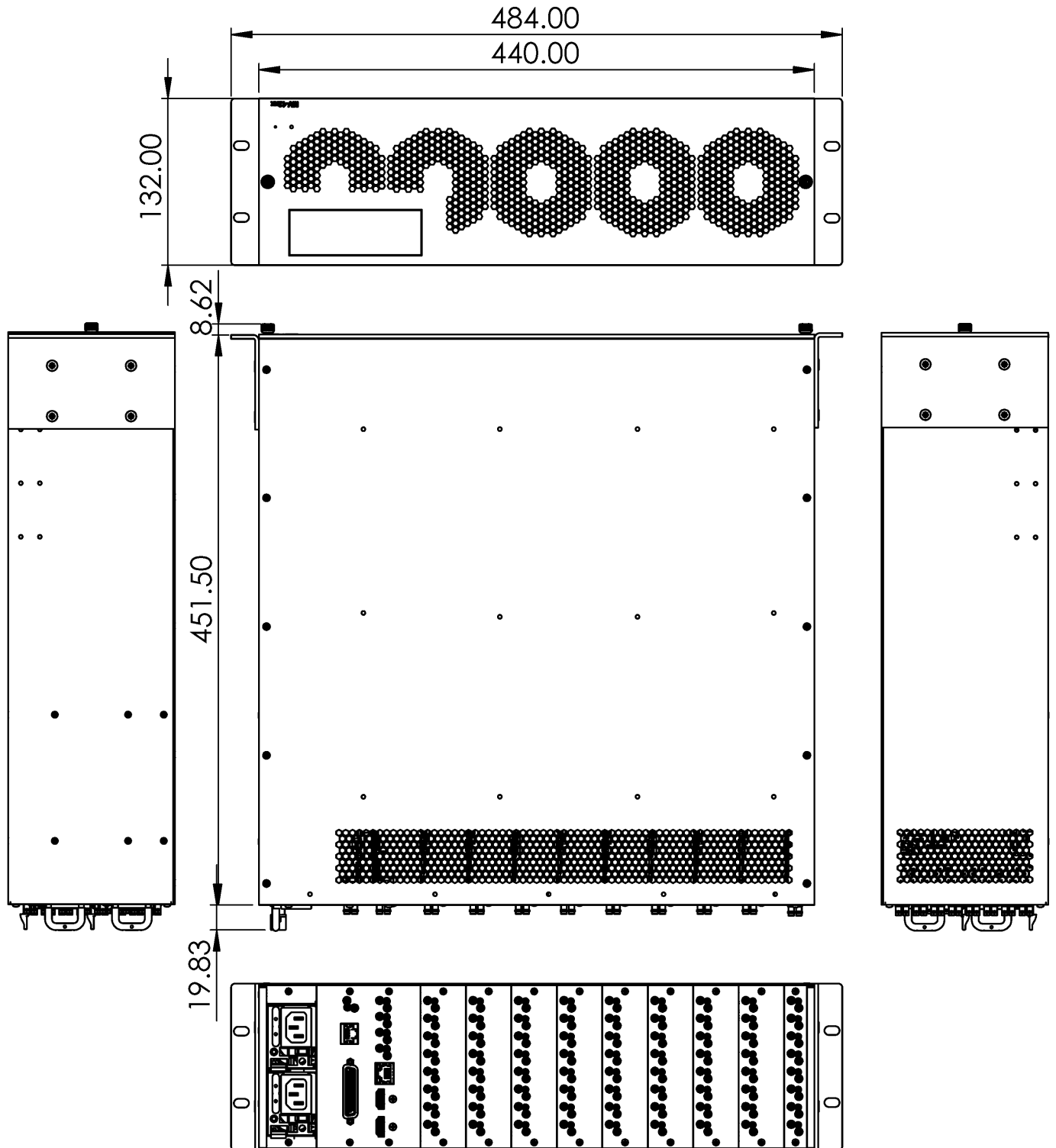
High Performance Multiviewers

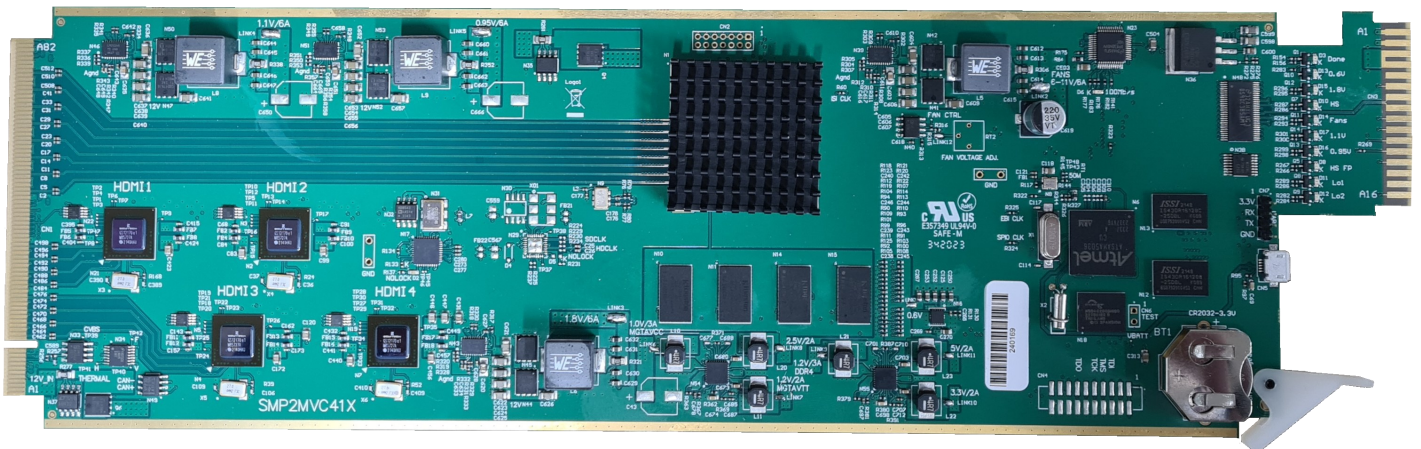## Hot-Swap Video Processing Cards

MVC3

The MVC3 card is the output graphics engine of the multiviewer as well as host for the main Linux application.
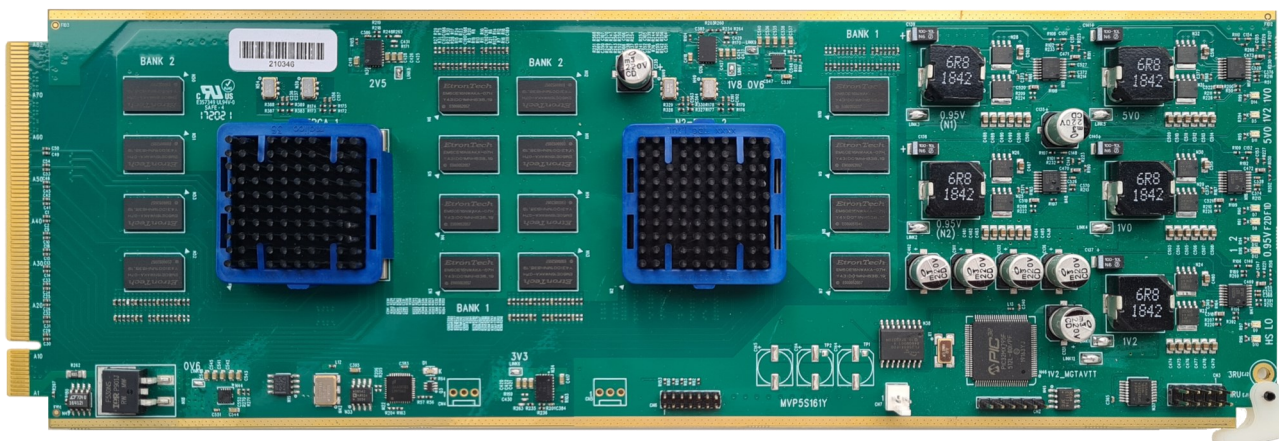

MVC4

The MVC4 card is the output graphics engine of the multiviewer as well as host for the main Linux application.

VIP5

Our flagship VIP5 image processing engine is able to simultaneously process 16x4K60 sources
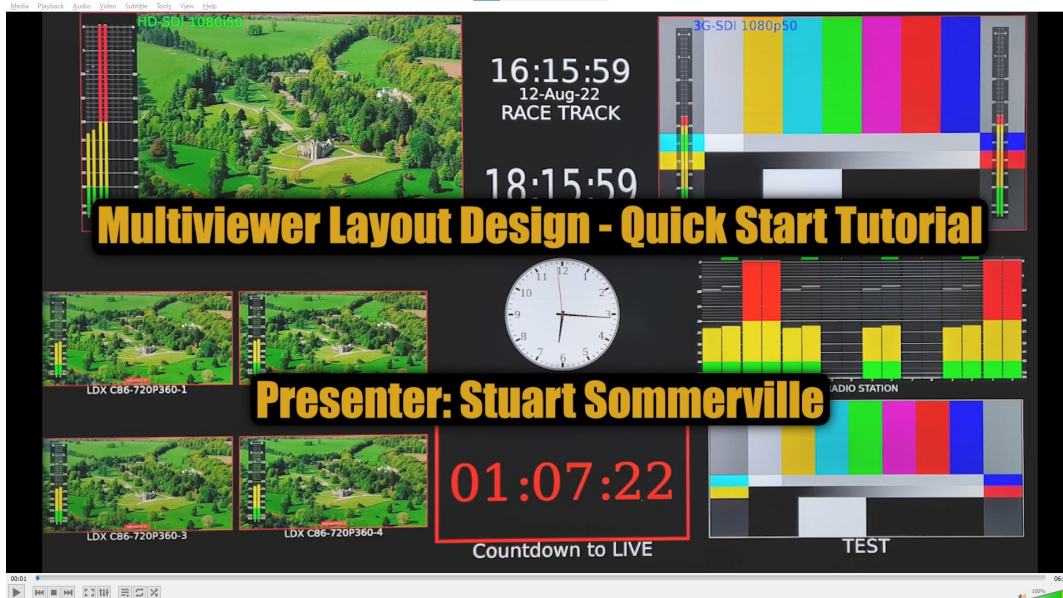
High Performance Multiviewers

Online Training Support

Check out our support training videos on YouTube on a wide-range of multiviewer topics.

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