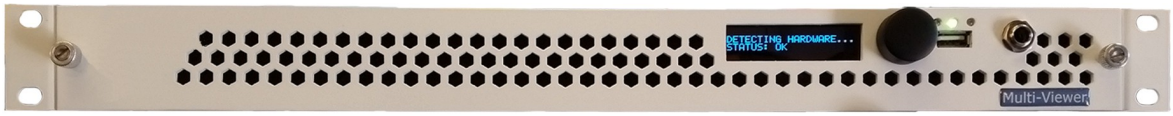
Multiviewer Configuration and card selection guide

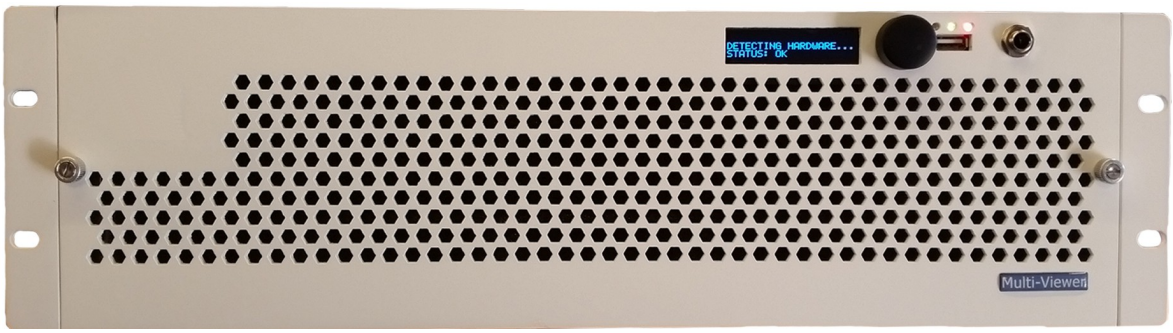
SMP-xx/SMP-xx-R

1 RU Modular Multiviewer Platform



MP-xx

3 RU Modular Multiviewer Platform



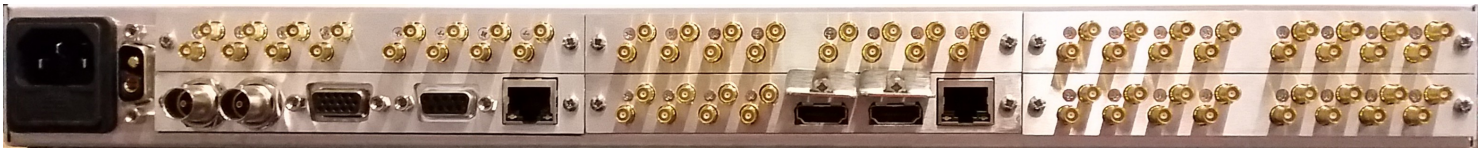
Introduction

The video and audio architecture is the same for the SMP-xx,SMP-xx-R and MP-xx frames.

SMP-xx frame - up to 4 video processing cards supporting up to **32 inputs and up to 2 independent multi-viewers.**

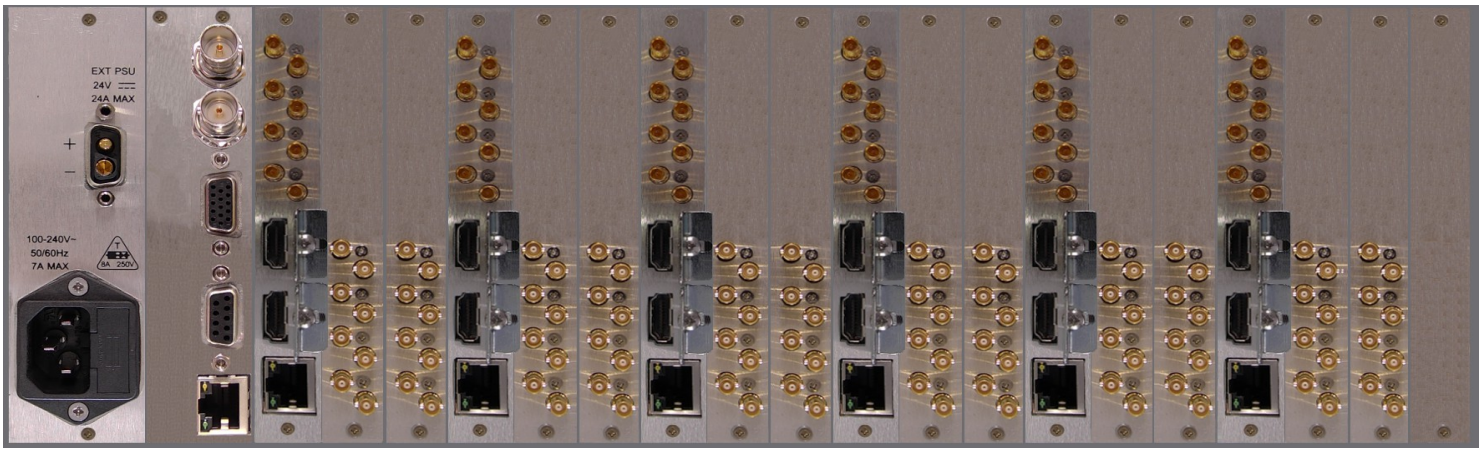
Rear View of a 2 x 4k quad input multiviewer

SMP-xx-R frame - up to 4 video processing cards supporting **32 inputs and 32 routing inputs.**



Rear View of a 4k 32 input multiviewer with 32 routing outputs

MP-xx frame – up to 18 video processing cards supporting **144 inputs and up to 9 independent multiviewers.**



Rear View of a 6 x 4k 16 input multiviewer

The following processing cards are available for ALL FRAMES

Video input cards:

VIP4 with 8 input channels/card.

VIP3 with 4 input channels/card

Multiviewer Output cards

MVC two head video output card

MVC2 two head 4K video output card

Audio input cards:

AIPxxA up to 32 channel analogue input cards (where xx is either 08 16 or 32)

AIPxxD up to 32 channel digital input cards (where xx is either 08 16 or 32)

AIP32AD up to 32 channel analogue and digital input cards.

Audio output cards:

AOPxxA up to 32 channel analogue audio output cards (where xx is either 08 16 or 32)

AOPxxD up to 32 channel digital audio output cards (where xx is either 08 16 or 32)

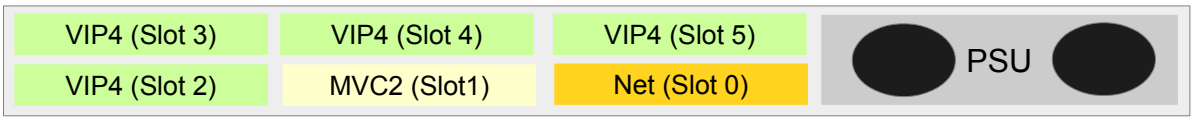
The following table shows what video inputs are supported by each VIP video processing card along with which of the three video output cards can be used with that VIP and the **output resolutions** they can support:

VIP Options	Number of Input signal types supported			MVC Card	Output signal types supported		
	2K60	4K30	4K60		2K60	4K30	4K60
VIP3	4			MVC	2		
				MVC2-LV	2	2	
				MVC2-SD			
VIP4	8	4	2	MVC			
				MVC2-LV			
				MVC2-SD	2	2	2

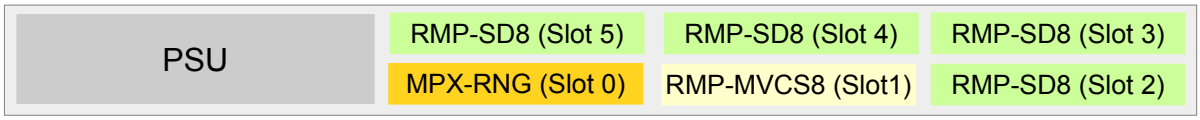
SMP-xx examples of common configurations

The **SMP-xx 1U frame** has six card slots at the front and rear of the unit. One of the slots is always reserved for the network card (**NET)**, leaving five slots that can be populated with a variety of video and and audio processing cards tailored to any broadcast requirements:

4K Capable 32 input multi-viewer

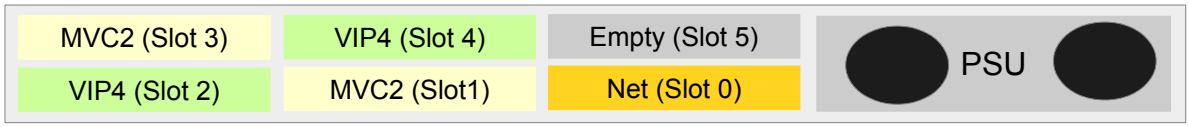


Front View (Processing Cards)

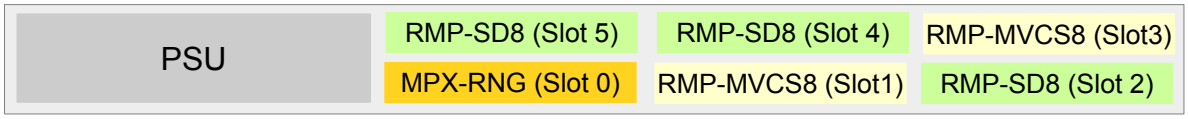


Rear View(Input and Output Cards)

4K Capable 2x independent 8 input multiviewers



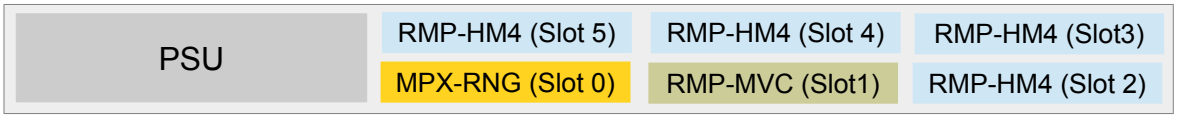
Front View (Processing Cards)



Rear View (Input-Output Cards)

16 Channel HDMI input multiviewer

Front View (Processing Cards)

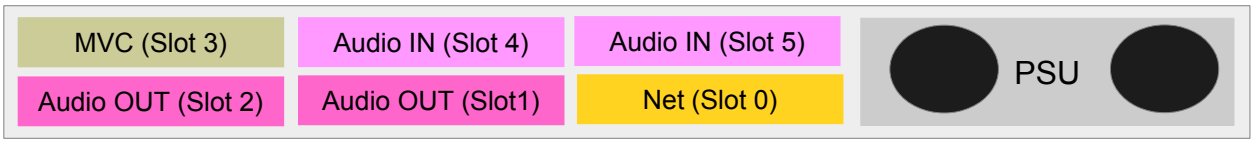


Rear View (Input-Output Cards)

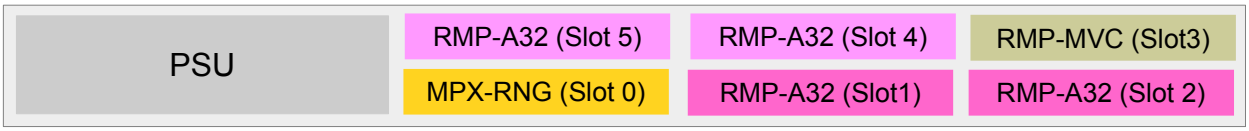
AM-xx Audio monitoring

Audio processing cards can be fitted exclusively in a SMP-xx chassis to create the AM-xx range of audio monitoring racks.

64 channel input and output AM-xx.

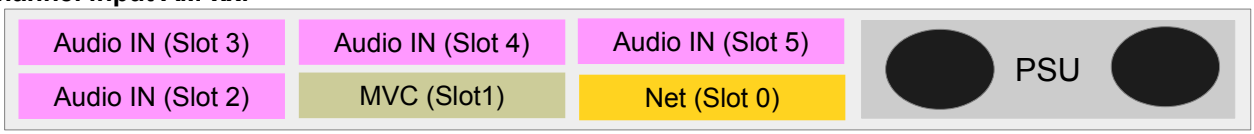


Front View (Processing Cards)

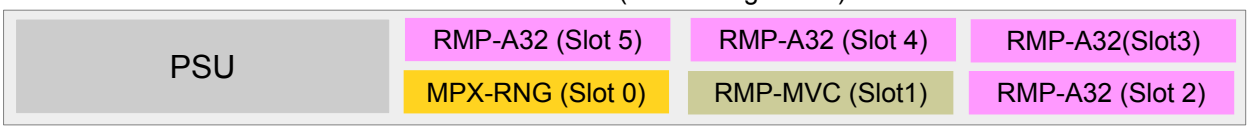


Rear View (Input-Output Cards)

128 channel input AM-xx.



Front View (Processing Cards)



Rear View (Input-Output Cards)

The AM-xx can notify users via mobile platforms such as cellphones, tablets etc, as well as via PC, to any pre-configured alarm events such as loudness excursions, loss of signal etc.

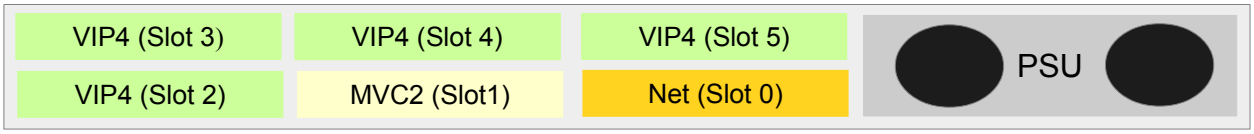
SMP-xx-R (Integrated routers)

The **SMP-xx-R** frame has two integrated 32x32 non-blocking routers.

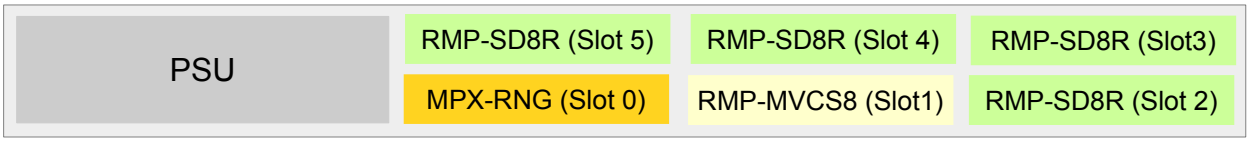
MV input router; offers a 32x32 **non-blocking** multi-viewer input capability which allows any SDI input to be routed to any of the input channels on any **VIP4.**

SDI router; this is independent of the MV input router and functions as a **stand-alone 32x32 non-blocking SDI router**.

SMP-32-R, 32 channel input and output multi-viewer and SDI router:



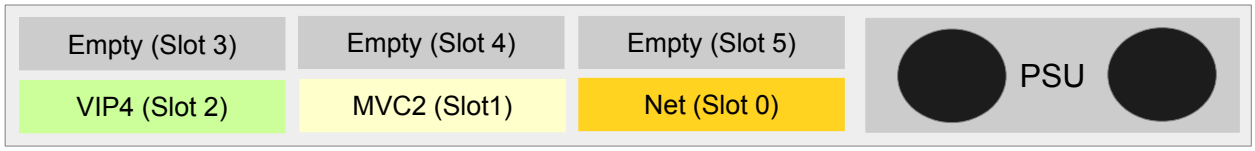
Front View (Processing Cards)



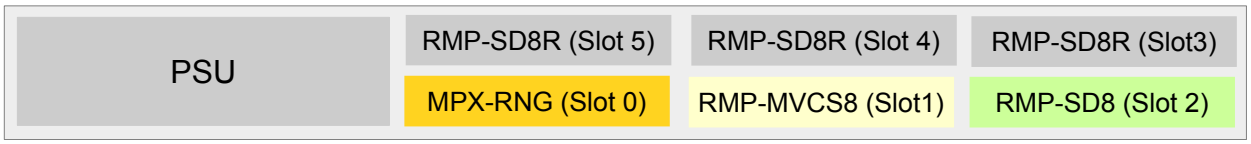
Rear View (Input-Output Cards)

The router architecture also allows asymmetric routing for more cost effective solutions.

SMP-32-R, 32 x 8 asymmetric input multi-viewer

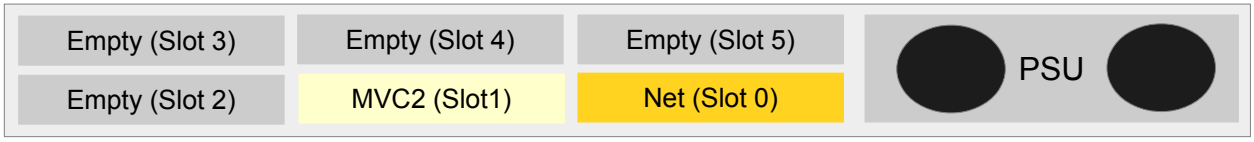


Front View (Processing Cards)

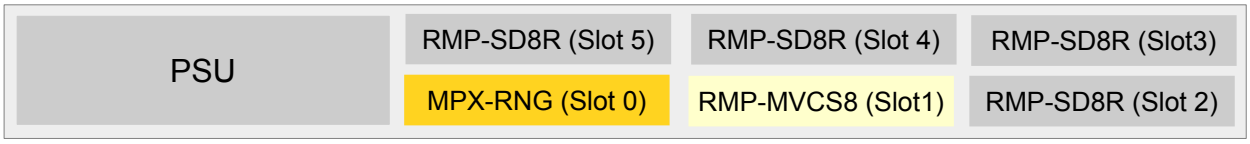


Rear View (Input-Output Cards)

SMP-32-R, 32 x 32 non-blocking SDI router



Front View (Processing Cards)



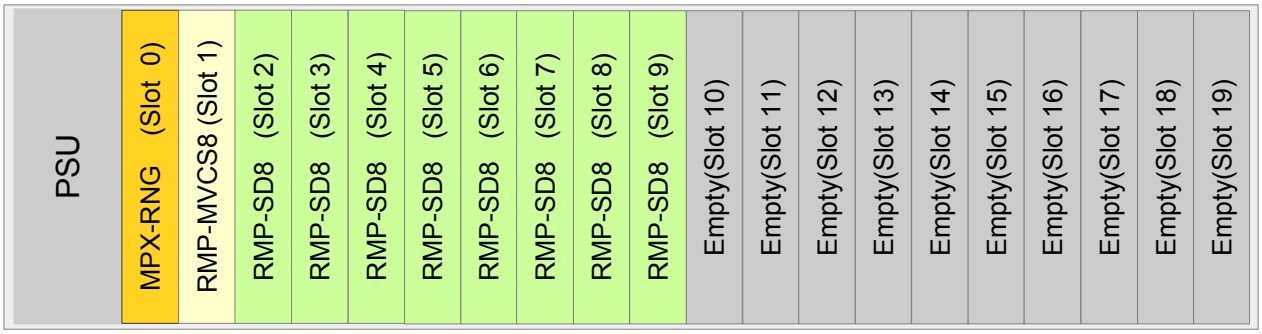
Rear View (Input-Output Cards)

MP-xx

The **MP-xx 3U frame** has a total of twenty slots at the front and rear of the unit allowing up to144 inputs.Any multi-viewer instance simply requires an MVC output card and at least one VIP video processing card.

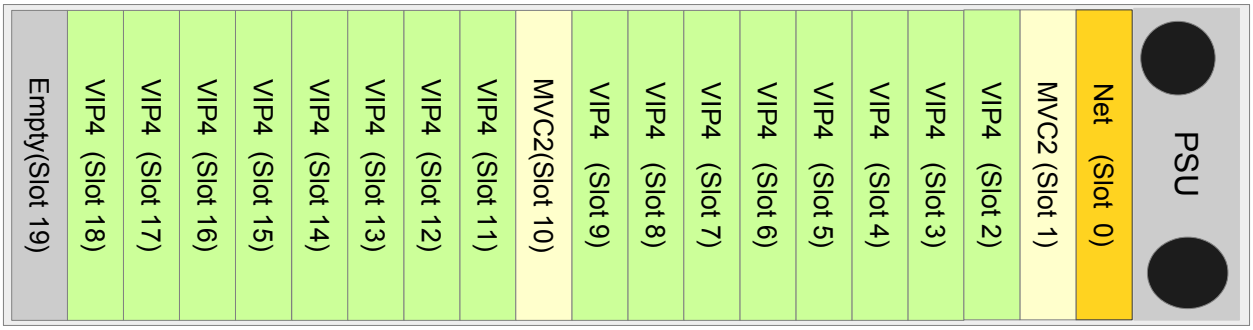
4K Capable 64 input multi-viewer

Front View (Processing cards)

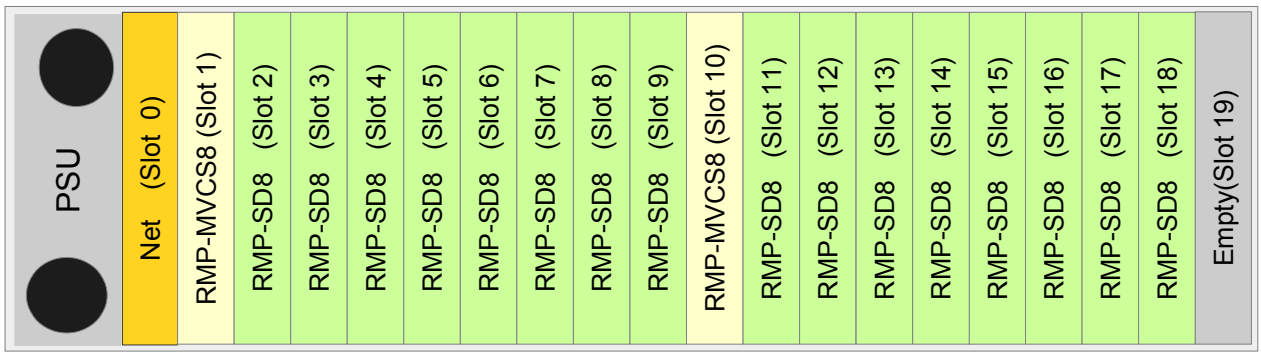


Rear View (Input/Output Cards)

4K Capable 2x independent 64 input multi-viewer

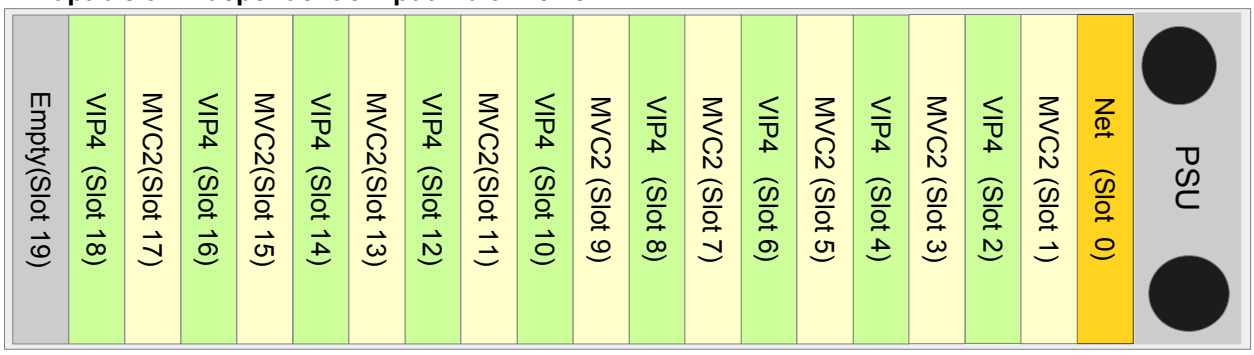


Front View (Processing Cards)

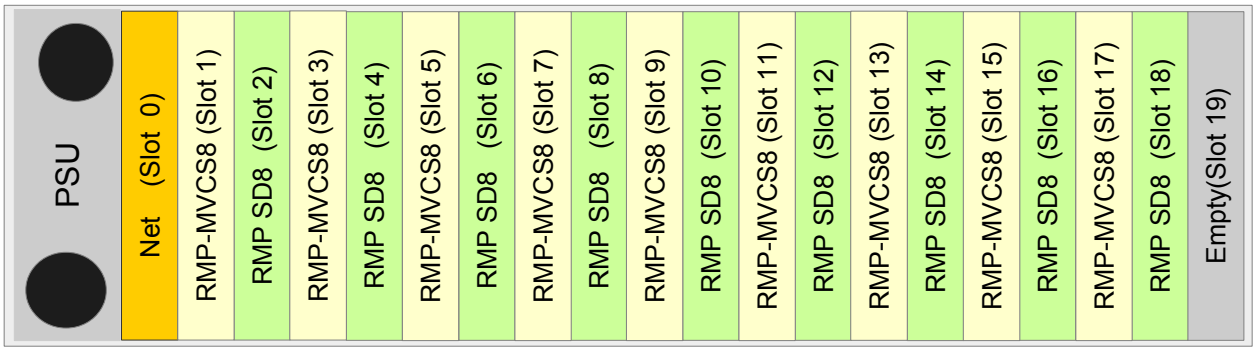


Rear View (Input/Output cards)

4K Capable 9x independent 8 input multi-viewer



Front View (Processing cards)

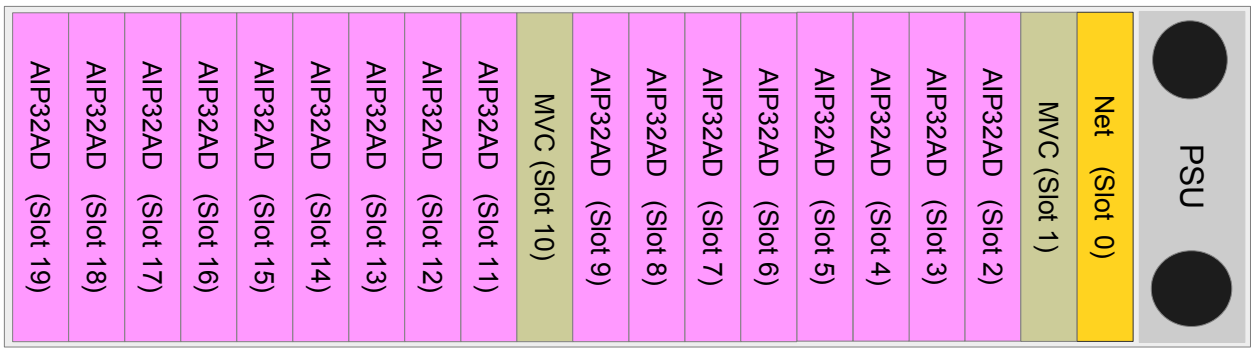


Rear View (Input/Output cards)

Any input combination between these extremes can be adopted along with the use of the audio IO cards to allow tailor made solutions for any broadcast application.

Audio Handling

MP-xx frame – up to 8 audio input cards and up to 3 audio output cards are supported. Each analogue audio input card can accept up to 32 channels with the digital input cards handling up to 32 AES pairs (64 digital channels). **The maximum number of audio input channels (from any source) supported is 1152**.



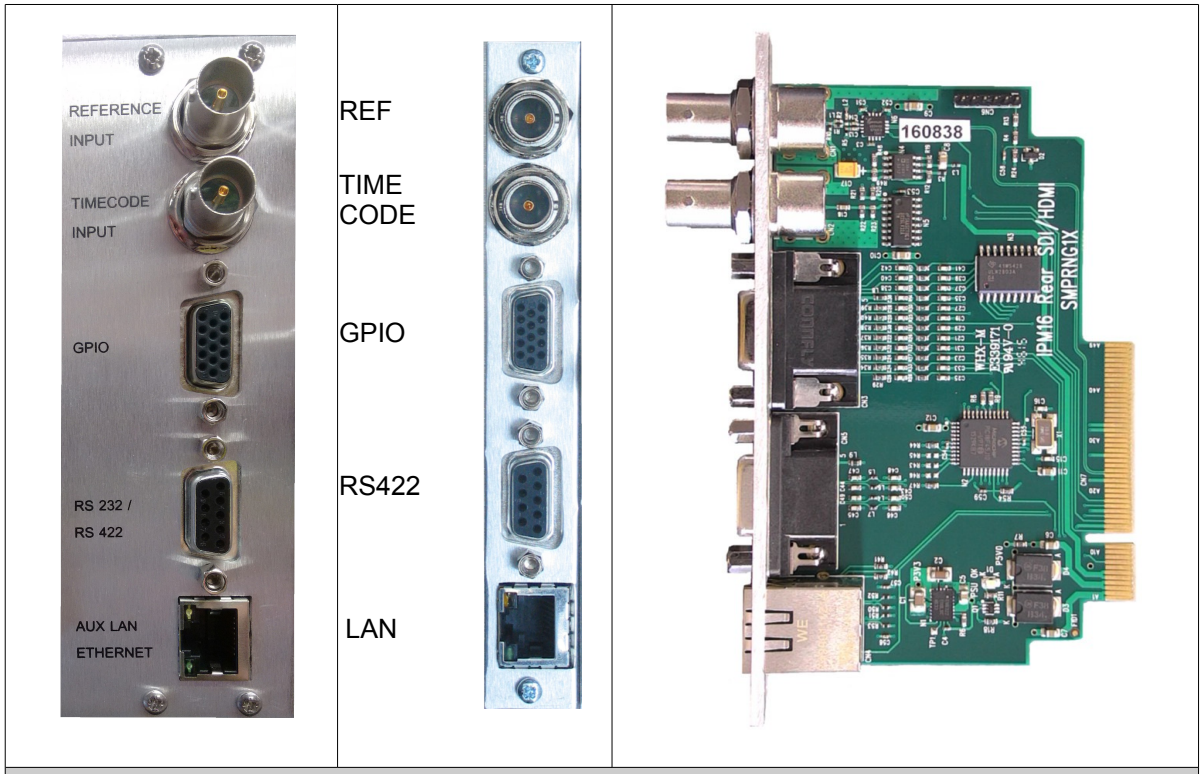
Front view showing 544 analogue or 1088 digital channels to be monitored on up to 4 screens

SMP-xx and MP-xx Key Features

- **Modular multi-viewer family available in a 1U and 3U chassis**
- **SMP-xx frame has a maximum capacity of 32 input channels when used as a single multi-viewer or it can be configured to support two independent multi-viewers within the same chassis**
- **MP-xx frame has a maximum capacity of 144 input channels when used as a single multi-viewer or it can be configured to support multiple independent multi-viewers within the same chassis**
- **Two independently configurable HDMI (or DVI) outputs with paired SDI outputs up to 4K60 per multi-viewer instance**
- **Support for 4K60 inputs via quad-link, dual 6G or direct 12G SDI**
- **Dedicated analogue and digital audio input/output cards available**
- **SMP-xx-R frame has two router matrices offering non-blocking routing for multi-viewer inputs AND a stand-alone SDI router**
- **Genlocked inputs for flicker-free and full frame operation**
- **Teletext subtitles display (WST on SD-SDI or OP-47 on HD-SDI)**
- **AFD decoding for adjusting aspect ratio**
- **D-VITC and ancillary time code decoding and display (SDI/HD-SDI sources only)**
- **Audio metering is supported for up to 32 channels per video tile**
- **Audio metering may be sourced from SDI / HD-SDI embedded audio groups (PCM or Dolby E metadata meter segment), or externally via optional analogue and AES/EBU (with SRC) interfaces**
- **Front panel mounted stereo audio socket for use as an assignable analogue audio monitor output**
- **Front panel mounted OLED display offering chassis and card status updates**
- **Alarms for video, audio and metadata, with outputs to, GPI O/Ps, LAN and/or SNMP traps**
- **Daily log files in CSV format accessible via LAN**
- **Input standard decode available as on-screen caption**
- **Assignable tallies**
- **Under Monitor Displays (UMD) entered via keyboard, LAN or serial cable, supporting Open, TSL and SAM protocols**
- **Clock display receiving time information via NTP network protocol or LTC**
- **SMP-xx(-R) and MP-xx lightweight compact designs are both ideal for OB-vans and other space restricted installations**
- **Low noise - temperature controlled fan speed**
- **Optional external backup power supply**
- **User-friendly set-up via browser software**

MPX-RNG (network) rear

This is the only rear that has a different mechanical format between the 1U and 3U Frames. The signal connectivity is identical, the only difference is the 3U version has a wider rear plate. All other rears are identical in form and functionality and can be used in either sized frame.

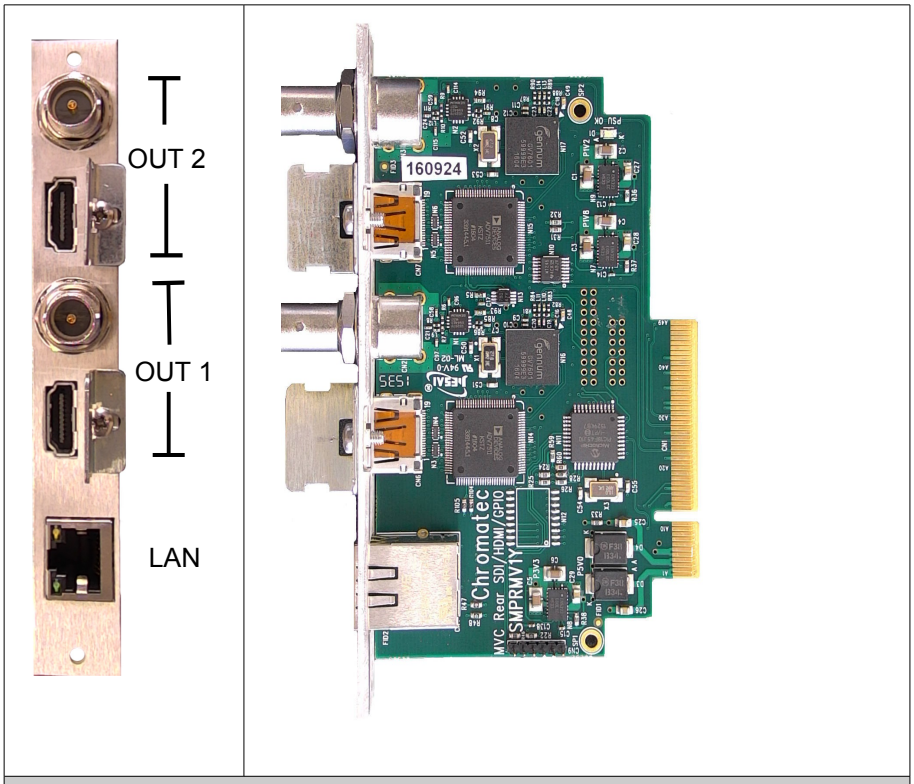


***MPX-RNG** rear (connectors and pcb)*

FRAME COMPATIBILITY			ASSOCIATED CARD
SMP-xx	SMP-xx-R	MP-xx	NET
√	√	√	√

RMP-MVC rear

This is a 2K output rear **Two independent video outputs are provided via each HDMI connector**, each of which is paired with a BNC providing a slaved SDI output. HDMI and SDI outputs contain embedded audio. A standard RJ45 connector is provided as a LAN connection from which the multi-viewer browser control application is accessed.

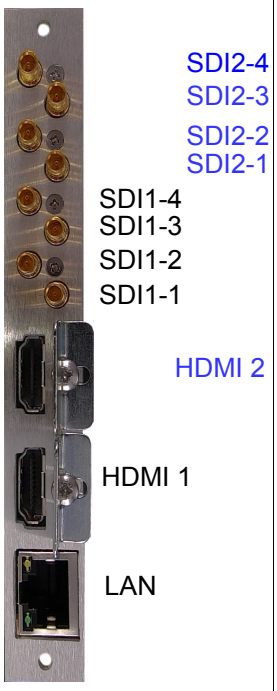


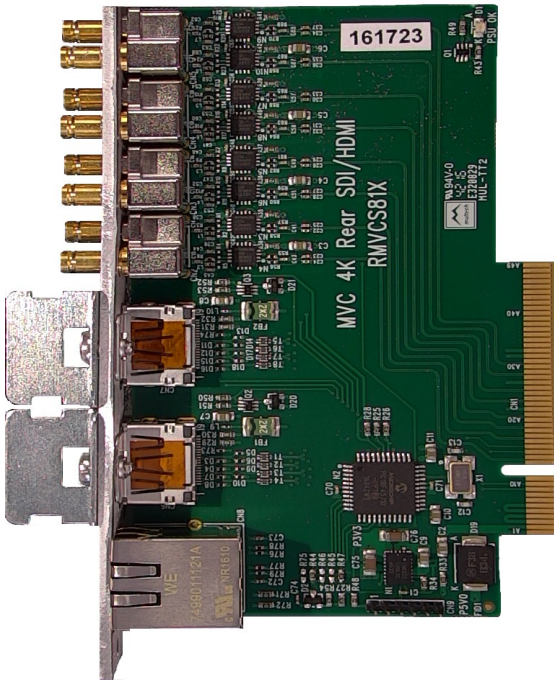
***RMP-MVC** rear (connectors and pcb, shown here with H-Lok HDMI retention brackets)*

FRAME COMPATIBILITY			ASSOCIATED CARD	OTHER CARDS THAT CAN BE USED IN THE FRAME WITH THIS REAR			
SMP-XX	SMP-XX-R	MP-XX	MVC	NET	VIP3	VIP4	AIP/AOP
√	√	√	√	√	√	X	√

RMP-MVCS8-MBNC rear

This is a 4K capable output rear fitted with two Type A HDMI connectors **Two independent 4K video outputs are provided via each HDMI connector**, each of which is paired with four of the micro-BNC coax connectors providing quad-link 12G SDI outputs. HDMI and SDI outputs contain embedded audio. A standard RJ45 connector is provided as a LAN connection from which the multiviewer browser control application is accessed.



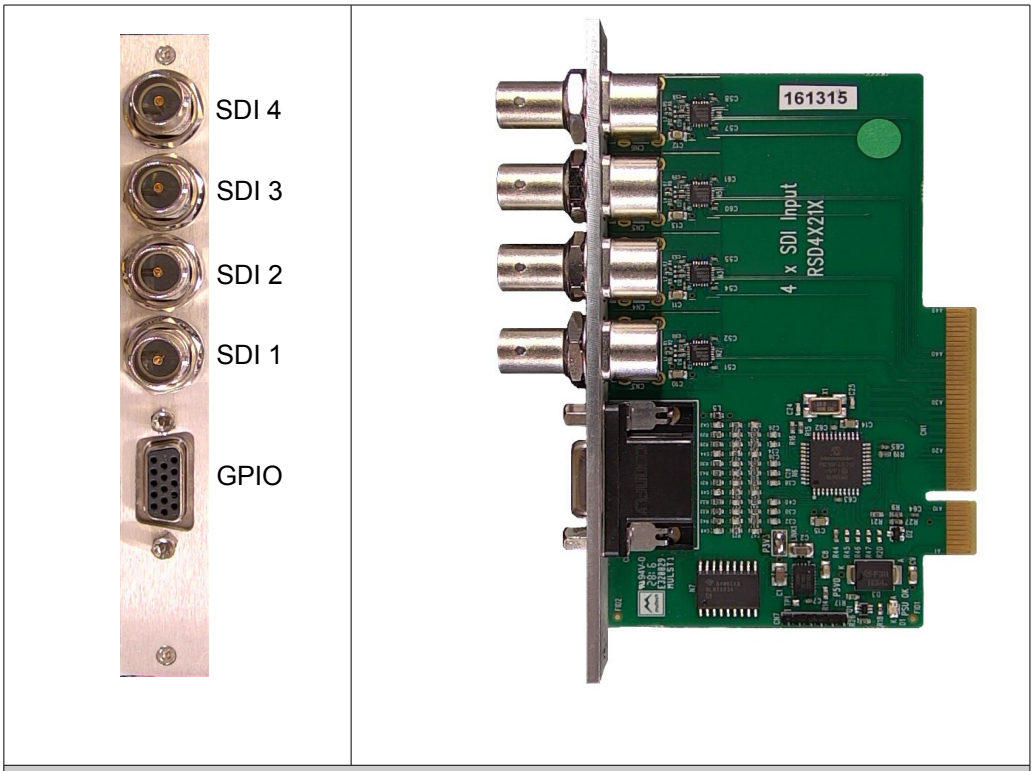


***RMP-MVCS8-MBNC** rear (connectors and pcb, shown here with H-Lok HDMI retention brackets)*

FRAME COMPATIBILITY			ASSOCIATED CARD	OTHER CARDS THAT CAN BE USED IN THE FRAME WITH THIS REAR			
SMP-XX	SMP-XX-R	MP-XX	MVC2	NET	VIP3	VIP4SD	AIP/AOP
√	√	√	√	√	X	√	√

RMP-SD4 rear

With four BNC connectors capable of accepting up to 3G SDI inputs and a 15 way D-type GPIO connector.



***RMP-SD4** rear (connectors and pcb)*

FRAME COMPATIBILITY			ASSOCIATED CARD	OTHER CARDS THAT CAN BE USED IN THE FRAME WITH THIS REAR				
SMP-XX	SMP-XX-R	MP-XX	VIP3	NET	MVC2	MVC	VIP4	AIP/AOP
√	X	√	√	√	X	√	X	√

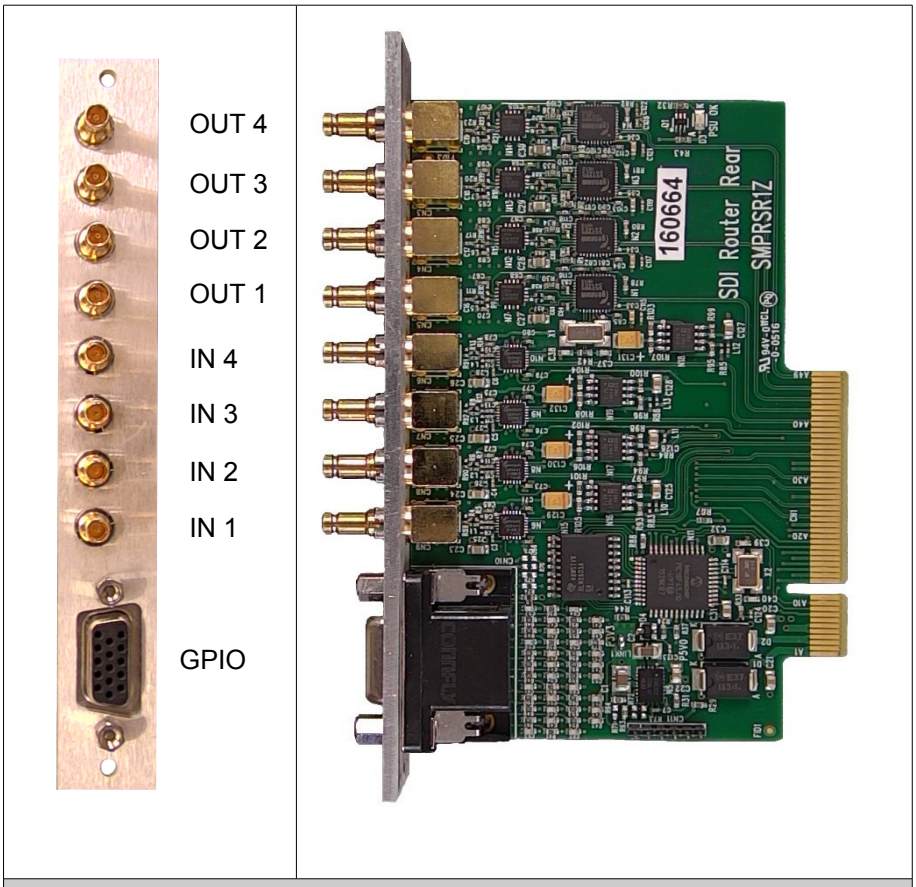
INPUTS SUPPORTED			
VIDEO CARD	SD-60	HD-60/ FHD-30	FHD-60
VIP 3	√	√	√

NOTES:

Primarily designed to work with the four channel VIP3 processing cards either for use in SDI only architectures or in mixed signal environments alongside the **RMP-HM4** and **RMP-CV4**.

RMP-SD4R rear

Designed for the SMP-xx-R, the SD4R, is available fitted with eight miniature bncs offering four 3G SDI inputs and four 3G SDI outputs. A 15 way GPI/O connector is also included.



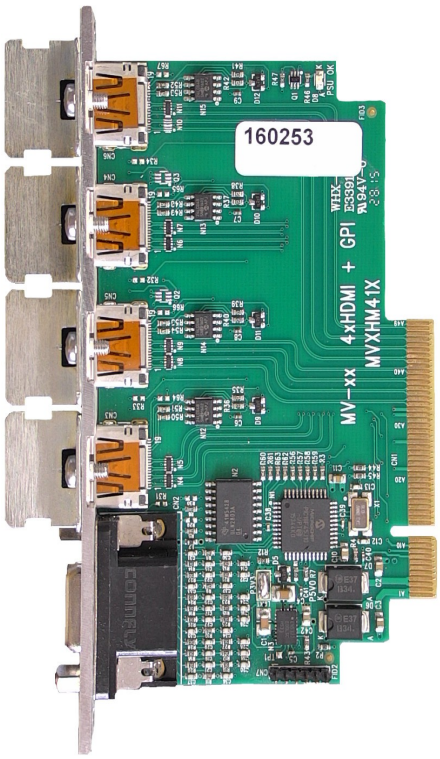
***RMP-SD4R** rear (connectors and pcb)*

FRAME COMPATIBILITY			ASSOCIATED CARD	OTHER CARDS THAT CAN BE USED IN THE FRAME WITH THIS REAR				
SMP-XX	SMP-XX-R	MP-XX	VIP3	NET	MVC2	MVC	VIP4	AIP/AOP
X	√	X	√	√	X	√	X	√

INPUTS SUPPORTED				OUTPUTS SUPPORTED		
VIDEO CARD	SD-60	HD-60/ FHD-30	FHD-60	SD-60	HD-60/ FHD-30	FHD-60
VIP 3	√	√	√	√	√	√

RMP-HM4 rear

Where source equipment is fitted with HDMI outputs, the HM4 offers four Type A HDMI inputs along with a 15 way GPI/O connector.



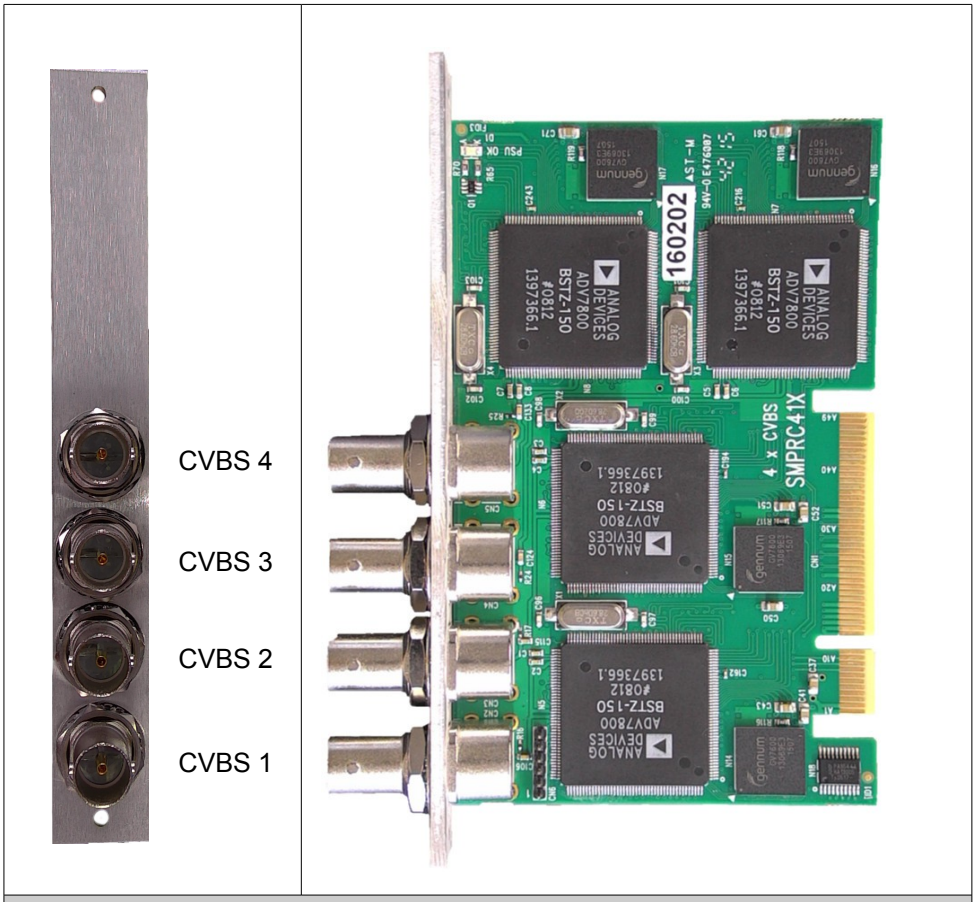
RMP-HM4 *rear (connectors and pcb, shown here with H-Lok HDMI retention brackets)*

FRAME COMPATIBILITY			ASSOCIATED CARD	OTHER CARDS THAT CAN BE USED IN THE FRAME WITH THIS REAR				
SMP-XX	SMP-XX-R	MP-XX	VIP3	NET	MVC2	MVC	VIP4	AIP/AOP
√	X	√	√	√	X	√	X	√

VIDEO CARD	HDMI STANDARDS				
VIP3	**SVGA (800x600 @ 60Hz)**	√	VIP3	**1280x720 @ 60Hz**	√
VIP3	**XGA (1024x768 @ 60Hz)**	√	VIP3	**1366x768 @ 60Hz**	√
VIP3	**SXGA (1280x1024 @ 60Hz)**	√	VIP3	**960x540 @ 60Hz**	√
VIP3	**UXGA (1600x1200 @ 60Hz)**	√	VIP3	**720x480 @ 60Hz**	√
VIP3	**1400x1050 @ 60Hz**	√	VIP3	**1920x1080 @ 60Hz**	√
VIP3	**852x480 @ 60Hz**	√	VIP3	**1920x1080 @ 25,30Hz (interlaced)**	√

RMP-CV4 rear

For use with with composite inputs only, the CV4 is designed for cvbs applications providing four independent inputs via BNC connectors. State of the art CVBS decoders use frame comb decoding techniques to provide optimum separation of luminance and chrominance components and is ideally suited to CCTV applications or where the input source requires time base correction.



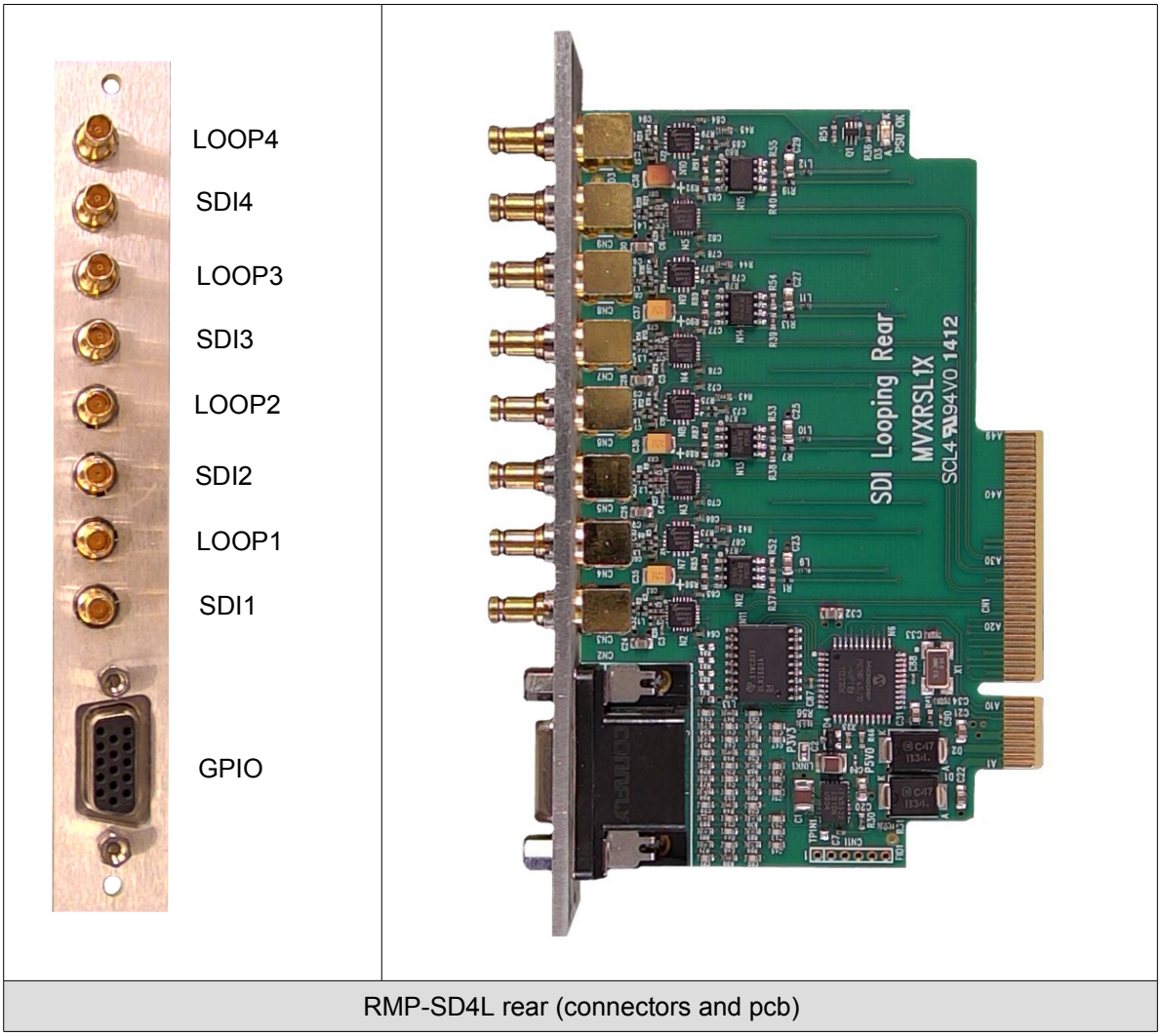
***RMP-CV4** rear (connectors and pcb)*

FRAME COMPATIBILITY			ASSOCIATED CARD	OTHER CARDS THAT CAN BE USED IN THE FRAME WITH THIS REAR				
SMP-XX	SMP-XX-R	MP-XX	VIP3	NET	MVC2	MVC	VIP4	AIP/AOP
√	X	√	√	√	X	√	X	√

INPUTS SUPPORTED	
VIDEO CARD	CVBS
VIP 3	√

RMP-SD4L rear

Utilising eight 3G SDI micro-BNC coax connectors, this rear has a loop-through output on each of its four video inputs in order to ease connectivity issues where space is at a premium. A 15 way GPI/O connector is also included.



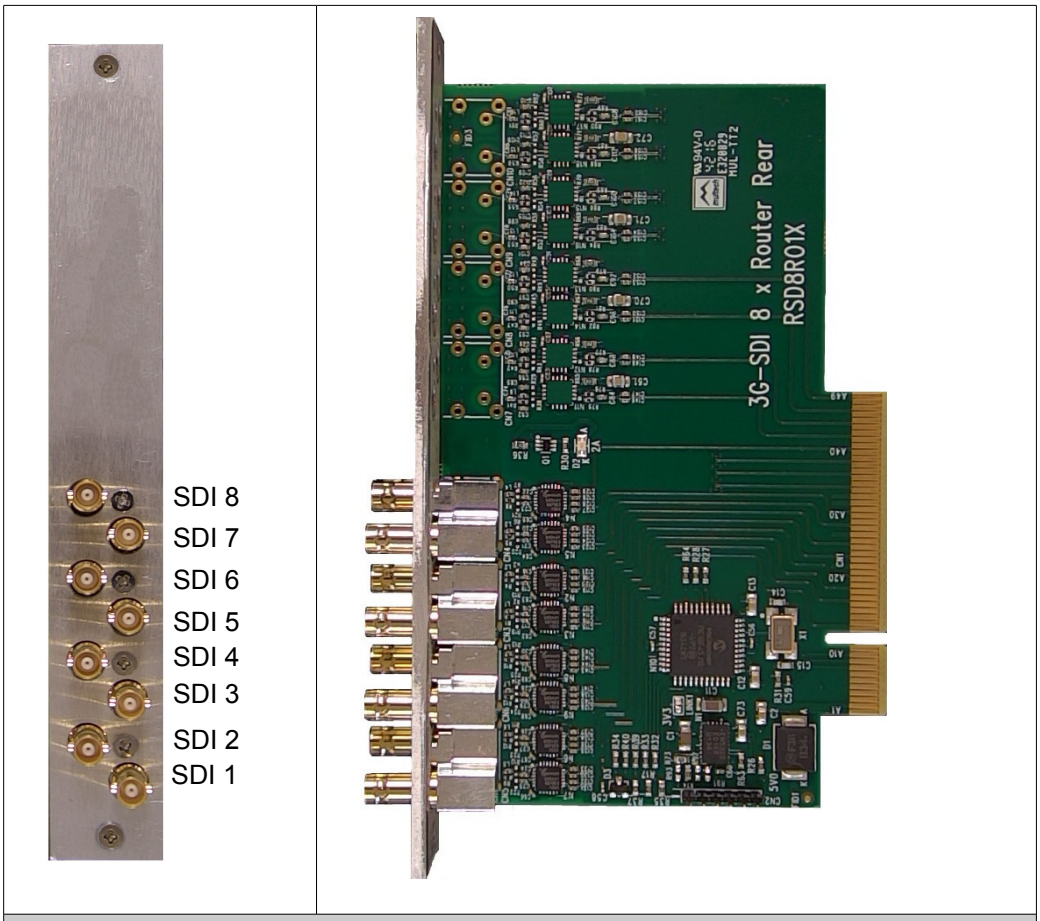
RMP-SD4L rear (connectors and pcb)

FRAME COMPATIBILITY			ASSOCIATED CARD	OTHER CARDS THAT CAN BE USED IN THE FRAME WITH THIS REAR				
SMP-XX	SMP-XX-R	MP-XX	VIP3	NET	MVC2	MVC	VIP4	AIP/AOP
√	NO	√	√	√	X	√	X	√

INPUTS SUPPORTED				OUTPUTS SUPPORTED		
VIDEO CARD	SD-60	HD-60/ FHD-30	FHD-60	SD-60	HD-60/ FHD-30	FHD-60
VIP 3	√	√	√	√	√	√

RMP-SD8 rear

Paired with VIP4 processing cards, this rear allows up to eight 3G SDI inputs via micro-BNC coax connectors. This signal architecture allows up to eight single **3G** inputs, or up to four dual-link **6G** inputs or two two quad-link **12G** inputs – or a combination of all three input types.



***RMP-SD8** rear (connectors and pcb)*

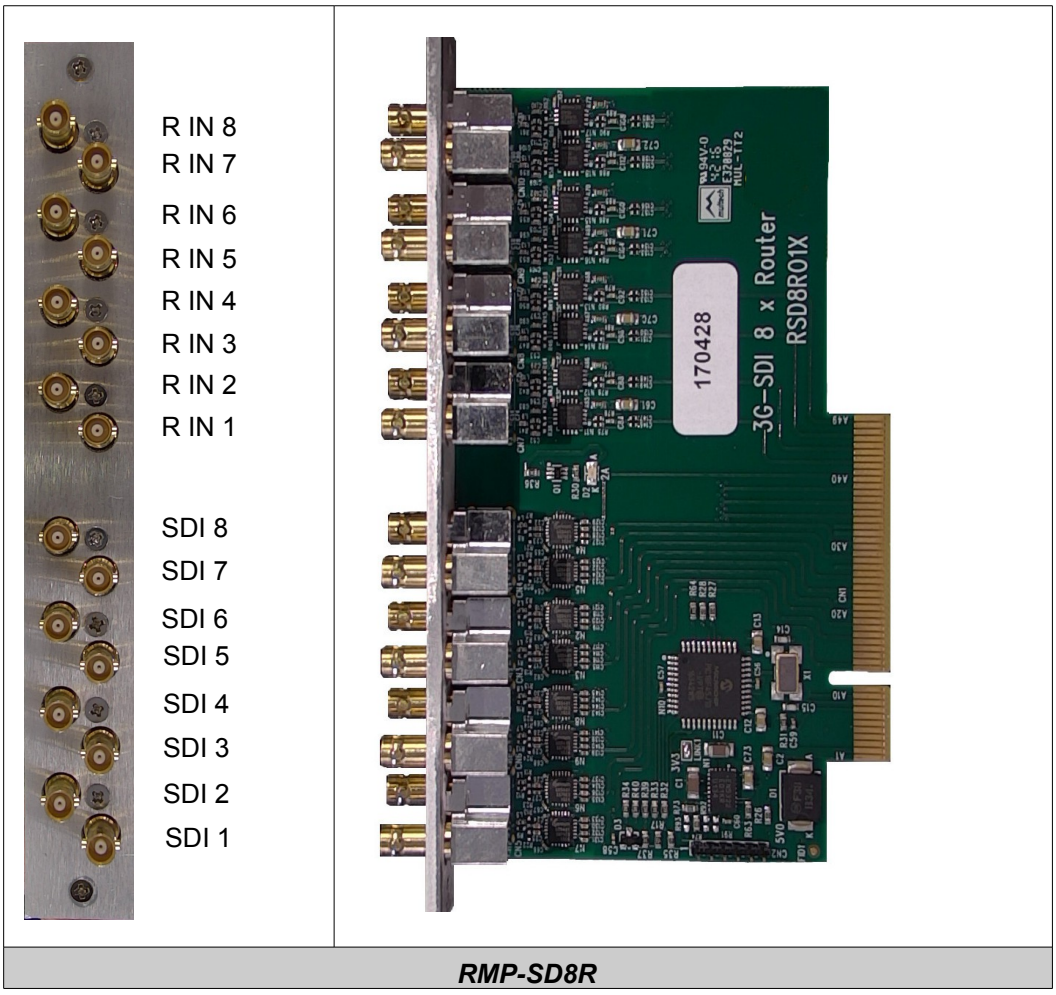
FRAME COMPATIBILITY			ASSOCIATED CARD	OTHER CARDS THAT CAN BE USED IN THE FRAME WITH THIS REAR				
SMP-XX	SMP-XX-R	MP-XX	VIP4	NET	MVC	MVC2	VIP3	AIP/AOP
√	X	√	√	√	X	√	X	√

INPUTS SUPPORTED					
VIDEO CARD	SD-60	HD-60/ FHD-30	FHD-60	UHD-30	UHD-60
VIP 4	√	√	√	√	√

RMP-SD8R rear

Paired with VIP4 processing cards, this rear allows up to eight 3G SDI inputs via micro-BNC coax connectors. This signal architecture allows up to eight single **3G** inputs, or four dual-link **6G** inputs or two two quad-link **12G** inputs – or a combination of all three input types.

The SD8R is designed to be used with the router based **SMP-xx-R** family.



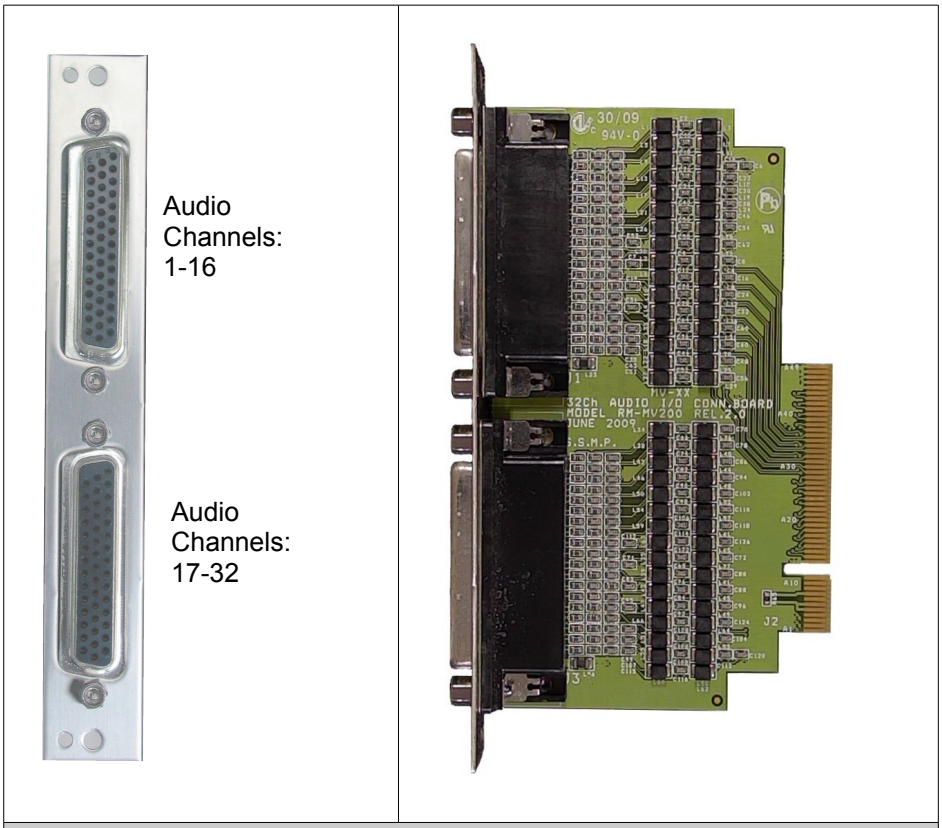
RMP-SD8R

FRAME COMPATIBILITY			ASSOCIATED CARD	OTHER CARDS THAT CAN BE USED IN THE FRAME WITH THIS REAR				
SMP-XX	SMP-XX-R	MP-XX	VIP4	NET	MVC	MVC2	VIP3	AIP/AOP
X	√	X	√	√	X	√	X	√

INPUTS SUPPORTED						ROUTER INPUTS SUPPORTED				
VIDEO CARD	SD-60	HD-60/ FHD-30	FHD-60	UHD-30	UHD-60	SD-60	HD-60/ FHD-30	FHD-60	UHD-30	UHD-60
VIP 4	√	√	√	√	√	√	√	√	√	√

RMP-A32 rear

Audio **input** or **output** rears are fitted with two high density 44 way female ‘D’ connectors supporting a total of 32 audio input channels (16 channels/connector). With the appropriate interface cable, the audio rear is capable of accepting analogue or digital audio signals.



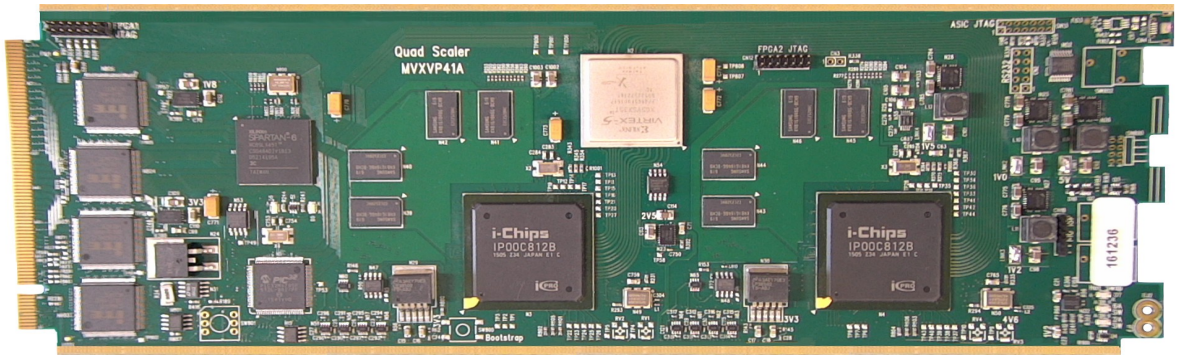
***RMP-A32** rear (connectors and pcb)*

FRAME COMPATIBILITY			ASSOCIATED CARD	OTHER CARDS THAT CAN BE USED IN THE FRAME WITH THIS REAR				
SMP-XX	SMP-XX-R	MP-XX	AIP/AOP	NET	MVC	MVC2	VIP4	VIP3
√	X	√	√	√	√	√	√	√

Processing cards

The **VIP3** video processing card provides 4 video inputs. With the appropriate rears fitted, the combinations of video input types supported are:

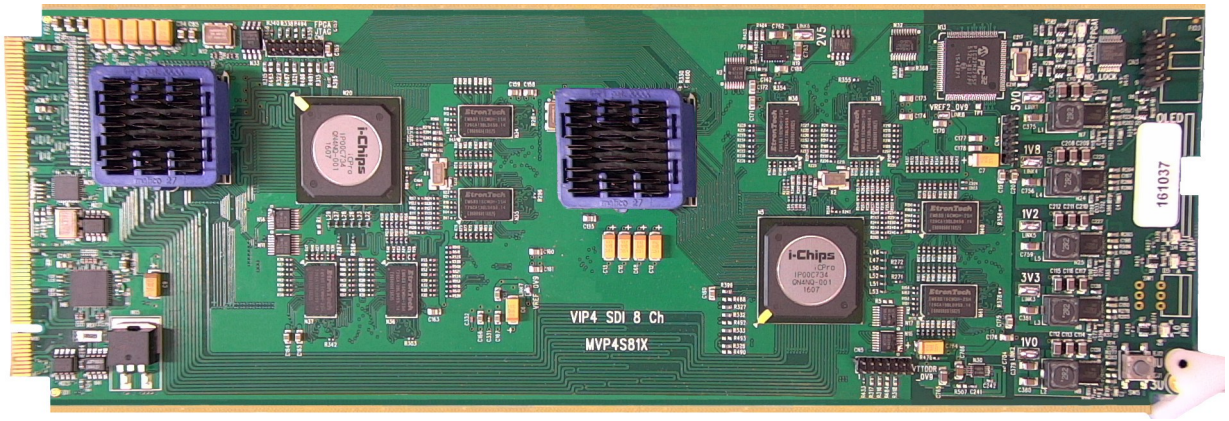
Input Supported	RMP-SD4	RMP-SD4R	RMP-SD4L	RMP-HM4	RMP-CV4
4x SD/HD/3G-SDI	√	√	√	X	X
4x HDMI up to 1920x1200 @ 60Hz	X	X	X	√	X
4x composite video	X	X	X	X	√



***MV-VIP3** pcb*

The **VIP4** video processing card utilises the latest generation of scaling technology in order to be able to process inputs up to 4K60. With the appropriate rears fitted, the combinations of video input types supported are:

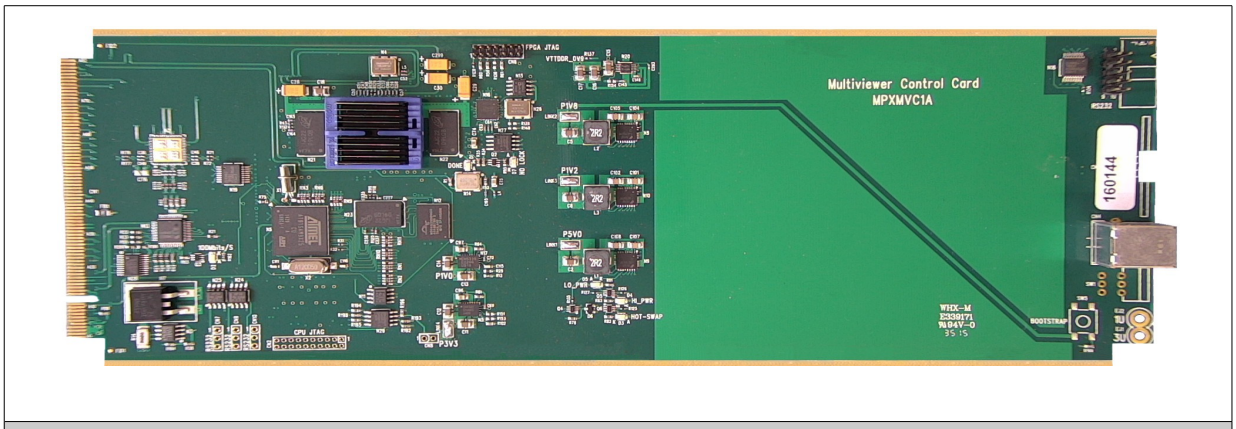
Input Supported	RMP-SD8	RMP-SD8R
Up to 8x SD/HD/3G-SDI	√	√
2x 4K60 quad-link (12G) SDI digital video	√	√
Up to 4x 4K30 dual-link (6G) SDI	√	√
4x 6G-SDI direct	√	√
2x 12G-SDI direct	√	√



***MV-VIP4** pcb*

VIP4- designed to work with the new 4K capable output rear **MPX-RMV2** and video output card **MPX-MVC2-SD** in order to provide the highest resolution 4K I/O solution.

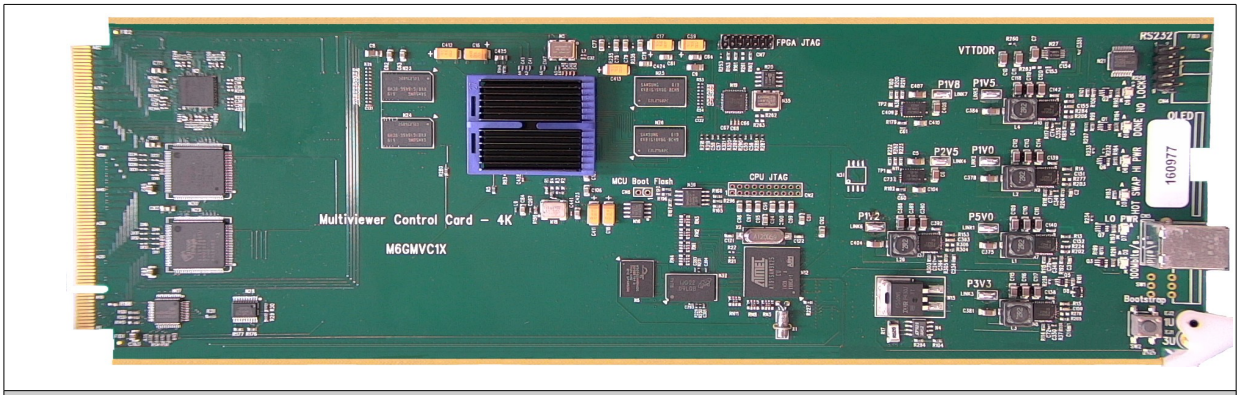
MPX-MVC can be combined with **VIP3** video processing cards to produce up to 2K60 outputs.



MV-MVC pcb

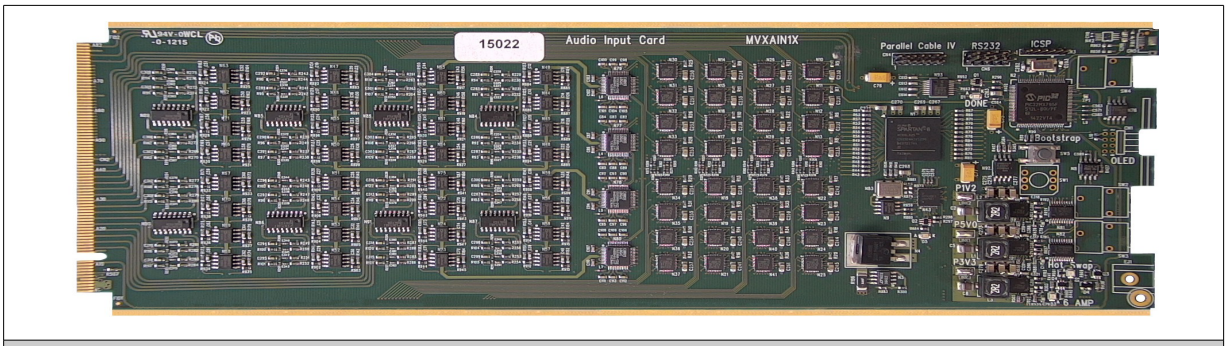
MPX-MVC2-LV can be combined with **VIP3** or **VIP4-LV** video processing cards to produce up to 4K30 outputs.

MPX-MVC2-SD can be combined with **VIP4-SD** video processing cards to produce up to 4K60 outputs.



***MV-MVC2-LV/SD** pcb*

• **AIPxxA** analogue only audio input cards (up to 32 channels)
• **AIPxxD** digital only audio input cards (up to 32 AES/EBU pairs) with sample rate conversion for maximum flexibility
• **AIP32AD** analogue and digital audio input cards (up to 32 channels/AES/EBU pairs)

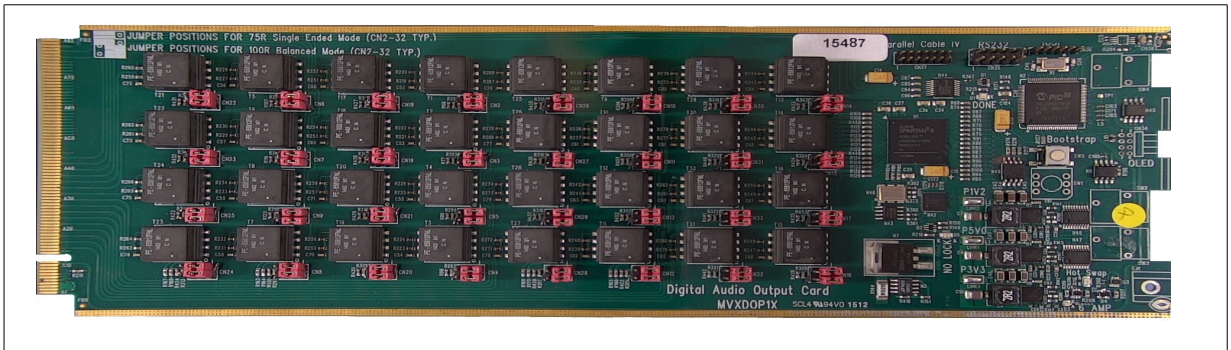


AIP32AD

The analogue and digital audio input cards are available in the following input configurations:

Analogue audio input card	Max. no. of channels supported	Digital audio input card	Max. no. of AES pairs supported (*Channels*)
AIP08A	8	**AIP08D**	8 (*16*)
AIP16A	16	**AIP16D**	16(*32*)
AIP32A	32	**AIP32D**	32(*64*)

• **AOPxxA** analogue audio output card capable of supporting up to 32 analogue channels
• **AOPxxD** digital output card that can support up to 32 AES/EBU pairs.



***AOP-32D** pcb*

The analogue and digital audio output cards are available in the following input configurations:

Analogue audio output card	Max. no. of channels supported	Digital audio output card	Max. no. of AES pairs supported (*Channels*)
AOP08A	8	**AOP08D**	8 (*16*)
AOP16A	16	**AOP16D**	16(*32*)
AOP32A	32	**AOP32D**	32(*64*)

Specifications

Main Frame SMP-xx and SMP-xx-R

Mechanical	**SMP-xx(-R) frame** – 1U high 19” Rack Mounting Frame with removable front panel, temperature controlled fan assisted ventilation, 6 card slots, separate rear connector modules and power supply / fan status indicators. The SMP-xx**-R** version is equipped with two SDI routers, one providing non-blocking multiviewer inputs, the other, when used with the appropriate rears, acts as an indpendeant non-blocking SDI router. Outline Dimensions~: 445mm(W) x 511mm(D) x 44mm(H) Weight: 6kg (full frame)	
Power	**Connectors:**	AC - Single IEC Mains Socket DC – Single 2-pole DC power socket
	Consumption:	Maximum power consumption 204W
	Input current rating	2.5A AC, 8.5A DC
	Fuses	1x 3.15A Fuse; 5x20mm ceramic body, Anti-surge/Time delay inside IEC socket
Environmental	**Operating Temperature**	0°C to 40°C
	Relative Humidity	70% max, non-condensing
	Ventilation	Fan assisted. Front Inlet, rear exhaust
Compliance	**EMC – Emissions**	EU: EN55103-1 USA: 47 CFR: 2009, Part 15, Sub-part B (Class A)
	EMC – Immunity	EU: EN55103-1
	Safety	EN: EN60950-1 USA: Tested to UL1419 (3rd Edition)
	Hazardous Material	UK: RoHS-6 – Complies with EU Directive
Front panel	Power supply and fan failure LED indicators on front panel 1 x OLED display and control knob 1 x USB type A port 1 x 6.35mm stereo audio socket	

Main Frame MP-xx

Mechanical	**MP-xx frame** – 3U high 19” Rack Mounting Frame with removable front panel, temperature controlled fan assisted ventilation, 20 card slots, separate rear connector modules and power supply / fan status indicators. Outline Dimensions~: 440mm(W) x 455mm(D) x 132mm(H) Weight: 10.5kg (full frame)	
Power	**Connectors:**	AC - Single IEC Mains Socket DC – Single 2-pole DC power socket
	Consumption:	Maximum power consumption 576W
	Input current rating	7A AC, 24A DC
	Fuses	1x 3.15A Fuse; 5x20mm ceramic body, Anti-surge/Time delay inside IEC socket
Environmental	**Operating Temperature**	0°C to 40°C
	Relative Humidity	70% max, non-condensing
	Ventilation	Fan assisted. Front Inlet, rear exhaust
Compliance	**EMC – Emissions**	EU: EN55103-1 USA: 47 CFR: 2009, Part 15, Sub-part B (Class A)
	EMC – Immunity	EU: EN55103-1
	Safety	EN: EN60950-1 USA: Tested to UL1419 (3rd Edition)
	Hazardous Material	UK: RoHS-6 – Complies with EU Directive
Front panel	Power supply and fan failure LED indicators on front panel 1 x OLED display and control knob 1 x USB type A port 1 x 6.35mm stereo audio socket	

VIDEO INPUT CARDS

VIP4

8 video inputs per card:		
SDI input standards supported:	SD-SDI (SMPTE259M 270Mb): 525/60, 625/60 HD-SDI (SMPTE292M 1.5Gbs) 3G-SDI (SMPTE424M Level A Mapping 3Gbs) 6G-SDI (SMPTE ST-2081 6Gbs). Inputs 1, 3, 5 and 7. 12G-SDI (SMPTE ST-2082 12Gbs) using quad-link or 12G direct using specific rears . Up to two 12G inputs/VIP4. SD-Analogue: Composite (CBVS 1V P-P) available on certain rears	
Embedded audio	Embedded audio derived from SDI (up to 16 channels per source) HDMI Dolby E meter segment metadata level metering (optional)	
Video Processing	Processing delay varies from 2-3 fields for interlaced video inputs, 2-3 frames for progressive video inputs, depending on timing relationship between the input and output.	
Alarms	**Video inputs**	Loss of sync, loss of luminance, freeze frame
	Audio inputs	Loss of embedded or external audio, over-level, out of phase channel pairs
	Metadata inputs	Loss of VITC (SDI only), loss of V-Chip (composite only), teletext (analogue only), subtitles, video non-sync detection
	Alarm indication	Visual (in display), GPI, LAN, SNMP traps
Metadata	**Decoding /monitoring**	Teletext (WST) subtitles (ITU-R BT.653-3) SD-SDI only OP-47 subtitles, SD- HD- 3G-SDI AFD driving aspect ratio (SMPTE 2016-2007), SD- HD- 3G-SDI WSS driving aspect ratio (ETSI EN 300 294), composite only D-VITC timecode display (SMPTE-12M-2008 VITC), SD-SDI only ATC timecode display (SMPTE-12M-2008 ATC), SD- HD- 3G-SDI

4 video inputs per card		
SDI input standards supported:	SD-SDI (SMPTE259M 270Mb): 525/60, 625/60 HD-SDI (SMPTE292M 1.5Gbs). 3G-SDI (SMPTE424M Level A Mapping 3Gbs) **SD-Analogue: Composite (CBVS 1V P-P) available on certain rears (please see the Summary of rear connector modules table): PAL, PAL-M, NTSC, NTSC-4.43, SECAM**	
HDMI input standards supported:	SVGA (800x600 @ 60Hz) XGA (1024x768 @ 60Hz) SXGA (1280x1024 @ 60Hz) UXGA (1600x1200 @ 60Hz) 1400x1050 @ 60Hz 852x480 @ 60Hz 1280x720 @ 60Hz 1366x768 @ 60Hz 960x540 @ 60Hz 720x480 @ 60Hz 1920x1080 @ 60Hz 1920x1080 @ 25,30Hz (interlaced) In addition to the above, the HDMI receivers will handle any resolution with a clock frequency in the range of 25MHz to 165MHz.	
Embedded audio	Embedded audio derived from SDI (up to 16 channels per source) HDMI Dolby E meter segment metadata level metering (optional)	
Video Processing	Processing delay varies from 2-3 fields for interlaced video inputs, 2-3 frames for progressive video inputs, depending on timing relationship between the input & output.	
Alarms	**Video inputs**	Loss of sync, loss of luminance, freeze frame
	Audio inputs	Loss of embedded or external audio, over-level, out of phase channel pairs
	Metadata inputs	Loss of VITC (SDI only), loss of V-Chip (composite only), teletext (analogue only), subtitles, video non-sync detection
	Alarm indication	Visual (in display), GPI, LAN, SNMP traps
Metadata	**Decoding /monitoring**	Teletext (WST) subtitles (ITU-R BT.653-3) SD-SDI only OP-47 subtitles, SD- HD- 3G-SDI AFD driving aspect ratio (SMPTE 2016-2007), SD- HD- 3G-SDI WSS driving aspect ratio (ETSI EN 300 294), composite only D-VITC timecode display (SMPTE-12M-2008 VITC), SD-SDI only ATC timecode display (SMPTE-12M-2008 ATC), SD- HD- 3G-SDI

AUDIO INPUT CARDS

Up to 64 audio Channels per card	
Analogue	Up to 32 Channels per card.
Digital	AES/EBU (up to 32 pairs (64 channels)/card with SRC (32kHz-192kHz re-sampled to 48kHz)
Analogue and Digital	Combined card that supports a combination of up to 64 channels

NETWORK CARDS

GPIO	Global port 8 inputs / 4 outputs per multiviewer (assignable).
LTC	SMPTE-12M unbalanced. >0.5Vpp

Signal Output Cards

MPX-MVC-SD

FOR USE WITH THE VIP4 ONLY				
2 x independent HDMI/DVI each with slaved SDI outputs				
Video Standards supported	HDMI output	With embedded audio	Slaved SDI output	With embedded audio
UHD 4K25 RGB 4:4:4 (3840x2160@25Hz)	✓	✓	✓[1]	✓
UHD 4K30 RGB 4:4:4 (3840x2160@30Hz)	✓	✓	✓[1]	✓
UHD 4K50 YCbCr 4:2:0 (3840x2160@50Hz)	✓	✓	✓[2]	✓
UHD 4K60 YCbCr 4:2:0 (3840x2160@60Hz)	✓	✓	✓[2]	✓

Notes:
1. SMPTE ST 2081-10 6Gbps supported
2. Depending on rear selected quad-link or SMPTE ST 2082-10 12Gbs supported

Audio Meter Scales and Ballistics

	Overall dynamic range:	Attack time:	Decay time:
NORDIC:	54dB (+12 to -42dB)	10mSec	1.7Sec per 20dB decay
DIN PPM:	55dB (+5 to -50dB)	10mSec	2.8Sec per 24dB decay (from "Mark 7" to "Mark 1")
BBC PPM:	24dB +3dB down "Mark 1" (+12 to-12dB)	10mSec	2.8Sec per 24dB decay (from "Mark 7" to "Mark 1")
VU:	23dB (+3 to -20dB)	300mSec	300mSec per 20dB decay
VU EXT:	60dB (+10 to -50dB)	300mSec	300mSec per 20dB decay
AES/EBU:	60dB (0 to -60dB)	< 5ms	1.5Sec per 20dB decay

Signal Output Cards

MPX-MVC

FOR USE WITH THE VIP3 ONLY				
2 x independent HDMI/DVI each with slaved SDI outputs				
Video Standards supported	HDMI output	With embedded audio	Slaved SDI output	With embedded audio
720p50 (1280x720@50Hz)	✓	✓	✓	✓
720p59.94 (1280x720@59.94Hz)	✓	✓	✓	✓
720p60 (1280x720@60Hz)	✓	✓	✓	✓
1080p50 (1920x1080@50Hz)	✓	✓	✓	✓
1080p59.94 (1920x1080@59.94Hz)	✓	✓	✓	✓
1080p60 (1920x1080@60Hz)	✓	✓	✓	✓
XGA (1024x768@60Hz)	✓			
SXGA+ (1400x1050@60Hz)	✓			
1600x1200@60Hz	✓			

Audio Meter Scales and Ballistics			
	Overall dynamic range:	Attack time:	Decay time:
NORDIC:	54dB (+12 to -42dB)	10mSec	1.7Sec per 20dB decay
DIN PPM:	55dB (+5 to -50dB)	10mSec	2.8Sec per 24dB decay (from "Mark 7" to "Mark 1")
BBC PPM:	24dB +3dB down "Mark 1" (+12 to-12dB)	10mSec	2.8Sec per 24dB decay (from "Mark 7" to "Mark 1")
VU:	23dB (+3 to -20dB)	300mSec	300mSec per 20dB decay
VU EXT:	60dB (+10 to -50dB)	300mSec	300mSec per 20dB decay
AES/EBU:	60dB (0 to -60dB)	< 5ms	1.5Sec per 20dB decay

MV HDMI and SDI video output standards

The following table summarises the video standards available from the two independent HDMI (or DVI) output connectors on the **RMP-MVC**, **RMP-DV2SD2** or **RMP-MVC2** rears along with the corresponding outputs on each of their slaved SDI connections.

Video outputs: 2 x independent HDMI each with slaved SDI outputs	HDMI output	With embedded audio	Slaved SDI output	With embedded audio
Using the **MPX-MVC** output card with the **VIP3** (please see the **Video outputs up to 4K** section for more details on card/rear combinations available)				
720p50 (1280x720@50Hz)	✓	✓	✓	✓
720p59.94 (1280x720@59.94Hz)	✓	✓	✓	✓
720p60 (1280x720@60Hz)	✓	✓	✓	✓
1080p50 (1920x1080@50Hz)	✓	✓	✓	✓
1080p59.94 (1920x1080@59.94Hz)	✓	✓	✓	✓
1080p60 (1920x1080@60Hz)	✓	✓	✓	✓
XGA (1024x768@60Hz)	✓			
SXGA+ (1400x1050@60Hz)	✓			
1600x1200@60Hz	✓			
Using the **MPX-MVC-LC/SD** output card with the **VIP3 or VIP4** (please see the **Video outputs up to 4K** section for more details on card/rear combinations available)				
UHD 4K25 RGB 4:4:4 (3840x2160@25Hz)	✓	✓	✓[1]	✓
UHD 4K30 RGB 4:4:4 (3840x2160@30Hz)	✓	✓	✓[1]	✓
UHD 4K50 YCbCr 4:2:0 (3840x2160@50Hz)	✓	✓	✓[2]	✓
UHD 4K60 YCbCr 4:2:0 (3840x2160@60Hz)	✓	✓	✓[2]	✓
Notes:**1**. SMPTE ST 2081-10 6Gbps supported **2**. Depending on rear selected quad-link or SMPTE ST 2082-10 12Gbs supported				
Processing delay varies from 2-3 fields for interlaced video inputs, 2-3 frames for progressive video inputs, depending on timing relationship between the input and output.				