

Platinum™ MX

Advanced Medium-Scale Routing



Platinum™ MX routing switchers combine a highly robust architecture with the flexibility required to future-proof your investment, delivering unsurpassed value for your mid-scale routing needs. All Platinum MX frames provide independent signal paths and crosspoints for audio and video, allowing complete versatility regardless of matrix size. Designed to support high-quality routing of all analog and digital video and audio signals, Platinum MX seamlessly integrates the capabilities of a discrete audio infrastructure in a fully embedded video plant without the need for a secondary audio frame.

In keeping with a tradition of innovation — the hallmark of Platinum routing systems — Harris introduces an eight-channel frame sync input card that allows up to eight wild video signals to be synchronized to house reference without the use of external frames or wiring. This optional card also will perform demultiplexing of up to 16 channels of embedded audio in each video stream, which can then be routed independently and discretely.

Created to support 24/7 operation, Platinum MX routing switchers are well-suited to network, local broadcaster, mobile production, cable, telco, military, government and corporate applications — any environment that requires routing of a large number of audio and video signals.

PRODUCT DETAILS

World's First True Embedded Audio Processing Router

Platinum MX combines the best of both high-bandwidth video signal routing and an internal TDM architecture to provide the world's first embedded audio infrastructure router. By providing parallel signal paths and dedicated, redundant crosspoints for both audio and video within a single frame, Platinum MX is able to de-embed incoming embedded audio signals internally. All audio within the frame is presented to the TDM M•A•X crosspoint, routed independently and discretely, and can be multiplexed within the router into any digital video output. Additionally, utilizing the TDM M•A•X crosspoint, Platinum can perform phase reversal, swap, sum and "quiet" breakaway switching of the audio between any discrete or embedded input, and provide gain/level adjustments on a per-channel basis. This ability to process and route both discrete and embedded audio within the Platinum frame eliminates the need for racks of external equipment and saves on space, cabling, troubleshooting and maintenance.

All the capabilities of a discrete audio infrastructure are now available with the straightforward wiring of an embedded plant. System designers can now reduce the number of modules and frames, and simplify wiring and system integration tasks while providing enhanced functionality for the end user.

FEATURES

- Mixed-signal routing (SD, HD, 3 Gb/s and audio)
 - Up to 72x64 video in 5RU (up to 144x128 discrete stereo/audio)
 - Up to 128x128 video in 9RU (up to 256x256 discrete stereo/audio)
- All Platinum frames have independent signal paths and crosspoints for video and audio
- Optional eight-channel frame sync input card for wild feed ingest and audio shuffling, as well as demultiplexing of up to 16 channels of embedded audio in each video stream
- Modular I/O in groups of eight provides support for either coaxial or fiber connectivity
- Front-loading, hot-swappable modules for 24/7 operation
- Redundant power supplies, controllers and signal paths
- Mux/demux audio processing support
 - Mux/demux 16 channels of audio per video stream
 - Full mono breakaway audio routing support
 - Seamless integration between demultiplexed and discrete audio
 - Multiplex 16 channels of audio into each video output
- Enhanced control and monitoring
 - Wide range of hardware control panels
 - Powerful control integration for easy setup and configuration
 - Software and web-based applications with user-configurable GUIs
 - Protocol support for CCS Navigator™, SNMP and third-party vendors
 - Secure access rights with restrictions by level, source and destination
- Video routing support
 - 1080p (3 Gb/s) signal routing (any size)
 - Almost any digital video signal from 3 Mb/s to 3 Gb/s including: HD-SDI, SD-SDI, ASI, SMPTE 310, SMPTE 305, etc.
 - SMPTE-compliant analog video supported via conversion to/from SD-SDI on I/O
- Discrete audio routing support
 - Digital audio signals including balanced and unbalanced AES
 - Analog stereo/mono audio via conversion to/from AES on I/O modules
 - Support for up to 16 embedded AES streams per video input
 - "Quiet switch" with transitions
- HView™ SX integrated internal multiviewer
 - 32 PiPs per HView SX module
 - Onscreen control
 - CC presence and text
 - Clocks and timers
 - Tallies and UMDs
 - Audio meters and phase

Enhanced Control and Monitoring

Harris router control systems make even the most complex router configuration simple and intuitive to implement and maintain. Among the powerful tools available for administering systems are low-level discovery of available hardware, allowing database creation and maintenance to be accomplished from the engineer's desk; and automatic, wizard-based creation of logical source assignments for demultiplexed audio levels. The DB Editor interface provides access to the Platinum MX router's distributed control architecture, which drives router frames and control surfaces without reliance on a centralized controller. Each Platinum MX frame features redundant control modules that store configuration information related to that frame in non-volatile memory, protecting your crucial configuration information and current routing status. This topology also allows control panel communication to be distributed throughout the facility, eliminating single points of failure.

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Integrated Multiviewer Support

Platinum MX is the only routing system in the marketplace to offer an integrated, internal multiviewer system. HView SX modules reside in the Platinum MX frame, seamlessly providing multiviewer support for all inputs coming into the router. Combining superior graphics, industry-proven architecture and integrated test and measurement tools, HView SX is a landmark development in multiviewer design and value. With multi-image processing, routing, superior graphics and an unrivaled monitoring toolkit all in one chassis, HView SX delivers a lower-cost solution, simpler system design and a more efficient use of space for broadcast video and audio monitoring, master control rooms, broadcast trucks and events. Each multiviewer output provides up to 32 discrete PIP (picture in picture) images that are controlled from the router control system in the same way as dedicated outputs, creating a user-friendly experience that is easily understood by operators.

SPECIFICATIONS

Specifications are subject to change without notice.

HD Digital Video Inputs (PM-HS-IB+)

Number of Inputs	8
Input Connector	BNC, 75 ohms per IEC 169-8
Impedance	75 ohms
Signal Type	SMPTE 424M*, SMPTE 292M, SMPTE 259M, SMPTE 344M, DVB-ASI, other <1 V pk-pk digital signals, 3 Mb/s to 3 Gb/s *tested using JBERT (PRBS 23 and pathogenic signal types); as new test equipment becomes available, further compliance testing will continue
Maximum Input Amplitude	880 mV
Nominal Input Amplitude	800 mV ±10%

SD Digital Video Inputs (PM-S-IB+)

Number of Inputs	8
Input Connector	BNC, 75 ohms per IEC 169-8
Impedance	75 ohms
Signal Type	SMPTE 259M, SMPTE 344M, DVB-ASI; Other <1 V pk-pk digital signals, 3 to 540 Mb/s
Maximum Input Amplitude	880 mV
Nominal Input Amplitude	800 mV ±10%

Balanced Digital Audio Inputs (PM-AEBT-IB)

Number of Inputs	16
Input Type	Balanced, transformer coupled
Input Connector	DB-25
Impedance	110 ohms
Signal Type	AES-3, AES frame rates 32 to 192 kHz, other 40% to 60% duty cycle digital signals from 2 to 25 Mb/s
Input Amplitude	0.2 V to 7 V pk-pk
Nominal Input Amplitude	5 V pk-pk ±1 V

Unbalanced Digital Audio Inputs (PM-AECT-IB)

Number of Inputs	16
Input type	AC, coupled
Input connector	BNC, 75 ohms per IEC 169-8 (via adapter)
Impedance	75 ohms
Signal Type	AES-3id, SMPTE 276M, AES frame rates from 32 to 192 kHz, other 40% to 60% duty cycle digital signals 2 to 25 Mb/s
Input Amplitude	0.1 to 2 V pK-pK
Nominal Input Amplitude	1 V pk-pk ±10%

Higher Reliability

Platinum MX routing frames are designed for harsh operation (including mobile truck environments) and feature front-loading, hot-swappable modules for ease of serviceability. Employing the latest technology, Platinum MX allows more functionality at lower power consumption, and is supported by redundant, load-sharing power supplies. Air-flow runs from front to back, with each fan individually replaceable without taking the system offline. For further reliability, Platinum MX I/O modules support either eight inputs or eight outputs, thereby limiting the number of signals affected by any one module. Each Platinum MX frame supports redundant control, and redundant cross-points are available in most configurations.

Analog Video Inputs (PM-DEC-IB)

Number of Inputs	8
Input Connector	BNC, 75 ohms per IEC 169-8
Impedance	75 ohms
Signal Type	NTSC, PAL
Input Coupling	DC, coupled
Maximum Input Amplitude	2 V pk-pk
Nominal Input Amplitude	1 V pk-pk +10%
Clamping	Automatic
Quantization	10 bits
Filter	5-line adaptive comb, notch or trap
Output Data Rate	270 Mb/s per SMPTE 259C
Frequency Response	±0.1 dB to 5.75 MHz
Differential Gain	<1%
Differential Phase	<1°
Signal-to-Noise Ratio	>65 dB
Bulk Delay	<80 microseconds, typical

Analog Audio Inputs (PM-ADCT-IB)

Number of Inputs	16
Input Type	Balanced
Input Connector	DB-44
Impedance	>20 k ohms
Signal Type	Stereo analog audio
Maximum Input Amplitude	+28 dBu
Full scale Adjustment Range	0 dBFS = +13 dBu to +28 dBu in 1 dB steps, ±0.5 dB
CMRR	>75 dB rejection @ 60Hz
Conversion Type	128x oversampling, 1-bit, delta-sigma
Resolution	24 bits
Sampling Rates	32 to 192 kHz using external AES reference 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz or 192 kHz using internal oscillators
Gain Stability	±0.01 dB
Frequency Response	±0.15 dB, 20 Hz to 20 kHz
Linearity Deviation	<±0.5 dB typical, <±1.0 dB worst case
THD+N	<0.01% @ 997 Hz, -1 dBFS = +23 dBu
Idle Channel Noise	<-100 dBFS CCIR-RMS, typical <-90 dBFS CCIR-RMS, worst case
Dynamic Range	>100 dB CCIR-RMS, typical >90 dB CCIR-RMS, worst case
Crosstalk	>90 dB isolation, 20 Hz to 20 kHz, all hostile (hostile channels driven at -1 dBFS = +23 dBu)

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HD Digital Outputs (PM-HSR-OBG+)

Number of Outputs	8
Output Connector	BNC, 75 ohms per IEC 169-8
Impedance	75 ohms
Signal Type	SMPTE 424M, SMPTE 292M, SMPTE 259M, SMPTE 344M, DVB-ASI Other <1 V pk-pk digital signals, 3 Mb/s to 3 Gb/s
Reclocking	Automatic for 2.970 Gb/s, 2.967 Gb/s, 1.485 Gb/s, 1.4835 Gb/s, and 270 Mb/s Bypass for all other rates between 3 Mb/s and 3 Gb/s
Output Amplitude	800 mV pk-pk ±10%
DC Offset	0 V ±0.5 V
Rise/Fall Times	400 to 1500 ps, for SMPTE 259M data rates <135 ps, for SMPTE 424M and 292M data rates
Overshoot	<10% of amplitude

SD Digital Outputs (PM-SR-OBG+)

Number of Outputs	8
Output Connector	BNC, 75 ohms per IEC 169-8
Impedance	75 ohms
Signal Type	Signal type SMPTE 259M, SMPTE 344M, DVB-ASI Other <1 V pk-pk digital signals, 3 to 540 Mb/s
Reclocking	Automatic for 270 Mb/s Bypass for all other rates between 3 and 540 Mb/s
Output Amplitude	800 mV pk-pk ±10%
DC Offset	0 V ±0.5 V
Rise/Fall Times	400 to 1500 ps
Overshoot	<10% of amplitude

Balanced Digital Audio Outputs (PM-AEBT-OB)

Number of Outputs	16
Output Type	Balanced, transformer coupled
Output Connector	DB-25
Impedance	110 ohms
Signal Type	AES-3 AES frame rates from 32 to 192 kHz Other 40% to 60% duty cycle digital signals from 2 to 25 Mb/s
Output Amplitude	5 V pk-pk ±1 V into 110 ohms load
DC Offset	0 V ±0.05 V
Rise/Fall Times	5 to 30 ns
Propagation Delay	<170 ns

Unbalanced Digital Audio Outputs (PM-AECT-OB)

Number of Outputs	16
Output Type	Unbalanced
Output Connector	BNC, 75 ohms per IEC 169-8 (via adaptor)
Impedance	75 ohms
Signal Type	AES-3id, SMPTE 276M, AES frame rates from 32 to 192 kHz, other 40% to 60% duty cycle digital signals from 2 to 25 Mb/s
Output Amplitude	1 V pk-pk ±10% into 75 ohms load
DC Offset	0 V ±0.05 V
Rise/Fall Times	30 to 44 ns
Propagation Delay	<170 ns

Analog Video Outputs (PM-ENC-OB)

Number of Outputs	8
Output Connector	BNC, 75 ohms per IEC 169-8
Impedance	75 ohms
Signal Type	NTSC, PAL
Output Amplitude	1 V pk-pk ±10%
Filtering	CCIR-601-compliant
Resolution	10 bits
Frequency Response	±0.05 dB to 5.2 MHz
Differential Gain	<0.8%
Differential Phase	<0.6°
Bulk Delay	<80 microseconds
Signal-to-Noise Ratio	(RMS) >65 dB unified — weighting
DC Offset	0 V ±0.025 V

Analog Audio Outputs (PM-DACT-OB)

Number of Outputs	16
Output Type	Balanced
Output Connector	DB-44
Impedance	66 ohms
Signal Type	Stereo analog audio
Maximum Output Amplitude	+28 dBu
Full Scale Adjustment Range	0 dBFS = +13 dBu to +28 dBu in 1 dB steps, ±0.5 dB
DC Offset	0 V ±0.05 V
Conversion Type	128x oversampling, fifth-order, delta-sigma
Resolution	24 bits
AES Frame Rates	32 to 192 kHz
Gain Stability	±0.01 dB
Frequency Response	±0.25 dB, 20 Hz to 20 kHz
Linearity Deviation	<±0.5 dB
THD+N	<0.01% @ 997 Hz, -1 dBFS = +23 dBu
Idle Channel Noise	<-100 dBFS CCIR-RMS
Dynamic Range	>100 dB CCIR-RMS
Crosstalk	>90 dB isolation, 20 Hz to 20 kHz, all hostile, typical (hostile channels driven at -1 dBFS = +23 dBu)

Physical

Dimensions (W x D x H)	5RU (PM-FR-5): 17.5 x 18.4 x 8.75 in. (44.5 x 46.7 x 22.2 cm)
	9RU (PM-FR-9): 17.5 x 18.4 x 15.75 in. (44.5 x 46.7 x 40 cm)
Weight Fully Loaded (approximately)	5RU (PM-FR-5): 68 lbs (31 kg) 9RU (PM-FR-9): 125 lbs (57 kg)

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ORDERING INFORMATION

Frame Components

PM-FR-5	Platinum MX 5RU frame assembly (includes -PS, -RES)
PM-FR-9	Platinum MX 9RU frame assembly (includes -PS, -RES)
PT-PS	AC redundant power supply
PT-FAN	Replacement fan
PT-ALARM	Replacement alarm module
PM-FR-5-DC	Platinum MX 5RU frame assembly with DC power (includes -PS, -RES)
PM-FR-9-DC	Platinum MX 9RU frame assembly with DC power (includes -PS, -RES)
PT-PS-DC	DC redundant power supply

Control Components

PT-RES	Resource controller module
PT-SNMP-128	SNMP license (per 128 inputs and outputs)

Cross-Point Modules

PM-40x32-3G5	Platinum MX 40x32 cross-point module for 5RU
PM-64x64-3G9	Platinum MX 64x64 cross-point module for 9RU
PM-72x64-3G5	Platinum MX 72x64 cross-point module for 5RU
PM-128x128-3G9	Platinum MX 128x128 cross-point module for 9RU
PM-64x64-X9	Platinum MX 64x64 3 Gb/s cross-point module for 9RU

TDM Cross-Point Modules

PM-ATDM9-X5	Platinum MX ATDM XPT for 9 slots audio in 5RU
PM-ATDM16-X9	Platinum MX ATDM XPT for 16 slots audio in 9RU

Input Modules

PM-HS-IB+	Platinum MX 8 HD-SDI input module with options and back plane
PM-S-IB+	Platinum MX 8 SD-SDI input module with options and back plane
PM-DEC-IB	Platinum MX 8 analog to SDI decoder input with back plane
PT-HSO-PIN-IB+	8-channel 3G/HD/SD/ASI fiber input board
PM-AECT-IB	Platinum MX 16 unbalanced AES input module with back plane
PM-AEBT-IB	Platinum MX 16 balanced AES input module with back plane
PM-ADCT-IB	Platinum MX 16 stereo to balanced AES input with back plane
PT-DMX	Demultiplexer daughter board for video signals up to 1.5 Gb/s
PT-DMX-3G	Demultiplexer daughter board for video signals up to 3 Gb/s
PT-FSDMX-IBG	Internal demultiplexer base board-frame sync-capable, coaxial connectivity for signals up to 3Gb/s
PT-FSDMXO-IBG	Internal demultiplexer base board-frame sync-capable; optical connectivity for signals up to 3Gb/s
PT-FSIB-OPT	License to enable frame sync capability on PT-FSDMX-IBG or PT-FSDMXO-IBG for signals up to 3Gb/s

Output Modules

PM-HSR-OBG+	Platinum MX 8 HD-SDI with reclock output green module with options and back plane
PM-SR-OBG+	Platinum MX 8 SD-SDI with reclock output module with options and back plane
PT-HSRO-OBG+	8-channel 3G/HD/SD/ASI fiber output board
PM-ENC-OB	Platinum MX 8 SDI to analog encoder output with back plane
PM-AECT-OB	Platinum MX 16 unbalanced AES output module with back plane
PM-AEBT-OB	Platinum MX 16 balanced AES output module with back plane
PM-DACT-OB	Platinum MX 16 balanced AES to stereo output with back plane
PT-MUX	Multiplexer daughter board for video signals up to 1.5 Gb/s
PT-MUX-3G	Multiplexer daughter board for video signals up to 3 Gb/s

Output Monitoring Module

PT-HSRAEC-OM	3 Gb/s HD-SDI output monitoring module
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Back Modules (included with front module but orderable separately)

PT-BLANK1-BP	1-slot blank/spacer back plane
PT-BLANK2-BP	2-slot blank/spacer back plane
PT-BLANK4-BP	4-slot blank/spacer back plane
PT-BLANK16-BP	16-slot blank/spacer back plane
PT-V-BP	8-BNC back plane (HSR, SR, ENC, DEC)
PT-A2-IBP	8-stereo audio input back plane
PT-A2-OBP	8-stereo audio output back plane
PT-AEB-IBP	8-balanced AES audio input back plane
PT-AEB-OBP	8-balanced AES audio output back plane
PT-AEC-IBP	8-unbalanced AES input back plane with cable
PT-AEC-OBP	8-unbalanced AES output back plane with cable
PT-CAB-AEC-BOC	8-unbalanced AES break-out cable
PT-A2-DTB	8-stereo break-out screw term. back plane
PT-A2-44MALEDB	8-stereo 44-pin male DB connector
PT-AEB-25MALEDB	8-AES 25-pin male DB connector

Service Options

90-Day Elite Care

PT-90-ELITE	90-day Elite ServicePAK — Enhanced Elite support for the first 90 days: includes on-call project expert, next-day advance exchange of parts, RemoteDialup support and one wrap-up and review session (excludes travel and expenses, actual charges billed using PS-TE-V-SVC)
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QuickStart Commissioning

- PT-SM-QS Mandatory 3-day QuickStart for 128X Platinum (includes travel and expenses)
*Applies to specific zones in Europe and Asia
- PT-SM-QSNT Mandatory 3-day QuickStart for 128X Platinum (excludes travel and expenses, which are billed separately)
- PS-TE-V-SVC Travel and expense charges for Harris support for video processing and distribution products

ServicePAK Agreements

- PT-SM-BASIC 1-year Basic ServicePAK for small (128X) Platinum router
- PT-SM-GOLD 1-year Gold ServicePAK for small (128X) Platinum router
- PT-RDOPT-BASIC 1-year Basic ServicePAK for Platinum redundant options (logic cards and power supplies)
- PT-RDOPT-GOLD 1-year Gold ServicePAK for Platinum redundant options (logic cards and power supplies)

Training Courses

- PT-OPS-OTR 2-day on-site Platinum operational training course (excludes travel and expenses)
- PT-OPS-FTR 2-day factory Platinum operational training courses (excludes travel and expenses)