

NVISION 8256-Plus

Digital/analog video router (3Gbps/HD/SD/ASI)



The NVISION 8256-Plus offers robust routing of 3Gbps/HD/SD/ASI signals for mission critical environments. A/D and D/A converter options are also supported for analog video inputs and outputs. The 8256-Plus offers patented N-on-1 redundant crosspoint technology and linear expansion up to 512x512, providing a unique scalable, field-proven solution. For new facility installations requiring fiber I/O, integrated audio processing or sizes up to 1152 x 1152, the NVISION 8500 family of routers is highly recommended (see page 354).

KEY FEATURES AND BENEFITS

Digital/analog video routing

- › 3Gbps (1080p and 3D Stereoscopic)
- › HD
- › SD
- › ASI
- › Analog video
- › Dolby E certified

Scaleable, expandable architecture

- › 256 x 256 in 22RU frame (plus 5RU power supply frame)
- › 512 x 512 in two 22RU frames (plus two 5RU power supply frames)

Unparalleled signal integrity

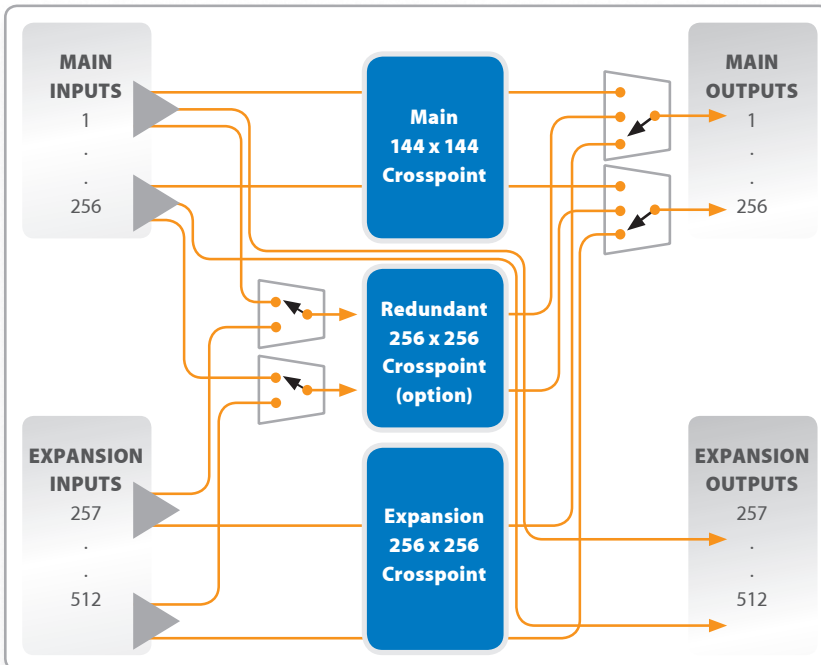
- › Designed for superior performance with coaxial cable for longer runs

Ultra-resilient design

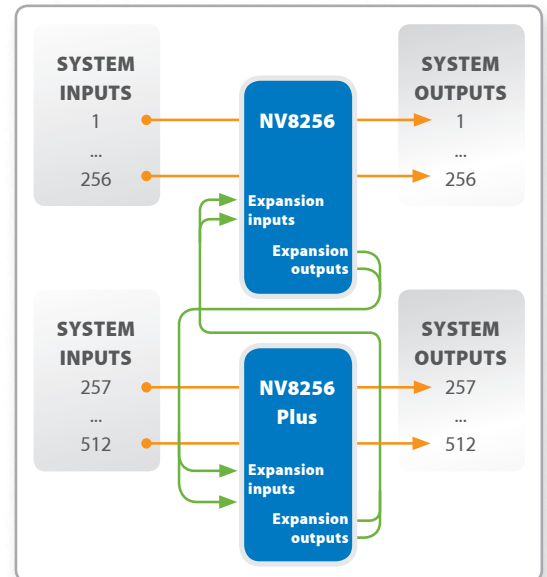
- › Patented N-on-1 crosspoint redundancy
- › Front loading with hot-swappable power supplies, input, output, controller and crosspoint modules, and speed controlled fans
- › Small failure block: input card block is 16, output card block is 16
- › SNMP support with integrated signal monitoring

Highly flexible automated/manual control

- › Wide range of remote control panels: traditional and PC GUI-based
- › Enhanced control when router used with NVISION 9000 control system - supports many third-party control system protocols
- › Simultaneous router control by external automation, facility control systems, and NVISION control systems
- › Operational consistency across NVISION product line



NVISION 8256-Plus schematic



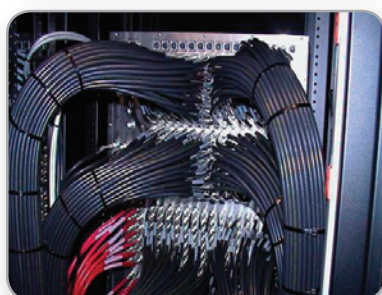
Expansion to provide 512 x 512 routing

NVISION 8256-Plus: resilience & scalability



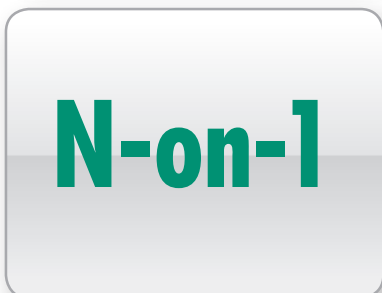
High density, scalable architecture

The NVISION 8256-Plus Enterprise Class digital/analog video router is readily expandable from 256 x 256 to 512 x 512, making it ideal for medium-to-large sized broadcast and post-production facilities with growing routing requirements. A single 22RU frame supports up to 256 x 256, and a second frame can be interconnected to grow the system up to 512 x 512 (non-blocking).



Linear expansion reduces total cost of ownership

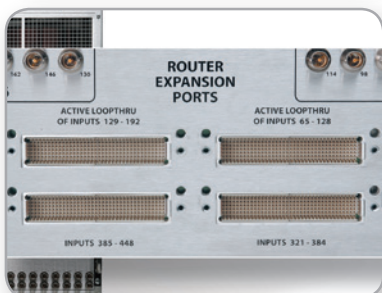
This expansion to 512 x 512 is achieved simply by adding the appropriate front plug-in modules. Linear expansion eliminates costly, space consuming external input distribution fan-outs, and output secondary switching altogether. It also removes the inherent termination problems of external passive splitters and combiners. The result is greater system signal integrity, with fewer signal errors and bigger loss budgets. High density packaging also maximizes the available rack space and simplifies the installation, without sacrificing functionality.



Multi-format flexibility

The NVISION 8256-Plus supports 3Gbps, HD, SD, and analog video signals in either 525 or 625 line formats. Each input and output module has 16 inputs and outputs to provide a low failure block. The 3Gbps support provides an upward migration path for high-bandwidth requirements like 1080p/60.

The router can accept any mix of digital/analog input and output modules. Analog input signals are decoded and converted to SDI with 10-bit resolution. Analog output modules convert and encode digitally switched SDI signals to analog with 10-bit resolution. This integrated conversion reduces costs, simplifies installation, and minimizes the rack space.



Unique fault-tolerant design

The NVISION 8256-Plus router is designed for reliability, fault tolerance and redundancy. All input and output modules, power supplies, controllers, and fans are front removable and hot-swappable. No rear cables need to be removed for servicing or maintenance. Additionally, power supplies are fully 1-on-1 redundant with continuous load sharing between the supplies.



Powerful router control

Field proven in hundreds of installations worldwide with millions of hours of continuous operation, the NVISION router control systems are ideal for mission critical applications. Designed to grow with your needs, the router control system offers a full complement of user interface options, along with full redundancy, and an easy-to-use Java based configuration editor.

The remote control panels include highly configurable hardware and virtual control panels. They provide all the features, functions and redundancy essential to address a broad range of applications, from the smallest television station to the largest uplink and origination centers (see page 338).

NVISION 8256-PLUS TECHNICAL SPECIFICATIONS

ELECTRICAL

AC input:	90-130/180-250 VAC, 50/60 Hz, auto-ranging
AC fuses:	Power supplies: 8A (HB0145-00), slow blow; 90-130 V, 6.3A (HB0031-00), slow blow, 180-250 V
AC connectors:	8, IEC 320 (one for each PS6000 module installed)
AC power:	PS6000, 660 W, one IEC 320
AC power usage:	Power based on PS6000 modules; 4 primary (4 optional redundant): 1, 175 W nominal (256 x 256 SD or SWB), power factor corrected
Power supply modules and module slots:	Required minimum number of PS6000 modules: 4 primary (4 optional redundant). One NV6257 power supply frame can power one router.
Power supply dimensions:	5RU high (8.75 inches, 222.2 mm) 19.0 in. (483 mm) wide 21.0 in. (533 mm) deep
Weight:	55 lbs (25 kg); 105 lbs (47.5 kg) fully loaded
DC power:	NVISION connector and DC cable: WC0085
Power supply alarm connection:	DB-25; reads each PS6000 status
Power supply monitor connection:	DB-25
Regulatory compliance:	UL Listed and CE compliant

MECHANICAL

Dimensions:	22RU (38.5 in., 998 mm) high 19.0 in. (483 mm) wide 18.0 in. (457 mm) deep
Weight:	132 lbs (60 kg); 328 lbs (149.1 kg) fully loaded
Mounting:	EIA 310-C, 19.0 in. (483 mm)
Grounding terminal:	Copper, accepts 14-6 AWG
Modules and module slots:	16 input cards, 16 input signals plus 16 expansion signals, 16 input filler cards, 16 expansion signals, 16 output cards, 16 signals each, 3 crosspoint cards (2 primary, 1 optional redundant), 2 control cards (1 primary, 1 optional secondary) 1 monitor card, 1 fan module

DIAGNOSTIC

Type:	Serial port
Standard:	SMPTE 207M, EIA-422/EIA-232, configurable
Connector:	2, DE-9

SERIAL CONTROL

Type:	Serial port (2 per control card)
Standard:	SMPTE 207M, EIA-422, configurable
Connector:	4, DE-9

ETHERNET

Type:	10/100 Base T
Standard:	IEEE 802.3
Protocol:	NVISION Ethernet protocol
Connector:	2, RJ-45

GSC NODE BUS

Type:	Serial
Standard:	Proprietary
Connector:	2, BNC, loop-thru, non-terminating pair
Impedance:	75 ohm

OUTPUT SIGNAL MONITOR

Type:	Standard definition and high definition digital video
Standard:	See related section of this specification for standard for each monitored signal type.
Connector:	BNC
Impedance:	75 ohm
Signal details:	See related section of this specification for details for each monitored signal type, including jitter, I/O levels and return loss

EXPANSION CONTROL

Type:	10B2 port
Standard:	See related section of this specification for standard for each signal type sent between routers
Connector:	2, BNC, loop thru
Impedance:	75 ohm
Signal details:	See related section of this specification for details for each signal type, I/O levels and return loss

EXPANSION I/Os

Type:	Proprietary
Standard:	See related section of this specification for standard for each signal type sent between routers
Connector:	8, proprietary, NVISION cable WC0056-00
Signal details:	See related section of this specification for details for each signal type, I/O levels and return loss

REDUNDANT CROSSPOINT CONTROL

Connector:	DB-25
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POWER SUPPLY MONITOR

Connector:	DB-25
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ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	0 to 40 °C
Relative humidity:	0 to 90 %, non-condensing

AUDIO REFERENCE INPUT

Type:	Serial digital audio
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Standard:	AES3 or AES3id
Sample rate:	48 kHz
Connector:	2, BNC or Phoenix
Impedance:	75 ohm or 110 ohm
Input level:	0.5 Vp-p to 2.0 Vp-p

VIDEO REFERENCE INPUT

Type:	Analog video reference
Standard:	PAL, NTSC, or Tri-Level Sync
Connector:	Loop-thru, BNC
Impedance:	75 ohm or Hi-Z
Input level:	0.5 Vp-p to 2.0 Vp-p
Input return loss:	≥ 30 dB to 5 MHz

SD INPUTS/OUTPUTS

Type:	Standard definition serial digital video
Standard:	SMPTE 259M and 344M
Data rates:	143, 177, 270, 360 or 540 Mbps or auto bypass
Auto reclocking:	Data rates pass-through, 10 Mbps to 540 Mbps
Connector:	BNC
Impedance:	75 ohm
Cable equalization:	350 m Belden 1694A, 200 m Belden 1855A, or equivalent cable, at 270 Mbps
Router path:	Non-inverting
Input and output return loss:	>15 dB, 5 to 540 MHz
Output level:	800 mVp-p +10 %
Output rise/fall time:	600 ps +10 %
Output overshoot:	<10 % of amplitude max
Output alignment jitter:	<0.2 UIpp from 1.0 kHz to 27 MHz
Output timing jitter:	<0.2 UIpp from 10 Hz to 1.0 kHz

(SD AND HD) INPUTS/OUTPUTS

Type:	High definition serial digital video
Standard:	SMPTE 259M, 344M and 292M
Data rates:	Auto reclocking at 143, 177, 270, 360, 540 Mbps and 1.483 and 1.485 Gbps or auto bypass
Data rates:	Pass-through at 10 Mbps to 1.5 Gbps
Connector:	BNC
Impedance:	75 ohm
Cable equalization:	150 m Belden 1694A, 85 m Belden 1855A, or equivalent cable, at 1.5 Gbps
Router path:	Non-inverting
Output level:	800 mVp-p +10b %
Input and output return loss:	>15 dB, 5 MHz to 1.5 GHz
Output rise/fall time:	≥270 ps
Output overshoot:	≥10 % of amplitude max
Output alignment jitter:	≥0.2 UIpp from 100 kHz to 150 MHz
Output timing jitter:	≥1.0 UIpp from 10 Hz to 100 kHz

NVISION 8256-PLUS TECHNICAL SPECIFICATIONS (continued)

INPUTS/OUTPUTS (3Gbps/HD/SD)

Type:	High definition serial digital video
Standard:	SMPTE 259M-C, 292M and 424M
Data rate:	Auto reclocking at 270 Mbps and 1.483, 1.485, 2.966, 2.970 Gbps or auto bypass
Data rate:	Pass-through at 10 Mbps to 3.0 Gbps
Connector:	BNC
Impedance:	75 ohm
Cable equalization	(for cables listed or equivalent cable): 400 m Belden 1694A, 250 m Belden 1855A 270 Mbps 150 m Belden 1694A, 100 m Belden 1855A at 1.5 Gbps 100 m Belden 1694A, 45 m Belden 1855A at 3.0 Gbps
Router path:	Non-inverting
Output level:	800 mVp-p ±10 %
Input and output return loss:	>15 dB, 5 MHz to 1.5 GHz >10 dB, 1.5 GHz to 3.0 GHz

Output rise/fall time:	≥135 ps
Output overshoot:	≥10 % of amplitude max
Output alignment jitter:	≥0.3 UIpp from 100 kHz to 300 MHz
Output timing jitter:	≥2.0 UIpp from 10 Hz to 100 kHz

ANALOG/DIGITAL VIDEO CONVERSION

Type:	Analog digital video
Standard:	NTSC, PAL analog composite video
Connector:	BNC
Impedance:	75 ohm
Level:	Vp-p, nominal
Common mode range:	±2 Vp-p
Frequency response (input):	±0.5 dB to 5.5 MHz (luminance)
Frequency response (output):	±0.2 dB to 5.5 MHz (luminance)

Luma/chroma delay:	<12 ns
Luma/chroma gain inequality:	<0.5 dB
Differential gain:	<0.3 %
Differential phase:	<0.3 °
Pedestal (input):	>75 dB unweighted
Pedestal (output):	>75 dB unweighted
Ramp (input):	>50 dB unweighted
Ramp (output):	>62.5 dB unweighted

TIME CODE REFERENCE INPUT

Type:	1 BNC, 1 Phoenix
Standard:	SMPTE 12M
Connector:	BNC terminating, Phoenix
Impedance:	75 ohm or 110 ohm

NVISION 8256 ORDERING INFORMATION

Frame

FR8256-PLUS	256 x 256 in a single 22RU expandable to 512 x 512 in 2 frames
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Crosspoint modules

8000P-XPT	NV8256 SWB 256 x 256 crosspoint module
8000P-3GIG-XPT	NV8256 3Gig 256 x 256 crosspoint module

Control card

8256-NV	NV8256 control card with NVISION protocol
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Other options

PS6000	Redundant power supply (4 required per system)
8000-MNTR	NV8256 SD/SWB monitor module
8000P-FAN 1	NV8256 spare fan tray

Video input

8000P-AVC-IN	NV8256 analog to SDI 16 input conversion module
8000P-SD-IN	NV8256 SDI 16 input module
8000P-SWB-IN	NV8256 SWB 16 input module
8000P-3GIG-IN	NV8256 3 Gig 16 input module

Video outputs

8000P-AVC-OUT	NV8256 SDI to analog 16 output conversion module
8000-SD-OUT	NV8256 SDI 16 output module
8000-SWB-OUT	NV8256 SWB 16 output module
8000-3GIG-OUT	NV8256 3 Gig 16 output module