SONY
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Production Switcher Systems

MVS-8000X
MVS-7000X
MVS-8000G/GSF
MVS-6000

The Striking Lineup Satisfying the Demands for Live and Post-production Solutions

Over the years, Sony's switchers have been widely accepted by a great number of users, and have acquired an extraordinary reputation for distinguished features and long-term reliability.

To satisfy the widest range of customer demands, Sony provides a broad lineup of digital switcher products that deliver unique solutions to both live and post-production environments.

Pursuing the ultimate multi-format system for today and tomorrow, Sony proudly introduced its true flagship model, the MVS-8000X. This high-end switcher system delivers 3D, 1080p/59.94/50, and 3 Gbps production capabilities, along with significant enhancements in operability and flexibility. The MVS-8000X switchers also have an unprecedented new feature - up to five[*1] M/E banks, each equipped with eight[*2] high-performance keyers.

With the MVS-8000X, broadcasters and post-production managers around the world can secure an optimal future strategy, harnessing highest quality along with highest return on investment.

Now, Sony introduces the MVS-7000X, the main model of its MVS-X Series designed for smaller configurations than the MVS-8000X switcher. The MVS-7000X maintains powerful features including eight[*2] high-performance keyers with

a 2.5D resizer and a newly enhanced variety of selectable Mix/Effect modes. Users can also install optional DME boards which offer visual effects of superb quality, equivalent to those of the MVE-9000. In addition, the MVS-7000X can be upgraded to HDTV, 1080P/59.94/50, 3D, and 3 Gbps production capabilities. Users can start with a standard-definition (SD) configuration.

[*1] Two M/E banks as standard.
[*2] Four keyers when the signal is 1080p.

MVS-8000X

MVS-7000X

MVS-8000G/GSF

MVS-6000

3D world
Created by Sony
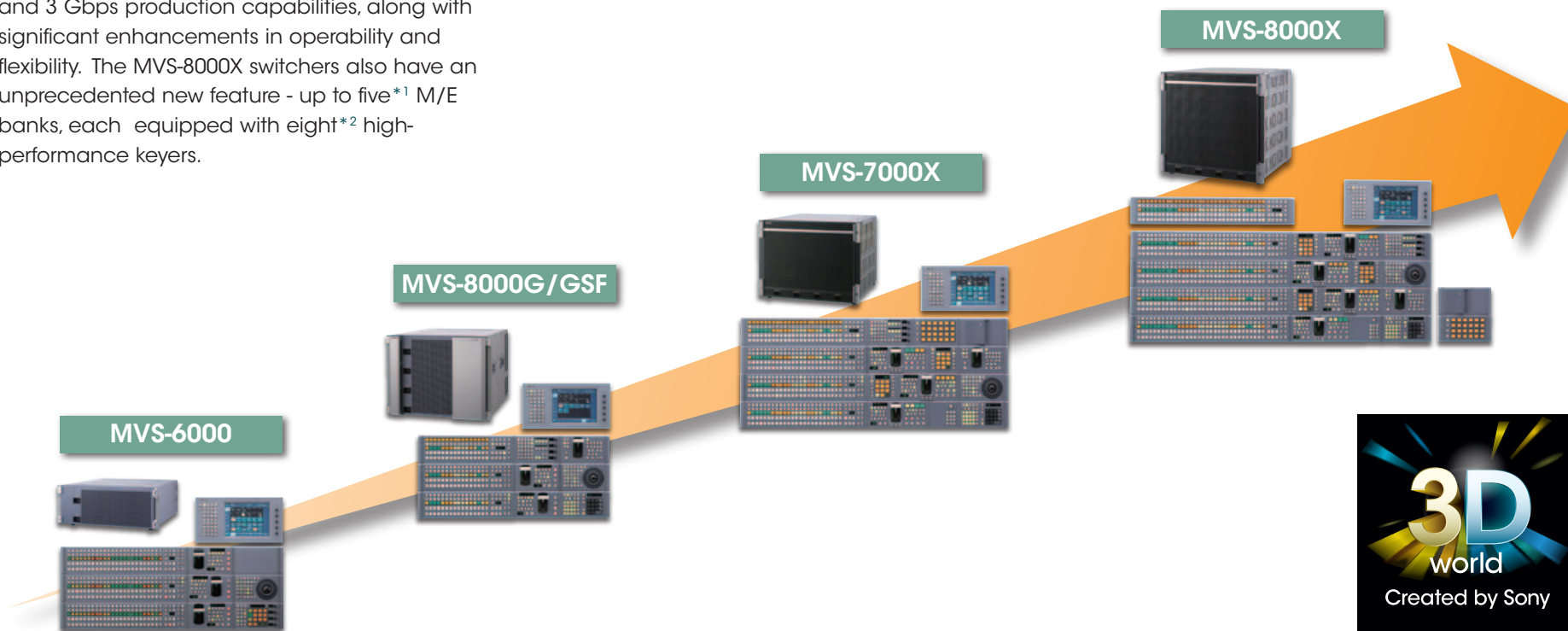
The MVS-6000 switcher extends the choice of switchers, and is packed with attractive features at an affordable price. It inherits an array of great characteristics and features from the epoch-making MVS Series, amassed through extensive user feedback and a series of incremental technology improvements.
The MVS-6000 utilizes sophisticated technologies such as a state-of-the-art image processor, built-in digital multi-effects (DME), 2.5D resizer function, clip transition effects, side flags function, and multi-format operation, all contained in a compact frame. It can be upgraded to multi-format configurations, and offers two types of simple and practical control panel. These customizable control panels are equipped with easy-to-read indicators and buttons, advanced networking with system peripherals, integrated control and maintenance, powerful M/E functions and effects, complete system scalability, and special features for use in mixed PC and AV environments.

Due to their common architecture, MVS-8000X, MVS-7000X, MVS-8000G/GSF and MVS-6000 switchers share the same control panels, remote panels, and peripherals. All of these switchers can be enhanced with two extremely powerful optional software packages: a plug-in editor, and system manager software.
With innovative operability, brilliant performance, and system flexibility, this wide array of switcher systems is set to inspire creativity in the broadest range of multi-format production applications.

Broad Lineup for Flexible Operation

MVS-8000X
Multi-format Switcher

The MVS-8000X production switcher is Sony's flagship model, providing optimal features for live production and post-production applications.

Equipped with leading technologies, the MVS-8000X switcher is particularly suited to stereoscopic 3D and 1080p/59.94/50 3 Gbps production. Each model offers a multi-format capability and, when combined with a wide array of optional modules, can be used for almost any application. The MVS-8000X offers the following stunning features for 1080p/59.94/50 and 3D production via a 3-Gbps interface. In addition, this switcher has sufficient inputs and outputs to support 1.5-Gbps left and right signals. Five ME processors realize top-end 3D production, including 2D and 3D mixture production.

- **Inputs:** Equipped with 200 inputs, including 144 primary inputs and 20 premium inputs
- **Outputs:** Equipped with 100 outputs, including 48 assignable outputs and 20 M/E-delegated outputs
- **Mix/Effect:**
  - 2 M/E banks standard
  - Up to 5 M/E banks available with the BZS-8200X
  - Multi-program 2 software, equivalent to 10 M/E banks
- **Keyers:**
  - 8 keyers per M/E bank (1080i/720p mode), 4 keyers per M/E bank (1080p mode)
  - Each keyer has a 2.5D resizer as standard; DME-function special effects are easy to use

• **High-definition**	1080p/59.94[*1], 1080p/50[*1] 1080i/59.94, 1080i/50 1080PsF/29.97, 1080PsF/25, 1080PsF/24, 1080PsF/23.976, 720p/59.94, 720p/50
• **Standard-definition**	480i/59.94 576i/50

*1 Requires BZS-8560X Switcher Upgrade Software sold sep.

MVS-7000X
Multi-format Switcher

The MVS-7000X production switcher is Sony's main production switcher model, and inherits powerful features from the MVS-8000X. It can be upgraded from standard-definition (SD) to an SD/HD multi-format configuration with the simple addition of optional software. Thus, users can start from SD and then, as required, upgrade to SD/HD multi-format.

Also, thanks to a powerful Mix/Effect mode selection feature, the MVS-7000X can be configured to meet user requirements with the minimal purchase of a mix/effect board. Users can also install optional DME boards which offer visual effects of superb quality - equivalent to those of the MVE-9000 - with variations including Spot Lighting and Texture Lighting without needing any external devices. These capabilities enable lower cost configurations without sacrificing quality.

The MVS-7000X switcher supports excellent stereoscopic 3D production. For fantastic picture quality, it also supports 1080p/59.94/50 production with BZS-7560X Switcher Upgrade Software. This enables users to take full advantage of HD production with features such as transition and keyer. Other optional additions include the MKS-7470X DME Board Set and MKS-7471X DME Board with BZS-7560X/7561X for 3D program production. Dual-link signals can be handled as a single source, without specific settings for each link.

The MVS-7000X switcher operates in any of the following formats:

• **High-definition**	1080p/59.94[*2], 1080p/50[*2] 1080i/59.94[*3], 1080i/50[*3] 1080PsF/29.97[*3], 1080PsF/25[*3], 1080PsF/24[*3], 1080PsF/23.976[*3], 720p/59.94[*3], 720p/50[*3]
• **Standard-definition**	480i/59.94 576i/50

*2 equires BZS-7560X Switcher Upgrade Software sold sep.

*3 Requires BZS-7500X/7510X/7520X/7530X Switcher Upgrade Software sold sep.

MVS-8000G/GSF
Multi-format Switchers

Production switchers in the MVS-8000G/GSF range provide flexible, powerful solutions. They can be upgraded from standard-definition (SD) to an SD/HD multi-format configuration with the simple addition of optional BZS-8500M/8510M software. They can also support excellent stereoscopic 3D production and 1080p/59.94/50[*4] production with optional BZS-8560 software, which enables 3D support and fully exploits high picture quality HD production.

Furthermore, combined with an optional signal processing unit (the PFV-SP3300 or PFV-SP3100) and signal converter boards (the HKSP-1530 or HKSP-3015), these switchers can be integrated into a 3 Gbps 1080p/59.94/50 stereoscopic 3D production system. MVS-8000G switchers can operate in any of the following formats:

• **High-definition**	1080p/59.94[*4], 1080p/50[*4] (MVS-8000G only) 1080i/60[*5], 1080i/59.94[*5], 1080i/50[*5] 1080p/30[*5], 1080p/29.97[*5], 1080p/25[*5] 1080p/24[*5], 1080p/23.976[*5] 720p/59.94[*5], 720p/50[*5]
• **Standard-definition**	480i/59.94 576i/50

*4 Requires BZS-8560 Switcher Upgrade Software sold sep.

*5 Requires BZS-8500M/8510M/8520M/8530M Switcher Upgrade Software sold sep.

MVS-6000
Multi-format Switcher

The MVS-6000 also provides a flexible solution for users to select between a standard-definition (SD) and multi-format configuration. This production switcher selectively supports the more commonly used signal formats as shown in the following chart:

• **High-definition**	1080i/59.94[*6], 1080i/50[*6], 720p/59.94[*6], 720p/50[*6]
• **Standard-definition**	480i/59.94, 576i/50

*6 Requires BZS-6540M/6550M Switcher Upgrade Software sold sep.

Powerful 3D Performance

Stereoscopic 3D Signal Production Capability (MVS-8000X MVS-7000X, and MVS-8000G/GSF)

Stereoscopic three-dimensional signal production is a key concern for everyone in broadcasting and the post-production industry these days. The MVS-8000X, MVS-7000X, and MVS-8000G/GSF are designed for three-dimensional production in a 3-Gbps or 1.5-Gbps dual-link system.

Left- and right-eye signals for 3D video are combined into a single 3-Gbps signal for both three-dimensional and 1080p production applications. Laborious link settings are simplified in the unique 3D mode. And, in Dual-stream mode, 2D signals and 3D signals can be assigned to crosspoint buttons.

When left- and right-eye signal combinations for 3D video are incorrect, they can be easily changed through menu operation. The depth of 2D graphics can be adjusted via the DME function on the newly designed parallax menu.

Sophisticated System Solution with Stereo-image Processing

To greatly simplify 3D production workflow, Sony offers a highly sophisticated system solution which combines the MPE-200 multi-image processor with optional MPES-3D01 stereo-image processor software.

3D Production Using Native 3 Gbps*[1] (MVS-8000X, MVS-7000X)

- Native 3 Gbps 1080p processing capability
- All input and output signals, and ME functions can be utilized for 3D production
- 3G signal transmission technology combines left- and right-eye signals in a single cable to reduce total cable weight
- No need for time-consuming settings; users simply assign combined signals
- MVE-8000A/MKS-7470X&7471X parallax & disparity effects can be used

3D Production Using 1.5 Gbps Dual Link*[1] (MVS-8000X, MVS-7000X, and MVS-8000G/GSF)

- 3D utility functions can be used in 1080i/720p mode
- Flexible crosspoint assignment
- Exchange, and parallax & disparity functions for left- and right-eye signals
- The number of input, output, and ME signals for 3D is half of the total number of signals (two signal lines are used for each 3D signal source).

*1 Requires upgrade software sold sep: BZS-8560X (for MVS-8000X), BZS-7560X (for MVS-7000X), BZS-7560X/7561X (for MVS-7470X/7471X), BZS-8560 (for MVS-8000G/GSF), or BZDM-8560 (for MVE-8000A).
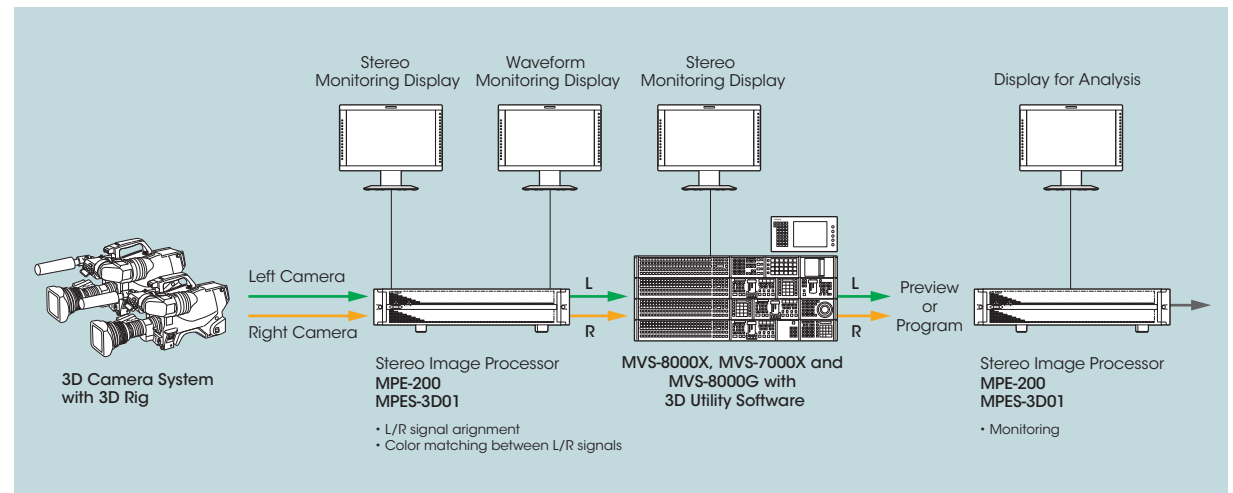

3D Input Configuration Menu Sample

Fig 1 3D production System Configuration Example

Flexibility for Today and Tomorrow

Scalable Processor Configurations

The processors of the MVS-8000X, MVS-7000, MVS-8000G/GSF, and MVS-6000 can be configured to suit the exact needs of each particular user in terms of operation, resolution, frame rate, number of I/Os, number of M/E banks, and more.

Another great benefit is that these switchers can be upgraded as user needs grow, simply by installing the appropriate option board. The MVS-8000X switcher processor can be configured for 2-, 3-, 4-, or 5-M/E operation, while the MVS-7000X switcher processor can be configured for 1-, 2-, 3-, 4-, 5-, or 6-[1] -M/E and, thanks to powerful Mix/Effect mode selection, can be configured with the minimal purchase of a mix/effect board.

Full-size MVS-8000G/GSF switcher processors can be configured for 2-, 2.5-, 3-, 3.5-, or 4-M/E operation. And compact MVS-8000GSF and MVS-6000 switcher processors can be configured for 1-, 1.5-, 2-, or 2.5- M/E operation.

The MVS-6000 switcher is extremely versatile, despite its compact body, and is an exceptional switcher choice for OB vehicles and production studios requiring multiple inputs in a limited space. DME wipe transition is available on an MVS-6000 simple P/P system. This switcher is equipped with eight monitor outputs [2], and users can build up a system without requiring a routing switcher. Users can scale the number of inputs by installing optional input boards. Outputs can be assigned for program, preview, key preview, clean, or auxiliary on the regular P/P system. Optional simple P/P software adds simple mix/effect functionality - including two keyers, background, and key transitions - and upgrades each switcher processor by adding 0.5 M/E.

Built-in Format Converter

One of the unique and very powerful features of MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 switchers is that a format conversion capability can be incorporated simply by adding a format converter board (the MKS-8450X for the MVS-8000X and MVS-7000X; MKS-8450G for the MVS-8000G/GSF and MVS-6000). This option provides up-conversion and down-conversion between HD (1080i and 720p) and SD (480i and 576i), and cross-conversion between 1080i and 720p at both inputs and outputs. It supports format conversion for eight inputs and two outputs. To achieve format conversion for 16 inputs, simply add a second board [3]. And, when the MKS-8160G 24-Output Board Set [4] is installed in the MVS-8000G, two more format-conversion outputs are provided.

With these capabilities, there is no need for an external format converter. Any type of signal can be seamlessly handled in the switcher system, and this, of course, minimizes overall system cost.
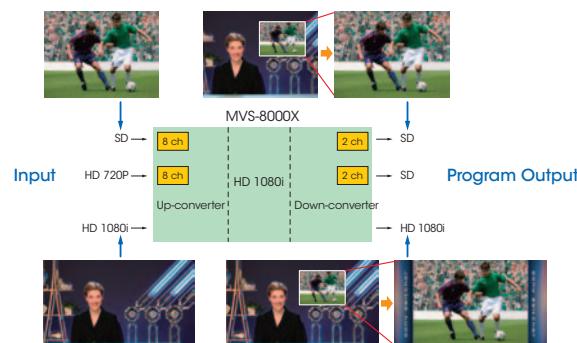

Fig 1 Example of format conversion

Customizable Control Panel

The MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 share the same control panels, which have been designed with special care and attention. A lineup of three control panels is available: the customizable CCP-8000 Series and two simple and practical control panels, the CCP-6000 Series and CCP-9000 Series.

The CCP-8000 Series incorporates a modular design in which each control area is provided as a separate module. Users can locate modules in the M/E base chassis according to their personal layout preferences. The M/E base chassis is offered in 16-, 24-, or 32-button styles, and M/E banks are available in 1.5-, 2-, 2.5-, 3-, 3.5-, or 4-M/E configurations. There are three choices of transition and key control modules, covering simple to complex video-layering requirements.

The CCP-6000 Series is an easy-to-use control panel that takes up little space. The MVS-6000 provides excellent performance when it is combined with this control panel. In addition, the CCP-6000 Series can be operated in combination with a standard VGA monitor and mouse, which greatly expands operational flexibility. The CCP-6000 also includes the newly developed Multi-Function FlexiPad™ module that enables crisp operation with its user-friendly, smart design.

CCP-9000 Series control panels comprise 1-M/E, 1.5-M/E, or 2-M/E compact configurations with 12 crosspoint buttons and a built-in redundant power supply. They are well suited for use in small-scale OB vehicles and edit suites, or as sub-M/E remote panels for the MVS/DVS Series.

[1] Expected availability Summer 2011.

[2] Requires MKS-8161M Monitor Output Board sold sep.

[3] The MVS-7000X and MVS-6000 can accept one optional MKS-8450X or MKS-8450G board, which enables these switchers to support format conversion of eight inputs and two outputs.

[4] The MVS-7000X, MVS-8000GSF, and MVS-6000 do not support the optional MKS-8160G board.
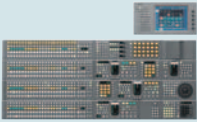
Choose Your Definition

Switcher processors

Multi-format			
MVS-8000X 10RU 164 inputs and 68 outputs Supports up to 8 (external) DME channels Resizer (simple 2.5D DME) per every keyer Up to 16 channels Input Format Converter Up to 4 channels Output Format Converter 2 to 5 M/E	**MVS-7000X** 8RU 80 inputs and 48 outputs Supports up to four (internal), eight (internal + external) DME channels Resizer (simple 2.5D DME) per every keyer Up to 8-channel Input Format Converter Up to 4-channel Output Format Converter 1 to 6 M/E*	**MVS-8000G** 8RU 80 inputs and 48 outputs 8 monitor outputs Supports up to 8 (external) DME channels Resizer (simple 2D DME) per every keyer Up to 16 channels Input Format Converter Up to 4 channels Output Format Converter 2 to 4 M/E **MVS-8000GSF** 4RU 34 inputs and 24 outputs Supports up to 4 (external) DME channels Resizer (simple 2D DME) per every keyer Up to 16 channels Input Format Converter Up to 2 channels Output Format Converter 1 to 2.5 M/E	**MVS-6000** 4RU 49 inputs and 24 outputs Supports 2 (internal) DME channels Resizer (simple 2.5D DME) per 2 keyers/ME Up to 8 channels Input Format Converter Up to 2 channels Output Format Converter 1 to 2.5 M/E

Any CCP-8000, CCP-6000 and CCP-9000 control panel can control any processor

Control panels

	CCP-8000 Customizable control panels	CCP-6000 Practical control panels	CCP-9000 Compact control panels
3.5 or 4 ME			
2.5 or 3 ME			
1.5 or 2 ME			
1 ME			

* Available in future.

Expand Your Creativity

Easy and Efficient Operation

MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 switchers have a large color touch-screen menu for efficient and intuitive system control. Button indications are greatly enhanced over previous-generation switchers. Crosspoint source name displays, FlexiPad, and Shot Box™ buttons all incorporate a backlit three-color LCD indicator to which preset pattern icons or text can be imported and displayed. These sophisticated indicators help to keep the operator informed at all times of crosspoint and button assignments. In addition, optional remote-control panels, such as AUX Bus Remote, Keyer Remote (Universal Control Panel), and M/E Remote panels, allow convenient operating environments for live use.

Other Beneficial Control Panel Functions

In response to customer requests, many new features have been added such as the ability to:
• Move forward or backward by up to 50 menu selection steps
• Jump to a related menu page by touching the status display's touch panel on the keyer menu
• Switch the LCD display between the main menu site and the subsidiary menu site
• Register up to 15 preferred menu pages and rename menu pages, copy a page, and change the color of a menu page

Creative M/E Functionality

Each M/E on the MVS-8000X switcher is equipped with eight keyers[1], and each M/E on MVS-7000X, MVS-8000G/GSF, and MVS-6000 switchers is equipped with four keyers[2], allowing sophisticated layering from a single M/E.

Separate from the main fader, each keyer has its own auto-transition controls, which allow users to insert or remove keys on an individual basis with independent wipes, DME wipes, and dissolves. For further flexibility, each keyer in every M/E also offers chroma keying and color vector keying, eliminating restrictions of selectable key types. These fully featured M/Es allow total interoperability of effects on all M/Es. And, as the MVS-6000 provides elaborately selected wipe patterns that are used frequently, this switcher is particularly easy to use.

[1] Four keyers when the signal is 1080p.

[2] The +0.5M/E simple P/P has only two keyers.

Variety of Versatile Effects

Market-acclaimed fine key technology allows precise adjustment of key positions and border widths on a sub-pixel level within the range of 8H on all of these switchers.

For additional power and user convenience, the MVS-8000X, MVS-7000X, and MVS-8000G/GSF also feature Sony's unique Processed Key mode and DME-link function.

MVS-7000X and MVS-6000 switchers support an optional internal DME board which allows up to four video signals (MVS-7000X) or two video signals (MVS-6000) to be composed in the background.

Independent M/E Architecture

Each M/E of the MVS-8000X, MVS-7000X, MVS-8000G/ GSF, and MVS-6000 includes a PGM/PST bus and is equipped with powerful functionality. Snapshot settings, keyframe settings, and various setups such as crosspoint assignment, 4:3/16:9 modes, and bus toggle on/off can be independently designated per M/E. This architecture allows the user to efficiently assign multiple tasks to a single switcher processor when required.

Color Correction Function[3]

Four-channel[4] full-featured primary and secondary color correction is optionally available for MVS-8000X switcher (two-channel for MVS-7000X, MVS-8000G/GSF, and MVS-6000 switchers). And, for all of these MVS switchers, this highly capable color corrector function can be applied to the video outputs of the internal M/E or P/P banks[5], allowing studio monitors placed, for example, beside newscasters to provide true color reproduction when included in the camera shot.

[3] Requires: BZS-8420X Color Correction Software for the MVS-8000X; BZS-7420X Color Correction Software for the MVS-7000X; BZS-8420 Color Corrector Software and MKS-8442G Frame Memory Board for the MVS-8000G/GSF; BZS-6420 Color Corrector Software and MKS-8442G Frame Memory Board for the MVS-6000. Each sold sep.

[4] Two-channel in 1080p mode.

[5] This function causes 1H delay.

Resizer Function

A useful resizer function is provided, that gives simple 2.5D DME effects with adjustable parameters such as size, position, and aspect to every keyer for the MVS-8000X and MVS-7000X, and gives simple 2D DME effects for the MVS-8000G/GSF. In the MVS-6000 switcher, the resizer function supports superb, simple 2.5D DME effects to two out of the four M/E keyers. This function can be activated for DME wipe transitions, and keyframes. A variety of effects - such as mosaic, and defocus - can be applied to resized images. All these effects can be created without the use of an external DME, bringing great advantages for both simple operation and minimized system cost.

Multi-program 2 Mode[*1] (MVS-8000X, MVS-7000X, MVS-8000G/ GSF only)

Multi-program mode on the MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 enables four independent PGM outputs on each M/E.

An extended function of this, Multi-program 2 mode, expands the use of the system mix/effect banks. This allows one M/E to be separated into two sections - a main M/E and a sub M/E - enabling the user to create two programs within a single M/E. It also allows re-entry between main and sub-banks[*2], enabling the user to utilize a sub-M/E for program transition in a "picture-in-picture" as shown below.
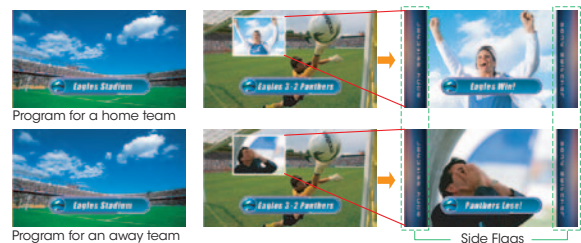

Fig 1 Multi-Program Block Diagram example[*3]

Program for a home team

Program for an away team

Side Flags

Fig 2 "Home and Away" Operation

[*1] BZS-8200X Multi-program 2 Software for the MVS-8000X, BZS-7200X Multi-program 2 Software for MSV-7000X; BZS-8200 Multi-program 2 Software for the MVS-8000G/GSF and MVS-8000GSF systems.

[*2] This function causes 1H delay.

[*3] This figure shows an example for the MVS-8000X Series. There are up to four keys in 1080p mode (MVS-8000X, MVS-7000X, and MVS-8000G/GSF).

What's more, Multi-program 2 mode also concurrently enables two independent PGM outputs, even when there are only enough resources to create one program. This is especially convenient when simultaneously broadcasting sports, such as baseball and football, for two different destinations (for example, for home and away teams). With this mode, one operator can create two programs that are each tailored for these different destinations on a single switcher. (Fig 1)

Keyers can be inserted into both the main and sub-programs, as shown below. (Fig 2)

Variety of M/E Mode Selection (MVS-7000X)

Thanks to the powerful M/E mode selection in the MVS-7000X, this system can be configured to meet user requirements with the minimal purchase of a mix/effect board and using Multi-program 2 mode. Users can select one of five modes, as shown below.

1080p

Normal Mode:	1 or 2 or 3 M/E-configurable, 4 keys per M/E, Multi-program 2 available

1080i, 1080PsF, 720p, SD

Normal Mode:	1 or 2 or 3 M/E-configurable, 8 keys per M/E, Multi-program 2 available
Double M/E Mode:	2 or 4 or 6 M/E-configurable, 4 keys per M/E, Multi-program 2 available
3 M/E Mode:	3 M /E-configurable, 2 keys per M/E + 4 DSK/PP (one mix board supports 3 M/E; highly cost effective)
4 M/E Mode:	4 M/E-configurable, 2 keys per M/E (one mix board supports 4 M/E; highly cost effective)
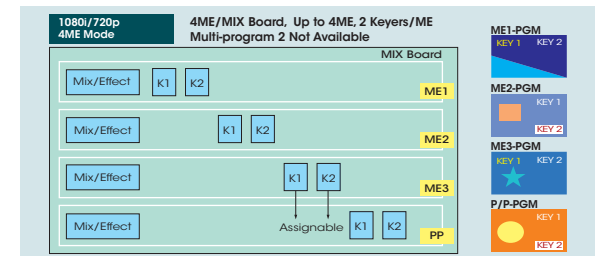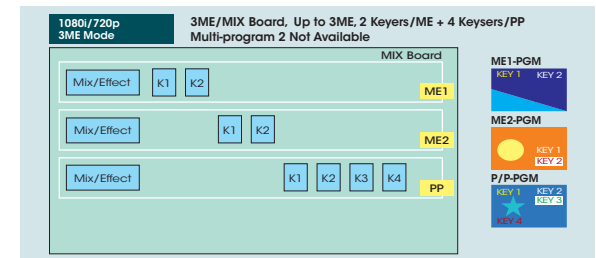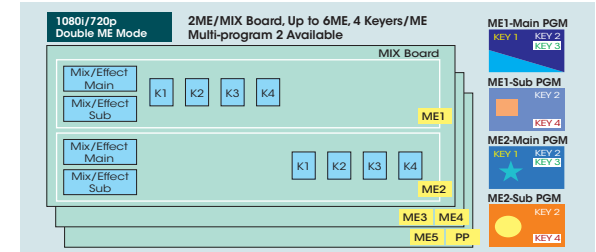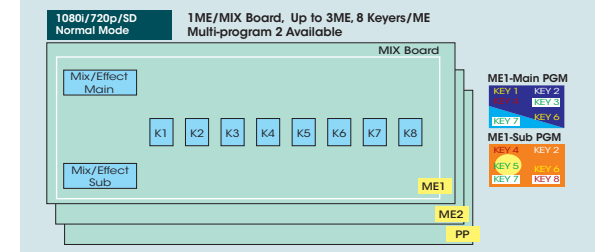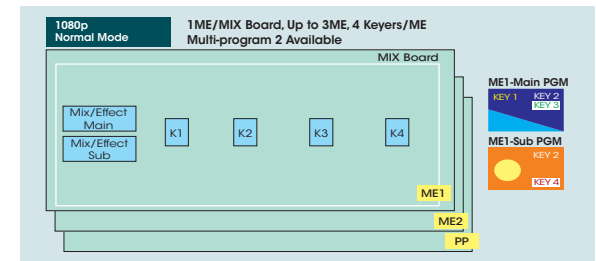
Expand Your Creativity

Enhanced Frame Memory System

MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 switchers provide a high-capacity "frame memory system" that enables video frames to be captured and stored as still images. This also allows a sequence of frames to be recorded as a video clip (called a "frame memory clip").

The frame memory system for the MVS-8000X and MVS-7000X requires an optional MKS-8440X Frame Memory Board; the system for the MVS-8000G requires either one or two optional MKS-8442G Frame Memory Boards; and the system for the MVS-8000GSF and MVS-6000 requires an optional MKS-8442G Frame Memory Board.
One board can store a vast number of frames (either as still images or frame memory clips), and installing two boards can double the frame storage capacity (see the chart below for details).

Up to 16[1] channels of stored still images and frame memory clips for the MVS-8000X and MVS-7000X can be used simultaneously as video or key (up to eight for the MVS-8000G/GSF and MVS-6000). What's more, these still images and frame memory clips can be easily exchanged between all of these MVS switchers[2] and external PCs via Ethernet or removable media. The dedicated LAN port for frame memory, mounted on the rear panel, enables high-speed data transfer.

[1] Expected availability Summer 2011.

[2] Frame memory files cannot be exchanged between SD and HD systems.

Total Frame Storage Capacity

Below are the approximate number of combined still images and frame memory clips that can be stored[3]. Note that, with two MKS-8442G boards installed in the MVS-8000G/GSF, only the first board can store still

images, although frame memory clips can use both boards for full capacity. The figures in parentheses show the maximum storage for still images (ie, the maximum number of still images is half of the total storage capacity; while additional frame memory clips can still be stored up to the full capacity). The numbers below are achieved when none of the clips stored in memory include audio data. Numbers decrease when clips include audio data.

Model	MVS-8000X/ 7000X	MVS-8000G/ 8000GSF/6000	MVS-8000G
	MKS-8440X x 1	MKS-8442G x 1	MKS-8442G x 2
1080i	2000	1000	2000 (1000)
1080p	2000	-	-
Formats 720p	4600	2300	4600 (2300)
480i	11200 (5600)	5600	11200 (5600)
576i	9600 (4800)	4800	9600 (4800)

[3] One MKS-8440X Board can be installed in MVS-8000X/7000X, and one MKS-8442G Board can be installed in MVS-6000.

[4] The numbers in the above chart are approximate.

Clip Transition Effects

With simple settings, the MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 provide clip transition effects that enable transition, together with audio, using a frame memory clip. When doing a clip transition, a computer-generated image such

as a logo moves across the picture, from one side to the other, while the transition is performed behind it. This effect is very useful for sports broadcasting operations at, for example, football and basketball games.
Although highly sophisticated, this effect can be performed with simple settings. The user is required only to select a frame memory clip, and determine two points: the start and stop point of backgrounds to meet the clip movement. Various types of transition such as Mix, Wipe, DME Wipe, and Preset Color Mix can be applied in a background transition according to the motion of the clip. A transition can be operated both backwards and forwards with the fader lever. In addition, a clip transition can be performed with audio when using the Auto Transition button.

Programmable Macros

Having a dedicated button for each function on the MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 is handy, but these switchers take operational convenience a step further - they all make it easy to program macros.
Using the FlexiPad module, or the 10-key PAD module, users can simply record operational sequences, then store and assign them to any desired button. Macros are extremely useful in live environments when time is critical and there is no tolerance for making operational mistakes. Not only can macros record complex panel operational sequences, but menu operation can also be recorded as a macro. Macros can be edited either directly from the control panel or by using the touch-screen menu display.
Once programmed, macros can be executed in several ways. In addition to the easy recall/run from the FlexiPad or the 10-key PAD module, macros can be triggered on a timeline to execute automatically in a sequence. Macros can be recalled via a GPI (general purpose interface) and can replace other panel buttons as macro-only, simply by pressing the Pre-macro and Post-macro buttons at the same time.

Explore Your Imagination

Sophisticated Digital Multi-Effects (DME)

For MVS-8000X, MVS-7000X, and MVS-8000G/GSF Switchers
MVE-8000A
The MVE-8000A DME Processor is integrated with MVS-8000X Series, MVS-7000X, and MVS-8000G/GSF switcher processors via a dedicated video interface that avoids sacrificing the switcher's input and output capability.

This integrated DME processor supports the same multiple frame rates as the MVS switcher, and all resolutions and frame rates are supported without board swapping. Up to eight channels of integrated DME can be utilized when two DME processors are connected. Each channel is freely assignable to any key or transition in the MVS switcher.

4:3/16:9 mode selection, global axis control, and multiple timeline capability are independently supported for each DME channel. In addition to providing the same variety of standard effects commonly used today, the functionality and operability of this DME have been especially refined for live production. This new level of close integration between switcher and DME results in creative preset patterns.

MVE-9000
The MVE-9000 Multi-Format DME Processor is another highly advanced DME processor for MVS-7000X and MVS-8000G/GSF switchers. In addition to the feature sets provided by the MVE-8000A, it delivers stunning picture quality and a wide assortment of features for the creation of striking special effects in live events and post-production.

A rich variety of effects is provided - such as Depth Combine, Dim/Fade, Wipe Crop, Art Edge, Key Border, Spot Lighting, Texture Lighting, Flex Shadow, and Wind - as well as other effects available on the MVE-8000A. What's more, optional texture lighting software is supported when the optional BKDS-9470 DME Board Set is installed.

For MVS-7000X Switcher
Built-in DME Processor MKS-7470X/7471X
The MVS-7000X processor can accept an optional DME board. This delivers superb picture quality and a rich variety of effects equivalent to those found in the well-reputed MVE-9000. No external device connection is required in this highly cost-effective solution.

This build-in DME processor allows users to easily exploit creative effects with stunning picture quality including Depth Combine, Dim/Fade, Wipe Crop, Art Edge, Key Border, Spot Lighting, Texture Lighting, Flex Shadow, and Wind.

For MVS-6000 Switcher
Built-in DME Processor MKS-6470
The MVS-6000 switcher processor offers two channels capable of internal digital multi-effects (DME) with the installation of the MKS-6470 DME Board Set. This switcher supports brilliant non-linear effects as well as frequently used DME patterns. For example, all of the following can be performed: Digital SPARKLE Effects[1], 3D Linear Transformation, Video Modify, Freeze, Light/ Trail, Input/Output Effect, Digital SKETCH, Metal, and Glow. These capabilities make the highly affordable MVS-6000 extremely user friendly.

*1 This non-linear effect can be performed on one channel.

For all MVS Switchers

MPE-200 with MPES-FX01
All MVS switchers support Sony's Programmable Effector (the combination of MPE-200 hardware and MPES-FX01 software), helping to create advanced and striking visual effects in many different applications. This delivers real-time rendering of 3D computer graphic (CG) images with up to four video inputs. It also improves production workflow, saving time and cost particularly when producers want to modify visual effects in a studio control room or outside broadcast (OB) vehicle, using tools such as Autodesk Maya and 3ds Max.

With all these capabilities and more, the innovative Programmable Effector delivers the flexibility, operability, and performance required for a broad range of live production applications.

Comprehensive Control System

Networking Functions

MVS switchers provide sophisticated network capabilities to allow an extremely efficient and innovative style of operation. Two Ethernet-based networks are provided: the Control LAN and the Data LAN.

The Control LAN is a dedicated network that allows efficient resource sharing among MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 switchers and their CCP Series control panels. Using this network, multiple control panels can simultaneously share a single switcher processor on an M/E basis (for efficient multi-tasking). Conversely, a single control panel can simultaneously control multiple switcher processors to deliver the same program in multiple formats.

The second network, the Data LAN, provides a connection across all of these switchers to all key components and Sony peripherals. This network is used for remote administrative tasks such as status monitoring, software upgrades, and configuration, as well as maintenance and facility management tasks.

System Management Software

Sony's System Management Software running on a PC enables integrated management of all Sony's live production products configured around and networked to MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 switchers. This enables centralized control from a single-user interface of all these switchers, as well as PFV-SP Series signal processing units, and other devices.

This system allows remote setup, maintenance, and operation of each device connected to the network, as well as efficient file management of setup, effect, and image data. In addition, remote control of the internal switcher frame memory is possible, allowing a second user to view and manipulate stored images.

Two types of system management software are available: server/client BZPS-8000 Software and standalone BZPS-8000L Software. BZPS-8000 Software is suitable for large-scale systems, and allows up to ten client PCs to access the switchers via a server PC connected to the Data LAN. In this type of configuration, BZPS-8000 Software* is installed on every client PC and a single server PC. This system provides many features, such as centralized management of setup, effect, and image files on the server PC. The other available software, BZPS-8000L, can be installed on just a single client PC, which can then be connected directly to the Data LAN, allowing for simple and cost-effective system integration.

* A single BZPS-8000 Software license allows for installation on one server PC and multiple client PCs (see actual licenses for details).

Powerful Device Control

External VTRs, DDRs, and P-bus devices can all be controlled directly from the control panels of MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 switchers using MKS-8700 or MKS-2700 Device Control Units.

Each unit connects to the control panel and provides control of such external devices via RS-422A, P-bus, or GPI. The MKS-8700 can have up to 30 RS-422A control ports or up to 270 GPIs, while the MKS-2700 Comprehensive Control System has six RS-422A ports and 34 GPIs as standard. Moreover, device control is provided on the same timeline as switcher events. When integrating a Sony disk protocol or VDCP-controlled disk recorder, clip management is provided, allowing different server clips to be recalled and played back as part of a switcher timeline.

The MKS-8036A Device Control Module provides device controls such as a jog/shuttle dial, control buttons, and timecode displays. This gives operators quick, intuitive, and familiar control of connected VTRs, and disk recorders. Playback control of internal frame memory clips is also possible with this module.

Efficient Control System

Facility (User) LAN

System Manager	Control Panel 1	Control Panel 2	Control Panel 3	Keyboard	Aux Bus Panels
BZPS-8000 BZPS-8000L	CCP-8000	CCP-6000	CCP-9000	MKS-8050 MKS-2050	MKS-8080 / MKS-8082 / Universal Control Panel UCP-8060

Data
Control
S-Bus

Switcher Processor				DME Processor	Device Control Unit	Multi-image Processor	Routing Switcher
MVS-8000X	MVS-7000X	MVS-8000G	MVS-6000	MVE-8000A MVE-9000	MKS-8700 MKS-2700	MPE-200	HDS-X5800 IXS-6700 IXS-6600

Plug-in Editing Control Software

One of the distinct advantages of the MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 is the ability to integrate machine control functions. Optional plug-in BZS-8050 Control Software and MKS-8050 and MKS-2050 Editing Keyboards take this ability a stage further, and add powerful linear editing capabilities to all these MVS switchers. BZS-8050 Editing Control Software offers a similar level of functionality to the popular BVE-2000 Editor, along with some key functions available on the BVE-9100 Editor.

Furthermore, this software provides a variety of beneficial features that include direct keys for source selection, and direct device control from the plug-in editor. Two types of editing keyboard are available - the MKS-8050 and MKS-2050 - which make the editing control software suitable for small-scale editing operations right up to large-scale post-production mastering. A character superimpose function including timecode and recorder/player status is available. With the addition of these editing capabilities, Sony's MVS switchers are truly maximized for effectiveness in broadcast stations and post-production facilities.

Combining Sony's Switchers with Sony's Routing Systems

The integration of MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 switchers with S-bus controlled routers, such as IXS-6000 Series Routing Systems, brings a number of great benefits such as bidirectional operational control, source name exchange, and tally management.

Crosspoints of the IXS-6000 Series can be selected via the AUX BUS module panel of each MVS switcher. They can also be recalled as a router snapshot via the switcher control panel.

Intelligent Tally Functions

All of these MVS switchers provide an intelligent and multi-functional tally system, which seamlessly integrates the switcher and router tally functions. Multiple on-air and recording tallies can easily be programmed on the switcher system - so that even complex tally requirements are accommodated - and extra parallel tally ports can be obtained simply by adding tally boards to the MKS-8700 or by using the MKS-2700. Using the S-bus interface, MVS-8000X, MVS-7000X, MVS-8000G/GSF, and MVS-6000 switchers can provide tally outputs to router control panels via a simple coaxial cable connection.

System Configuration

Center Control Panel CCP-8000 Series
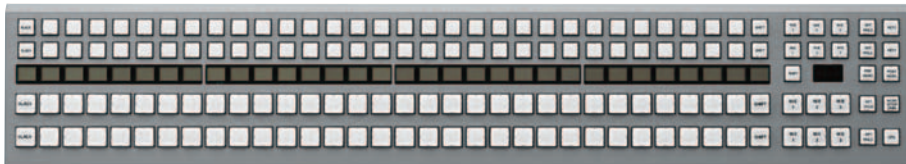
32 XPT Module MKS-8017A
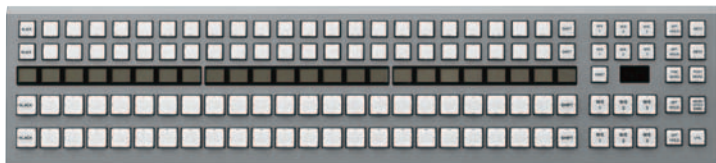
24 XPT Module MKS-8018A
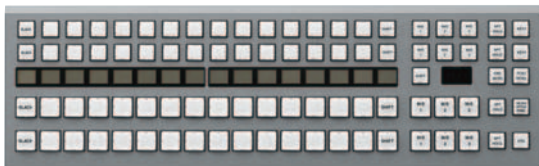
16 XPT Module MKS-8019A
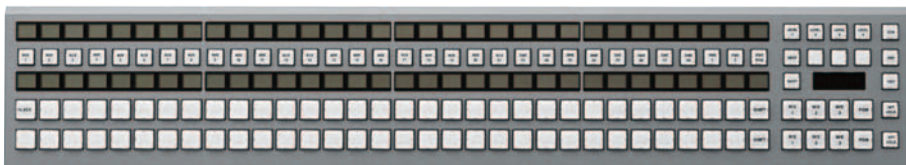
32 AUX BUS Module MKS-8013A

24 AUX BUS Module MKS-8014A

16 AUX BUS Module MKS-8015A

Standard Transition Module MKS-8020A

Simple Transition Right Module MKS-8021A

Simple Transition Compact R Module MKS-8021ASC

Simple Transition Left Module MKS-8022A

Simple Transition Compact L Module MKS-8022ASC

Compact Key Transition Module MKS-8023AB

Compact Transition Right Module MKS-8027A

Compact Transition Left Module MKS-8028A

10-Key PAD Module MKS-8026A

Key Frame Module MKS-8030A

Track Ball Module MKS-8031ATB

Joystick Module MKS-8031AJS

Device Control Module MKS-8036A

Memory Stick™/USB Module MKS-8025MS

Menu Panel MKS-8011A

DSK Fader Module MKS-8032A

FlexiPad Module MKS-8024A

Blank Panel (1/2) MKS-8041

Utility/Shot Box Module MKS-8033A

DSK/FTB Module MKS-8034ADK
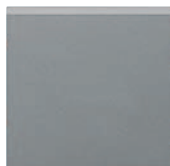
Blank Panel (1/3) MKS-8040

Key Control Module MKS-8035A

FTB Module MKS-8034AFB

Blank Panel (1/6) MKS-8042

System Control Unit MKS-8010B

Backup Power Supply Unit HK-PSU02
Panel Cable SWC-5002/5005/5010
Extension Adaptor MKS-8075A
Memory Card USB Adaptor MKS-8076

Center Control Panel CCP-6000 Series

2 M/E Control Panel CCP-6224

3 M/E Control Panel CCP-6324

Center Control Panel CCP-9000 Series

1 M/E Control Panel MKS-9011A

2 M/E Control Panel MKS-9012A

Remote Panel

Universal Control Panel* UCP-8060

AUX BUS Remote Panel* MKS-8080

AUX BUS Remote Panel* MKS-8082

*Rack-mount brackets for these panels are included.

System Configuration

Switcher Processors

MULTI-FORMAT SWITCHER PROCESSOR
MVS-8000X

MVS-8000X

20 Input Board	MKS-8110X
Output Processor Board Set	MKS-8160X
DME Interface Board Set	MKS-8170X
Cross Point Board Set	MKS-8180X
Mix/Effect Board	MKS-8210X
Frame Memory Board Set	MKS-8440X
Format Converter Board	MKS-8450X
Power Supply Unit	HK-PSU05
Multi Program 2 Software	BZS-8200X
Color Corrector Software	BZS-8420X
Upgrade Software for 3D or 1080P	BZS-8560X

Standard configuration:
The MVS-8000X system is supplied with one 20 Primary Inputs, 24 Assignable Outputs, two mix/effect board sets, and three power supply units.

MULTI FORMAT SWITCHER PROCESSOR
MVS-7000X

MVS-7000X

20 Input Board	MKS-8110X
Output Board Set	MKS-8160X
Frame Memory Board	MKS-8440X
Format Converter Board	MKS-8450X
20 Input Board	MKS-8110X
DME Output Connector Board	MKS-7171X
Mix/Effect Board	MKS-7210X
DME Board Set	MKS-7470X
Additional DME Board	MKS-7471X
Power Supply Unit	HK-PSU05
Multi Program 2 Software	BZS-7200X
Color Corrector Software	BZS-7420X
Switcher Upgrade Software (Upgrade Multi Format to 1080p + 3D)	BZS-7560X
DME Upgrade Software (Upgrade Multi Format to 1080p + 3D)	BZS-7561X
Switcher Upgrade Software (Upgrade SD to Multi Format for Frame)	BZS-7500X
Switcher Upgrade Software (Upgrade SD to Multi Format for 1st Mix Board)	BZS-7510X
Switcher Upgrade Software (Upgrade SD to Multi Format for 2nd Mix Board)	BZS-7520X
Switcher Upgrade Software (Upgrade SD to Multi Format for 3rd Mix Board)	BZS-7530X
DME Upgrade Software (Upgrade SD to Multi Format for 1st DME Board)	BZS-7540X
DME Upgrade Software (Upgrade SD to Multi Format for 2nd DME Board)	BZS-7541X

Standard configuration:
The MVS-7000X system is supplied with 20 Primary Inputs, 24 Assignable Outputs and two power supply units.

MULTI-FORMAT SWITCHER PROCESSOR
MVS-8000G

MVS-8000G   MVS-8000GSF

17 Input Board	MKS-8110G
Additional 12 Input Board	MKS-8111G[1]
12 Output Board	MKS-8162A[2]
24 Output Board Set	MKS-8160G[1]
8 Monitor Output Board	MKS-8161M[1]
Mix/Effect Board	MKS-8210G
Frame Memory Board	MKS-8442G
Format Converter Board	MKS-8450G
DME Interface Board	MKS-8170G[1]
Simple PP Software	BZS-8250
Multi Program 2 Software	BZS-8200
Color Corrector Software	BZS-8420[3]
Switcher Upgrade Software (Upgrade SD to Multi-format)	BZS-8500M[1]
Switcher Upgrade Software (Upgrade SD to Multi-format)	BZS-8510M[2]
Mix/Effect Upgrade Software (Upgrade SD to Multi-format)	BZS-8520M
Mix/Effect Upgrade Software (Upgrade SD to Multi-format)	BZS-8530M[1]
Switcher Upgrade Software (1080P/59.94,50 Dual-Link, 3D)	BZS-8560[1]
Power Supply Unit	HK-PSU04

[1] For MVS-8000G system only.
[2] For MVS-8000GSF system only.
[3] Requires MKS-8442G Board sold sep.

Standard configuration:
The MVS-8000G system is supplied with one 17 input board, one 24 output board, two mix/effect board sets, and two power supply units.
The MVS-8000GSF system is supplied with one 17 input board, one 12 output board, one mix/effect board set, and one power supply unit.

MULTI-FORMAT SWITCHER PROCESSOR
MVS-6000

MVS-6000

17 Input Board	MKS-8110G
Monitor Output Board	MKS-8161M
DME Board Set	MKS-6470
Frame Memory Board	MKS-8442G
Format Converter Board	MKS-8450G
Additional ME Software	BZS-6300
Switcher Upgrade Software (Upgrade SD to Multi-Format)	BZS-6540M
Mix/Effect Upgrade Software (Upgrade SD to Multi-format)	BZS-6550M
Simple PP Software (with DME Wipe transition on Simple PP row)	BZS-6250
Color Correction Software	BZS-6420
Power Supply Unit	HK-PSU04

Standard configuration:
The MVS-6000 Switcher is supplied with one 17 input board, 24 outputs, one mix/effect board, and one power supply unit as SDTV.

DME Processor

Multi-Format DME Processor MVE-8000A

MVS Interface Board MKE-8020A
Input/Output Board (for SDI) MKE-8021A
Effects Board (2CH) MKE-8040A
Power Supply Unit HK-PSU-02
DME Upgrade Software BZDM-8560
(1080P/59.94,50, Dual-Link, 3D)

Multi-Format DME Processor MVE-9000

MVS Interface Board MKE-9020M
Input/Output Board MKE-9021M
Advanced Effects Board (1CH) MKE-9040M
Texture Lighting Software BZDM-9050

Plug-in Editor

Editing Control Software BZS-8050

Editing Keyboard MKS-8050

Editing Keyboard MKS-2050

Device Control Unit

Device Control Unit MKS-8700

Tally/GPI Output Board MKS-8701
Serial Interface Board MKS-8702
Backup Power Supply Unit HK-PSU03

Device Control Unit MKS-2700
Backup Power Supply Unit HK-PSU-01

Multi Image Processor

Multi Image Processor MPE-200

Stereo Image Processor MPES-3D01
2D/3D Converter MPES-2D3D1
Programmable Effector MPES-FX01
Virtual Camera Solution MPES-VC01
3D Quality Control MPES-3DQC

System Management Software

System Management Software
BZPS-8000

System Management Software (Standalone type)
BZPS-8000L

Switcher Setup Software
BZPS-8001

PFV-SP Setup Software
BZPS-8002

Optional Unit

Signal processing unit
PFV-SP3300

Signal processing unit
PFV-SP3100

Dual-link to 3G Converter
HKSP-1530

3G to Dual-link Converter
HKSP-3015

Specifications

General		
Power requirement		AC 100 to 240 V, ± 10 % 50/60 Hz
Power consumption	MVS-8000X	15 to 6.5 A
	MVS-7000X	15 to 6.5 A
	MVS-8000G	12 to 5 A
	MVS-8000GSF	7 to 3 A
	MVS-6000	7 to 3 A
	CCP-8000 Series	2.5 to 1.1 A
	CCP-9000 Series	1.1 to 0.5 A
	MVE-8000A	2.5 to 1.0 A
	MVE-9000	6.0 to 2.5 A
	MKS-8700	1.4 to 0.8 A
	MKS-2700	0.7 to 0.5 A
Operating temperature		41 °F to 104 °F (5 °C to 40 °C)
Storage temperature		-4 °F to +140 °F (-20 °C to +60 °C)
Operating humidity		10 % to 90 % (Non-condensing)
Dimensions (W x H x D)	MVS-8000X	17 3/8 x 17 1/2 x 19 5/8 inches (440 x 443 x 497 mm)
	MVS-7000X	17 3/8 x 14 x 19 5/8 inches (440 x 355 x 497 mm)
	MVS-8000G	19 x 14 x 20 1/2 inches (482 x 354 x 520 mm)
	MVS-8000GSF	19 x 7 x 20 1/2 inches (482 x 176 x 520 mm)
	MVS-6000	19 x 7 x 20 1/2 inches (482 x 176 x 520 mm)
	CCP-8000 Series — Main Panel	4 M/E, 32-crosspoint buttons:
		1443 (with mount bracket) x 56 7/8 x 4 x 20 7/8 inches (98.5 x 528 mm)
		3 M/E, 24-crosspoint buttons:
		1291 (with mount bracket) x 50 7/8 x 4 x 20 7/8 inches (98.5 x 528 mm)
		2 M/E, 16-crosspoint buttons:
		1139 (with mount bracket) x 44 7/8 x 4 x 15 5/8 inches (98.5 x 396 mm)
	CCP-8000 Series — Auxiliary Bus Panel	32-crosspoint buttons:
		782 (with mount bracket) x 30 7/8 x 5 1/4 x 3 1/4 inches (132 x 80 mm)
		24-crosspoint buttons:
		630 (with mount bracket) x 24 7/8 x 5 1/4 x 3 3/4 inches (132 x 80 mm)
		16-crosspoint buttons:
		478 (with mount bracket) x 18 7/8 x 5 1/4 x 3 1/4 inches (132 x 80 mm)
	CCP-8000 Series — Menu Panel	16 3/4 x 8 3/4 x 1 13/16 inches (424 x 220 x 46 mm)
	CCP-8000 Series — System Control Unit	19 x 1 3/4 x 20 1/2 inches (482 x 43.6 x 520 mm)
	CCP-6224 — 2 M/E Control Panel	42 1/4 x 3 1/2 x 10 1/2 inches (1071 x 87 x 264mm)
	CCP-6324 — 3 M/E Control Panel	42 1/4 x 3 5/8 x 15 5/8 inches (1071 x 92 x 396mm)
	CCP-9000 Series — 1 M/E Control Panel	17 3/8 x 7 x 15 1/4 inches (440 x 175 x 385.3 mm)
	CCP-9000 Series — 2 M/E Control Panel	17 3/8 x 7 3/8 x 17 1/2 inches (440 x 186.6 x 442 mm)
	CCP-9000 Series — Menu Panel	16 3/4 x 8 3/4 x 1 13/16 inches (424 x 220 x 46 mm)
	MKS-8700	19 x 5 1/4 x 20 1/2 inches (482 x 132 x 520 mm)
	MKS-2700	17 3/8 x 1 3/4 x 20 1/2 inches (440 x 43.6 x 520 mm)
	MVE-8000A	17 3/8 x 3 1/2 x 20 1/2 inches (440 x 87.5 x 520 mm)
	MVE-9000	19 x 7 3/4 x 20 1/2 inches (482 x 194 x 520 mm)
	Memory Stick/USB Adaptor	10 3/8 (with mount bracket) x 5 1/4 x 3 1/8 inches (263 x 132 x 78.5 mm)
	Extension Adaptor	10 3/8 (with mount bracket) x 5 1/4 x 3 1/8 inches (263 x 132 x 78.5 mm)
Weight	MVS-8000X	127 lb 14 oz (58 kg) (when equipped with all installable option boards and option power supply unit)
	MVS-7000X	108 lb (49 kg) (fully loaded)
	MVS-8000G	108 lb (49 kg) (fully loaded)
	MVS-8000GSF	61 lb 12 oz (28 kg) (fully loaded)
	MVS-6000	57 lb 5 oz (26 kg) (fully loaded)

General			
Weight	CCP-8000 Series	Main Panel	4 M/E, 32-crosspoint buttons: 66 lb 2 oz (30 kg)
		Auxiliary Bus Panel	32-crosspoint buttons: 8 lb 2 oz (3.7 kg)
		Menu Panel	4 lb 13 oz (2.2 kg)
		System Control Unit	25 lb 6 oz (11.5 kg)
	CCP-6224		241b 4oz (11kg)
	CCP-6324		35 lb 4 oz (16kg)
	CCP-9000 Series	Main Panel	2 M/E, 12-crosspoint buttons: 27 lb 9 oz (12.5 kg)
			1 M/E, 12-crosspoint buttons: 25 lb 6 oz (11.5 kg)
		Menu Panel	4 lb 13 oz (2.2 kg)
	MKS-8700		39 lb 10 oz (8 kg) (fully loaded)
	MKS-2700		21 lb 10 oz (9.8 kg)
	MVE-8000A		35 lb 4 oz (16 kg) (fully loaded)
	MVE-9000		59 lb 8 oz (27 kg) (fully loaded)
	Memory Card/USB Adaptor		2 lb 10 oz (1.2 kg) (with module)
	Extension Adaptor		3 lb 4 oz (1.5 kg) (with module)

Video inputs/outputs	
MVS-8000X	
Inputs (Max.) (BNC)	20 for Premium inputs, 144 for Primary inputs, 20 for DME, 16 for Format converter
Outputs (Max.) (BNC)	48 for Outputs, 20 for ME outputs, 4 for Duplicate outputs for OUT23/24/47/48, 20 for DME, 4 for Format Converter, 4 for Multi Viewer (2 x 2)
Signal format	SMPTE424M/SMPTE292M/SMPTE259M-C
MVS-7000X	
Inputs (Max.) (BNC)	80 for Primary inputs, 20 for DME
Outputs (Max.) (BNC)	48 for Outputs, 4 for Duplicate outputs for OUT23/24/47/48, 20 for DME, 4 for Format Converter, 4 for Multi Viewer (2CH x 2)
Signal format	SMPTE424M/SMPTE292M/SMPTE259M-C
MVS-8000G/8000GSF	
Primary inputs	MVS-8000G: Max. 80/MVS-8000GSF: Max. 34, BNC (x1 each) SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Assignable outputs	MVS-8000G: Max. 48/MVS-8000GSF: Max. 24, OUT 1, 2, 13 to 16, 25, 26, 37 to 40: BNC (x2 each) OUT 3 to 12, 17 to 24, 27 to 36, 41 to 48, FC1 to 4: BNC (x1 each) SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Monitor outputs	MVS-8000G: Max. 8, BNC (x2 each) SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Integrated DME I/O	MDR 68-pin (x4) (inputs/outputs: 2 CH x 4), LVDS
MVS-6000	
Primary inputs	Max. 49, BNC (x1 each) SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Assignable outputs	24 OUT 1, 2, 13 to 16 : BNC (x2 each) OUT 3 to 12, 17 to 24, FC1, 2 : BNC (x1 each) SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Monitor outputs	Max. 8, BNC (x2 each) SMPTE292M (HDTV), SMPTE259M-C (SDTV)

Reference

MVS-8000X/MVS-7000X

Reference input	BNC (x2), 75 Ω with loop-through output HD tri-level sync or Analog black burst

MVE-8000A

MKE-8020A	Video inputs/Video outputs MVS interface	MDR 68-pin (x2) (inputs/outputs: 2 CH x 2), LVDS
MKE-8021A	Video inputs Video/Key	BNC (x8), SMPTE292M (HDTV), SMPTE259M-C (SDTV)
	Video outputs Video/Key	BNC (x8), SMPTE292M (HDTV), SMPTE259M-C (SDTV)
	Monitor outputs	BNC (x4), SMPTE292M (HDTV), SMPTE259M-C (SDTV)

MVE-9000

MKE-9020M	Video inputs/Video outputs MVS interface	MDR 68-pin (x2) (inputs/outputs: 2 CH x 2), LVDS
MKE-9021M	Video inputs Video/Key	BNC (x8), SMPTE292M (HDTV), SMPTE259M-C (SDTV)
	Video outputs Video/Key	BNC (x8), SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Ext Video In		BNC (x4), SMPTE292M (HDTV), SMPTE259M-C (SDTV)
Monitor outputs		BNC (x4), SMPTE292M (HDTV), SMPTE259M-C (SDTV)

MVS-8000G/8000GSF, MVS-6000, Device Control Unit, DME Processor, System Control Unit

Reference inputs	BNC (x2), 75 Ω with loop-through output
	HDTV systems: HD tri-level sync/SDTV analog sync/Analog black burst
	SDTV systems: Analog black burst/analog sync

MVE-8000A, MVE-9000

Reference intputs	BNC (x2), 75 Ω with loop-through output
	Analog black burst or HD tri-level sync

Control

MVS-8000X/MVS-7000X

Control LAN	RJ-45 (x1), 100BASE-TX
Data LAN	RJ-45 (x1), 100BASE-TX
Remote 1 to 4	D-sub 9-pin (x1), RS-422A
GPI	D-sub 25-pin, TTL level inputs (x8), relay contact outputs (x4), open collector outputs (x4)
FM Data	RJ-45 (x1), 100BASE-TX
FM Device	USB-type A (x2), USB 2.0

MVS-8000G/8000GSF

Control LAN	RJ-45 (x1), 100BASE-TX
Data LAN	RJ-45 (x1), 100BASE-TX
Remote 1 to 4	D-sub 9-pin (x1), RS-422A
Terminal	D-sub 9-pin (x1), RS-232C
GPI	D-sub 25-pin, TTL level inputs (x8), relay contact outputs (x4), open collector outputs (x4)
FM Data	RJ-45 (x1), 100BASE-TX
FM Device	Complies with IEEE 1394

MVS-6000

Control LAN		RJ-45 (x1), 100BASE-TX
Data LAN		RJ-45 (x1), 100BASE-TX
Remote 1, 2		D-sub 9-pin (x1), RS-422A
GPI		D-sub 25-pin, TTL level inputs (x8), relay contact outputs (x4), open collector outputs (x4)
FM Data		RJ-45 (x1), 100BASE-TX
FM Device		Complies with IEEE 1394
Built-in DME	DME Control LAN	RJ-45 (x1), 100BASE-TX
	DME Data LAN	RJ-45 (x1), 100BASE-TX
	Remote 3, 4	D-sub 9-pin (x1), RS-422A
	GPI	D-sub 25-pin, TTL level inputs (x8)

Control

CCP-8000/CCP-6000 Series (System Control Unit : MKS-8010B)

Control LAN	RJ-45 (x1), 100BASE-TX
Data LAN	RJ-45 (x1), 100BASE-TX
Peripheral LAN	RJ-45 (x1), 100BASE-TX
GPI	D-sub 25-pin, TTL level inputs (x8), relay contact outputs (x4), open collector outputs (x4)
REMOTE	BNC (x1), S-BUS
LTC input	BNC (x1)
Device	USB-type A (x1)
Main Panel	D-sub 50-pin (x1)
Menu Panel	D-sub 50-pin (x1)
Ext Panel 1 to 2	D-sub 50-pin (x1)
Ext Display, Menu Display	High-Density D-sub 15-pin, Analog RGB

CCP-9000 Series

Control LAN	RJ-45 (x1), 100BASE-TX
Data LAN	RJ-45 (x1), 100BASE-TX
Peripheral LAN	RJ-45 (x1), 100BASE-TX
GPI	D-sub 25-pin, TTL level inputs (x8), relay contact outputs (x4), open collector outputs (x4)
REMOTE	BNC (x1), S-BUS
Device	USB-type A (x1)
Main Panel	D-sub 50-pin (x1)
Menu Panel	D-sub 50-pin (x1)
Ext Panel	D-sub 50-pin (x1)

MVE-8000A (DME Processor)

Control LAN	RJ-45 (x1), 100BASE-TX
Data LAN	RJ-45 (x1), 100BASE-TX
REMOTE	D-sub 9-pin (x4), RS-422
GPI	D-sub 25-pin, TTL level inputs (x8), relay contact outputs (x4), open collector outputs (x4)

MVE-9000 (DME Processor)

Control LAN	RJ-45 (x1), 100BASE-TX
Data LAN	RJ-45 (x1), 100BASE-TX
REMOTE	D-sub 9-pin (x4), RS-422A
GPI	D-sub 25-pin (x2), dry contact or open collector inputs (x16), relay contact outputs (x8), open collector outputs (x8)

MKS-8700 (Device Control Unit)

Peripheral LAN	RJ-45 (x1), 100BASE-TX
Serial tally 1 to 2	D-sub 9-pin (x1), RS-422A
TALLY/GPI inputs	D-sub 37-pin (x3), TTL level inputs (x34 each)
TALLY/GPI outputs*	D-sub 37-pin (x1), relay contact outputs 18ch, up to 270 ch in step of 5 ch in a frame
REMOTE*	D-sub 9-pin (x1), RS-422A, various protocols, up to 30 ports in steps of 6 ports in a frame

MKS-2700 (Device Control Unit)

Peripheral LAN	RJ-45 (x1), 100BASE-TX
TALLY/GPI inputs	D-sub 37-pin (x1), TTL level inputs (x34)
TALLY/GPI outputs	D-sub 37-pin (x2), TTL level inputs (x18 each)
REMOTE	D-sub 9-pin (x6), RS-422A, various protocols

* Either TALLY/GPI or REMOTE ports are installed. A mixed configuration of TALLY/GPI and REMOTE ports can be supported.