



HDTV Workstation with Disk Recording Capabilities

HDStationPlus

HDStationRGB



Uncompressed HDTV Real-Time Editing
for Professional Applications

- ▶ Video Workstation for Recording and Editing of Uncompressed HD Video and Audio
- ▶ Microsoft® Windows® or Linux® OS
- ▶ Serial Digital HD I/O (SMPTE 292M)
 - 8 Bit and 10 Bit Video
 - *HDStationPlus*:
YCbCr/4:2:2
 - *HDStationRGB*:
YCbCr/4:2:2
YCbCrA/4:2:2:4
RGB/4:4:4
RGBA/4:4:4:4
- ▶ Analog Component Outputs (RGB/YUV Switchable)
- ▶ Digital Color Space Converter
- ▶ Major Supported Formats:
 - 1920×1080i
 - 1280×720p
 - 24sF
 - Film 2K
 - Film 4K
 and many others
- ▶ SDTV Option
- ▶ Desktop Video Overlay
- ▶ 3:2 Pulldown to Handle Film-Originated Material
- ▶ Vari Frame Rate for Record and Play
- ▶ RS-422 I/O for VTR Emulation and VTR Master Control
- ▶ Up to 6 Stereo Channels of Digital AES/EBU or Embedded Audio I/O
- ▶ LTC I/O with LTC Reader
- ▶ VITC I/O
- ▶ Internal HD Timebase with Analog Genlock Input (Bilevel, Trilevel)
- ▶ Bilevel, Trilevel, or HV-TTL Analog Sync Output
- ▶ Partitioned Storage
- ▶ Clip Management
- ▶ Non-Linear Play List
- ▶ Easy-to-Use Control Software with GUI and Network Video File System
- ▶ Optional Multichannel Operation
- ▶ Optional Interface for HDreel manufactured by director's friend

HDStationPlus

The HDStationPlus is the video workstation line of the HDStationPRO family. It is centered around the DVS HDStationBoard, a powerful single-slot 64-bit PCI board for real-time input & output of uncompressed HDTV or SDTV signals.

The HDStationPlus is a ready-to-use Windows or Linux based workstation with intuitive software, providing an affordable HDTV play-out and capture station with disk recording and networking capabilities.

Available with different sizes of video disk array, the HDStationPlus allows recording HDTV video material from 10 minutes up to several hours. This makes it *the* compact all-in-one solution for uncompressed HD video and audio post production such as for

- ◆ Graphics
- ◆ Compositing
- ◆ Rendering
- ◆ Color Correction
- ◆ Animation
- ◆ Rotoscoping
- ◆ Non-Linear Editing
- ◆ Telecine Transfers

and much more.

Standard Components

The HDStationBoard is fully compliant with PCI specifications, thus allowing high speed, high quality desktop HD video on a standard and easily expandable hardware platform. Running under Windows or Linux, the HDStationPlus allows you to work with your familiar operating system using your favorite applications.

Variety of HDTV Standards

In its basic configuration the HDStationPlus supports the common HDTV standards 1035i/1080i, 1080p, and 720p as well as the popular progressive 1080sF raster with segmented frames. Film applications with 24 fps material are supported by 3:2 pulldown at play-out and pulldown removal at record. For record and play-out the Panasonic® Vari Frame feature is supported. Enhanced handling of film-originated material can be achieved with the DigiCine option (see rightmost box).

Other video standards are available as options or can be implemented on request. The modular design of the HDStationBoard enables the HDStationPlus to support future interlaced and progressive HDTV and film resolutions.

Audio and LTC

Up to 6 digital stereo channels of embedded audio (Audio-in-Video) are available. The on-board AES/EBU feature provides additional functions, such as slipsyncing audio with video. An LTC I/O with LTC reader is included in the Audio option.

Specifications are subject to change without notice due to continuous product development and improvement.
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Unlimited Possibilities

Recording, storing, recalling, editing, and playing uncompressed HDTV video sequences at studio-level quality in YC_bC_r with 8 and 10 bit resolution is possible with the HDStationPlus. Via the HDTV SDI (Serial Digital Interface), the data is transferred between the HDStationPlus and digital peripherals. For monitoring purposes, an analog output is at hand which offers RGB and YUV display, thanks to a built-in digital color space converter. Bilevel, Trilevel, and HV-TTL sync are supported as well as gamma correction with look up table (LUT).

The HDStationPlus can be used as a local HDTV workstation or as a local or remote HDTV disk recorder with frame-accurate editing and up to several hours recording capacity on a partitioned disk array. The controlling interface is either a GUI or an RS-422 device.

Efficient Editing Support

In edit suite applications, the HDStationPlus can be used as a player or recorder, emulating and replacing the traditional VTR by offering a highly flexible RS-422 remote control master-slave protocol. Its random access to any image on disk makes editing incredibly fast.

The HDStationPlus is compatible with all major edit controllers that use the industry standard 9-pin RS-422 protocol. It also supports the major broadcast automation protocols. A clip management feature provides easy-to-use audio and video clip administration as well as non-linear play lists.

RAID 3

With the RAID 3 disk array the HDStationPlus becomes tolerant of disk failures. Even with a broken disk real-time operation is guaranteed. Hot swapable disks and near real-time recovery result in a short service time and an undisturbed operation.

Control Software

Interfacing to graphics and animation applications is easily done with the software tools included:

- ◆ The graphical user interface (VGUI) offers control functions and data transfer between the HDStationPlus, VTRs and system disks from local and remote computers.
- ◆ The network video file system (nvfs) provides local and remote access to the video data via the computer file system. The data are automatically converted between many common file formats and the internal storage format.
- ◆ The built-in web server allows setup and configuration of the HDStationPlus using a standard web browser.
- ◆ Alternatively, a command line interface may be used for setup, control, and automated batch processing.

Desktop Video Overlay

In addition to the video monitor the video data can be viewed in real-time on the workstation desktop in a freely configurable window (up to full screen size). This can be very useful when working with video formats at low frame rates, e.g. 2K at 14 Hz. While standard equipment would produce an extreme flickering (if anything at all), a flicker-free picture is displayed on the workstation desktop of the HDStationPlus.

HDStationRGB

In addition to the features of the HDStationPlus, the HDStationRGB offers a 1.5-Gbit/sec dual-link HDTV SDI for in- and output of RGB in 8 and 10 bit. Material can be stored in YC_bC_r or RGB independent of the I/O format. Thus the video data can be handled with the highest flexibility: Either a workflow without color space conversion is established or video data is read in any color format, edited in RGB and played back in YC_bC_r to a VTR.

As an optional feature the HDStationRGB is able to record and play YUVA 4:2:2:4 (video plus key channel) in 8 and 10 bit standard and HD formats.

DigiCine Option with 2K and 4K

The DigiCine option is particularly suited for film scanning and film post production applications. It enhances the HDStationPlus or the HDStationRGB by the film rasters 2048×1556 in 24 Hz (p and sF) and 4096×3112 in 5 Hz (sF). To allow near-real-time transfer from telecines via HSDL, the 2048×1556 raster can be switched to 14.98, 15, or 18.75 Hz sF. Flicker-free monitoring, analog output is possible in 60, 72, or 96 Hz with frame repetition. Last but not least, for even higher resolutions transmissions with 4K in 5 Hz are possible to provide optimum quality for post production.

Other Useful Options

The **SDTV option** allows the HDStationPlus or the HDStationRGB to output in both video modes, SDTV and HDTV.

For applications like stereo or other multi-channel presentations, the **Multichannel option** allows coupling two or more HDStationPlus or HDStationRGB devices for synchronous control and operation.

The **SV-TAR option** of the HDStationPlus or HDStationRGB provides lossfree back-up of video and audio information to data tapes. Most common tape drives are supported such as DAT, AIT and DTF®.

For information about all available options see the specifications.

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Specifications

	Input	Output
Video (HSP) HD Digital Serial I/O (8 and 10 Bit) Single Link (SMPTE 292M) Optional HSDL Analog HD	1 BNC plus 1 loop-through	2 BNC 3 BNC for RGB/YUV, S
Video (HSPRGB) HD Digital Serial I/O (8 and 10 Bit) Dual Link (SMPTE 292M) Optional HSDL Analog HD	2 BNC plus 2 loop-through	4 BNC 3 BNC for RGB/YUV, S
Reference Analog Genlock	1 BNC	1 BNC for S/H 1 BNC for V
Audio Embedded Audio; 4 or 6 Dig. Stereo Channels AES/EBU; 4 or 6 Dig. Stereo Channels	1 BNC (via Video In) 4...6 XLR or 4...6 BNC	1 BNC (via Video Out) 4...6 XLR or 4...6 BNC
Timecode Longitudinal VITC	1 XLR female 1 BNC (via Video In)	1 XLR male 1 BNC (via Video Out)
Data and Control Interfaces Serial RS-422 GPI (1 DB-9)	3 DB-9 2 TTL	1 DB-9 3 TTL
Data Formats HDTV Formats	1035i 59.94/60 1080i 50/59.94/60 1080p 23.98/24/29.97/30 1080sF 23.98/24/29.97/30 720p 59.94/60 2048x1556sF 14.98/15/18.75 4096x3112sF 5	
Frame-Repeat Formats for 24/30 Hz Material	1920x1080sF 60/72/96 2048x1556sF 60/72 Other video formats on request	
Color Modes	YCbCr/4:2:2 YCbCr/4:2:2:4 RGB/4:4:4 RGBA/4:4:4:4	
Internal Processing	Color space conversion, frame repetition	
Included Software Driver, command line, and VGUI with HD real-time disk I/O and VTR control/emulation, partitioning, clip management, network video file system (nvfs)		

Standard

HDStationPlus/HDStationRGB

Line of pre-configured state-of-the-art Microsoft® Windows® or Linux® based workstations with HD digital disk recording capabilities providing a wide range of uncompressed HD recording times from approx. 10 minutes up to several hours. The workstations come in either a 19" industry or a server chassis and include an Intel® Pentium® IV CPU, 512 MB RAM, and a 10/100 BaseT Ethernet adapter. A powerful HDTV SDI offers uncompressed real-time I/O. Dedicated software tools are already installed, like operation software, control software VGUI, web server for configuration and setup, and disk recorder protocol emulation software.

Optional Packages

Video I/O Options

1. SDTV interface for 625/525 formats
2. DigiCine option for film applications

CPU Option

Second CPU.

Network Options

1. Gigabit Ethernet with fiber-optic Dual SC interface
2. FiberChannel with fiber-optic Dual SC interface

Multichannel Option

Allows simultaneous control and synchronous operation of several HDStationPlus and HDStationRGB devices by one RS-422 control panel or VGUI.

RAM Extension

1 GB PC133 ECC RAM.

Audio I/O Options

4 or 6 stereo channels digital AES/EBU and embedded audio (48 kHz at 20 bit), separate audio disk-array for audio I/O slip-syncing with video, and LTC I/O.

SV-TAR Option

Allows lossfree saving of video sequences on inexpensive data tapes.



HDStationPlus/HDStationRGB
in server case

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