



HD3D+ Server

Information and Specifications

(1st of January 2007, to be changed without notice)

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HD3D+ Server stands for best quality and best cost-value ratio.

The HD3D+ Server is a High Definition 2 channel video server for best presentation of high resolution 3D videos. Running in most 3D, 4D and 5D cinemas built by Kraftwerk in the last years, the HD3D+ Servers have an unbeatable average uptime of **100.0%** (calculated on 1st of January 2007).

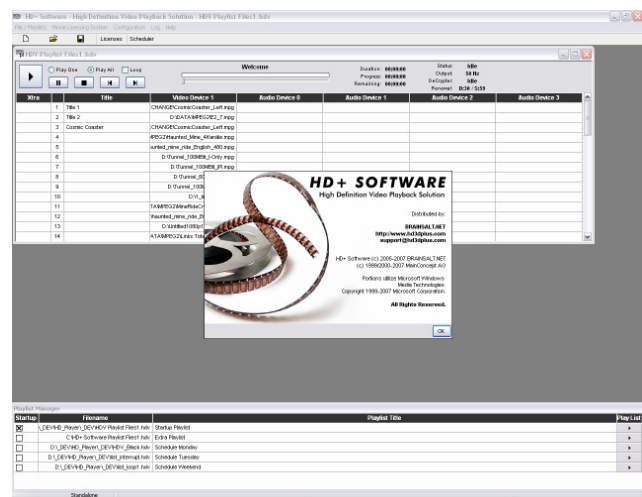
The HD3D+ Server is an affordable out of the box solution for **digital 3D cinemas**. It can decode all kinds of MPEG2 streams up to 1080p at **100 MBit/s per channel** what is the upper end of the MPEG2 standard. With its ability to easily control and synchronize (with) various kinds of control and effect hardware, it is also an ideal solution for **4D and 5D cinemas**.

It can be used for **passive 3D** projections (parallel - with two video outputs and polarized glassed) and **active 3D** projections with most digital cinema projectors (frame interleaved - with one video output and shutter glassed).

HD+ Software

The easy to use graphical user interface let's you manage **playlists**, add and remove 2D and 3D videos, replace audio channels of the videos and much more. With the built-in **scheduler** you can define playback dates and times for your playlists. This allows an **unattended operation** of the HD3D+ Server.

The player implements an **RS232** based remote control. Direct integration into Crestron® based media control environment with the network based **Crestron CNX** interface is already integrated and implementations for other media control vendors will follow.



The HD3D+ Server can playback **8 channels of uncompressed audio**. It is optionally extendable to 16 channels. The used audio hardware lets you mix and **integrate different external audio** sources like CD player or Microphone.

Multi Screen, Edge Blending and Image Warping

Multiple HD3D+ Servers can be synchronized for **panoramic projections** or one centre 3D projection and **multiple side screens**. They can also be combined to an **360° 3D cinema** with passive stereo glasses.

The HD3D+ Server can do **Edge Blending** (for 2D panoramic projections) and **Image Warping** (for curved screen application) by default.

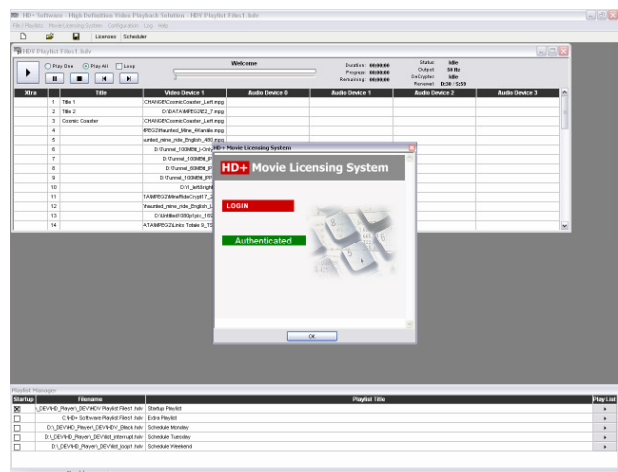
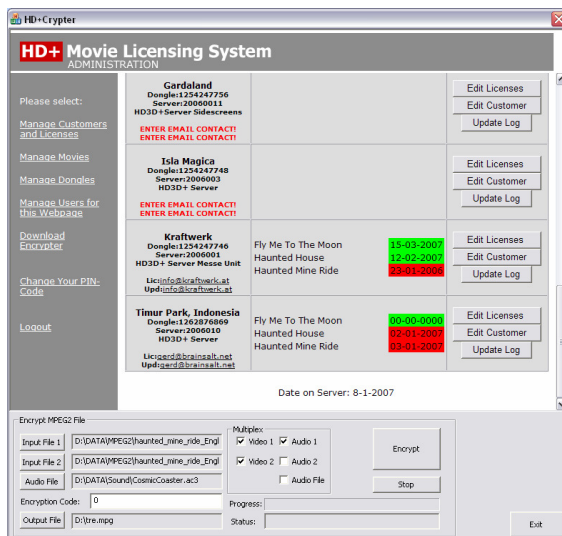
Edge Blending, Warping and Multi Screen are **BuiltIn features** with no extra charge!



HD+ Movie Licensing System

The HD3D+ Server implements a proprietary licensing system for copy protected contents. It allows content creators to distribute their movies with a strong encryption and **grant playback** of the movies on specific servers for a specific durations. The licenses are transferred over the internet with one of the **safest authentication and encryption** methods currently available.

Content provider might insist on such a copy protection system in the near future, otherwise you won't get their films!



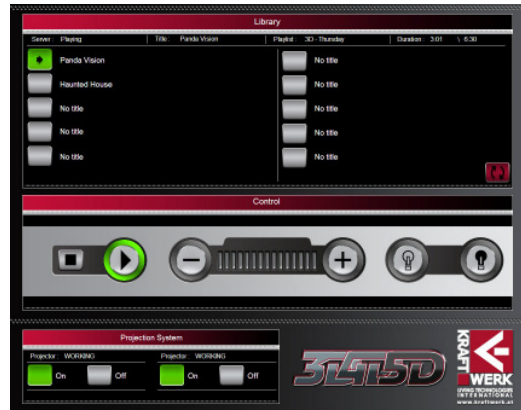
Integration

The HD3D+ Server offers various unique features and is **easily integrated in virtually any project.**

The HD3D+ Server can control projectors and other external devices with its two serial communication interfaces. It can output LTC timecode to synchronize external devices like FX controllers.

It comes with the source files of the reference implementation of a Crestron™ CNX based system control environment.

Kraftwerk has done its own Crestron™ X-Panel design to that enables you to easily control the whole cinema (video server, projectors, lights, status reports, procedures for maintenance, etc. etc.) with one control system and from one touch panel (right picture). If you wish to learn more about Kraftwerk's control system, let us know.



With the optional SMPTE LTC timecode Input the HD3D+ Server can be integrated in showcontrol scenarios, where the playback of the video must be locked to an external timecode.

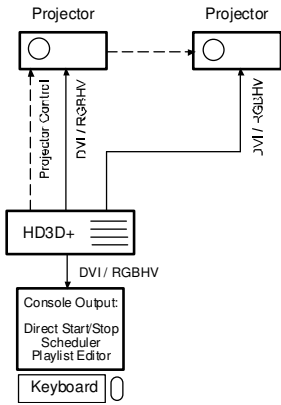
HD3D+ Server Hardware

The HD Server is built with rock solid server hardware. The basic version is equipped with redundant fans for chassis and power supply. The system comes with all the features you expect from a 24/7 running server: Remote Management and Control via a built in Webinterface, Health check and Pager/e-mail alert in case of a hardware problem (like broken fan or similar). The MTTF (Mean Time Between Failure) of the basic system is calculated with one million hours. Optionally available triple redundant power supply and Raid 1 for system and video drive(s) minimize the chance for a system breakdown to nearly zero.



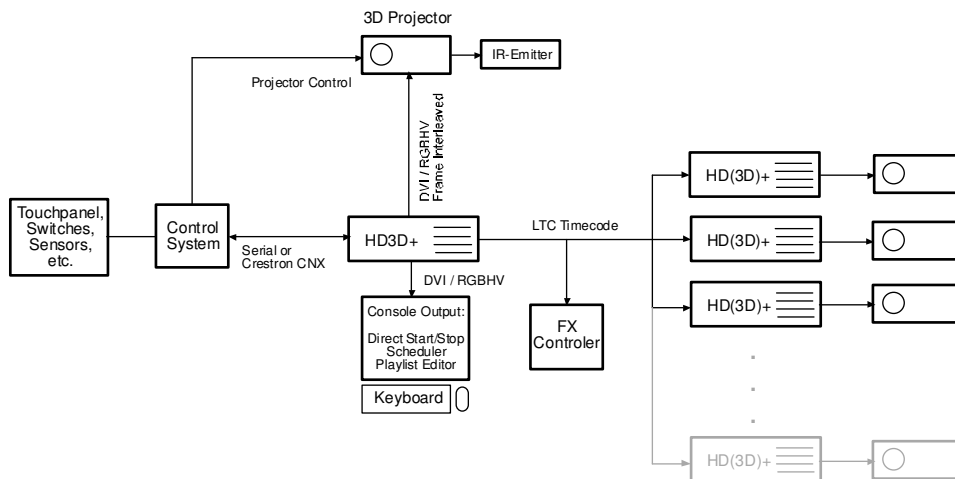
Case Study 1

Standalone 3D projection system for polarized glasses:



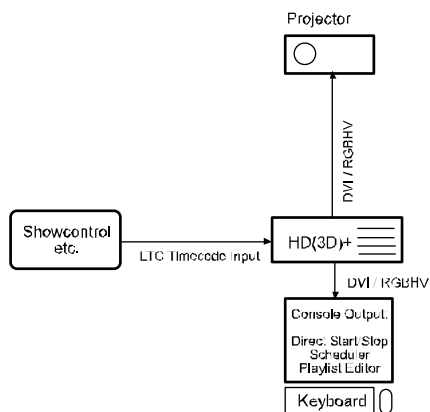
Case Study 2

3D Projection with shutter glasses, integrated in Control System, FX controller and various side screens:



Case Study 3

Slave Operation Mode with LTC timcode input:



Specifications:

HD3D+ Server Video and 3D system:

- Synchronous playback of two High Definition MPEG2 streams
- Decodes MPEG2 up to 1080i and 1080p with up to 100 MBit/s per channel
- Genlocked video outputs (for passive 3D)
- Frame Interleaved video with White Line Code (for active 3D)
- Supported frame rates: 23.976, 24, 25, 29.97 and 30 fps - custom frame rates up to 60 fps easily possible
- RGBHV or DVI output
- Custom output resolution & video timings

HD+ Software:

- Manage Playlists
- Scheduler for unattended operation
- Warping and Edge Blending are Built-In features
- Movie Licensing System

System Control Aids:

- RS232 control outputs for start/stop playlist and videos to control projectors or FX controllers
- 24, 25 and 30 fps SMPTE LTC timecode output with the possibility to shift timecode for FX controllers or to synchronize with other HD3D+ Servers.

Show Control:

- Easy integration with RS232 remote control.
- Crestron® CNX protocol integrated.
- Optional SMPTE LTC timecode input for slave operation mode. Video playback locks to input timecode. Timecode for start can be freely set for each video.

Audio processing:

- 16 channel HD Audio I/O
- Ballanced I/Os with stereo Jacks
- Sampling Rate: up to 96 KHz
- Compressed/uncompressed
- Up to 16 External Audio Sources can be mixed
- Volume control through RS232 and Crestron CNX remote control interface

Hardware:

- Rock solid server hardware
- Optional triple redundant power supply
- Optional RAID 1 for system and video drives
- Power supply: redundant 650W - 750W
- Usual Power consumption: 200W (standby) - 360W (playback)
- Dimensions (WxHxD): 42.5 x 17.5 x 68.5 cm
- Weight: 35 kg