



3D-Hub Player System Requirements V2.2

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Introduction

The 3d-Hub Player is an advanced graphics application. It relies upon the same graphics hardware that is required to run modern computer games. That hardware is not expensive or hard to find, but it is specific. The 3d-Hub Player requires a DirectX 9.0 compatible graphics processor (GPU) with at least 512Mb of dedicated graphics memory and a dual core processor (CPU) with 2Gb of system memory or more.

The three major GPU suppliers are Nvidia, AMD (ATI was acquired by AMD) and Intel.

Most GPU's will support 3D-Hub Player's 2D and non-Blu-ray stereo 3D formats. Currently the 3D-Hub Players' 3D Blu-ray output option will only work on the AMD GPUs that support AMD HD3D Technology (detailed on page 6 and 8) and Intel's 3rd generation CPUs that have integrated HD4000 or higher graphics capabilities.

If you do have a relatively new AMD GPU in your system then it is highly likely it will support all types of stereo 3D output. Desktop PC's with older GPU's can be upgraded fairly cheaply, whereas GPU's in notebooks and laptops are almost certainly not replaceable.

Operating system requirements for all forms of 2D and stereo 3D output (For Desktop and Notebook systems)

- Microsoft® Windows® 7 or 8, Microsoft® Windows Vista®, with 64 bit and 32 bit versions both supported. (The software is not currently Mac compatible.)
- Minimum CPU requirement is an Intel® Pentium® 4 - 1.4 GHz or equivalent AMD® processor. (Modern Intel i3, i5 and i7 and AMD Phenom CPUs are recommended.)
- 2 GB RAM (4 GB recommended)
- 3D-Hub Player requires DirectX 9.0c. Most systems have this component already installed, but if not, the appropriate updates from Microsoft will be installed.
- Internet connection to activate the license product key. (Activation can be accomplished offline initially.)

GPU Compatibility and Features at a Glance

Compatible Outputs								Display Modes				DLP Compatibility		
Anaglyph (red/cyan)	Black & White Anaglyph (red/cyan)	Side by Side – Full Resolution	Side by Side – Squashed	Over/Under Squashed	Checkerboard	Quad Buffered DirectX	Intel 3D TV/Projector Output	computer only	duplicate	extended	projector only	VGA compatible Stereo 3D display devices	HDMI 1.3 Stereo 3D display devices	HDMI 1.4a Stereo 3D display devices

Desktop GPU

Intel directX compatible GPU with 500MB memory or higher	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗
AMD or Nvidia directX compatible GPU with 500MB memory or higher	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗
AMD Radeon™ HD 5000 series	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓
AMD Radeon™ HD 6000 series	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓
AMD Radeon™ HD 7000 series	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓
Intel HD4000	✓	✓	✓	✓	✓	✗	✓	✓	□	✓	✓	✗	✗	✓

□ - Duplicate display mode not possible with DLP display devices

Notebook GPU

Intel directX compatible GPU with 500MB memory or higher	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗
AMD or Nvidia directX compatible GPU with 500MB memory or higher	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✗	✗	✗
AMD Radeon™ Mobility HD 5600 series	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓
AMD Radeon™ Mobility HD 5700 series	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓
AMD Radeon™ Mobility, HD 5800 series	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓
AMD Radeon™ HD 6000 M series Graphics	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓
AMD Radeon™ HD 7000 M series Graphics	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✓
AMD FirePro™ Mobility M2000, M4000, M3900, M5950, M6000 and M8900	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓
Intel HD4000	✓	✓	✓	✓	✓	✗	✓	✓	□	✓	✓	✗	✗	✓

□ - Duplicate display mode not possible with DLP display devices

GPU (Graphics Processing Unit) requirements for running 3D-Hub Player in full screen 2D mode with standard 2D display devices

Any desktop or notebook with a Direct3D 9 capable GPU with 500 MB or higher video card memory (1 GB or higher is recommended) running the latest GPU drivers will work fine for this mode. Intel based desktop and notebooks with stand alone or integrated GPU's will happily run the 3D-Hub Player, but are may not support ant-aliasing. (Anti-aliasing is the ability to smooth the edges of text and graphics.) The exceptions to this are Intel's HD3000 and HD4000 range of GPU's.

Connection Type

Connect using a cable compatible with both your display device and your GPU ie: analogue SGVA or digital DVI, HDMI, DP or Mini DP.

Supported display modes

The desktop or notebook can be run in "computer only", "duplicate" (your primary and secondary display devices will have to support the same resolution and possibly refresh rate), "extended" or "projector only" mode.

GPU (Graphics Processing Unit) requirements for running 3D-Hub Player in full screen stereo 3D mode in non-Blu-ray modes display modes

Any desktop or notebook with a Direct3D 9 capable GPU with 500 MB or higher video card memory (1 GB or higher is recommended) running the latest GPU drivers should support this mode. Intel based desktop and notebook with stand alone or integrated GPU's will happily run the 3D-Hub Player but may not support ant-aliasing. (Anti-aliasing is the ability to smooth the edges of text and graphics.) The exceptions to this are Intel's HD3000 and HD4000 range of GPU's.

Connection type

Connect using a cable compatible with both your display device and your GPU i.e.: analogue SGVA or digital DVI, HDMI, DP or Mini DP. (It is likely that "interlaced scanline" and "checkerboard" 3D output modes will only work with digital connections.)

Supported display modes

- **Computer only** - If you are using a stereo 3D display device it must support one of the below 3D signals and be accompanied with compatible 3D glasses.
- **Duplicate** - If you require a secondary monitor as well as your 3D display device, the secondary monitor must support the same resolution. 3D-Hub Player's full screen 3D mode content will appear as a 2D ghosted, squashed left/right or squashed over under image while your 3D device will display a stereo 3D image.
- **Extended** – Your 3D display device can be run as a second primary or secondary screen in extended mode. You will need to select your stereo 3D device in the “monitor to use in Full Screen Display” in your 3D-Hub Player Display Options.
- **Projector only** - If you are using a stereo 3D display device it must support one of the below 3D signals and be accompanied with compatible 3D glasses.

Stereo 3D output modes include:

- Anaglyph (red/cyan)
- Black & White Anaglyph (red/cyan)
- Side by Side – Full Resolution
- Side by Side – Squashed
- Over/Under - Squashed
- Interlaced Scanline
- Checkerboard

Note: *Please check that your projector/screen's stereo 3D input modes are compatible with the above. It's highly likely that your projector/screen will need to be placed in the applicable "3D Mode"*

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AMD GPU (Graphics Processing Unit) requirements for running 3D-Hub Player in full screen stereo 3D mode with DLP Link stereo 3D projectors and display devices that support HDMI 1.3*

(*VGA cables can be used with AMD FirePro™ Mobility GPUs and compatible display devices)

- AMD **Desktop** GPU's that supports AMD HD3D technology (latest AMD Catalyst Software Suite recommended)
 - AMD Radeon™ HD 5000 series
 - AMD Radeon™ HD 6000 series
 - AMD Radeon™ HD 7000 series
 - AMD Radeon™ HD 8000 series
- AMD **Notebook** GPU's that supports AMD HD3D technology (latest AMD Catalyst Software Suite recommended)
 - AMD Radeon™ Mobility HD 5600 series
 - AMD Radeon™ Mobility HD 5700 series
 - AMD Radeon™ Mobility, HD 5800 series
 - AMD Radeon™ HD 6000 M series Graphics
 - AMD Radeon™ HD 7000 M series Graphics
 - AMD Radeon™ HD 8000 M series Graphics
 - AMD FirePro™ Mobility M2000, M4000, M3900, M5950, M6000 and M8900

Stereo 3D output modes include:

3D Ready / 3D Blu-ray Output – Note: you will require a display frequency of 120Hz to obtain full screen stereo 3D mode. This can be found in AMDs Catalyst Control Center or Windows Screen Resolution – Advanced Settings – Monitor Tab.

Connection type

Connect using a cable compatible with both your display device and your GPU. For stereo 3D using the "3D Ready / 3D Blu-ray Output" an HDMI 1.3 compatible HDMI cable is required unless you have a VGA compatible display device and an AMD FirePro™ Mobility GPU.

Supported display modes

- **Computer only** - If you are using a stereo 3D display device it must support DLP Link or a 120 Hz 3D signal and be accompanied with compatible active glasses.
- **Duplicate** - If you require a secondary monitor as well as your 3D device, the secondary monitor must support the same resolution. If the second monitor does not support 120 Hz, 3D-Hub Player's full screen 3D mode content will appear as a 2D image while your 3D device will display a stereo 3D image. (Note: It is not advisable to run a second screen in 3D mode as competing DLP signals to glasses may conflict.)
- **Extended** – Your 3D display device can be run as a second primary or secondary screen in extended mode. You will need to select your stereo 3D display device in the “monitor to use in Full Screen Display” in your 3D-Hub Player Display Options.

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- **Projector only** - If you are using a stereo 3D display device it must support DLP Link or a 120 Hz 3D signal and be accompanied with compatible active glasses.

Note: Please be aware that some Intel based Notebooks have an Intel integrated GPU as well as a standalone AMD GPU. These are referred to as "switchable" graphics processors. The PC decides which GPU is required to run at any given time due to the resources needed. This enables simple graphics tasks use the integrated low power Intel GPU, saving power, whereas heavy graphic tasks, such as 3D games, use the AMD GPU. Please make sure the **Notebook has a dedicated AMD GPU** and not "switchable" graphics, even if it states that it is HD3D ready. This is only applicable for HDMI 1.3 display devices.

Due to the nature of the HDMI 1.3 signal, the order in which the Left eye and Right eye are displayed is random and use of the stereo 3D polarity checker (the smiley face) is required when entering full screen stereo 3D mode.

AMD GPU (Graphics Processing Unit) requirements for running 3D-Hub Player in full screen stereo 3D mode with DLP Link stereo 3D projectors and display devices that support HDMI 1.4a

- **AMD Desktop** GPU's that supports AMD HD3D technology (latest AMD Catalyst Software Suite recommended). AMD supports the HDMI 1.4a packed frame format to drive stereo 3D at 1080p 24hz/eye or 720p 60hz/eye.
 - AMD Radeon™ HD 5000 series (3D supported via HDMI 1.4a connector)
 - AMD Radeon™ HD 6000 series (3D supported via HDMI 1.4a connector)
 - AMD Radeon™ HD 6800 & HD 6900 (3D supported via the DisplayPort 1.2 connector)
 - AMD Radeon™ HD 7000 series (3D supported via HDMI 1.4a connector)
 - AMD Radeon™ HD 8000 series (3D supported via HDMI 1.4a connector)
- **AMD Notebook** GPU's that supports AMD HD3D technology (latest AMD Catalyst Software Suite recommended)
 - AMD Radeon™ HD 6000 M series Graphics (3D supported via HDMI 1.4a connector)
 - AMD Radeon™ HD 7000 M series Graphics (3D supported via HDMI 1.4a connector)
 - AMD Radeon™ HD 8000 M series Graphics (3D supported via HDMI 1.4a connector)
 - AMD FirePro™ Mobility M2000, M4000, M3900, M5950, M6000 and M8900 (3D supported via HDMI 1.4a connector)
 - AMD A8 and A10 "APUs" that are listed as HD3D Ready.

The 3D resolutions supported are 1080p (1920 pixels x 1080 pixels) at 24Hz/fps (frames per second), 720p at 50Hz/fps and 720p at 60Hz/fps. The power of the GPU will generally impact on performance. Reducing the resolution to 720p will improve the quality of the output if you detect problems at 1080p. Your PC will detect and change the display frequency at the point of going into full screen stereo 3D.

Connection type

Connect using a cable compatible with both your display device and your GPU. For stereo 3D using the "3D Ready / 3D Blu-ray Output" mode an HDMI 1.4a compatible HDMI cable is required.

Supported display modes

- **Computer only** - If you are using a stereo 3D display device it must support DLP Link or a 120 Hz 3D signal and be accompanied with compatible 3D glasses.
- **Duplicate** - If you require a secondary monitor as well as your 3D device, the secondary monitor must support the same resolution. If the second monitor does not support 120 Hz, 3D-Hub Player's full screen 3D mode content will appear as a 2D image while your 3D device will display a stereo 3D image. (Note: It is not advisable

to run a second DLP Link screen in 3D mode as competing DLP signals to glasses may conflict.)

- **Extended** – Your 3D display device can be run as a second primary or secondary screen in extended mode. You will need to select your stereo 3D device in the “monitor to use in Full Screen Display” in your 3D-Hub Player Display Options.
- **Projector only** - If you are using a stereo 3D display device it must support DLP Link or a 120 Hz 3D signal and be accompanied with compatible 3D glasses.

Intel Ivy Bridge CPU with Integrated HD 4000 GPU required to run 3D-Hub Player in full screen stereo 3D mode with DLP Link stereo 3D projectors and display devices that support HDMI 1.4a

Intel's new range of 3rd generation CPUs (central processor units) have a GPU integrated directly into the processor. Both the desktop and mobile range of Intel Ivy Bridge processors support stereo 3D via the HDMI 1.4a standard. We recommend Intel i7, i5 and i3 processors that feature an Intel HD 4000 GPU. Although the Intel range supports the HDMI 1.4a stereo 3D standard, it doesn't support anti-aliasing of DirectX 3D geometry or a representation of the cursor in both "eyes" in the 3D-Hub Player's full screen stereo 3D mode. The Intel GPU will output in a standard mono format until required to go full into full screen stereo 3D. When full screen stereo 3D is applied by the 3D-Hub Player the connected display device will change modes to match the stereo 3D mode being output.

The 3D resolutions supported are 1080p (1920 pixels x 1080 pixels) at 24Hz/fps (frame per second), 720p at 50Hz/fps, and 720p at 60Hz/fps. The power of the CPU will generally impact on performance – reducing the resolution to 720p will improve this.

Connection cable

Connect using a cable compatible with both your display device and your GPU. For stereo 3D using the "Intel 3D Blu-ray Output" an HDMI 1.4a compatible HDMI cable is required.

Supported display modes

- **Computer only** - If you are using a stereo 3D display device it must support DLP Link or a 120 Hz 3D signal and be accompanied with compatible 3D glasses.
- **Duplicate** – This mode is not supported.
- **Extended** – Your 3D display device can only be run as the primary screen in extended mode. You will need to select your stereo 3D device in the "monitor to use in Full Screen Display" in your 3D-Hub Player Display Options.
- **Projector only** - If you are using a stereo 3D display device it must support DLP Link or a 120 Hz 3D signal and be accompanied with compatible 3D glasses.