VS2000

Virtual studio solution

* What is the VS2000?

Darim's VS2000 is a complete turnkey solution for creating your own fully functional virtual studio.

The VS2000 consists of three main components: **a real time 3D graphics renderer, chroma key compositor and video mixer.** A multi-channel balanced audio delayer is also provided to compensate for the video delay (approximately 4 frames or 132 ms in NTSC) produced during real time renderings.

In addition, the **VS2000 includes 10 virtual sets** designed by Darim which can be easily modified and customized. Because of Darim's partnership with the award-winning set design team, Devlin Design Group, professionally designed sets can either be tailor-made for each customer or chosen from a selection of pre-designed virtual environments created by DDG.

* What are the advantages of the VS2000 over conventional Virtual Studios?

The VS2000 is the first **real time, true 3D virtual studio offered at an affordable price**. The cost of operation is kept to a minimum as it requires **only one operator** to run the tasks of chroma key setup and virtual set control.
VS2000's enhanced, automatic chroma key setup function employs an **advanced keying algorithm** which can accurately key any color instantly, requiring minimal adjustment by the operator.

All set elements, textures and backgrounds can be easily changed either through the VS2000's simple, native **scripting language** or by modifications through 3D Studio MAX. The user interface can likewise be customized for each individual set's shooting scenario using this simple scripting format.

Its **trackless mode** of operation liberates the VS2000 from the use an expensive robotic camera, a complex tripod set up or time-consuming coordinate calculations and renders these requirements obsolete.

Moreover, the **VS2000 does not require a large space for a studio stage**. The illusion of unlimited 3D space can be can be realized utilizing a very small amount of floor space for the actor and all camera movements can be achieved by manipulating the virtual cameras within the virtual set.

The VS2000 is truly affordable, easy to use, and can deliver the highest performance with minimal investment.

Darim's **VS2000** received Broadcast Engineering Magazine's **Pick Hit Award** at **NAB 2002** in recognition of new and innovative technology for broadcast and production applications.

* What is "Trackless Camera Movement" and how is it accomplished?

Trackless camera movement is an illusion where the camera appears to be moving through space when in fact physically the camera is perfectly still. Inside the virtual set are what are called **"virtual cameras."**

More accurately, they are simply points of view inside of a computer generated environment. For example, in a 3D model of a room you can arbitrarily choose any place in the room as your point of view--a view from the front, back, left or right, or even a view from the ceiling or floor. You can then tell the computer to move you around the room, from the front to the back, and it will look as though you are moving forward inside of this room.
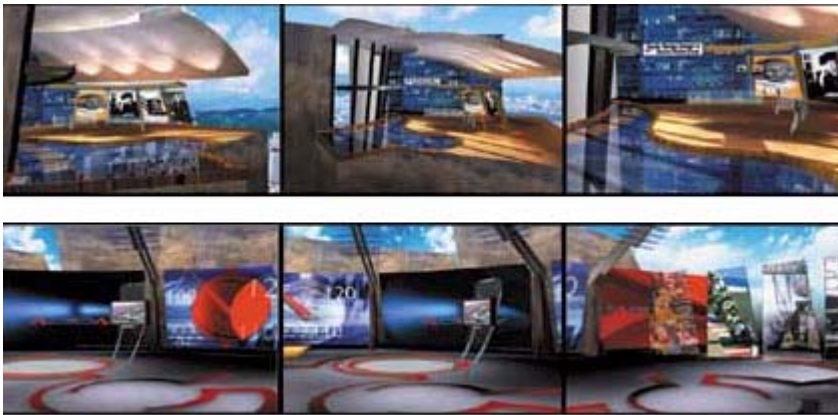
> **Demo_AVI**

The VS2000 can create the illusion of a live person inside of this virtual environment by simply taking a video of that person and "pasting" it on an object inside the room (this is also known as **video texturing**). Now, if the computer were to move you around the room again, from the front to the back, it will look as though you are moving forward and passing this person in the room.
This **"computer movement"** inside of the VS2000's virtual sets can be controlled manually **with a joystick** or automatically with predefined **"movement tracks"** using 3DS MAX.

The physical camera that is shooting the actor does not need to move at all for this to work--all it needs to do is supply a stable, steady video of the actor. It is the job of the computer (VS2000) to make sure that the image of the actor stays in perspective with the surrounding environment.

The VS2000 supports up to 4 video inputs (composite, S-Video, component YUV, RGB or SDI) to provide video feeds from live cameras or pre-recorded footage from VCRs.

* How are these virtual sets created?

Virtual sets for the VS2000 are first designed in **3D Studio MAX or Maya.**
The set is then exported into the VS2000's own native format which optimizes the set for rendering in real time. This unique **3D format** allows the VS2000 to smoothly render these sets in full D1 resolution while still preserving the quality of the original 3DS MAX or Maya design.

Softsets from DDG(Devlin Design Group)

* Does the VS2000 come with virtual sets? How do I create my own?

Several virtual set examples (such as the Moon, Underwater, Sports, News and Weather sets) are included with the VS2000 along **with their original 3DSMAX source files.**
These example sets can be used for educational and training purposes to familiarize customers with many of the VS2000's features. The 3DSMAX source files allow users to utilize these examples as templates for their own virtual set creations.

* How many different video effects is the VS2000 capable of?

An almost **unlimited number of video effects** can be created and realized using the VS2000.
Video texturing on surfaces and 3D objects, double-texturing, Various methods of distortion, duplication or any other effect that can be created and visualized in 3D Studio MAX can also be applied and rendered by the VS2000.
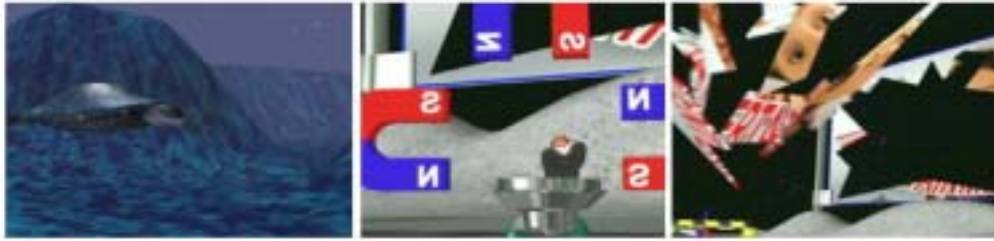
* What is VS2000's Video Overlay Mode?

Overlay mode allows users to place computer generated, 3D graphics such as **title boxes, computer animated characters, virtual information panels and any number of others on top of live video**. One example of this kind of effect are the 3D, computer animated "control panel style" boxes that slide in or appear on top of the video during sports broadcasts (ESPN, FOX Sports, etc) which give scoring and player statistics information, then slide back out again.

Conceptually, **Overlay Mode is a Virtual Set working in reverse**. Rather than taking an actor on live video, keying him and putting him inside a computer generated environment (as in a virtual set), we are taking a computer animated character or object, keying it and putting it inside of (or on top of) a live video environment.