* Integrated 3D Virtual Studio Systems
* Multi-Camera Display/Switching
* Advanced Color Keying
* Real Time 3D Rendering Hardware
* Trackless Camera Animation
* Virtual 3D Position/Zoom Control

* Easy Setup and Operation
* Adaptable for Special Applications
* Optional Camera Tracking Interface

Common System Specifications of VS2000/VS1000 Series:

Input Video Formats:
Live analog or CCIR-656 digital video at half- or full-D1 resolution;
External AVI, MPEG, WMV video clips at up to full-D1 resolution
NTSC, PAL or SECAM software selectable
NTSC: 720x480 or 352x480 at 29.97 fps
PAL/SECAM: 720x576 or 352x576 at 25 fps

Output Video Formats:
Full D1 (4:3), full motion, full color analog or 4:2:2 digital video
NTSC, PAL or SECAM software selectable
NTSC: 720x480 at 29.97 fps
PAL, SECAM: 720x576 at 25 fps

Video Inputs:
Composite (BNC): up to ***4*** (1.0 Vp-p, 75 Ohm)
S-Video (4-pin mini-DIN): up to ***4*** (Y: 1.0 Vp-p, 75 Ohm; C: 0.286 or 0.3 Vp-p at burst level, 75 Ohm)
Component RGB (BNC): up to ***4*** (R/G/B: 1.0 Vp-p, 75 Ohm, Int. sync only),
Component YUV (BNC): up to ***4*** (Y: 1.0 Vp-p, 75 Ohm; U/V: 0.7 Vp-p, 75 Ohm, Int. sync only),
SDI (BNC): optional, up to ***2*** (SMPTE 259M-C, 270 Mbps)
Inputs are software selectable. The maximum possible number of inputs is shown; some inputs are not available on all models. Certain combinations of inputs are mutually exclusive.

Video Outputs:
Preview Out: Composite + S-Video simultaneously
Master Out: Composite + S-Video or ***Composite + YUV*** simultaneously
Composite (BNC) (1.0 Vp-p, 75 Ohm),
S-Video (4-pin mini-DIN) (Y: 1.0 Vp-p, 75 Ohm; C: 0.286 or 0.3 Vp-p at burst level, 75 Ohm),
Component YUV (BNC) (Y: 1.0 Vp-p, 75 Ohm; U/V: 0.7 Vp-p, 75 Ohm, Int. sync only),
SDI (BNC): up to ***2*** (SMPTE 259M-C, 270 Mbps) - optional Master Out.
Outputs are software selectable. Preview and Master Outs produce nearly identical video. Preview Out does not permit genlock and certain advanced signal adjustments

Internal Video Processing Delay:
Without genlock: fixed at ***4*** frame periods [132 ms (NTSC) or 160 ms (PAL/SECAM)]
In genlock mode: approx. ***5.5*** frame periods [180 ms (NTSC) or 220 ms (PAL/SECAM)]

Audio Inputs:
Balanced (XLR) and ***Unbalanced*** (RCA) microphone- or line-level analog mono/stereo audio (up to 6 mono/3 stereo channels simultaneously)
AES/EBU (XLR) - optional digital audio (disables analog input)
All inputs feature individually programmable delay (up to 1000ms) for proper A/V synchronization

Audio Outputs:
Balanced (XLR) and ***Unbalanced*** (RCA) line-level analog audio (up to 6 mono/3 stereo channels simultaneously)
AES/EBU (XLR) digital audio (simultaneous with analog output)

Time Base Correction:
Individual Time Base Correction for each video input and common Frame Sync Buffer allow for real time A/B switching between 2 asynchronous analog/digital video sources without dropped frames or image distortions

Color Keying:
Automatically generated (simplified) or custom table-based (advanced) color keying with color correction
Programmable spatial and temporal filtering and clipping of the keying mask

Genlock:
Analog and digital video outputs may be genlocked to a selected external reference video signal (analog composite) - optional

Camera Tracking:
No physical camera tracking devices are required for VS1000 and VS2000 series.
An optional ***Camera Tracking Interface Package*** (included with VS3000 models) supports certain models of robotic cameras and mounts with pan/tilt/zoom/position tracking sensors.

3D Graphics Rendering Performance:
Up to 150 millions triangles/sec
Full screen Anti-Aliasing (4x typical, up to 16x on selected models)
Real time Anisotropic filtering (2x typical, up to 4x)
Hardware Rendering Buffer - typical 256MB

Received the Broadcast Engineering Magazine's **Pick Hit Award** at NAB 2002

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Real-time 3D Virtual Set Solutions

VS2000/VS1000 Series

Stunning Live 3D Video Effects for Any Budget and Application

DARIM®

2005

Key Advantages of VS2000/VS1000 Series:

Trackless concept of 3D virtual sets
*□No camera tracking is required to get full 3D immersion!
*□Nearly any models of cameras/mounts can be used
*□Reduce the studio space requirements/construction time
*□Provide affordable way to increase the number of cameras

Provides full 3D position/zoom control of virtual cameras
*□No need to adjust/move the real cameras at all
*□A single person can control entire virtual set production

Integrated chroma keying, 3D rendering and video mixing
*□Raw camera video in -- virtual set video out black box concept
*□Internal audio mix/delay module ensures proper audio/video sync
*□Compact-size unit is easy to install, configure and operate
*□Open possibility for use of mobile real time virtual sets in the field

Professional quality chroma keying for any cameras/lights
*□One-click automatic setup with comprehensive manual override
*□Adjustable matte filtering and cropping
*□Color/brightness correction with blue spill removal

Real-time switching of multiple cameras/aux video sources
*□Multi-input hardware with TBC ensures proper transition
*□No need for external switchers and common reference signal

Insertion of multimedia content into virtual sets
*□Easy-to-create virtual screens support almost any data formats
*□Live video, movie clips, still images, PC screen content
*□Dynamically updated PowerPoint, Flash files, web pages

One-touch execution of virtual set scenario, CG animation, other pre-programmed actions
*□Select fully automated or customized scenario for your program
*□Change the flow of scenario by interactive buttons
*□Mouse, keyboard hotkeys and/or touch-screen can be used
*□Various types of remote controls are supported (IR, RF, Bluetooth)

Custom camera and 3D object animation done with joystick
*□Control position, rotation, size using joystick handle and buttons
*□Joystick motion can be recorded and played back accurately

Quick virtual set customization without 3D authoring software
*□End-users can dramatically change the look and feel of sets
*□As simple as selecting a new image, movie or multimedia file

Interactive and remote updates to the 3D virtual set contents
*□Makes possible dynamic charts, tables, graphs, captions
*□Updates can be initiated manually, by timer or on data changes
*□Numeric/text data may be obtained via LAN/Internet

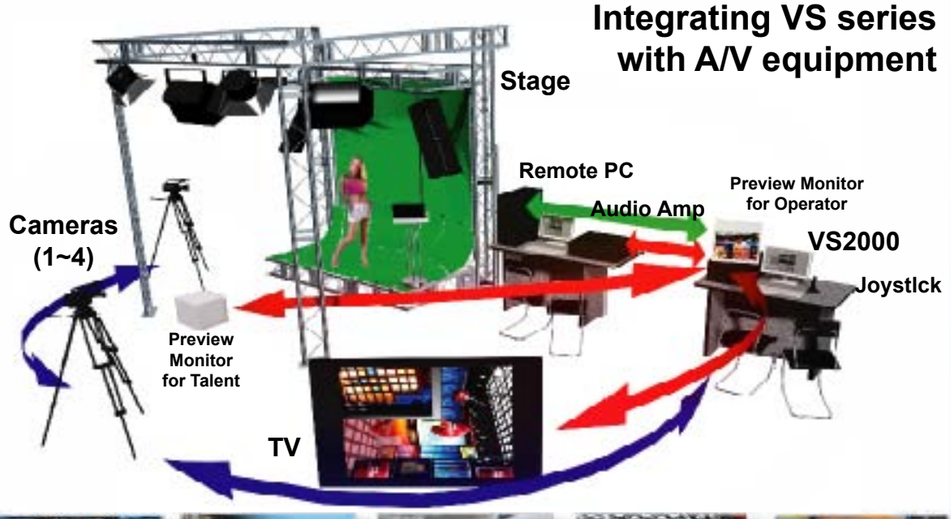
Create your own sets using industry-leading 3D design tools**
*□Provide full project export plug-in for 3D Studio Max® and Maya®
*□Real time 3D viewing software -- no pre-rendering required
*□Support for realistic 3D character animation in virtual sets

Sophisticated yet easy-to-use virtual set control script**
*□Any scenario sequence can be precisely defined and executed
*□Allow designers/producers to go far beyond a single-track scenario
*□Numerous helpers make scripts easy to write and understand

Optional camera tracking sensors and interface package**
*□Covers those few situations when trackless cameras are not enough

** Only available in VS2000 and higher models

Integrating VS series with A/V equipment



Major applications areas of VS series:

Broadcast/Video Production
*□News, weather, sports and talk show programs
*□Music and entertainment programs
*□Highlightin g business and political events
*□Real time 3D DVE and complex 3D titling**

Business/Corporate
*□In-house news, presentations and training
*□Product advertisement and promotional videos

Universities/Educational organizations
*□Virtual classrooms for distance learning (E-Learning)
*□Interactive 3D models for lesson subject visualization

Entertainment
*□Game shows, music videos, virtual entertainment
*□Live interaction of people and 3D animated characters

** *Requires optional software components and corresponding 3D CG content*

Virtual Set Model Line Up:

Standard: □ *Composite/S-Video video inputs/outputs only, standard 3D rendering*
Professional: □ *up to RGB/YUV video inputs/outputs, higher quality 3D rendering*
Broadcast: □ *RGB/YUV and SDI video inputs/outputs, genlock, highest quality 3D rendering, additional operation modes*

	VS1010	VS1020	VS2010	VS2020	VS3030
Standard model	Yes	Yes	Yes	Yes	N/A
Professional model	Yes	Yes	Yes	Yes	N/A
Broadcast model	N/A	Yes	N/A	Yes	Yes
Virtual set authoring	No	No	Yes	Yes	Yes
Camera tracking package	No	No	No	Optional	Yes
Max. number of camera/aux inputs:	2 (analog only)	4 (max. 2 SDI)	2 (analog only)	4 (max. 2 SDI)	3 (SDI only)
Max. number of *live* video streams:	1	2	1	2	3
Max. number of *file* video streams:	2	3	2	3	3
Audio inputs/outputs:	3 stereo	3 stereo	3 stereo	3 stereo	3 stereo