

inferno® offers a deep, integrated suite of visual effects and finishing tools that provide the immediate feedback necessary for true interactive online experimentation, responsive turnaround and client-driven design.

inferno is ideal for film, digital cinema, HDTV/DTV, high-resolution commercials as well as video (PAL/NTSC), and features tools essential for work at higher bit-depth per color channel and spatial image resolution. Within Action's intuitive 3D design environment or Batch interface, *inferno* handles the world's most complex production challenges as well as fast and simple graphics. *inferno* v4 offers a highly sophisticated palette of features including 3D and 2D Motion Tracking, Colour Warper™, Motion Estimation Timewarp, Modular Keyer, Editing, Paint, Text, Universal 24p Mastering, and 2D/3D integration with *3d studio max®*.

inferno also offers a powerful end-to-end effects production pipeline through vertical integration with Discreet's desktop effects and paint software *combustion™* to maximize facility efficiency. A secure growth path is available through *sparks™*, Discreet's third party plug-in program.



Image courtesy of XYZ

features

- *3D Tracking liberates the camera, accelerating integration of live action and CG to save time, eliminate tedious work*
- *Colour Warper intuitive state of the art color manipulation tool with selective color correction, scene matching*
- *Motion Estimation Timewarp for fast and simple precision manipulation of motion sequences*
- *Major Batch Advancements featuring new caching mechanism, I/O node and random access pipeline*
- *Advanced Visualization with Monitor Calibration, New Film Simulation LUTs and Grids/Guides*
- *Expressions, for user customizable "signature" effects*
- *Scripting, allowing (for example) remote project approvals and monitoring via web browser*
- *2D/3D Integration with 3d studio max including full-resolution texture import, to dramatically accelerate workflow for 3D work like logos, text and titles*

3D tracking

- Extract original, real-world camera information from a 2D clip, including data from moving objects
- Accelerate and simplify integration of live action and CG including 3D models, label replacements
- Eliminates tedious frame by frame alignment of 2D images and CG 3D models
- Editing tools allow for smoothing the computed camera trajectory to correct residual motion errors
- Generates camera animation data setup compatible across Discreet systems DVE module
- Within Action; integration of industry-leading technology from RealViz MatchMover

colour warper

- Radically new and fast software color corrector emulates more traditional primary and selective color correction (telecine) approach
- Industry-proven interaction models combine with landmark new color-space manipulation algorithms
- Speeds up technical tasks such as color matching scenes, or black and white point adjustments
- Match feature analyzes images and automatically matches scenes, colors or ranges of colors
- Fine Tuning tool warps RGB space to produce never-before possible precision adjustments
- Accessibility to intuitive precision tools such as a GUI-based vector scope and a graphical 3D color tool
- Allows for multiple levels of precise color-balancing and selective color correction in a single pass
- Animatable functions allow easy adjustments and controls of lighting in a scene over time

motion estimation timewarp

- Enables state of the art timewarping, so artists can slow down or speed up motion sequences
- Change speed and/or acceleration of a scene without telltale "steppiness" of more primitive timewarpers
- Produces true slow-motion effects, and smooth motion blur in fast motion sequences
- Allows artists to interact directly with vector display to further improve accuracy
- Uses powerful algorithms that accurately recreate moving objects or missing frames in a clip
- Available in Batch; integration of industry-leading technology from RealViz ReTimer

tracer

- Accurate edge-keying tool, ideal for keying hair, fur
- Supports multiple keying points, each with individual control over key parameters
- Pull keys from live material (non-bluescreen)
- Improved animation allows artists to track or animate a garbage mask while keeping full control over shape interpolation
- Artist can add vertices between animated vertices and preserve proper shape animation

keyer

- Sub-pixel accurate Keyer (RGB, YUV, HLS, RGBCMYL and custom)
- Variable edge treatment and softness, with gaussian blur
- Shadow, reflection and transparency keying capability
- Unlimited trackable spline-based animatable garbage masks

modular keyer

- Innovative pipeline environment enables processes to be added as needed, and resulting key viewed in-context
- Histogram of 3D RGB space enables fast and accurate manipulation of key parameters
- Powerful new algorithm ideal for pulling keys such as transparencies, quickly and accurately

channel editor including new expressions

- Enables artists to get information faster by viewing all channels as a list, sorting channels in different ways
- Expressions enable creation of powerful new effects formerly only available in script-based systems
- Easy grouping and time-cascading of effects
- Replace channel with Expression referencing other channels/perform mathematical operations between them
- Relate different characteristics of an element, e.g. attach object shininess to its distance from light source

film tools and advanced visualization

- Grain management with analysis and matching of various film stock
- Allows users to reliably reproduce images that match the look of projected film
- Calibration, using X-Rite device (or Barco CaliTalk) ensures accurate measurement of color levels
- User can make manual adjustments to monitor curves (Gamma, Gain and Offset)
- Enables user to have a standard from which any project-specific tweaks can be executed
- Load custom LUTs or use film S-curves to simulate what specific print stocks (vision and premier) look like when projected

grids and guides

- Fully customizable guides enable smooth transitions between different aspect ratios
- Fully customizable safes
- Fully customizable work area (ie, academy guides within full-aperture 35mm)

2D/3D integration with 3d studio max

- Dramatic in-context workflow acceleration for everyday types of 3D work-logos, text, titles
- Direct import/export of 3d studio max (.3DS) camera data, models with multi-resolution textures, surface attributes
- Support for high-resolution textures, without limitation of partition resolution, increases rendering quality

action module

- Effects and compositing in a true interactive 3D design environment, ideal for in-context creative decision-making
- Infinite number of layers, each with independent control of key, color correction, tracking and axis attributes for in-context adjustment
- Extensive 3D capabilities, including: model importation, integrated 3D tracking, text creation, displacement effects with lighting and shadows, an unlimited number of light sources, and a powerful online particle system for explosions or atmospheric effects

action module (continued)

- New Texture Projector projects images onto a 3D scene using various compositing modes (blend, additive, etc.), allowing users to recreate 3D environments from 2D imagery easily, create advanced lighting effects
- True to life camera attributes, including depth-of-field
- Fully-animatable and editable parameters
- Up to 4 simultaneous views
- New camera node and improvements, including free camera-parent objects to/from camera; free camera simplifies support of motion control data
- Surface blending modes, e.g. transfer modes such as screen, min, max, multiply in surface menu
- Improved Bicubic animation; choose between shape or explicit X, Y, Z animation

batch

- High powered module enabling high efficiency, quick and reliable execution based on batch processing trees; view each node in-context of entire scene
- Full integration with major modules and **sparks**
- Powerful new caching and bypassing functions allow automatic or user-set "pre-rendering" of certain parts of a Batch tree, dramatically increasing interactivity speed, especially with larger trees
- Avoid reprocessing the same nodes when navigating the timeline
- I/O Node supports **wire**¹ and on-the-fly¹ remote framerstore transfers (cross-resolution) into RAM; import and export image files from the system disk (all IFF-supported formats); excellent for testing 3D render iterations; avoids data duplication, and long delays while importing/exporting sequences; includes all import/export image functions
- Scripting allows all the power of UNIX scripts within **inferno**: scripts can be executed at any point, enabling custom effects, preview clips, QuickTime movies, or e-mail and Web notification
- Batch Log outputs current status (what it is processing, in how much time) to HTML or text file, so artists can remotely monitor render progress via web browser
- Robot Batch allows artists to automatically start a Batch render on the command line or from a script, either locally or from a remote location
- LUT Node converts data from log to lin and vice-versa, so that users can create multiple versions instantly (wedges); can come back and tweak conversion without having to re-import footage
- 16 new logical operations
- New nodes: Color Warper, Garbage Mask, Modular Keyer, Difference Matte, Gmask, Interlace, Deinterlace, film compress/expand, Optics, and many more
- Full setup compatibility with **flame**[®], **flint**[®], and **effect**

warper

- Freehand, sequence or cross image warping for distortion effects, image transformation and morphing
- Editable curve handles with full spline control
- Customizable mesh-based warping with unlimited trackable mesh points

3D deformations

- Precise manipulation of 3D models using lattice-based 3D mesh
- In-context adjustment within the entire scene
- Reduce project turnaround time by eliminating export to dedicated 3D systems

color correction

- Real-time preview of offset, gain, gamma, hue, saturation, and contrast
- Shadow, midtone, and highlight color correction
- Full histogram control; spline-based curve control look-up tables

paint

- User-definable brush sizes, shapes and effects
- Sophisticated autopaint capabilities: animate, track, and record brush strokes, multi-layer graphic shapes or cut-outs for automated rotoscoping, precise matte extraction or travelling mattes
- Real-time warp brush and paint effects
- Wide view of full film-resolution image while painting

stabilizer and tracker

- Precise motion analysis for 2D motion tracking with perspective
- Stabilize footage: compensate for transfer jitters, unstable cameras
- Automated corner pinning; up to 1000 tracking points in one pass

text

- Import standard Adobe Type 1 PostScript and TrueType fonts, including Asian (CID) fonts, ASCII text files
- Full attribute control (e.g. kerning, italics) over character, word, line or page
- Unlimited layers of animatable text with full scrolling and crawling
- Independent character adjustment of fill, transparency, shadow, outline, underline, kerning and axis control
- image processing: filters and optics
- Emboss, fabric, halo, reticulate, sharpen, soften, glow, and many other effects

editing

- EditReel: gestural, picture-based editing interface for easy viewing and intuitive operation
- SoftEdits: uncommitted edits, transitions and speed changes for creative experimentation
- Real-time feedback and full resolution playback
- Fully-animatable speed curves with adjustable inter-frame mixing and trailing
- User-definable hotkeys
- Locked reels allow comparison of multiple clips
- Unlimited number of Undo/Redo on desktop

EDL

- EDL import/export (CMX, SONY, GVG) of cuts, dissolves, freeze-frames, vari-speed, reverses, split edits and comments
- Load and auto-capture up to 15 EDLs simultaneously with adjustable trim handles
- Complete EDL management toolset
- Rapid auto-conforming

¹ on-the-fly means no need to wait—frames are loaded only when the Batch tree requires them: no need to save to framerstore first

audio

- Scratch track audio; two I/O tracks, two internal tracks
- Waveform display with zoom, meter, tone generator
- Cut, splice, and dissolve audio
- Segment-based audio editing: trim, slip, slide
- Full feature support of external audio controller with transport control and hotkey mapping ability (JL Cooper MCS-3000)
- Bundled audio plug-ins (reverb, modulation, dynamic compression, full parametric EQ)
- Audio library integrated in Player (includes **fire*** features such as EQ, levels, etc)
- Real-time playback in modules of video and audio scrubbing allows artists to time effects perfectly
- Import and Export of audio for many industry-standard audio file formats

project management tools

- Project-based working environment
- Desktop and libraries can be viewed in proxy mode or as a multi-column list with searching/sorting tools
- Storage consolidation tools
- Fast and reliable archiving of audio, video and setup files to different devices

archiving and clip management

- Archive to data tape, video tape, or file
- Selective restore from compact archive
- Archiving space optimization
- Improved backup and recovery of clip libraries
- Faster search and retrieval of clips when loading large setups
- Ability to tag clips as "archived", and user-defined comment field

facility connectivity and workflow solutions

- Support for industry-standard image file formats, 3D models, AIFF audio, WAV audio, and many more
- Connectivity to third-party systems via mountstone
- Built-in RS-422 control of VTRs
- Compatibility with **backdraft**™
- Video, Audio and SoftClips compatibility between Discreet editing and effects systems

facility connectivity and workflow solutions (contd.)

- Support for **inferno** and **fire** to run on the same system
- Direct interface to HDTV Philips Spirit Datacine
- Support for the ProntoVision HD DDR and Panasonic D5 HD VTR
- Improved Gaussian blur performance
- HDCAM Sony Codec Support (1920x1080) (Onyx 2 only)

storage

- Discreet **stone*** arrays: guaranteed bandwidth for true random access of noncompressed video
- RAID 3 protection from data loss of audio and video media, and non-obstructive background healing
- Capacity and bandwidth scalable, including delivery of an HDTV video stream (1920x1080) or film stream (2048x1556) in real time
- Concurrent storage of 525, 625, any DTV/HDTV or film project without hard partitions

networking

- Discreet **wire** for high-speed transfer of audio and video clips
- Intuitive user interface to browse remote libraries, view proxies and scrub through clips
- Supports TCP/IP to run on any network; optimised for HIPPI

resolution independent, open architecture

- 8 or 12-bits per channel color depth
- Supports any resolution up to 8K
- New **sparks** API allows audio, play from **sparks** and improvements
- Over 400 **sparks** third party plug-ins are available to extend the system's capabilities

additional information

To obtain more information about Discreet systems and software visit the Discreet web site at www.discreet.com or email product_info@discreet.com

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Contact your local reseller for sales information. Resellers are listed on the Discreet web site at www.discreet.com

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