Applications

Visualization & Simulation

Acoustetron II™

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Acoustetron II™ is a stand-alone system that provides Crystal River's Aureal 3D™ (A3D™) sound to the entire line of SGI machines. A3D brings 3D environments to life by simulating sound as it happens in the real world: true 3D localization, reflections off of surfaces in the environment, motion if sound sources and listener, Doppler shifts, distance delay and absorbtion. Additionally, funtions such as pitch shifting, sound file looping, and user selectable output device (speakers or headphones/head-mounted displays) are provided. The Acoustetron II is supported by major 3D simulation tool kits from Paradigm Simulation, Coryphaeus, Division and Sense 8.

IRIX version compatibility: 5.3, 5.x, 6.0, 6.1, 6.2, 6.x

AeroReality

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IVEX Corporation's AeroReality is the ultimate, real-time 3D image generator for high-end flight training simulation. Expanding on the capabilities of SGI's infiniteReality graphics workstation. AeroReality provides the advanced features required for FAA Level D qualification. IVEX has added Calligraphic lightpoints, steerable landing lights, and true slant-range visibility (RVR) effects SGI's high-powered graphics engine, to produce an image that is unsurpassed in the simulation industry.

IRIX version compatibility: 6.2

Aladdin

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Aladdin is a Distributed Interactive Simulation (DIS) stealth application based on Easy-Scene™. Aladdin allows the user to attach to the viewpoint of any DIS entity in an exercise and view that entity from any orientation. Aladdin has powerful features such as entity tracking, logging, filtering, visibility controls (time of day and atmospheric effects) and supports important DIS capabilities such as articulated parts and appearance effects (damage states with visualization of muzzle flashes and detonations). Aladdin receives its DIS entities from either the DIP, or VIP interface.

IRIX version compatibility: 5.3, 6.x

BOOM3C®

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The first (since January 1994) commercially available high-resolution, full-color CRT-based immersive display product, the BOOM3C is used in scientific visualization and engineering applications. This display's crispness and ability to show levels of shading in 1280 X 960 pixel per eye color images, combined with the light weight and easy access common to all BOOM devices, also makes it extremely useful in new application areas, such as product modeling, styling and architecture.

IRIX version compatibility: 5.x, 6.x

Visualization & Simulation

Clarus Drive

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Clarus Drive enables rapid development of real-time driving simulations with a minimum of programming. Through the Graphical User Interface, users can define the unique requirements of driving simulation.

Clarus Drive is available in two separate modules, dynamics and audio, which can be used independently. The dynamics module in Clarus Drie allows you to create and customize the vehicle dynamics for your driving applicaiton. The audio module in Clarus Drive is used to attach sounds to the dynamics of the simulation. Clarus Drive audio can be used, not only with Clarus Drive dynamics, but also together with customer specific dynamics.

IRIX version compatibility: 5.36.2

Clarus InteractiveVR

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Clarus Interactive open the door for non-programmers to expand the content and functionality of their 3D environments. Clarus Interactive enables users to rapidly define behaviors and interactions, used in simulation and Virtual Reality applications.

Clarun Interactive supports behaviors used in most simulations. Interactions and scenarios can easily be created through the GUI. Clarus Interactive includes support for various input devices used in VR applications. The user can create an interactive environment where, for example, gloves can be used to manipulate the content, without programming.

Clarus Interactive also includes an API for extending the module with user defined actions and sensors.

IRIX version compatibility: 5.36.2

Color Science Library

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Color Science Library helps specialists solve problems of color measurement, specification, and matching. Color scientists and graphics professionals incorporate the C-language subroutines into their own programs to ensure accurate transformations among 18 color spaces and naming systems, including transformations requiring large look-up tables. The library includes routines for associating over 6000 English language color names with color values. The library is available for SGI, SUn, PC, and Mac platforms. It includes the source code for a stand-alone query program that thouroughly exercises the capabilities of the library routines.

IRIX version compatibility: 5.1, 5.2, 5.3, 5.x, 6.0, 6.1, 6.2, 6.3, 6.x, Pre 5.x

Visualization & Simulation

Consulting Services - Visual Simulation

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The visual imagery is the heart of most real time systems, and it represents the main design challenge. CGSD works from broad requirements to provide:

* Specifications and plans

* Databases

* Software for real time control

* Sensor simulation

* Display systems

* Network interfaces

* System integration and test

* Demonstrations

Our expertise derives from a professional staff having long experience in visual simulation applications.

IRIX version compatibility:

CrystalEyes VR®

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http://www.stereographics.com/

CrystalEyes VR provides high-resolution, full-color, affordable, stereo virtual reality. Offers head tracking with six degrees of freedom and rapid response. Supports any number of viewers, so multiple users can simultaneously enter the virtual world. Designed for simulation, design and automation, mission planning, and more.

IRIX version compatibility: Pre 5.x, pre-5.x, 5.x, 6.x

CrystalEyes®

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IRIX version compatibility: Pre 5.x, pre-5.x, 5.x, 6.x

Visualization & Simulation

Cyber Vision™

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Cyber Vision is a detailed modeling and terrain generation package that allows the user to develop detailed 3D models and geospecific terrain for real-time simulation application. The program incorporates many of the latest CAD tools allowing the user to develop models and worlds with minimal effort. Cyber Vision allows for the import and export of most common data file formats including: cyb, dxf, flt, obj. OpenFlight, OpenDWB, SIF, .sgo, . nff, DTED.ADRG,.iv, .rgb.

IRIX version compatibility: 5.3, 6.x

DISplay™

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Adobe™ Display PostScript™ DPS/NX provides the capability to drive Display PostScript (DPS) over any X Window Server - including any X terminal, PC X Server, or workstation. With it, popular applications such as Sun's AnswerBook can now run across your entire network.

That's why DPS/NX is a "must have" if you use any of these products:

- AnswerBook
- Adobe Illustrator
- Adobe Acrobat
- Adobe Exchange
- Adobe Show

In addition to providing DPS over a Networked X environment, DPS/NX also provides software to show PostScript and Portable Document Format (PDF) files on an X Server, as well as 65 Type 1 fonts.

IRIX version compatibility:

Designer's Workbench™

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Designer's Workbench™ (DWB) is an easy to use, interactive, WYSIWYG 3D modeling environment optimized for creating real-time visual simulation and virtual reality databases. Non-programmers can quickly create, edit and animate models, scene and dynamic, interactive instrumentation and controls. The standard DWB system includes an extensive suite of texture creation/editing tools, floating network license, 3D direct manipulation interface, "drag-and-drop" editing and a modern (Performer optimized) internal database architecture. All DWB files are in the public domain open standard for visual simulaion databases.

DWB is the modeling tool of choice for the world's leaders in simulation, Virtual REality, CAD visualization, architectural walk-throughs and interactive instrument design.

IRIX version compatibility: 5.3, 6.x

Visualization & Simulation

Dial-a-Tank™

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Dial-a-Tank™, created by MAK Technologies, is designed to help you test existing DIS simulations, build new ones, and upgrade non-DIS simulators. Using any SGI and C++, the Dial-a-Tank Developer's System provides a six degree of freedom kinetics/dynamics package, terrain interaction using various terrain database formats, integrated out-the-window views, as well as Motif™ or Flybox™ controls. The Developer's System includes a GUI Vehicle Builder that lets you construct vehicles from library of provided and user-defined parts. The Dial-a-Tank Test Tool provides ready made simulators to test your DIS applications.

IRIX version compatibility: 5.x, 6.x

EDGE Product Family

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The EDGE Product Family is a suite of 2D and 3D visualization and anlaysis tools. The EPF is based on the whole earth concept which allows the user to zoomfrom outer space to below ground. Complex sensor modeling and environmental applications share a common 2D and 3D visual environment allowing for the creation of a rich synthetic environment that is geographically based.

IRIX version compatibility: 5.3, 6.2, 6.x

EZ*IR

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EZ*IR is a commercially available dynamic,first principles-based exitance simulation for thermal modeling based on common Defense Mapping Agency (DMA) databases. It generates colors for an infrared scene rendered by a visual simulation application based upon the current environmental conditions and vehicle dynamics. EZ*IR is an open system that can interface with virtually any simulation over a shared memory interface.

IRIX version compatibility: 5.3, 6.2

Visualization & Simulation

EasyScene™

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EasyScene™ is a fully interactive, WYSIWYG, high performance visual system based on Performer™. No programming is required to rapidly design, configure and control visual systems for training simulations, architectural walk-throughs, virtual reality experiences, CAD visualization and real-time, interactive product prototype testing.

EasyScene comes standard with the ability to handle large terrain databases, dynamic database paging, special effects, multi-channel and multi-pipe support, a variety of communications interfaces (DIS, serial, SCRAMNet), continuous time of day and weather, 3D audio support, stereo rendering and loaders for more than 30 different file formats. Load models from any supported format and write them to Designer's Workbench™ format to take advantage of the optimal integration of the Coryphaeus family of tools.

For those special projects EasyScene includes, as standard, a robust API and a relinkable library.

From high end Image Generator applications to desk top VR solutions, EasyScene has the easiest and most modern technology to realize these applications.

IRIX version compatibility: 5.3, 6.x

EasyT™

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EasyT™ is an automatic 3D terrain generation system that allows non-programmers to quickly create and edit landscapes for out-the-window scenes, virtual reality gaming areas and terrain-based cockpit displays. EasyT transforms digital terrain data to a form suitable for real-time visual simulation applications. Input data from DMA (DTED/DFAC), USGS (DEM/DLG), UK/OS, or a public domain raw format. Output to Designer's Workbench™, Flight™ 11, SIF, or raw format.

Interactively create high resolution populated terrain databases with unlimited numbers of automatically generated Levels-of-Detail (LOD). Generate and apply textures, or choose to place cultural terrain features through both automatic and interactive object tools. Use parametric modeling to intuitively create road networks which are consistent with CAD guidelines.

As with all Coryphaeus products, EasyT is user extensible and uses a standard public domain file format.

IRIX version compatibility: 6.x, 5.3

ExoDIS™

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ExoDIS is an advanced simulation development application designed to give the end-user maximum flexibility in defining world environmental effects and platform characteristics for real-time visual simulation applications. ExoDIS comes ready for participation in Distributed Interactive Simulation (DIS) environments at no additional charge. A full Graphical User Interface (GUI) is employed for changing viewpoints and data in real-time. The GUI lets the user attach to the various objects within the environment to get a feel of what they are actually seeing at any time. The user may also make real-time changes to the environment, such as weather conditions via the GUI. ExoDIS is designed to be modular so that the user may select only the options needed but may add additional features as needs change.

IRIX version compatibility:

Visualization & Simulation

Extended Range Transmitter

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Extended Range Transmitter (ERT). A long-range transmitter designed to boost tracker range to plus or minus 10 feet. Used for full-body tracking over room-sized areas for biomechanics, VR walkthroughs, motion analysis, character animation. Eliminates calibration/alignment problems in operating over long distances. Does not require mapping and compensation at installation for optimal performance. For long-range performance, multiple ERTs may be linked together. Price: $5,845.

IRIX version compatibility: 5.2

FLAMES™

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FLAMES™ is a simulation environment that supports a wide variety of applications for both the commercial and military sectors. FLAMES has been used for purposes as diverse as systems effectiveness analysis, flight plan evaluation, war gaming, and individual computer-based training applications. It can simulate the command and control responsibilities and mission tasking of each modeled unit from the highest headquarters unit down to the individual weapon operator. FLAMES also supports human or external model users to create or share custom models in addition to the standard set provided with each release.

IRIX version compatibility: 5.3

FS2™ - FAKESPACE SIMULATION SYSTEM

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The "hands free" Fakespace Simulation System offers the full-color, high-resolution, precise tracking, and near weightlessness of freestanding BOOM display technology. The innovative support structure provides six degree freedom of motion while allowing the operator to remain seated with both hands free to manipulate real or virtual controls and input devices. The FS2™ is ideally suited to applications that include vehicle simulation, cockpit modeling, military command and control centers.

IRIX version compatibility: 5.x, 6.x

Visualization & Simulation

Flock of Birds®

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The Ascension Bird family of six degrees of freedom (6-DOF) measurement devices are used by animators, biomechanics, virtual reality system users, medical personnel, and graphics researchers to track, in real time, the position and orientation of one to 20 tiny receiversusually mounted on the human body. They provide the 6-D inputs necessary to naturally interact with 3-D objects, whether displayed at a graphics workstation, mounted on a head-mounted visor, or suspended in virtual space. Benefits include fast updates (up to 140 measurements per second per receiver), minimal dynamic lag, and operation over extended range.The Flock of Birds uses pulsed DC fields to minimize the distorting effects of nearby metals.

IRIX version compatibility: 5.2

Flock of Birds®

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Flock of Birds™ is a modular tracker with six degrees of freedom (6DOF) for simultaneously tracking the position and orientation of one or more receivers (targets) over a specified range to plus or minus 4 feet. Motions are tracked to accuracies of 0.2 degrees and 0.05 inch at rates up to 144Hz. Due to simultaneous tracking, fast update rates and minimal lag occur even when multiple targets are tracked. Designed for head and hand tracking in VR games, simulations, animations, and visualization. Price starts at $2,695.

IRIX version compatibility: 5.2, 5.3

GAIA

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GAIA is a product for creation of visual databases.

GAIA consists of several units:

an object modeler using a powerful X-Window interface

a terrain generator using DTED/DFAD as well as other formatrs like SPOT

These units use powerful libraries and a data structure (SDM) really suited to real-time 3D generation.

IRIX version compatibility: pre-5.x, 5.x

Visualization & Simulation

GSS Run-Time Graphics® (GSS-RTG)

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Prediction Systems, Inc. has developed the GSS Run-Time Graphics® (RTG) system as an extension to the General Simulation System (GSS). The Run-Time Graphics option is a graphics tool for visualizing real-time events in a dynamic environment. RTG enables simulation results to be viewed, as they occur, graphically. With the ability to view the results in real-time and analyze a particular symptom graphically on-line, the user is saved the costly time of examining pages of post-simulation results. It also allows the modeler to interact with the simulation while it is running, through the use of a mouse. These capabilities can significantly enhance the model design process and improve the rate of model verification and validation.

IRIX version compatibility:

General Simulation System (GSS)

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GSS represents the most significant advance in the development of modeling and simulation tools for many years. GSS is total user-friendly interactive environment that supports Model Development, Scenario Development, Simulation and Analysis. In an easy menu-driven mode, GSS users can quickly build models, run simulations and analyze results. GSS features a unique environment separated into five distinct segments: Architecture Environment-Used to create and maintain hierarchical model architecture; Language Environment-Contains a Resource language, Process Language, and a Simulation Control Specification language; Run-Time Environment-Contains discrete event simulation operating system; Support Environment-User's can review interactive graphic playbacks; Set-Up Environment-Users can tailor a GSS session environment.

IRIX version compatibility:

Head Mounted Display

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VR4 is a lightweight, rugged head mounted display for the multi-user application that demands high quality immersion. VR4 combines high resolution LCD's with advanced ergonomic design to create the leading HMD among professionals.

FS5 is a lightweight, comfortable HMD for those applications demanding high resolution. FS5 combines dual 800 line horizontal resolution CRT's and a proprietary optical system to provide high resolution for under $20,000. From IRIS workstations to Onyx RE3 we have the solution to your HMD requirements. For more information please contact Virtual Research.

IRIX version compatibility: Pre 5.x, pre-5.x, 5.x, 6.x

IDL: Interactive Data Language

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Immediately gain insight from your data with IDL®, powerful and efficient software for data analysis, visualization and application development. Reduce development time with IDL's high-level, array-oriented programming language and library of 2D and 3D graphics, mathematics, statistics and cross-platform GUI tools. One or two lines of IDL code can do the job of several hundred lines of C or Fortran. IDL programs are portable across Windows 3.1/95/NT, Unix, Linux, Macintosh/PowerMac and VMS platforms. If you analyze data from tests, experiments, simulations or images, or write applications for others to use, IDL will help you get clear results faster.

IRIX version compatibility: Pre 5.x6.2

Visualization & Simulation

IMCompress™ 3-D Polygon Reduction Tool

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IMCompress™ is the fastest polygon reduction tool available for optimally reducing the number of facets in 3-D polygonal models. IMCompress uses true 3-D tolerances to control the compression process, automatically preserving the local topology and edges of models. IMCompress includes IMFilter for filtering surface details in order to produce very compact models for LOD management. IMCompress is completely automatic, and is executed as a command line library. IMCompress is used to reduce tessellated CAD models, models built from 3-D digitizers data, and CAT/SCAN data. The optional IMEdit™ module repairs surface anomalies before reduction. The optional IMTexture™ module generates texture maps for compressed color models.

IRIX version compatibility: 5.2, 5.3, 6.x

IMEdit™ Polygon Cleaning Toolbox

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IMEdit™ is a semi-automated editing tool which detects and repairs surface anomalies of 3-D polygonal models. Polygonal models often contain topological anomalies such as inverted, duplicate, or degenerated polygons, in addition to holes and disconnected meshes. IMEdit rapidly repairs and closes models, and removes invisible triangles. Polygon reduction may be applied to selected areas or parts of the models using IMCompress™. IMEdit includes an easy-to-learn macro programming language for designing your own sets of operations. Optimized to process very large models, IMEdit is ideal for tessellated CAD models (assembly), models built from 3-D digitizers, and any other application requiring clean polygonal models.

IRIX version compatibility: 5.2, 5.3, 6.x

IMMERSIVE WORKBENCH™

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The Immersive Workbench™ supports extremely natural interaction with computer-generated 3-D imagery. Silicon Graphics is demonstrating this highly flexible platform to illustrate the capability provided by this optimized, "hands-on" human/computer interface for visualization applications.

With an adjustable viewing surface, from horizonal toward vertical, the Immersive Workbench accommodates a wide range of work styles for varied applications, including scale model manipulation in design projects, medical visualization and displays of complex three-dimensional data sets. The open table design supports collaborative workgroups and easy access to any segment of a computer model.

The Immersive Workbench is available in several configurations.

IRIX version compatibility: 5.2, 6.2

Visualization & Simulation

IPG-CAR™

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IPG-CAR™ is a complete passenger car simulation model for investigations of vehicle dynamics. It incorporates 11 bodies, 14 degrees of freedom, and 8 force elements.

The choice of wheel suspension as well as the geometry of suspension is completely free. Spring and damping identification lines can be set by the user. Even aerodynamic influences are taken into account by IPG-CAR.

The connection to the environment is realized with a tire model and a steering, braking, and driving machine. The special open concept supports the integration in any given simulation environment. IPG-CAR has proven its efficiency in many investigations.

IRIX version compatibility: pre-5.x, 5.x, 6.x

IRGen™ Infrared Modeler

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IRGen™ is an infrared (IR) modeling tool that generates databases for real-time simulation of thermal IR sensors. IRGen runs on any SGI workstations, and accepts as its input visual databases in the MultiGen flight format. IRGen has been specially designed to work in a real-time simulation environment, and supports such real-time features as textures, shading, and fog. IRGen is based on first-principles models; the user can specify the thermal and atmospheric environments, and the characteristics of the IR sensors. The output of IRGen can be used with simulations based on Performer, Open GVS™, EasyScene™, or Vega™. The latest release of IRGen has time-dependent IR signatures.

IRIX version compatibility: 5.x, 6.x

IS-300 Series

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InterSense offers the latest in high-performance motion tracking. We offer inertial based tracking systems which have superior fidelity, speed metal immunity and range. We offer orientation tracking systems (IS-300 Series) as well as orientation & position 6DOF tracking systems (IS-600 Series). The best tracking solution is rarely a single technology used in isolation. "Sensor-Fusion". or "Hybrid Tracking" offers the optimal solution. InterSense combines the best features of inertial trackers with the best features of optical, magnetic or ultrasonic trackers, to create unrivaled tracking performance.

IRIX version compatibility: 5.3, 6.2

ImageVolumes™

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612-490-9717 (fax)
scivis@mndata.com

ImageVolumes™ is used by researchers and engineers to visualize and quantify 3-D volumetric data. Input can be digitized images, 3-D scalar fields or 2-D contour data. An image processor, with filtering and region-of-interest operations, and a 3-D graphics editor are included. Surface polygon and voxel models can be displayed using materials, transparency and lighting capabilities of the 4-D workstations. Special tools are provided for: Reducing numbers of polygons in surface models; Calculation of distance fields and intersections of 3-D models; Analysis of 3-D branching structures; and, Characterization of the numbers, sizes, shapes and orientations of 3-D objects.

IRIX version compatibility: 5.3

Visualization & Simulation

Immersive WorkBench

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415-688-1940
415-688-1949 (fax)
fakespce@well.sf.ca.us
http://www.fakespace.com/

The Immersive WorkBench (IWB) ia s projected image table that provides a natural interaction with computer-generated 3D imagery. An adustable viewing surface accomodates a range of work styles for varied applications, including scale model design manipulation, medical training, and visualization of complex 3D data sets. The IWB is a complete system including projector, gloves, glasses and trackers.

IRIX version compatibility: 5.x6.x

Instructor/Operator Station - Training Simulators

Thomas McClelland
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tom@faac.com
http://www.msen.com/~faac

FAAC's Instructor/Operator Station (IOS) is designed for use in full-scale man-in-the-loop trianing simulators. It provides the instructor or simulator operator the capability to monitor and control a complex training sessions. The design is flexible and user friendly--providing for multiple input devices including touchscreen, trackball, spaceball, joystick, and keyboard. The displays are composed of the pull down menus, push buttons, dialog boxes, slide bars, and custom features that are expected in a modern X/Motif GUI. The IOS is fully compliant with MIL-STD-1472D and compatible with Night Vision Goggles.

IRIX version compatibility: 6.2

Integrated Peripheral Unit

Mike Harrison
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San Mateo, CA 94404
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415-312-8200
415-812-0300 (fax)
mike@division.com
http://www.division.com

Designed to connect virtual reality peripherals to your Silicon Graphics system's serial ports and video outputs, the IPU provides standard peripheral connections for stereo HMD, 3-D mouse, position tracking, and 3-D audio needs.

The unit supports all Silicon Graphics systems. Built into the unit is a Polhemus FASTRAK™ 3-D position tracker, which can use up to four tracker sensors for your HMD, mice, hands, etc. An integral RGB-to-cmposite stereo video converter is available to drive the HMD along with spare composite outputs for external monitors using either composite video or S-VIDEO.

IRIX version compatibility:

Interactive Humans

Diane Dustman
Boston Dynamics Inc.
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Cambridge, MA 02139
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617-621-1606 (fax)
dustman@bdi.com
http://www.bdi.com

Interactive humans are designed to populate your virtual environment with life-like characters. The characters respond to simple commands in real-time, travel about the environment as directed, and move seamlessly from one activity to another.

IRIX version compatibility: 5.2, 5.3, 6.2

Visualization & Simulation

KBVision™ System

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peter@aai.com
http://www.aai.com/

AAI offers products and services to automate visual processes. The KBVision™ System version 3.2 is a software development environment that supports the rapid prototyping and development of automatic recognition algorithms for 2-D and 3-D images. It combines image processing, a homogeneous representation for image feature access, and knowledge-based interpretation such as fuzzy-logic to allow the rapid development of robust and adaptive applications. A Visual Program Environment (data flow interface) provides interactive visualization and editing for the rapid construction, viewing and modification of process sequences. Application modules can be produced for incorporation in delivery systems as AAI provides and supports a full range of OEM libraries.

IRIX version compatibility: 5.x, 6.x

Lateral Dynamics Engine

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Lateral Logic develops, markets, and integrates high-end visual simulation systems for training, presentation and real-time virtual prototyping. All applications are built using IRIS Performer and the Lateral Dynamics Engine (LDE) which is developed by Lateral Logic. The LDE is an object tool kit which accurately models and solves many-body dynamical systems in real-time. It allows complex physical behaviors and interactions to be easily incorporated into interactive real-time 3D graphics applications. Target hardware platforms are Octane, Onyx2 Deskside, and Rack systems.

IRIX version compatibility: 6.2, 6.x

MAK Stealth

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617-876-9208 (fax)
schlack@mak.com
http://www.mak.com/

The M*f*K Stealth Observer provides a 3D out-the-window view of a DIS battle-field. Users can fly through the virtual world with a Spaceball™, keyboard or GUI, attach to DIS entities in one of 11 view modes, and unobtrusively observe the battle. From debugging a simulation to reviewing the results of a virtual bat-tle, the M*f*K Stealth is a vital tool during all phases of a DIS project.

Full SGI compatibility, including multi-pipe, processor, and channel, is assured through the use of IRIS Performer ™. A key developer of the ARPA Warbreaker DIS Entity Specification, M*f*K provides an open standard for providing articulated and attached parts as well as appearance bit switching of visual models. Visual effects for flames, smoke, muzzle blasts, as well as ground and entity hits are provided. Radar and other electronic emissions are automatically shown as translucent volumes that the user can configure as needed. All of these features combined with provided sample application source code result in the most powerful and widely used DIS Stealth Observer in the world.

IRIX version compatibility:

Visualization & Simulation

MEDVIEW™

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This full-color, high resolution immersive display, designed for use in medical applications, uses a 30-degree field of view lens set. This provides a large eye-relief area to accomodate protective eyewear. Locking joints on the arm to freeze the image and free the operator's hands for other tasks.

IRIX version compatibility: 5.x, 6.x

MODSIM III®

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619-457-1184 (fax)
doug@caciasl.com
http://www.caciasl.com/

MODSIM III is a strongly typed, full featured, object oriented simulation programming language. MODSIMís object-oriented world view has successfully modeled a wide variety of complex systems including data communication networks, air traffic control, military operations, logistics and training. Built-in graphics allow you to easily add graphical user interfaces, interactive animation and data presentations. Through MODSIMís process orientation, you logically model the concurrent interactions that characterize your systemís behavior. You can access simulation object libraries, C++ libraries, or build your own. And its portable across PCs and UNIX platforms by simply recompiling your model.

IRIX version compatibility: 5.3

MOLLY™

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A teleoperated motion platform designed for integration with video cameras and audio sensors. Coupled with a BOOM or a head-mounted display, the Molly™ can pan, tilt and roll in real time to approximate a user's head motion. The Molly is used for telepresence and remote sensing applications.

IRIX version compatibility: "5.3, 6.1", 5.x, 6.x

Visualization & Simulation

MR (Minimal Reality) Toolkit

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http://www.cs.ualberta.ca/graphics/MRToolkit.html

MR (Minimal Reality) Toolkit is a set of software tools for the production of virtual reality systems and other forms of three dimensional user interfaces.

It consists of a set of subroutine libraries, device drivers, support programs, and a language for describing geometry and behavior. VR tools for developing virtual environments include Object Modeling (OML), 3d modeler (JDCAD+), and Environment Manager (EM) for running multi-user networked applications.

The package runs on SGI workstations.

Some components of the MR Toolkit can also run on other UNIX platforms and PC's.

IRIX version compatibility: 5.3, 6.2, 6.3

OPTOTRAK® - Precision 3D/6D Measurement

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sales@ndigital.com
http://www.ndigital.com

The OPTOTRAK® system is a versatile and precise 3D measurement device. It is powerful, highly accurate, yet easy to use. There is an industrial version for use in harsh environments.

The OPTOTRAK system allows you to:

* Digitize parts or models using a hand-held probe to generate accurate input for CAD or analysis programs.

* Capture rapid, complex motions by tracking multiple points, as well as positions and orientations of objects.

* Provide real-time feedback for virtual reality or robot control.

OPTOTRAK systems are in use worldwide in applications including aeronatics, virtual reality, robotics, neurosurgery, and biomechanics.

IRIX version compatibility: "5.3, 6.1", 5.2, 5.3, 6.x

OpenGVS™

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OpenGVS™ is an object-oriented, cross-platform, applications programming interface (API) for real-time 3D developers. OpenGVS is available for SGI IRIX, Windows NT, Windows 95, DEC UNIX, HP/UX, and other operating systems. OpenGVS is available for all SGI OpenGL compatible workstations and requires an SGI IRIX Development Option (ANSI C, C++, Ada).

OpenGVS sits on top of OpenGL and includes computer image generation functions for real-time developers that demand portability as well as fast and efficient application development. When OpenGL is not available for the target graphics hardware, OpenGVS includes a subset of OpenGL so that the application software developed by the user remains highly portable while still delivering all of the underlying graphics hardware performance.

IRIX version compatibility:

Visualization & Simulation

PINCH™

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The Pinch™ Glove uses a reliable and inexpensive way of sensing gestures that differs from flex sensing gloves. Recognizable gestures have natural meaning to the user: a 'pinching gesture' can be used to grab a virtual object, while a 'finger snap' between the middle finger and thumb can be used to initiate an action. The Pinch Glove design works with different sized hands; requires no calibration and does not drift over time.

IRIX version compatibility: "5.3, 6.1", 5.x, 6.x

PUSH-DESK TOP DISPLAY

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This rugged and lower cost version of the popular BOOM3C® is designed for desktop use by engineers and designers. It allows the user to intuitively navigate through a virtual environment without getting out of your chair. A patented mechanical structure makes it remarkably easy-to-use for navigation in virtual environments.

IRIX version compatibility: 5.x6.x

RADSIM®

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SAIC's RADSIM is a high fidelity, multimode radar simulation capable of supporting a variety of air-to-ground and air-to-air modes including:

- Synthetic Aperature Radar (SAR)
- Doppler Beam Sharpening (DBS)
- Real Beam Ground Map (RBGM)
- Terrain Following Radar (TFR)

When integrated into a training system, RADSIM provides a high fidelity radar simulation fully correlated with the visual system. The simulated radar output is highly representative of actual radar system imagery. It educates the operator via a realistic real-time training tool and provides the authenticity necessary to build radar operator confidence. Current applications include F-16, F-111C, B-1., B-2, and in progress, F/A-18.

IRIX version compatibility: 5.x, 6.2

Visualization & Simulation

REPLICORE™

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REPLICORE™ is a three-dimensional geometric modeler for creating a database of bodies to be used by visual simulation, animation, image rendering or finite simulation programs. Release 4.0 is interactive employing a 'MOTIF' user-interface and allows a non-technical or technical user to easily and quickly generate complex 3-D shapes. These bodies may then be transformed and rendered in real-time or exported to a file in AutoCAD's DXF format or as a list of points and vector/polygon connectivities. REPLICORE can produce database for entire scenes such as airports (runways included) to industrial plants.

IRIX version compatibility: 5.3

REVIEW©

Steven Talbott
Marketing Communications
CADCentre, Ltd.
High Cross
Madingley Road
Cambridge, CB3 0HB
UK
44-1223-556655
http://www.cadcentre.co.uk

REVIEW© provides interactive visualization, interrogation and animation of process plant CAD models. It allows all levels of project personnel to make design judgements, review project progress and simulate the movement of components during plant construction, operation and maintenance. Through its use of state-of-the-art high performance 3-D graphics technology, REVIEW provides realistic views of the plant in all stages of design, construction, operation and decommissioning. The REVIEW QUERY© option provides REVIEW with open access to relational databases. Customers can use the 3-D CAD model to both invoke database queries and to graphically highlight the results of queries. REVIEW QUERY may be customized for a wide range of applications in construction, maintenance and operation. REVIEW REALITY© sets new standards for realism in interactive visualization. Realistic images taking minutes to generate in conventional rendering packages can be delivered by REVIEW REALITY in a fraction of a second.

IRIX version compatibility: 5.3, 6.2

Radar Toolkit

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Camber Corporation
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USA
214-991-5322
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dave@cambertx.com

The Radar Toolkit from Camber Corporation provides the most comprehensive real-time radar simulation toolkit available for the Silicon Graphics platforms. The toolkit adheres to industry standards including X/Motif and ANSI C/C++ and accommodates a number of database formats which allow correlation with a wide variety of visual systems. This product provides a flexible basis for the simulation of both current and future radar systems and supports both training and engineering applications. The Basic Toolkit provides software components required to build a simple Ground Mapping Digital Radar Landmass Simulation (DRLMS). The basic package includes Real Beam Ground Map, Dopple Beam Sharpening and Air to Ground Ranging modes along with weather cells. Options include Database Conversion Tools, Synthetic Aperture Radar, Polygon Pager, High Fidelity Weather, Terrain Following and Terrain Avoidance, Aircraft Detection and Tracking, Medium and High PRF and Sea Search.

IRIX version compatibility: "5.2, 5.3, 6.2", 5.3, 6.2

Visualization & Simulation

Real Time Graphics Newsletter

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Subscribers in over thirty-five countries rely upon CGSD's professional newsletter Real Time Graphics to stay informed of the latest technology, products, and opportunities in simulation and virtual reality systems. In a field noted for its hype, Real Time Graphics stands out for its no-nonsense approach. The newsletter is unique in providing practical how-to articles and expert opinion by professionals involved with the technology.

Real Time Graphics features annual aurveys of head-mounted displays, 3-D graphics boards & 3-D chipsets, and high-performance image generators. Other features include tutorials & technical articles, analysis & opinion, new products, applications, industry briefs, people & organizations, and a calendar of events.

IRIX version compatibility:

Real-Time Animator™

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The Designer's Workbench™ Real-Time Animator™ allows users to give instrument displays and 3-D objects dynamic behavior without writing any code. The Real-Time Animator provides the industry's broadest range of data driven animation types for interactive instrumentation and articulated 3D objects, or scenes. As with all Coryphaeus products, the Real-Time Animator is user extensible.

HUDs, control panel emulation, cockpit instruments, articulated 3-D models, interactive 3-D environments can all be brought to life in real-time with the animation and data-driven dynamics of the Real-Time Animator. Human-in-the-loop simulation, virtual reality environments, product prototyping and entertainment applications all achieve new levels of competitive advantage when using the Real-Time Animator, the most advanced animation capability available for real-time applications.

IRIX version compatibility:

RealTexture™ Library

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RealTexture™ Library contains over 1300 high-resolution, photorealistic texture patterns. They are tilable and ready to use in simulators, VR games, artistic renderings, or on the World Wide Web. The RealTexture™ Library increases the realism in the creation of 3D worlds for simulators and virtual reality experiences. All patterns were derived from photographic source and can be applied to 3D models created with nearly all modeling tools. Color accuracy is automatic with the RealTexture™ Library. The designer is freed from the tedium of coloor and contrast adjustment. All patterns have been made to ensure carefully to ensure that intensity values lie within properly measured ranges and that colors match the real world color sources.

IRIX version compatibility: 5.2, 5.3, 5.x, 6.0, 6.1, 6.2, 6.x

Visualization & Simulation

SCAT™

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The Sensor Coverage and Analysis Tool (SCAT)™ enables the user to define multiple radar sensors, deploy them into a terrain and jamming environment, then examine sensor coverage for specific airborne target objects. All sensor, jammer, and antenna parameters and aircraft performance, signature, and motion data are entered by the user in windows. Sensor coverage areas can be shown over the map background by sensor(s), as a series of spokes emanating from the selected sensors, or by region, where a color shading is shown for areas covered by one or more sensors.

IRIX version compatibility: 5.3

SOUNDSTORM3d™

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RBD Government Systems LLC (RBD) is a leading developer of cutting-edge, real-time 3D visual and audio simulations as well as 3D audio for virtual environments. Our flagship product, SOUNDSTORM3d™ is a completely plug-and-play 3D audio solution supporting the SIMulation Network (SIMNET) and Distributed Interactive Simulation (DIS) protocols and the DoD High Level Architecture (HLA). We provide solutions to the DoD, educational and entertainment markets.

IRIX version compatibility: 6.3

Scenario Builder™

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http://www.coryphaeus.com

Scenario Builder™ (SB) was designed by Human Factors professionals to meet their needs for scenario development and control in a research and training simulation environment. SB gives users the capability to control other-vehicle behavior, define routes and record & analyze human performance data within the context of a dynamic human-in-the-loop simulation environment. SB can support both real-time visual simulation and off-line analytic simulation.

For real-time simulation, SB integrates with EasyScene™ from Coryphaeus to control the operation of vehicles in the simulation environment and to collect data about the actions of the human-in-the-loop. For analytic simulation, SB runs stand-alone to execute scenarios, generate analytic data for applications such as traffic engineering, and to provide the user with a visual representation of the progress of the simulation.

SB was developed and is copyrighted by Monterey Technologies, Inc.

IRIX version compatibility:

Visualization & Simulation

SimLab

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SimLab is a simulation/simulator environment for training and analysis that allows hardware/software components from actual/developmental military land combat systems to be integrated into closed form or interactive simulations of combat. SimLab is interfaced to the DOD Distributed Interactive Simulation (DIS) environment or can be exercised by a simulation driven (DUELS) for more detailed data capture and combat developments applications. SimLab provides tools and components for interfacing to unique C2 requirements, user interfaces/crew stations, as well as a capability to define/create unique functional representations.

IRIX version compatibility: 5.3

Simlet ™ Designer

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Simlet ™ Designer extends the Umbel ™ Programming Environment with behavior classes supporting motion in three-dimensional space, allowing creation of World-Wide Web content that integrates documents and 3D simulation. Applications include on-line manuals for mechanical equipment, and simulation-based training material for engineering and the sciences. Content created with Simlet Designer can be accessed and its behaviors “played” by a companion product, Simlet Player. Simlet Designer utilized Open Inventor™ for 3D modeling and rendering. Open Inventor supports import of many 3D file formats, including VRML, IGES, and DXF.

IRIX version compatibility: 5.3

Simlet ™ Player

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Simlet ™ Player is for playing World-Wide Web content which integrates documents and 3D simulation. A companion product, Simlet Designer is the authoring software for this kind of content. Since simulations viewed with Simlet Player may include interfaces for interaciton with the user, Simlet Player’s role is not just to render fixed sequences, but to provide an interactive experience to the user. Simlet Player is integrated with World-Wide Web browsing software such as Netscape Navigator(TM0, and utilizes Open Inventor™ for 3D rendering. Since Open Inventor is an extension (and progenitor) of VRML, Simlet Player implements a behavioral extension to current VRML capabilities.

IRIX version compatibility: 5.3

Simlet™ Designer

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Simlet™ Designer extends the Umbel™ Programming Environment with behavior classes supporting motion in three-dimensional space, allowing creation of World Wide Web content that integrates documents and 3D simulation. Applications include on-line manuals for mechanical equipment, and simulation-based training material for engineering and the sciences. Content created with Simlet Designer can be accessed and its behaviors "played" by a companion product, Simlet Player. Simlet Designer utilizes Open inventor™ for 3D modeling and rendering. Open Inventor supports import of many 3D file formats, including VRML, IGES and DXF.

IRIX version compatibility: 5.3

Visualization & Simulation

Simlet™ Player

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Simlet™ Player is for playing World Wide Web content which integrates documents and 3D simulation. A companion product, Simlet Designer is the authoring software for interaction with the user, Simlet Player's role is not just to render fixed sequences, but to provide an interactive experience to the user. Simlet Player is integrated with World Wide Web browsing software such as Netscape Navigator™, and utilizes Open Inventor™ for 3D rendering. Since Open Inventor is an extension (and progenitor) of VRML, Simlet Player implements a behavioral extension to current VRML capabilities.

IRIX version compatibility: 5.3

Simulator Dynamics Packages

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Coryphaeus offers generic, reconfigurable rotorcraft, fixed-wing and ground vehicle dynamics models for real-time, human-in-the-loop simulation applications.

IRIX version compatibility: 5.3, 6.x

SmartScene™

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http://www.multigen.com/

SmartScene is a realtime 3D virtual reality scene builder. When SmartScene's technology is paired with a two-handed interface, it alllows users to rapidly and intuitively build real-time scenes. With a single gesture you "hold" the fabric of viewing space in your hands and can simultaneously translate, rotate, and scale the objects of interests (models) into your view. Once in view, the user can "grab" and manipulate the models themselves. The models have Smarts™ built into them, so they can seek out other apprpriate models that enable them to snap into place logically and quickly. This technology enables even non-technical users to rapidly create expertly-tuned scenes.

IRIX version compatibility: 5.3

Visualization & Simulation

SpacePad®

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SpacePad™ is a fast 6DOF tracker for manufacturers of VR games and experiences. SpacePad™ utilizes a flat transmitter coil for ease of implementation, low cost and flexibility. The transmitter can be mounted in the base of a game pod, above a virtual ride, or even on a motion platform. At $984 for a single-receiver model, SpacePad™ is the lowest-priced magnetic tracker in the world.

IRIX version compatibility:

SpacePad™

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SpacePad™ is a fast 6DOF tracker for manufacturers of VR games and experiences. SpacePad™ utilizes a flat transmitter coil for ease of implementation, low cost and flexibility. The transmitter can be mounted in the base of a game pod, above a virtual ride, or even on a motion platform. At $984 for a single-receiver model, SpacePad™ is the lowest-priced magnetic tracker in the world.

IRIX version compatibility: 5.2

SynchroMaster™ 100

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510-841-7026 (fax)
sales@rgb.com
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SynchroMaster™ 100 is a color-sequential video scan converter that converts between color-parallel and color-sequential signals, to interface computers and scene generations with helmet-mounted displays using color shutter technology. Resolutions up to 1280 x 1024 pixels are supported.

IRIX version compatibility: 5.x, 6.x

Visualization & Simulation

SynchroMaster™ 300

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RGB Spectrum's SynchroMaster™ 300 combines the output from two high resolution imagers or computers (up to 1280 x 1024 pixels) to produce a composite high resolution picture. The SychroMaster 300 is designed for real-time image fusion applications in simulation, where it allows the production of images of greater complexity than a single computer or scene generator can produce in real-time, and in medical imaging for comparative analysis of real and synthetic images.

IRIX version compatibility: 5.x, 6.x

TOOBZ™

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TOOBZ™ is a library of both simple and complex procedurally-generated 3-D tubular models. Included are tubes based on mathematical knot theory, Moebius bands, Hilbert and Peano space-filling curves, tori, and geometric primitives. Applications range from inclusion into animation as clip objects to demonstrations of mathematical concepts and visualization of sculptural models. Most popular data formats are provided. Custom designs can be supplied.

IRIX version compatibility: pre-5.x, 5.x, 6.x

Telesia

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This application was used in the Americas Cup, the sailing event, in the press room for the press to monitor the different participants. The boats could be monitored in a 3D rendered simulation that could be viewed from any angle and could also monitor the speed of the boats.

IRIX version compatibility: 6.2

Turn-key Simulators

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MRDS™ is one in a line of complete Turn-key Simulator Products. MRDS (Mid-Range Driving Simulator) is a full-featured driving simulator that includes visual system with 160-degree forward FOV, rear channel, road feel motion platform, spatial 3-D aural cue system, accurate vehicle dynamics, scenario generation and performance analysis. Applications include driving expertise training, research and marketing/pr.

IRIX version compatibility: 5.3, 6.x

Visualization & Simulation

VLIB-SGI™

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This software library provides a convenient interface between applications programs and a BOOM device, allowing rapid integration of immersive display capability in applications running on Silicon Graphics computing platforms. VLIB software and drivers are now incorporated into a wide range of virtual environment development packages and vertical application products.

IRIX version compatibility: "5.3, 6.1", 5.x, 6.x

VR Consultancy

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Virtual reality and virtual engineering consulting and application development.

IRIX version compatibility: 6.2

Visualization & Simulation

Vega™

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Vega™ - Vega is Paradigm Simulation's industry leading simulation software environment for real-time visual simulation, virtual reality, and general visualization applications. Vega can be used to quickly build interactive, real-time 3D environments satisfying the most demanding requirement for field-proven applications.

Vega Multi-Process (Vega-MP) provides the ultimate development and runtime environment for multi-processing hardware configurations. By effectively using the multi-process environment. Vega-MP logically distributes the visual system processing across available processors for optimal performance. Vega-MP allows the user to assign graphics and processing tasks to specific processors in the workstation and to customize the system configuration to closely match preformance objectives.

Vega Single-Process (Vega-SP), Paradigm's price/performance value leader, is ideal for developers building applications with all Vega-MP development features, but using a single process runtime model. Vega-SP is fully compatible with all current and future Vega add-on modules. Vega-MP and Vega-SP are compatible wiht the entire line of Silicon Graphics computers.

By combining advanced simulation functionality with ease-of-use tools, Vega provides for rapid prototyping, building, editing, and running sophisticated applications quickly and easily. Built upon Silicon Graphics Performer™ software, Vega adds substantial value to Performer, improving ease of use, reducing development and maintenance time and effort, and maximizing performance. Additionally, Vega is tightly integrated with specialty modules from Paradigm, Solution Group member companies, and other third-party developers. These modules offer functionality not found in Performer or elsewhere, extending Vega to satisfy the needs of unique applications, such as marine, sensor, automtive, rail, and flight.

IRIX version compatibility: 5.3, 6.2 Certified, 6.3 Certified

Video Format Converter

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The Video Format Converter (VFC) is a general-purpose stroke-to-raster converter which converts video in X,Y, Z (stroke) format to 525-line (RS-170) raste video in real time.

Features:

- General-purpose stroke-to-raster conversion
- Output is compatible with standard monitors and recorders
- Specifically designed for F/A-18 multi-function cockpit displays
- Fully independent input and output frame rates.

IRIX version compatibility: 5.x6.xpre-5.x

Virtual Mockup™

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Virtual Mockup is an application software suite that allows interactive visualization and navigation of very large 3D databases. It has been built using a powerful, unique 3D graphics approach which provides outstanding viewing performance and capcity on desktop workstations. Compared with a traditional CAD system, 3D viewing performance is 100x faster and allows 10 million polygon models to be interacted with in real-time on a SGI Solid Impact workstation. With this software, computer-based replacements for the physical mockups used in engineering processes can be created.

More information about Resolution Technologies, Inc. can be obtained at http://www.restec.com.

IRIX version compatibility:

Visualization & Simulation

Virtual World Inventors (VWI)

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Virtual World Inventor (VWI) is high performance software environment for real time audio visual simulation and virtual rality. Build upon SGI Open GL, VWI provides full compatability with any SGI platforms and essentially increases rendering performance of user applications. It provides easy-to-use, natural and full functional tools for developement of VR applications. VWI support poly channel stereo rendering real sound spatialization, distributed interactive simulation, collision detection and broad set of tools for motion description, animation and special effects.

IRIX version compatibility: 5.3, 6.2

VirtualView™

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VirtualView is a Netscape Navigator Plug-In that allows 3D scenes to be as easily embedded in Netscape html documents as 2D images. compared with traditional VRML viewers, 3D viewing perfomance is 100x faster and allows 10 million polygon models to be interacted with in real-time on a SGI Solid Impact worstation.

More information about Resolution Technologies, Inc. can be obtained at http://www.restec.com.

IRIX version compatibility: 5.36.2

Visual Insights™

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Visual Insights™ tools are a suite of software products that apply pateneted, Bell Laboratories data visualization technology to critical business problems. Visual Insights™ products allow users to assign visual characteristics, such as color and shapes to data elements, so that users can easily see relationships and pattern hidden in the data. Users can then interact with the data by filtering out unimportant information and concentrating on important details. Visual Insights™ products are being developed to solve business prblems in the following areas: Software Development Environment, Network and System Management, and Market Research Applications.

IRIX version compatibility: 5.3, 6.x

Visual Simulation Discovery™ (Visual ID™)

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Visual Simulation Discovery™ (Visual ID™) is a set of tools, supported by a team of data experts, designed to turn existing customer data into a competitive advantage. Visual ID™ is based on patented technology for assigning visual characteristics to large volumes of non-visual information and visually navigating through that information. This technology combines the pattern recognition capabilities of the human brain with high performance computing of SGI to discover previously unknown patterns and relationships.

IRIX version compatibility: 5.3, 6.x

Visualization & Simulation

VrTool™

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VrTool™ is the newest Virtual Reality toolkit that provides a rapid prototyping capability which will enable VR users to quickly have their applications running with a minimum amount of effort. VrTool™ provides a distributed processing methodology to maximize the processing power of your network resulting in minimizing system lags that are so important in VR environments. VrTool™ consists of a X-Motif user interface which allows users to quickly prototype their applications and an OpenGL renderer which provides portability across many platforms. Users will find that VrTool™ will provide the quickest and most reliable method of prototyping applications, not only for VR, but for simulation as well.

IRIX version compatibility: Pre 5.x, 5.3, 6.2

WALKTHRU™

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This program is a real-time, three-dimensional simulation system which allows users to interact with an existing three-dimensional computer model in much the same way as they would in the real world. The user sits at a color graphics workstation and navigates through the 3D model by controlling his direction, speed, and head orientation. WALKTHRU: •Allows user-controlled movement and viewing of the 3D model via buttons and dials, a mouse, a spaceball, or stereoview glasses. •Shades images according to application-specific color tables for different commodities. •Shows a location map of elevation and gives views of the model. •Records and replays a sequence of movements through the model.

IRIX version compatibility: "5.2, 5.3, 6.x", 5.x

WorldToolKit®

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WorldToolKit® (now in Release 6) is the world's most widely used 3D/VR software toolkit. A C/C++ library of high level function calls, WorldToolKit is a portable, cross-platform development and development system for visual simulation and virtual reality applications. Current platforms include Windows NT, Windows 95, Sun, Evans & Sutherland Freedom Series, Silicon Graphics, Hewlett-Packard, and DEC.

IRIX version compatibility: 5.x, 6.x, Pre 5.x

Visualization & Simulation

alpha-shapes

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alpha-shapes is a general modeling and visualization software for 3-D special point data.

IRIX version compatibility: 5.2, 5.3, 6.1, 6.2

xpatch GUI©

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xpatch GUI is used by qualified government contractors and agencies of the U.S. Government. Its development is supported by USAF Wright Laboratory.

The program is a family of high-frequency radar prediction codes, in three parts: electromagnetics, CAD and visualization tools, and a graphical user interface.

IRIX version compatibility: 5.3, 6.2

Visualization & Simulation