

EON Icube™

The Ultimate Immersive 3D Experience



Why use EON Icube™?

The EON Icube™ is a revolutionary **PC based multi-sided immersive environment** in which participants are completely **surrounded by virtual imagery and 3D sound**. Objects float in 3D space, can be manipulated by users in real-time.

The EON Icube represents a **significant innovative milestone in high-end visualization systems development**. Typically, high-end immersive systems have until today been complex, difficult to use and expensive to maintain. Unlike the older generation UNIX based systems the EON Icube is **easy to use even for non-programmers**, provides an unsurpassed speed of immersive content creation and deployment, utilizes a new light enhancing rigid wall material, and has built-in collaborative capabilities.

Key Benefits

- Multiple people can **share the stereo experience** and collaborate.
- **Perspective viewing** through Active or Passive stereoscopic viewing technology.
- **EON Icube Software** for **perspective calculations and easy set-up** of new models including all features and functions of EON Immersive VR authoring environment.



"The EON Icube has taken its place alongside a number of other devices inside the Virtual Reality lab at the University's Ingvar Kamprad Design Centre. Its uses extend well beyond the arena of academic research: "So far, our activities have centred around architectural and design visualisation, historical reconstructions, and simulation and in learning and training. We also want to make the Icube available to external clients to rent – for example, for a walk-through a planned building."

*Joakim Eriksson, Research Engineer,
Lund University, Sweden*



- **Interaction programming** using optional dataglove or wireless wand.
- **Sensory interaction** standard through the use of 3D motion tracking.
- Flawless **image continuity in the corners**.
- **Reliable and easy** to set up and maintain.
- Special **acryl screen** with high gain, for 3D visualization, allows for **high brightness**.
- Heightened sense of **realism and immersion**.
- **Superior image quality** with standard 1400x1050 resolution and **3,000 ANSI** Lumens brightness.
- **View full scale of models** such a cars, buildings, machinery etc.
- Modular **aluminum enclosure structure**.
- **Four channel 500W sound system**.

Easy, Fast, Reliable and Intuitive Real-Time Interaction



What is EON Icube™?

EON Icube is a complete turnkey visualization and virtual reality system offered in standard configuration with **3 to 6 walls** for full immersion. It provides a high quality of graphics system, built on **PC cluster technology**, providing unsurpassed immersion, when used with six degree of freedom motion tracking and VR interactive devices.

EON Icube offers a **user-friendly interface** for developing VR applications fully integrated with the EON software technology.

Key Features

- **Alignment of viewing frustum** between viewports for perpendicular screens depending on tracked viewing position.
- **Easy to use User Interface** to input screen dimensions, tracking system position and stereo-parameters for real-time viewport calculation as well as open up any existing EON application using templates showing a full Icube application within minutes.
- **Compatibility** with a wide range of Virtual Reality peripherals such as datagloves, Xbox controller, motion tracking systems, joysticks etc.
- **Expands the scope and functionality** of a desktop or web based EON 3D application through true application scalability.
- Cost effective single or multi channel application via the use of EON Icube Software, a proprietary EON technology that enables multi-channel/cube displays systems using ordinary PC's.
- **Extensive applicaiton library** with over 100 ready to use EON applications from over ten major categories such as A/E/C, Design, Industrial, Medical etc.



Application Areas

- Safety and Technical Training
- Interior Configuration and Layout
- Architecture and Construction
- Product Development and Design
- Human Factors Studies
- Manufacturing and Plant layout
- Scientific Visualization
- Museum and Historical
- Entertainment and Experience
- Immersive Education

How it Works

EON Icube™ System Overview

Using EON Icube software and high-end active stereo projectors, with stereoscopic glasses and motion tracking position trackers, the result is **complete immersion of the user in a virtual world** where objects float in space with high quality graphics. Motion trackers are implemented to monitor the user's position and orientation and are used to calculate a stereoscopic perspective view while allowing the user to freely move into and around the **objects floating in space**.

The stereoscopic visualization is supported by an integrated 3D audio surround system. Peripheral devices such as wands and gesture gloves are integrated into the system. EON Icube has the ability to rapidly deploy 3D interactive virtual simulations using a series of built-in classes of objects, drivers and a large library of 3D models, textures, and easy to use built-in functionalities.



EON Icube Software

- **Easy to use** graphical authoring tool allowing non-programmers to add complex interactive effects.
- **Easy import** of most generic CAD and 3D formats, allowing easy use and manipulation of objects and textures from a wide range of 3D modeling tools.
- **Pre-programmed interactive node functionality** that minimizes development time for new applications.
- **Graphical User Interface based web publisher** that makes it easier to embed EON applications with rich communication to web pages.
- **High rendering quality** - EON offers a superb visual quality incl. support for lightmaps and anti-aliasing.
- **Easily integrated** with other standard software.
- **Multi user environment** - several people can share the experience and collaborate.
- **Sensory interaction** through the use of data gloves, motion tracking.
- **Perspective viewing** control through stereoscopic software settings.
- **Supports quadbuffer stereo**.

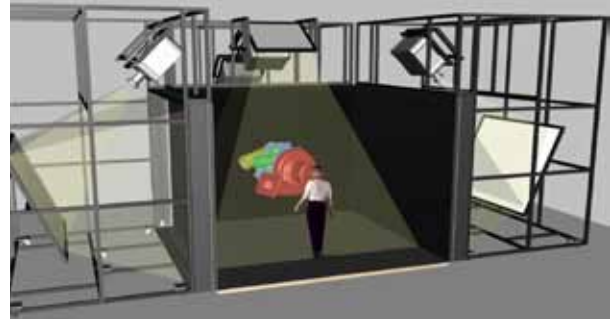


EON Icube is offered in the following standard configurations:

- 3-Wall 10' wide x 7.5' high
- 4-Wall 10' wide x 7.5' high viewing surface per screen

Customized screen sizes and configurations with 5 or more screens are also available. Minimum ceiling height requirement is 12' for a 3 or 4-Wall system. The 6-Wall EON Icube consists of 6 Virtual Walls and provides the highest level of immersion possible. It is **used for high-end scientific visualization, driving, flying, and naval simulation**, as well as for studies involving rear views and for collaborative environments where objects that float in space must be turned around and manipulated.

Additional considerations are needed to deal with the structural issues, as only rear projection can be applied. Typically, the 6-Wall Display system is raised at least 10 ft above ground, and a high quality aquarium glass material is used for allowing visualization on the ground screen. The minimum ceiling height required is 30 feet. The EON Icube 6-Wall requires a relatively high ceiling as well. Wireless Intersense ultrasound trackers are also used in the 6-Wall EON Icube. There are also reconfigurable EON Icube systems that can convert from U-shape to Powerwall configuration.



Courtesy of Paul Howse, RCA Vehicle Design

Integrated System Customers:

- Atlas Copco
- Bechtel
- Boeing
- Bombardier
- Cornell University
- Doncaster College, UK
- Dubai Aerospace Enterprise, Dubai
- Kurume Inst. of Techn., Japan
- Lund University, Sweden
- Purdue University
- Southeastern Inst. of Manuf. & Techn.
- University of Central Lancashire, UK
- Temasek Polytechnic, Singapore
- University of Missouri - Rolla
- University of Montreal
- University of Pennsylvania



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