

StereoMirror™ 3D Displays

StereoMirror™ 3D Displays incorporate a new FPP technology that dramatically improves the brightness, sharpness, and definition of stereographic desktop monitors. StereoMirror monitors present stable and flicker free stereographic 3D graphic and video images with a clarity that has never before been demonstrated.

Current FPP demonstrators use two off the shelf AMLCD desktop monitors or TVs. The monitors are positioned in vertical stacked configuration at an angle of 120 degrees and a StereoMirror beamsplitter is interposed between the monitors bisecting the angle. The user, wearing passive polarized glasses, sees a stereographic 3D image by viewing the lower vertical monitor through the StereoMirror beamsplitter.

Benefits and Features

- **3D image brightness** that matches best flat panel monitors. The brightness in 3D mode is nearly the same as the native brightness of each of the monitors in conventional 2D mode despite the use of passive polarizing 3D glasses. For example the viewer will enjoy a 150-nit brightness through the glasses when the native brightness of each of the AMLCD monitors is 200 nits. The design enables comfortable viewing while working in normal office lighting environments.
- **High definition 3D.** The 3D images have the same pixel counts of each of the component monitors. Two UXGA AMLCD monitors produce a stereographic UXGA 3D image.
- **Comfortable Viewing Angles.** The 3D mode does not compromise the native viewing angles of the component monitors. However, the size of the beam splitter and positioning of the displays limit the useful viewing field.
- **Flicker-free 3D.** In 3D mode the monitor has the same flicker free performance as in 2D mode when operating at the normal frame refresh rate. The stereographic field sequential mode of CRT monitors is not used. Both stereo fields are displayed at the normal frame rate of the monitor and therefore it is not necessary to use up bandwidth by going to the higher frame rates typically used to eliminate flicker with CRT stereo systems.

Viewer Perspective of 3D Video Demo Unit
(3D effect cannot be shown in photo image)



Perspective of StereoMirror Demo Unit



About FPP

Dr. James L. Fergason founded Fergason Patent Properties (FPP) in 2001. He assigned a portfolio of more than 35 issued U.S. patents and foreign counterparts to the company. The company will maximize the value of the FPP patent portfolio to licensees by providing technical support services and creating or acquiring related and synergistic intellectual property including Trademarks and Copyrights.

About Dr. James L. Fergason

Dr. Fergason is a world-renowned pioneer of modern liquid crystal technology and a prolific inventor of electronic displays with more than 100 patents. He has been widely recognized and honored for his numerous contributions to display technology and as an independent inventor. For details on the FPP patent portfolio and Dr. Fergason's accomplishments, please see our website: <http://www.fergasonpatents.com>

Contact Information

For more information on StereoMirror technology and patents and to discuss your interest in licensing the technology, please contact FPP's licensing agent:
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StereoMirror Frequently Asked Questions

1. How is flicker free operation and high definition achieved?

The 3D image results from adding and superimposing two complete full frame rate views together. The stereo image has the full pixel count and native definition of each of the two AMLCD monitors. Both of the monitors run at their full design frame rate with no flicker. For example one of the FPP demonstrators displays a 75 Hz flicker free 1280X1024 image from two flat panel monitors. Most current CRT stereographic monitors use a time sequential mode and shutter glasses to squeeze two view fields into a single frame. Flicker usually results. Most stereographic LCDs use a lenticular lens mode that effectively cuts the image definition in half.

2. How can the StereoMirror monitors be as bright in 3D mode as they are in conventional 2D mode, especially when polarized glasses are required for viewing?

The StereoMirror design relies on taking full advantage of the fact that the AMLCD monitor image is linearly polarized. The StereoMirror beamsplitter and passive glasses are designed to conserve polarization and maximize light throughput.

3. What types of displays can be used in StereoMirror monitors?

Basically any AMLCD flat panel monitor or television can be used. In the current demonstrators the bottom panel is addressed conventionally, left to right, top to bottom, in each frame. For stereo viewing, the top monitor scan is switched from to mirror mode (right to left, top to bottom). In the FPP demonstrators, the control of the mirror scan is implemented in the panel controller. Other approaches are feasible.

4. What are the interface requirements?

FPP has two system demonstrators, a DVD platform for 3D entertainment applications, and a PC platform for computing. The DVD platform takes advantage of existing stereo 3D content that outputs the two views in a time sequential format. A commercially available interface board separates the left and right view in two outputs. The AMLCD television monitors are then directly connected to the interface ports. The PC platform incorporates 2 graphic cards, each outputting to one of the flat panels. Currently FPP can demonstrate 3D PC games in stereo mode. FPP is working with beta integrators and end users to define platform and application software requirements and to document reference designs for required interfaces.

5. When will monitors be commercially available?

Ferguson Patent Properties is a technology development and licensing company. Our goal is to invent and develop new concepts to improve display performance and reduce costs. We usually build technology demonstrators to show to potential licensees and end users, but do not have the necessary resources to engineer or prototype commercial products. FPP has identified several display and monitor integrators as potential licensees of StereoMirror and is working with them to evolve commercial targets to meet the needs of end users and optimize the StereoMirror for specific applications.

6. What platforms and applications will licensees support?

FPP is pursuing licensees in two market segments: professional and entertainment. In the professional space it is expected that a range of high performance computer platforms will be supported, including PC, SGI, Sun, and HP workstations. Applications will include CAD, geospatial, biochemical, medical, and other professional applications. In the entertainment space, platforms will range from game consoles and DVD players to PCs. Contents and applications will include movies and games.