

**The Second Generation of Highest Flexibility
in the Fields of Real-Time Image Correction**



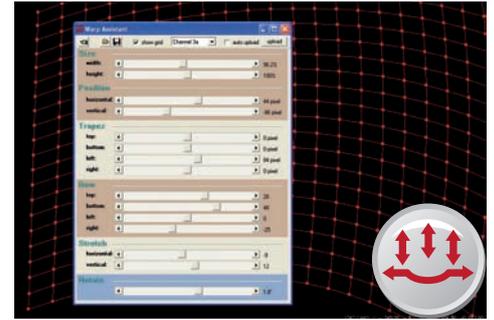
The perfect solution for Real-Time Image Correction

REAL-TIME IMAGE PROCESSOR

Multi-Media Experience at its Best

The openWARP² product family provides solutions for large screen visualisation systems and commercial off-the-shelf, PC-based visualisation cluster. With openWARP² it is possible to build highly flexible and cost effective multimedia presentations, video installations and virtual reality systems.

openWARP² is the only device on the market which allows uploading and performing geometry corrections within a single frame. Therefore it is possible to build high performance interactive simulations with tracked observer systems.



Cutting-edge Technology for Virtual Realities and Simulations

openWARP is a development by the Max-Planck-Institute for Biological Cybernetics Together with eyevis, this technology has been further developed and brought on the market. openWARP² is the ideal and cost-effective solution for applications in virtual realities, graphic clusters or simulations. The device can also be used in control rooms, for shows, events or digital cinema. openWARP² offers absolutely new possibilities for single-channel or multi-channel projections. This allows flexible and at the same time cost-effective solutions.

openWARP² Specs & Features

-) Single channel DVI Warping and Blending Unit
-) Input/Output: single-link DVI-D for resolutions up to WUXGA (1920x1200@60Hz) or 2k (2048x1080@60Hz)
-) Resolution pass-through technology (automatic resolution configuration)
-) Bandwidth: max: 165MHz pixel clock
-) Communication: RS232 / LAN
-) Low latency (less than 1/4 frame)
-) Gamma correction, colour transformation and Colour shading
-) Unrestricted blending and alpha-masking
-) High precision geometry correction (2 times 5th order polynomial)
-) Advanced filter kernel for high quality image processing
-) Interactive and real-time image warping

Comfortable Image Warping and Blending

The completely new designed system architecture and the new powerful warp-core technology enable high-quality image corrections. Thanks to the innovative "Resolution pass-through Technology", the device can be easily integrated into any system environment without the necessity to configure the desired resolution. Comprehensive possibilities for colour and brightness corrections enable the perfect alignment of multi-channel installations. Additional functionalities, such as colour-shading, alpha-masks and pixel-accurate blending make the system a first choice solution for professional multi-channel projections. Like the previous generation, openWARP² also offers an extremely short processing time and real-time warping possibility.



) REFERENCES

We have set up new standards with all of our realised projects. Here you can find an extract from our reference list.

-) Airbus Hamburg
-) Audi AG
-) CT Creative Technology
-) Daimler AG
-) EADS Ottobrunn
-) Engage Productions Ltd.
-) Fraunhofer Institute for Factory Operation and Automation (IFF)
-) Fraunhofer Institute for Telecommunications (HHI)
-) immersion SAS
-) Indra Sistemas S.A.
-) Kali+Salz Mining Simulation
-) Max Planck Institute for Biological Cybernetics
-) MOD Produktions GmbH
-) Petrobras Brasil
-) Renault France
-) Rheinmetall Defence Electronics
-) Starship Cruises Malaysia
-) THALES Group
-) University Hospital Tübingen
-) University of Applied Sciences Oldenburg

The Optimal Technological Platform for VR-Systems

The field of application for VR systems has been widened, from the mere representation of three-dimensional images up to the creation of multi-functional interactive workstations. The multimedia-based presentation of research results or prototype models is becoming increasingly important. These new tasks which combine virtual reality and the presentation of multi-media content constitute a new challenge to the technology of VR systems. eyevis provides the ideal technological platform for the upgrade of existing installations, as well as for the planning and realisation of new state-of-the-art systems.



Perfect Geometry Correction for any Screen Shape - Domed, curved, flat, ...

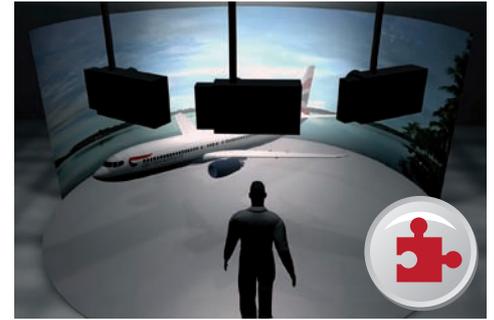
openWARP² enables optimised projection on literally any surface type or shape. The device provides various possibilities and tools for the adjustment of colours and distortion of the projected images. Besides the integrated functions it is also possible to import external calibrations. This open architecture of the system allows the simple integration of camera-based calibration systems or systems for automatic colour correction.



High End Projectors from eyevis ESP Series

The projectors are designed on the basis of the projection engines in eyevis EC cube series. These projectors are well-known for their outstanding image quality and their reliability in professional applications. The projectors from the ESP series are available with two different illumination technologies: UHP projection lamps or new LED projection technology. These components were chosen for their robustness and usability in continuous operation. The stable metal housing of the projectors allows the installation of the devices in high-vibration environments or motion-based simulations.

There are various upgrade options available for the projectors which allow the use of the devices in stereo-projections, night vision simulations and optimised performance in multi-channel projections.



One-Channel Projection, Stereo-Projection, ... , Multi-Channel Projection

Whether you wish to improve single projectors, stereo projections or combined multi-channel projections, openWARP² is a first choice for all of these applications. With openWARP² you can realise any image distortion, as well as colour and brightness corrections to achieve optimal colour and brightness uniformity. The device provides a real-time mode which enables image distortions without delay. This feature allows the realisation of highly dynamic applications in which the distortion of the projected images has to be adjusted to changing projection conditions in real-time.

The configuration is transmitted to the device via USB. With the optional communication board, eyevis also provides an additional serial or network interface for the control of the system.



-) University of Rochester
-) Viception GmbH
-) Viscon GmbH



Custom-designed, cost-effective Pay-per-Channel Solution

With the new openWARP² device, eyevis provides a cost-effective solution. The customer only pays for the number of channels he really needs, and this at a competitive price. Any number of devices can be cascaded to realise customised

multi-channel installations. The new openWARP² device is a much more flexible solution compared with solutions embedded in projectors or image generators. openWARP² can be used with any projection device on the market.

Of course eyevis provides appropriate high-end projectors for best compatibility.

Perfect Visual Solutions Made in Germany

eyevis foremost concern is to provide our customers with complete systems that guarantee trouble-free operation. All components of our systems are perfectly compatible to ensure reliable long-time operation. Beginning from the displays solution, to the graphics controller and software, to our range of accessories – whatever you need, we have it – complete perfect visual solutions.

With the new openWARP², the second generation of eyevis' outstanding technology for warping, blending and colour correction, it is possible to project any image with any projector on screens of any kind of shape and surface.

openWARP² allows to realise flexible and cost-effective systems for multi-media presentations, video applications or virtual realities. openWARP² is the only solution on the market which allows the upload and realisation of geometrical corrections within one frame. This gives our customers the possibility to create high performance interactive simulations with tracking systems.

The extremely fast image processing (latency < 1/4 frame) allows the application of the device in high quality an time-critical simulation systems.



) TECHNICAL SPECIFICATIONS

-) Single channel DVI Warping and Blending Unit
-) Input / Output: single-Link DVI-D for Resolutions up to WUXGA (1920x1200@60Hz) or 2k (2048x1080@60Hz)
-) Resolution pass-through Technology (automatic resolution configuration)
-) Bandwidth: max: 165MHz pixel clock
-) Communication: USB-RS232 to control PC or RS232 / LAN with additional communication board
-) Low latency (less than 1/4 frame)
-) Gamma correction, colour transformation and Colour shading
-) Unrestricted blending and alpha-masking
-) High precision geometry correction (2 times 5th order polynomial)
-) Advanced filter kernel for high quality image processing
-) Interactive and real-time image warping

) APPLICATION POSSIBILITIES

-) Training and Simulation
-) Virtual and Augmented Reality
-) Entertainment
-) Rental/Staging



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