

projectiondesign as

MIPS


Multi  
Image  
Processing  
System




# Multi Image Processing System™ – MIPS

The projectiondesign MIPS image processing system components provide state-of-the-art image blending and geometry correction for advanced solutions in scientific visualisation, training and simulation, or media and entertainment applications. High end hardware processing provide correction on a per-pixel basis, for absolutely perfect image performance. Its infinite scalability, and total IG transparency secures a future proof investment.

## Fully WQXGA (2560x1600) compatible


 The MIPS WB2560 features 6.25 Mps image processing for full 2560x1600 image processing without any limitations. Featuring Dual Link DVI in/out, it easily blends, warps, and colour manages any resolution up to WQXGA, making it forward compatible with next generation displays and interfacing. The WB1920 shares all the same features, but with a lower 1920x1200 maximum image resolution. The high bandwidth enables high frame rates for reduced smear and image artefacts.

## Black Level Matching – BLM

 For truly seamless blending and matching between multiple displays, the MIPS image processing system features patented (US Pat No. 6,760,075 B2) Black Level Matching functionality. Black level of individual displays can be adjusted on pixel level, so that the result is a completely uniform display at all levels.

## Pixel Level Matching™


– 3-channel-pixel level gain and lift correction

 Additional to BLM, the MIPS features individual RGB gain and lift per pixel; Pixel Level Matching™ - PLM™. This ensures completely uniform images in both colour and brightness levels. A challenge in displays and ordinary processing systems, the PLM functionality integrates seamlessly with the display, and can be monitored and corrected directly from the ProNet™ control and setup application.


## Rack mount hardware

Each MIPS processor is half-width, 1U standard size, so two channels can be combined in a single standard 19" 1RU rack mounting plate. Each MIPS processor also features its own internal power supply, so power management is easy, as there is no wall-wart or external power supply module. The double processing 1RU unit easily creates a simple two-channel blend, or single image 3D stereoscopic geometry corrected setup for use on any surface.


## 4x4 Lanczos or bicubic interpolation adaptive filtering

 The high speed dual-core processor in the MIPS enables very sophisticated filtering and scaling filters. Several types of filtering can be selected and applied, Applying the acclaimed 4x4 Lanczos filtering method in a random pattern to blend and correction zones retains a very high degree of detail and sharpness also when the image is electronically corrected.


## Unlimited scalability

 There are no scalability limitations when using the MIPS processing system. Any number of channels can be combined to a single image, without constraints.

## Zero latency

 Blending several Image Generators and projectors together for a single, multiple channel image is done with absolute zero latency. Applications that require geometry correction feature the least possible latency, typically less than one frame, even in the worst case installations. Latency is dependent only on rotation correction.

## 3D stereographic displays

 The WB2560 supports up to 1920x1200 at a full 120Hz refresh rate active 3D stereo, with full warp and blend capabilities. This makes it easy to assemble a fully immersive system of corrected 3D displays.





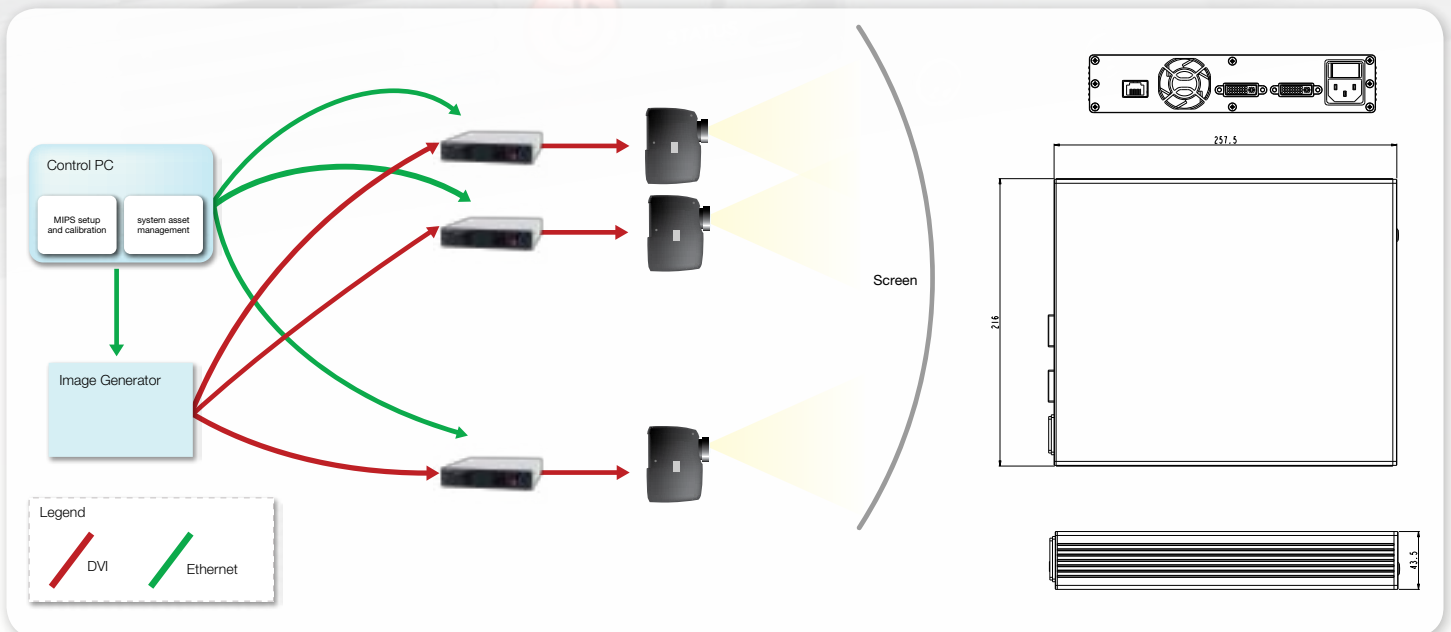
## Technical specifications

versions	101-0301-00 (WB2560) 101-0302-00 (WB1920)
functionality	Geometry Correction, Blending, Colour Correction and matching, Uniformity Correction and matching
scalability	Unlimited channels
latency	Zero with blended set up, rotation dependent with geometry correction
bit planes / colour depth	12 bits per colour
I/O	Dual Link DVI in / out Ethernet (control) IEC power connector
colour correction	PLM™ – Pixel Level Matching™; individual RGB channel on pixel level
black level correction	Patented Pixel Level Matching; individual RGB channel on pixel level
maximum resolution	2560 x 1600 (WB2560) 1920 x 1200 (WB1920)
3D stereographic	up to 1920 x 1200 @ 120 Hz on WB2560
setup and control	ProNet™ setup and calibration tool Automatic Camera setup (tba.)
filtering and scaling options – user selectable	4x4 Bicubic Lanczos algorithms 4x4 bicubic interpolation
installation	1/2 width, 1RU rack mount. Rack mounting kit available
conformances	FCC Class B, CE, CUL
power requirements	100 - 120VAC, 200 - 240 VAC, 50/60 Hz, < 30W
size ( H x W x D)	43.5 x 216 x 275.5 mm

The circular, fully immersive installation by Jeffrey Shaw uses eight projectors, with more than 16 megapixels content, and is a typical installation that benefits from technology that is featured by the MIPS processor.

## MIPS system configuration

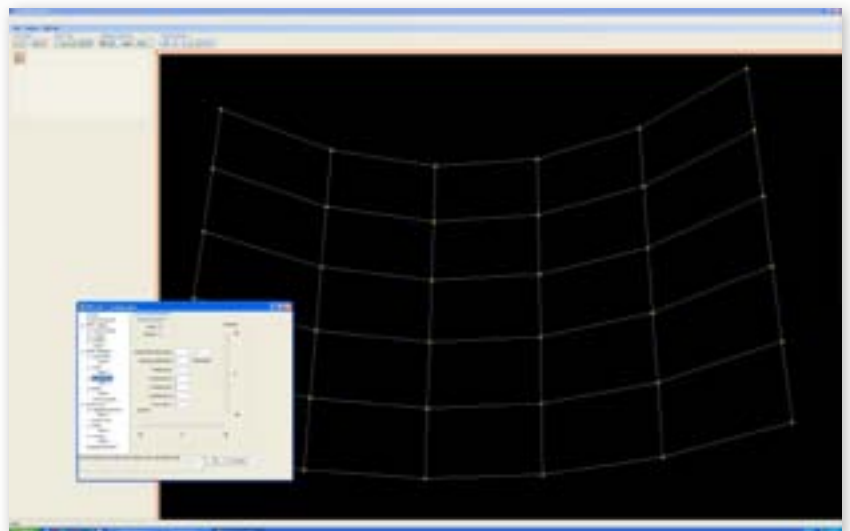
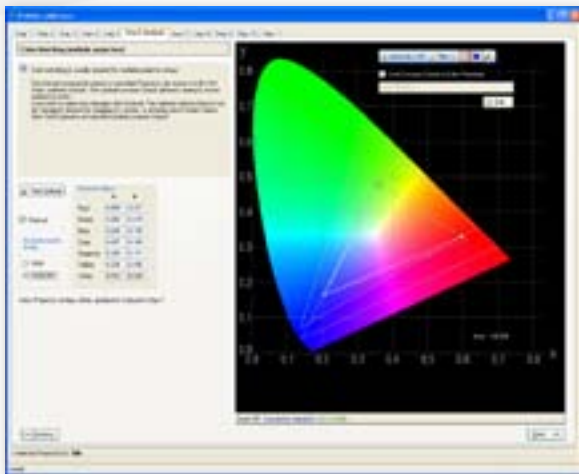
Each MIPS unit corrects and processes an individual channel of display data at up to 2560x1600 pixel resolution. Its unlimited scalability, and high processing power enables completely transparent and dedicated scaling and processing per channel, each connected to its own Image Generator output. MIPS processors are designed to be placed close to the source, so that cabling, infrastructure, and setup complexity is reduced to a minimum. All management, system calibration, and setup is performed at a single, dedicated PC in the network. Using DualLink DVI interfacing at up to 6.25 Gbs ensures artefact free and uncompressed data.





## ProNet™ setup and calibration tool

Setting up, and configuring the MIPS system is easy, thanks to the multi-function ProNet setup and calibration tool. ProNet enables complete system and image setup and calibration, as well as asset management, from a single tool and software package. Each MIPS processor features standard TCP/IP connectivity, and connects to a dedicated network with a control host PC. The control host PC can be a simple laptop computer running Microsoft® Windows® XP or newer. ProNet has multiple modules, each specific to its own function, like colour calibration and fine tuning of an unlimited amount of projectors, and the ubiquitous geometry, blending, and MIPS setup tool. The ProNet application also supports full asset management of any number of devices connected to the network.



The ProNet software features both pixel-level calibration per channel, and setup of multiple processor correction and setup.

## about projectiondesign

projectiondesign is located in Fredrikstad, Norway, a center in the projection industry since the mid 80's. We are dedicated to designing, manufacturing and marketing a wide range of high performance projectors and accessories for demanding applications. The entire range of products is specially conceived to offer a better price to performance ratio than any competing offering in our target markets. The dedicated staffs of experienced scientists and engineers have life long experience in complete electronic, optical, mechanical and system design of high performance products. The approach to integrated product design and manufacture in-house assures the best attention to detail and quality. All products are designed in close cooperation with our customers in order to assure the best functionality according to the actual requirements.

## philosophy

projectiondesign designs and manufactures high performance products for professional applications. Our products are used in high profile installations where performance and reliability are key. In order to meet our clients' requirements, projectiondesign always seeks to offer the best possible performance for any single installation by providing the best possible fit for any one product. The rapid development of display technologies recent times, and constant search for performance products have enabled us to create hundreds of individual variants of every single projector platform. We always seek to offer users of our products the benefit of this development at minimal cost penalties. All projectiondesign products are built to order. By doing so, we guarantee that the latest software and hardware will be in any one product shipped, reducing the risk of receiving a product that has been sitting on a shelf for months, where new variants in the same model range ultimately have had upgrades to their performance.

## achievements

Since projectiondesign was founded in 2001, the company has achieved a tremendous amount of industry firsts, and is widely recognized for its efforts in high performance projector development and influence. Highlights include the first ever single chip DLP® technology SXGA resolution projector, as well as the same for SXGA+, 1080p, and WUXGA resolutions. In 2008, projectiondesign was the first manufacturer to introduce a single chip DLP active 3D stereoscopic projector, in the F10 AS3D, at only 3.5 kg.

projectiondesign has always been regarded a special technology partner for our vendors, and we are often working with them to preview or introduce new technologies to the market, including for instance new illumination or imaging technologies.

Our 2010 product offering includes high performance projectors, all with high resolution displays, and offering the same high image quality with various power levels to fit varying screen sizes and demands. New for 2010 is also our image processors, designed to offer outstanding performance, and our ProNet supporting software suite.

*A multitude of projectiondesign installations use blended and geometry corrected applications. Images courtesy of Jeffrey Shaw, Intergrale 360 (Immersion), and Antycip Simulation.*



## head office

projectiondesign as  
Habornveien 53  
N-1630 Gamle Fredrikstad, Norway  
ph +47 69 30 45 50  
fx +47 69 30 45 80  
sales@projectiondesign.com

## representation in

the Americas  
projectiondesign LLC  
295 North Street,  
Teterboro, NJ 07608, USA  
ph +1 888 588 1024  
fx +1 201 288 1034  
americas\_sales@projectiondesign.com

Middle East  
P.O. Box 17633  
Jebel Ali Free Zone L.O.B. 15, Office 212, Dubai, UAE  
ph +97150 6579827  
fx +47 69 30 45 80  
me\_sales@projectiondesign.com

Germany, Austria, Switzerland  
Stuttgart  
ph +49 7153 958263  
mo +49 (176) 2316 0345  
fx +47 69 30 45 80  
germany\_sales@projectiondesign.com

Southern Europe  
Via Plinio 43, I-20129 Milano (MI), Italy  
ph +39 02 45471864  
fx +39 02 45471865  
southe\_sales@projectiondesign.com

Benelux region  
J. A. L. J. van Meertenstraat 4  
4194WL Meteren, The Netherlands  
ph +31 (0) 345753314  
fx +31 (0) 345753314  
benelux\_sales@projectiondesign.com

United Kingdom and Ireland  
Regus House, Herons Way, Chester Business Park,  
Chester, CH4 9QR, United Kingdom  
ph +44 (0)1244 893 231  
fx +47 69 30 45 80  
uk\_sales@projectiondesign.com

Asia  
161 Kallang Way,  
#04-05 Kolam Ayer Industrial Estate, Singapore 349247  
ph +65 9621 7421  
fx +47 69 30 45 80  
asia\_sales@projectiondesign.com

Spain and Portugal  
Gorrondatxe15, bajo A  
48640 Berango, Spain  
ph 34 676 266 301  
fx +47 69 30 45 80  
iberica\_sales@projectiondesign.com

India, including SAARC  
Mumbai  
ph +91 982 061 0670  
fx +47 69 30 45 80  
india\_sales@projectiondesign.com

South Africa, Africa, Middle East and Oceania  
1 Peterhof Close  
Hout Bay 7806, South Africa  
ph + 27 21 79 00 018  
fx +47 69 30 45 80  
africa\_sales@projectiondesign.com  
oceania\_sales@projectiondesign.com