BarcoReality SIM 6 Ultra II

Dedicated digital light valve projector for simulation and V&AR

Native resolution UXGA (1600 x 1200)

This projector can be equipped with a broad range of proprietary Application Specific Optimizations (ASO's) for demanding configurations in both **Simulation** and **Virtual Reality** applications. Compact size and rugged design makes the SIM 6 ULTRA II also perfect for implementation into motion-base platforms.

Barco proprietary options for dedicated application benefits
- WARP 6™ non-linear image mapping using proprietary bicubic interpolation algorithms: enables high-order pre-distortions electronically, without frame delay
- TRANSPORT DELAY REDUCTION (TDR): ensures minimal propagation delay between the input signal and the projected image
- TRUE MOTION REPRODUCTION (TMR): motion artifacts compensation and image enhancement dramatically minimizes smearing inherent to LCD technology
- Adjustable Scheimpflug correction for tilted projector screen configurations
- Passive stereo optimized configuration (linear or circular polarization or Infitec stereo separation) for V&AR applications
- Available in passive stereo optimized configuration with linear and circular polarization
- STEREO SWITCHER™: switches between all three passive stereo separation technologies

Multi-channel optimization
- Color Gamut Matching (CGM): matched optical components for multi-channel use
- Gamut Expansion and Matching (GEM™)[1]: increased addressable gamut and more accurate color matching
- Chromatically matched optical engines with additional DYNACOLOR™ electronic color space transformations for elimination of channel-to-channel color variations
- Optical Soft Edge Matching (OSEM): edge blending for all brightness levels, including black level
- Black & White uniformity correction: factory adjustment to ensure excellent color uniformity of the grays, whites and blacks
- I-STEREO™ for multi-channel, high quality stereoscopic viewing in V&AR applications

(1) requires Color Gamut Matching

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Dedicated options for demanding applications

For night scenes in Simulation, for high contrast detail in Virtual Reality applications and for dark starry skies in planetariums, Barco incorporated an impressive array of proprietary technologies and dedicated options to ensure the highest possible contrast and multi-screen color and brightness uniformity of all projected images.
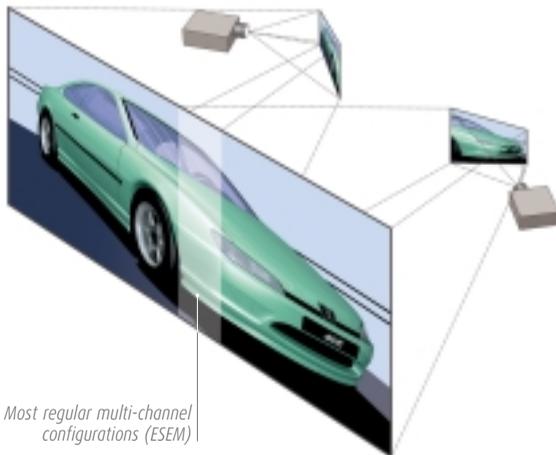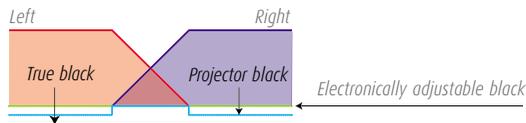
PROPRIETARY
BARCO
TECHNOLOGY

1

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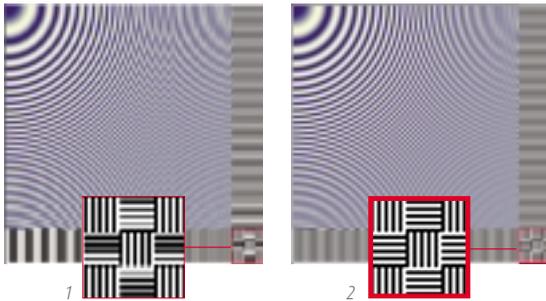
Warp 6™ Advanced Geometry Distortion

WARP 6™ is the most advanced geometry distortion technology using proprietary bi-cubic interpolation. It is specifically optimized to preserve fine detail in the image and suppress resampling artefacts. Thanks to WARP 6™, fixed matrix projectors like the SIM 6 ULTRA II can be used in a wide variety of curved-screen applications, ranging from straightforward cylindrical displays to the most severe distortions.

Test charts scaled using
1. Generic bilinear algorithm
*2. WARP 6™ algorithm*

Electronic Soft Edge Matching (ESEM)

In multi-channel setups, the nonzero black level of light valve projectors normally leads to brighter overlap zones, especially in night sceneries, which complicates multi-sided overlaps. Barco's standard ESEM technology allows you to adjust edge blending without black-level correction on all Barco simulation projectors.

Left   *Right*

True black   *Projector black*

← *Electronically adjustable black*

Most regular multi-channel configurations (ESEM)

Optical Soft Edge Matching (OSEM)

With Barco's proprietary OSEM, blending filters in the optical path maintain the black level in the overlap zone to that of the separate images.
This results in a seamless image with invisible blends, also in night sceneries, with complete control over the full dynamic range.

Left   *Right*

Optical Soft Edge Matching: Black level in overlap zone is equivalent to separate images

Multi-channel set-up with Barco's proprietary Optical Soft Edge Matching
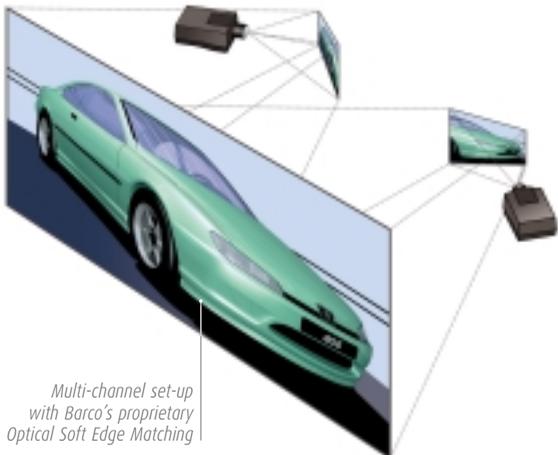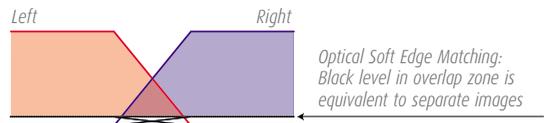
Extended Contrast Ratio (ECR)

Dark night scenes typically deliver video signals with reduced dynamic range and almost no contrast.

By electronically enhancing these video signals and dimming to rescale to full dynamic range, Barco's ECR greatly improves the contrast ratio and picture quality.

Gamut Expansion & Matching™

All projectors of a multi-channel system are carefully matched using unique optical components, raising the color accuracy throughout the application. GEM™ at the same time improves the primary color uniformity within the separate images, without having to sacrifice addressable gamut.
This technology also increases the addressable color gamut of the combined multi-channel system.
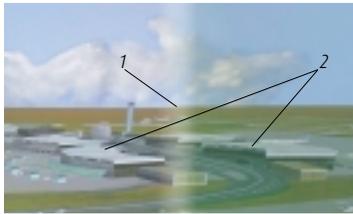
DynaColor™

Optional on the SIM 6 ULTRA II equipped with WARP 6 options

DYNACOLOR provides the user with the **ultimate electronic fine tuning** to digitally set the primary and secondary color coordinates **to obtain perfect color matching across a system.**

Gray Level Definition *(Part of DYNACOLOR™)* Improved grayscale tracking across the different channels of the multi-channel setup by controlling the black, white and grays.
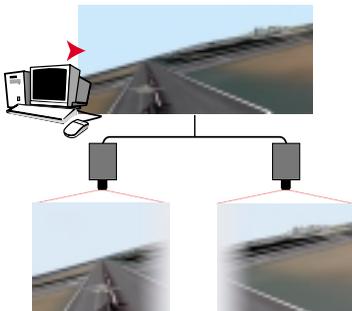
Blending with non-optimized projectors:
1. Alignment differences
2. Color & brightness differences

Photo courtesy: Nationaal licht-en ruimtevaartlaboratorium Amsterdam, The Netherlands

Barco's seamless 3-channel image thanks to:

- *WARP 6™ for geometry*
- *Gem™ and DYNACOLOR™ for color uniformity*
- *OSEM for an invisible blend*

i-Stereo™

Optional an the SIM 6 ULTRA II with WARP 6™
From a single high-bandwidth PC or workstation output (>170 MHz), I-STEREO™ produces two channel pictures with blend. By using the two outputs of the PC or workstation, you get a two-channel passive stereo projection at full resolution.

Stereo Switcher™

Optional on the SIM 6 ULTRA II

Switching between linear and circular polarization and Infitec stereo separation enables you to adapt the installation's stereo creating technology to meet your application needs.

Barco SIM 6 Ultra II

LCD panels
3 active matrix Poly-Silicon LCD panels (1.8" diagonal) with Micro Lens Array and a native resolution of 1600 x 1200 pixels (aspect ratio 4:3)

Economy lamp mode
Choose between normal operation mode and economy mode.

Wide compatibility
The SIM 6 ULTRA II is compatible with:
- Image generators and electronic workstations with a resolution up to 2,000 x 1,280 pixels @ 76 Hz
- All computer graphics formats from VGA, SVGA, XGA, SXGA to UXGA
- Most Macintosh computers
- All current video sources (PAL, SECAM, NTSC 3.58, NTSC 4.43) in Composite, SVHS, Component RGB formats using optional video decoder
- All currently proposed HDTV, extended and improved television standards (Eureka 95, Hi-vision, ACTV, IDTV, EDTV)
- Most sources with a pixel clock up to 205 MHz

Lenses
A wide range of fixed lenses and zoom lenses ensures the highest optical efficiency and maximum light output. A versatile lens shift allows the projector to be installed off-axis, without losing any brightness.

Scheimpflug correction
This built-in optical correction guarantees optimal optical focus from left to right and top to bottom for projection under non-standard angles.

Ruggedized version
optimized for use on motion base platform

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