CHRISTIE
MYSTIQUE

Automated camera-based alignment software

Auditoriums

Casinos, cruise ships & hotels

Enterprise venues & boardrooms

Giant screens & dome theaters

Live events & conferences

Museums & cultural attractions

Projection mapping

Rental & staging

Sports venues & theme park rides

CHRISTIE®

UP AND RUNNING
IN NO TIME

Perfectly aligned. Day after day.

Multi-projector arrays, projection mapping and complex screen shapes and surfaces require expert image configuration, alignment, warping and blending – processes that can take hours of painstaking work.

Christie® Mystique™ is an automated camera-based alignment and recalibration solution that lets you quickly install, align, calibrate and maintain multi-projector systems.
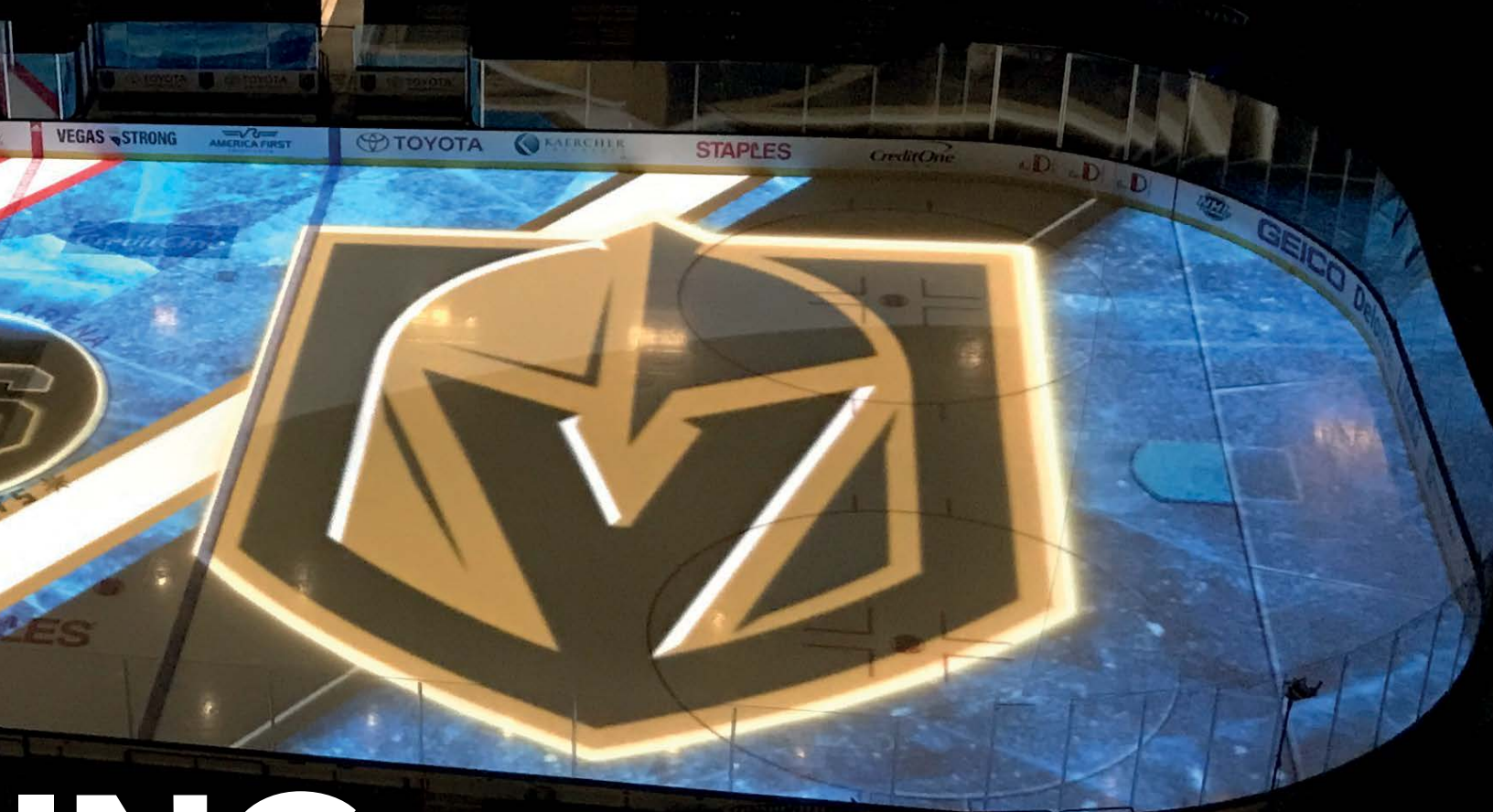
Projection mapping on the ice at NHL team Vegas Golden Knights, T-Mobile Arena, Las Vegas, USA. Photo courtesy of the Vegas Golden Knights. System design and installation by Image Engineering.

ING
ME

CHRISTIE®
MYSTIQUE

"Mystique was a great option within (the Vegas Golden Knights) installation. They're able to automatically realign the entire system in between 12 and 15 minutes. They can actually run it before every game to make sure alignment is perfect."

**Ian Bottiglieri, Director of Project Management, Image Engineering**

CHRISTIE OFFERS
FIVE EDITIONS OF MYSTIQUE

Christie® offers five editions of Mystique™. Each edition is designed for specific screen types and applications.
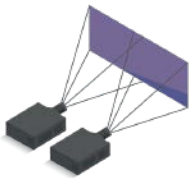
Lite Edition

› Simple warping and blending of up to three Christie projectors on flat screens and surfaces. Exclusive to Christie projectors, Mystique Lite is available for download at no additional cost.
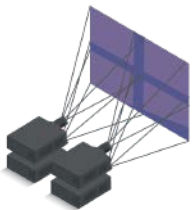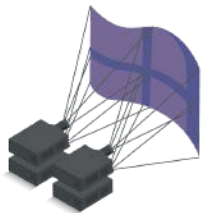
Essentials Edition

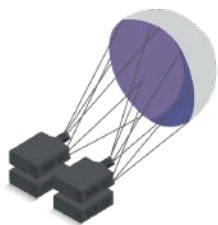› Projection stacking, warping and blending on flat screens and surfaces.
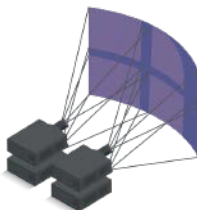
Pro Venue Edition

› Projection stacking, warping and blending including easy alignment on flat and cylindrical screens and surfaces such as stages, basketball courts and ice rinks.

Premium Edition

› Projection stacking, warping and blending on large-screen applications which require more than one camera to capture the entire screen. Screens can be flat, curved or custom shaped, including domes and 360-degree screens.

Large Scale Experience Edition

› Projection stacking, warping and blending on large-screen applications which require more than one camera to capture the entire screen. Screens or surfaces can be flat, curved, custom-shaped or domes. Ideal for applications like theme park dark rides, flying attractions, giant screens, dome theaters and 3D projection mapping on buildings, landmarks or objects.

COMPARE FEATURES

	Lite Edition (Download at no cost)	Essentials Edition	Pro Venue Edition	Premium Edition	Large Scale Experience Edition
Cameras, projectors, screens, support					
Number of cameras	1 webcam[1] (not supplied)	1	1	Unlimited	Unlimited
Number of projectors	Up to 3 Christie projectors in a horizontal array[2]	12[3]	Unlimited[4]	Unlimited	Unlimited
Supported screen shapes	Flat only	Flat only	Flat or cylindrical screens	Flat, curved and custom-shaped screens and surfaces, including domes[5]	Flat, curved and custom-shaped screens and surfaces, including domes, buildings, landmarks and objects[5]
Christie Pandoras Box® support		•	•	•	•
Recalibration features					
Manual recalibration	•	•	•	•	•
Automatic recalibration (camera-based)			•	•	•
Automatic recalibration (screen markers)				•	•
Christie Guardian		Optional	Optional		
Christie Mystique Operate		•	•	•	•
Content layout modes					
Wallpaper (basic)	•	•	•	•	•
Wallpaper (advanced)		•	•	•	•
Fields of view				•	•
Fields of view (collimated)				•	•
Projector centric					•
3D layout					•
Additional features					
Automated color and brightness uniformity[6,7]		•	•		
Background compensation[6]		•	•		
Alignment for surfaces with fixed markings such as sports playing surfaces or stages			•		
Alignment for 3D projection mapping					•
Rear-projection support		•	•	•	•
Dual-screen mode					•

1. Supported webcams: Logitech c920 and Logitech c920s
2. Warping and blending only. No stacking. Supported projectors: Christie Inspire Series, DWU880-GS, DWU1100-GS, DWU1400-GS, HS Series, Crimson Series, M 4K RGB Series, Griffyn® Series, 4K40-RGB Series, and Boxer® Series..
3. Supports up to 12 projectors in a 2 high x 3 wide configuration, double-stacked
4. Number of projectors limited by capable resolution of the single camera
5. Screens include primitive shapes including flat, curved or dome shapes, or by importing a screen model. Custom screen shapes should be smooth, continuous screens
6. Requires Mystique Version 2.6 or greater and a single, color camera. Supported projectors: M 4K RGB Series, Griffyn Series, 4K40-RGB Series, Boxer 4K30, and Mirage 304K.
7. The results will be limited by the lowest performing projector in the array.

SUPPORTED
SCREEN TYPES

Christie® Mystique™ works with screens and surfaces of all shapes and sizes.

Example of a flat screen

Flat and cylindrical screens

For flat and cylindrical screens and surfaces, Christie Mystique Essentials and Pro Venue Editions provide easy-to-deploy, single-camera solutions to quickly warp, blend and stack projectors. With Mystique Lite and an inexpensive supported webcam, you can warp and blend up to 3 Christie projectors in a horizontal array on flat screens or surfaces.

Example of a dome. Photo courtesy of Great Lakes Science Center

Complex screens and dome theaters

Christie Mystique Premium and Large Scale Experience (LSE) Editions are ideal for complex and smooth screen shapes, including wave shapes, domes, or toroidal screens. Using integrated primitive screen shapes or imported 3D models of your screen shape, Christie Mystique can support the most complex projection layout, with any number of projectors.

Example of projection mapping onto an object

Buildings, landmarks, objects and other surfaces

Christie Mystique LSE Edition provides automatic, multi-camera-based recalibration for 3D projection mapping without the need for marker points. This reduces complexity and costs by saving hours of labor-intensive manual alignment and blending. LSE Edition also automatically corrects for projection drift ensuring visual quality stays optimized. A robust tool, LSE Edition is indispensable for inexperienced and highly-skilled projectionists alike.
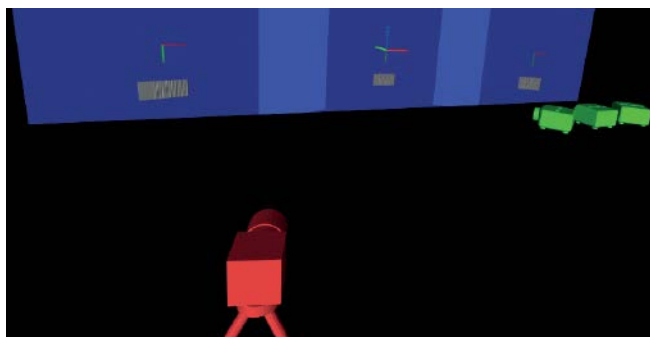
CAMERA SELECTION

Christie Mystique[1] offers a variety of cameras and lenses which are pre-calibrated as a pair to ensure maximum image quality.
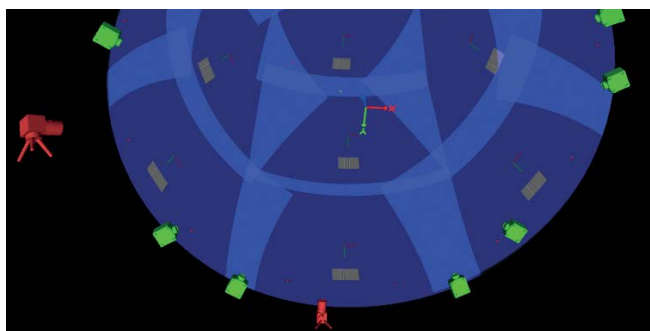
The number of cameras depends on both:

› Where they can be placed in relation to your projection surface

› The resolution of the screen in relation to the camera

You can use the [Christie Mystique camera calculator](#) to estimate if a single camera and lens combination is sufficient for your screen.
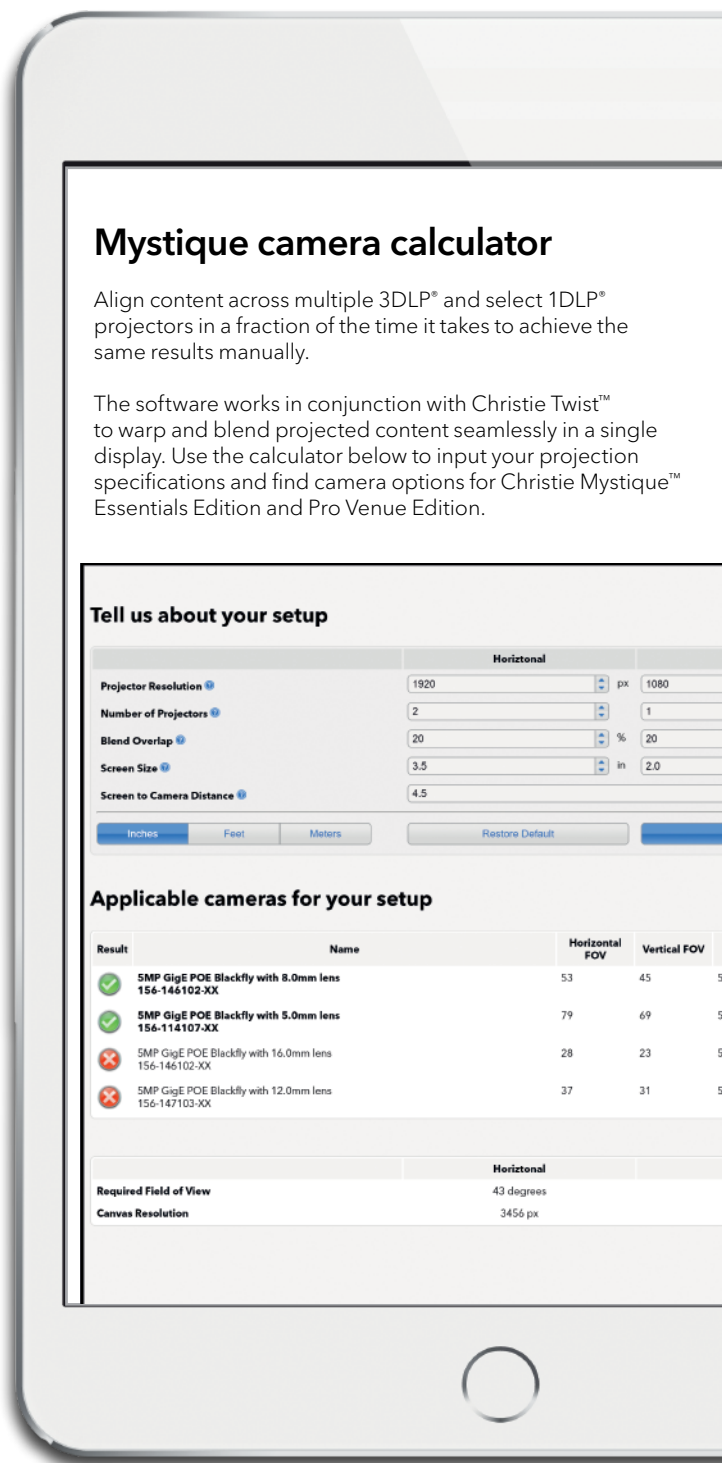
Christie can help you design a layout that works for multi-camera systems.

^ Example of a single-camera configuration

^ Example of a complex, three-camera configuration

Mystique camera calculator

Align content across multiple 3DLP® and select 1DLP® projectors in a fraction of the time it takes to achieve the same results manually.

The software works in conjunction with Christie Twist™ to warp and blend projected content seamlessly in a single display. Use the calculator below to input your projection specifications and find camera options for Christie Mystique™ Essentials Edition and Pro Venue Edition.

Tell us about your setup

	Horiztonal		
Projector Resolution	1920	px	1080
Number of Projectors	2		1
Blend Overlap	20	%	20
Screen Size	3.5	in	2.0
Screen to Camera Distance	4.5		

Inches | Feet | Meters | Restore Default

Applicable cameras for your setup

Result	Name	Horizontal FOV	Vertical FOV	
✅	5MP GigE POE Blackfly with 8.0mm lens 156-146102-XX	53	45	5
✅	5MP GigE POE Blackfly with 5.0mm lens 156-114107-XX	79	69	5
❌	5MP GigE POE Blackfly with 16.0mm lens 156-146102-XX	28	23	5
❌	5MP GigE POE Blackfly with 12.0mm lens 156-147103-XX	37	31	5

	Horiztonal
Required Field of View	43 degrees
Canvas Resolution	3456 px

^ https://www.christiedigital.com/help-center/tools-and-calculators/mystique-camera-calculator/

[1] Not applicable to Mystique Lite which requires the purchase of a third-party webcam.

^ Projection mapping the Lower Mississippi River Model at Louisiana State University helps
the Coastal Protection Restoration Authority communicate what's at stake in what experts
call the Coastal Crisis.

Photo courtesy of Louisiana State University Center for River Studies
Partners: Interstate Electronic Systems and Theatrical Concepts, Inc.

RE-CALIBRATION
FEATURES

Manual recalibration

Recalibration is applied by manually adjusting screen points within the Christie® Mystique™ software and running the calibration process. Typically, this involves repositioning the corner and curvature points within the camera image.

Automatic recalibration (screen markers)

Screen marker recalibration is typically required for systems using multiple cameras or complex screens. You can realign a system with a single click. It requires embedding a series of LED or laser marker reference points around the projection surface. The marker reference points help against slight movements of projector or cameras.

Automatic recalibration (camera-based)

Camera-based automatic recalibration is ideal for single-camera, flat screen applications which do not require screen markers. You can realign the system with a single click and automatically adjust for slight movements of the projectors or camera.

Christie Guardian

Christie Guardian constantly monitors a blended projection system for any misalignment. If Guardian detects a misalignment, it automatically calibrates the image in real-time, quickly, invisibly, and without interruption. Because Guardian eliminates the need for visible structured light patterns, audiences are unaware of any problem. Unique to Christie, Guardian is supported by Christie D4K40-RGB, Griffyn 4K32-RGB, Boxer 4K30, Boxer 4K20, Crimson Series, Mirage 304K, Mirage 4K40-RGB, Mirage SST and Mirage SST-6P projectors.

Christie Mystique Operate

Christie Mystique Operate provides a simple, browser-based experience for initiating a camera-based or screen marker recalibration run. It supports a REST API, which allows third-party applications to trigger the recalibration process.

> *With 20 projectors displaying one seamless image, the river model is a perfect application for Mystique. "It was the easiest part of the installation. It was perfect. I cannot say one bad thing about it."*
>
> *Mike Rideau, Managing Partner, Operations, Interstate Electronic Systems*

CONTENT LAYOUT
MODES

Wallpaper (basic)

Ideal for systems using a matrix projection layout, this mode is used for simple projection set-ups with a common overlap between each section and will support stacked projection systems. Users must provide a horizontal and/or vertical blend overlap expressed as a percentage or as pixels.

Wallpaper (advanced)

Designed for complex blended or stacked display types. Typically used for flat or curved (single axis) displays. For each content channel, the user provides left, right, top and bottom channel extents.

Fields of view

This is an advanced projective layout mode used in simulation of other real-time content solutions, where content is rendered from a single eye-point. Content channels are defined by providing the frustrum details (yaw, pitch, roll and field of view settings) along with the eye-point. It can accommodate complex projection layouts with irregular overlaps and other features.

Fields of view (collimated)

Fields of view (collimated) mode is primarily used in simulation scenarios where the user is looking at a spherical mirror showing a reflected image of the display. Content channels are defined by providing the frustrum details along with the eye-point. The system defines the placement and size of the mirror.

Projector centric

This mode is ideal for projection scenarios where content is pre-rendered based on the planned position of each projector channel. It can minimize the amount of warping applied to each channel on subsequent alignment runs. Christie Mystique can apply small warp adjustments to account for discrepancies between the planned projector position and the actual projector position. Projector centric mode is often used with theme park dark rides.
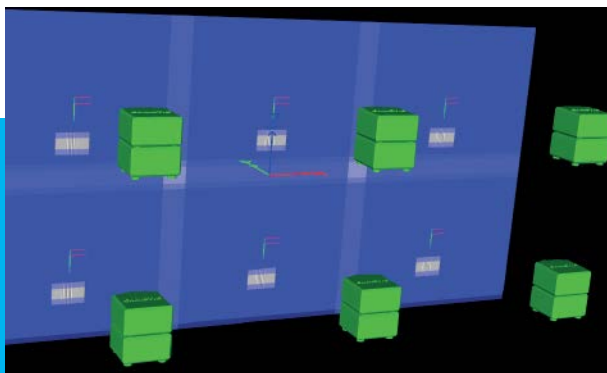
^ Example of wallpaper (basic) mode on 2 high x 3 wide, double-stacked projection array
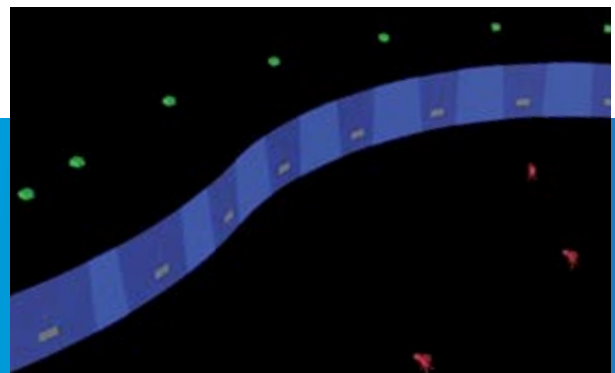
^ Example of a wallpaper (advanced) layout

^ Renaissance Toledo Downtown in Ohio delights tourists and residents alike with a dazzling permanent projection mapped public art installation on the hotel's façade entitled Mindblown Toledo.

Photo courtesy of Integrated Visions Productions
Partners: Integrated Visions Productions and Atlanta Soundworks, Inc.

M 4K RGB Series ›

GS Series ⌄

Crimson Series ⌄

Christie Eclipse ⌄

Inspire Series ⌃

⌄ HS Series

⌃ Griffyn Series

PRODUCT
COMPATIBILITY

Christie projectors

With a broad choice of compatible projectors, it's possible to specify a Christie® Mystique™ solution for a wide-variety of applications and budgets. The following Christie projectors support Mystique:

› Inspire Series

› GS Series - all models with Christie Twist™

› HS Series

› Crimson Series

› M 4K RGB Series

› Griffyn® Series

› Christie Eclipse

› 4K40-RGB Series

› Boxer® Series - Boxer 4K30, Boxer 4K20 and Mirage 304K

Christie Pandoras Box

Mystique[2] integrates directly with Pandoras Box Version 6 and higher, enabling automated camera-based alignment and calibration for large-scale projections, regardless of the projector you use.

Mystique provides fast, repeatable camera-based alignment for any multi-projector scenario when you use Pandoras Box as a media server.

› The optional Christie Guardian feature is not supported by Christie Pandoras Box

› Stacked projection systems require a dedicated Christie Pandoras Box output

› Blend quality depends on projector quality and cannot be guaranteed for non-Christie projectors
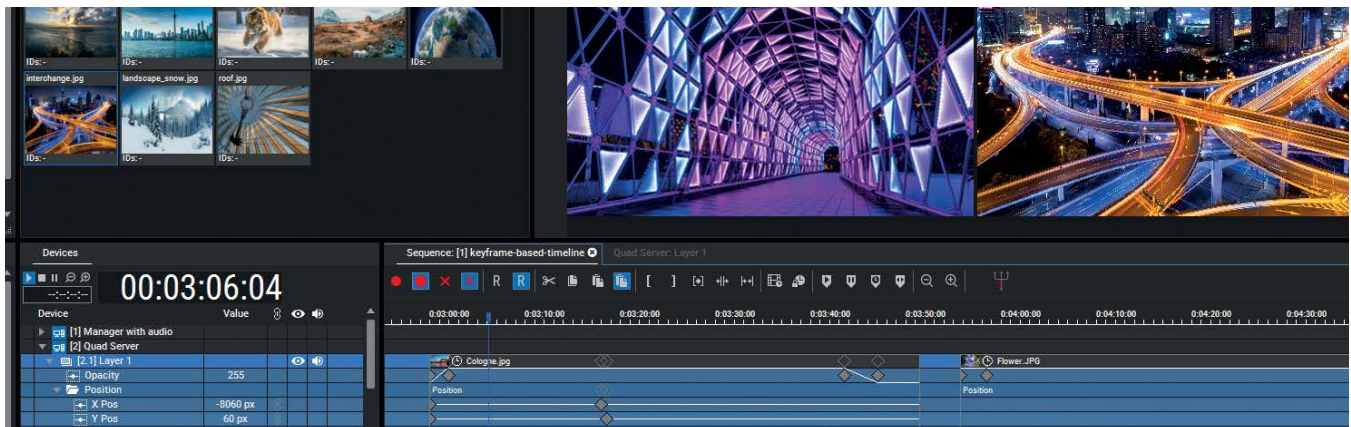
∧ Christie Pandoras Box Version 8 interface

[2] Mystique Lite is not supported through Christie Pandoras Box.

Christie Mystique | **12**

ADDITIONAL
FEATURES

Christie® Mystique™ provides the ultimate level of control for the most demanding multi-projector systems.

Dual-screen mode

Ideal when content is pre-rendered to a single model and displayed across multiple screens or venues. Dual-screen mode, working in conjunction with projector-centric layout mode, allows you to define two screen models. Using both models, Christie Mystique attempts to correct for error in the physical model by mapping content to the intended location.

Rear projection support

Christie Mystique supports configurations using a rear projection screen, where cameras are often positioned in front of the screen. If cameras are placed behind a rear projection screen, results are dependent on the screen material producing an expected image on the rear side of the screen, and extra steps may be required.

Alignment for 3D projection mapping

Users benefit from one-touch, automatic, camera-based, multi-projector alignment and blending on 3D surfaces such as buildings, landmarks and objects. With a single click, you can detect any changes in projector or camera position and automatically correct the blended image. This feature uses markerless calibration for 3D projection mapping, eliminating the time-consuming and often costly need for screen or object markers.

Alignment for surfaces with fixed markings

This feature is ideal for applications such as live stage performances and court or arena projection mapping. Content aligns to a surface with known, measured markings. You can define screen shape and aspect ratio by importing an image that represents the projection surface. That image is then overlaid into the correct location on top of the camera image. This is helpful where content must align to markings or when screen corners are not easily identifiable, such as a hockey rink, where face-off circles can be used as alignment points.
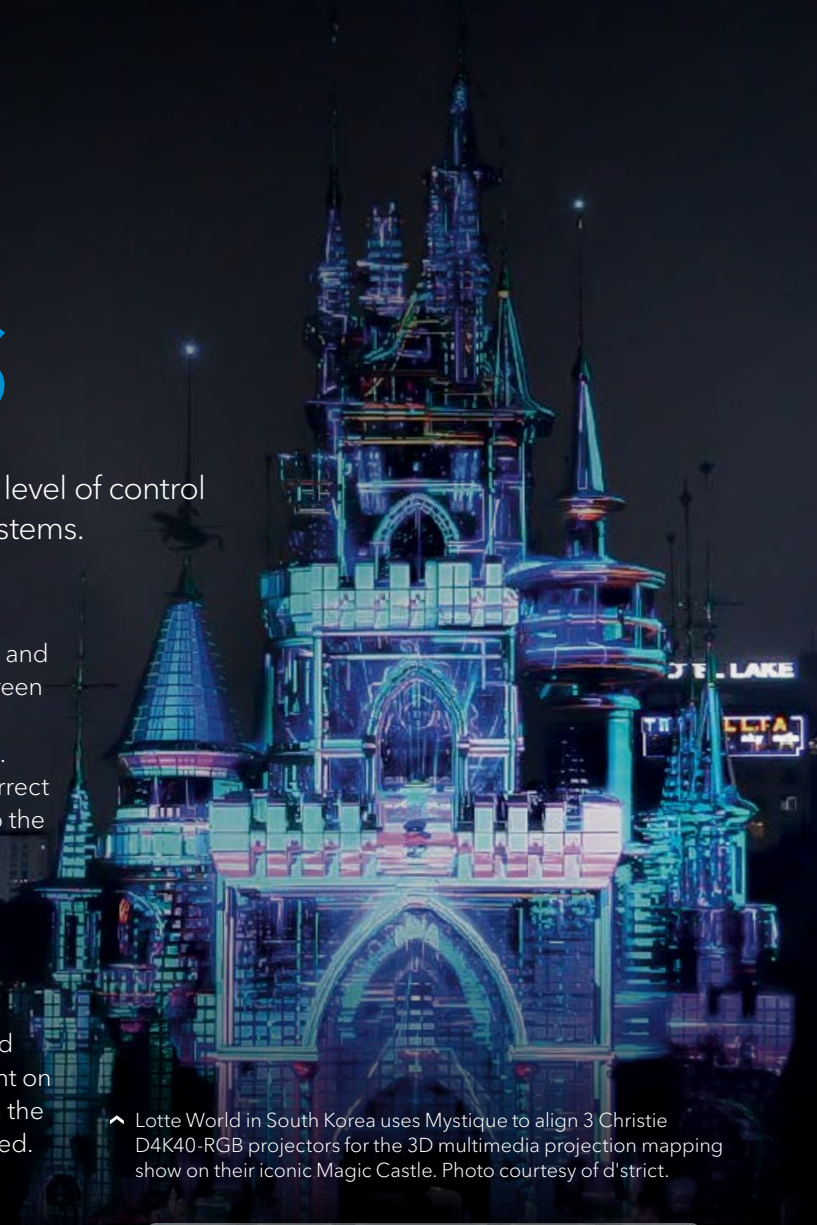
^ Lotte World in South Korea uses Mystique to align 3 Christie D4K40-RGB projectors for the 3D multimedia projection mapping show on their iconic Magic Castle. Photo courtesy of d'strict.

^ Playing surface alignment projection system **before** alignment

^ Playing surface alignment projection system **after** alignment

IMPROVE OVERALL IMAGE FIDELITY AND UNIFORMITY

In addition to quick and easy alignment and warping, Mystique Essentials and Pro Venue Editions offer 2 features that help improve overall image fidelity and uniformity.

Automated color and brightness uniformity[1]

At the click of a mouse, you can adjust color and brightness uniformity across projectors in multi-projector blended arrays to display one seamless image[2], ensure a quality audience experience and save time when setting up your display.

Without correction

With Automated color and brightness uniformity

Background compensation[1]

Need to project on a less-than-ideal background? Using a color camera to detect large contrast differences on your screen or projection surface, Mystique makes automatic adjustments to compensate for visual imperfections such as smudges, dirt or other surface anomalies to provide a more uniform projected image and maintain image fidelity.

Background   Source image   Uncorrected   Compensated

[1] Requires Mystique Version 2.6 or greater and a single color camera.
   Supported projectors: M 4K RGB Series, Griffyn Series, 4K40-RGB Series,
   Boxer 4K30 and Mirage 304K
[2] The results will be limited by the lowest performing projector in the array.

CHRISTIE®

christiedigital.com

For the most current specification information, please visit christiedigital.com

DLP® TEXAS INSTRUMENTS

CERTIFIED
ISO 9001
QUALITY SYSTEM

CHRISTIE®