

Panasonic CONNECT

Creating Immersive and Engaging Experiences





Elevating the Visual Experience

PANASONIC

Around the world, spectacularly projection-mapped structures have been transformed into otherworldly artforms, thrilling audiences for more than a decade. Until recent years, North American audiences were left flat, but that is quickly changing.

The [Global Projection Mapping Market Report](#) published in March 2020 by Fior Markets states the market is expected to grow from US\$1.56 billion in 2018 to US\$7.78 billion by 2026 at a CAGR of 22.2% during the forecast period from 2019-2026.

The report says North America held the largest share of the market in 2018, with more than 40%, noting that "the region is one of the major hubs for shows, corporate events, and sports events." Compared to other segments that use standard throw projectors, the large venue segment dominated the market in 2018, with the highest share of 40.20 percent.

This growth is welcome news to Joe Conover, strategic manager of Panasonic Themed Entertainment Solutions. For more than two years, Conover and his team have focused on delivering the highest level of inspiration, support, service and, of course, products to help integrators succeed and ensure end-users reach their goals.

Delivering ROI, Plus

In the big scheme of things, offering competitive pricing on the projector is a small component of the overall investment. "The real value comes in when we talk to our customers about a full solution and ask, 'What is the cost of putting on the show?' And that's where we really shine," Conover said.

From providing design expertise at the concept stage to "boots-on-the-ground" to ensure the most complex projection projects are executed seamlessly, Panasonic's Themed



Joe Conover, Strategic Manager of Panasonic Themed Entertainment Solutions

Entertainment Group pulls out all the stops. "We add a great deal of value to our integrators in the themed entertainment space," Conover explained. Whether it's a museum, a large venue, or an outdoor event, the team works hand in hand with its integrators and partners, which sometimes includes the creative folks. "If an integrator brings forward a client and says, 'Hey, we would love to use Panasonic, but this is a little bit out of the box,' again that's where we shine," he added. Support comes from the engineering and R&D teams in the US and the multitude of engineers in Japan.

In the end, the best product is needed to light the stage. Panasonic has set the standard for 4K-themed environments, not only with its best-in-breed light source engines, but also for the new line of rugged, compact and lightweight 3-Chip DLP® projectors, which includes the groundbreaking PT-RQ50KU Native 4K, 50,000 lumens, large venue laser projector.

The cost of labor to set up and tear down large venue projectors is a significant line item in the overall budget, especially in multiples. "With the competitor's products, it's going to take a team of four or five people to hang each projector. With ours, it takes two people," Conover said.

"When you look at the whole cost structure, certainly the projector being a component of that, we are a cost savings for our customers and can demonstrate a return on investment," he added. "We definitely help our customers to be more profitable in a shorter path."

Consulting "after the fact" is a significant initiative for the Themed Entertainment Group. "We want to partner with and support our customers throughout the entire process and help them grow as things open up again. And that for me is more important for the relationship," Conover said.

Transforming Large Venues into Immersive Experiences

While existing large venues have suffered from being shut down during the pandemic, Panasonic's Joe Conover, strategic manager of Themed Entertainment Solutions, said conversations on investing in building new large venues have been very active. "Everyone I've talked to wants bigger, brighter and larger venues, including the biggest parks. They're looking for fully immersive spaces." Think of every wall, ceiling and floor coming to life, and the 360-degree sound follows visitors as they walk through the facility.

Conover noted the trend for immersive spaces is growing in sheer size. The conversation used to be around 5,000- to 10,000-square-foot spaces. "I talked to one recently, who wants a 100,000-square-foot facility, which is a lot of technology."

From ticketing to exiting through the gift shop, every square foot will be immersive.

Not only will significant investments be made inside the venue, but Conover also said there is an increased interest in creating an outdoor projection experience to entice visitors to pay to go inside and continue the mapping experience. "This is now part of the business model," he said. He estimated that 5% to 10% of the budget will be spent on outdoor projection technology.

Fueled by the desire to get back to the in-person world, Conover said he sees a staggering growth for immersive events, and that they are becoming highly competitive. "It was already on an uptrend, and now people are starving for that fully immersive

LIGHT HARVEST STUDIO (ANIMATION) MARK DOYLE (PHOTO)



The 2019 LUMA Projection Arts Festival transformed Binghamton, New York, into an interactive, immersive art scene.

and social interaction at the same time,” he said. “That has accelerated the investment and timeframe on these events we’re talking about.”

CASE IN POINT 1

Immersive and Experiential Projection on a Grand Scale

In its fifth year, and attracting more than 55,000 national and international attendees, the [2019 LUMA Projection Arts Festival](#) transformed Binghamton, New York, into an interactive, immersive art scene. Spread across eight locations, art installations from more than a dozen artists were projection-mapped onto the architectural structures creating an awe-inspiring experience.

The LUMA Projection Arts Festival is the brainchild of self-professed “tech-geeks,” Joshua Ludzki, Tice Lerner and Nick Rubenstein. “We like to look at LUMA as a playground for artists, technologists and creatives to come together and do something that’s never been done before,” Lerner said.

Not only had a projection arts festival of this scale never been done before in the US, but the LUMA team was also starting from scratch. “We had never turned on a large venue projector in our lives,” Lerner said. “We rented a couple of these projectors, and we didn’t know how to do projection mapping, but we had an idea of what we thought would work.”

Out of sheer perseverance and ingenuity, a team of volunteer engineers, technicians, city workers, artists, the support of the City of Binghamton and community sponsors, and armed with four massive projectors, the first LUMA Projection Arts Festival was held in 2015. The team expected a turnout of

3,000 attendees, but they knew they had created something special when more than 30,000 people flooded the streets of downtown Binghamton and watched in awe as the city hall turned into a gingerbread house and the courthouse was transformed into Stonehenge.

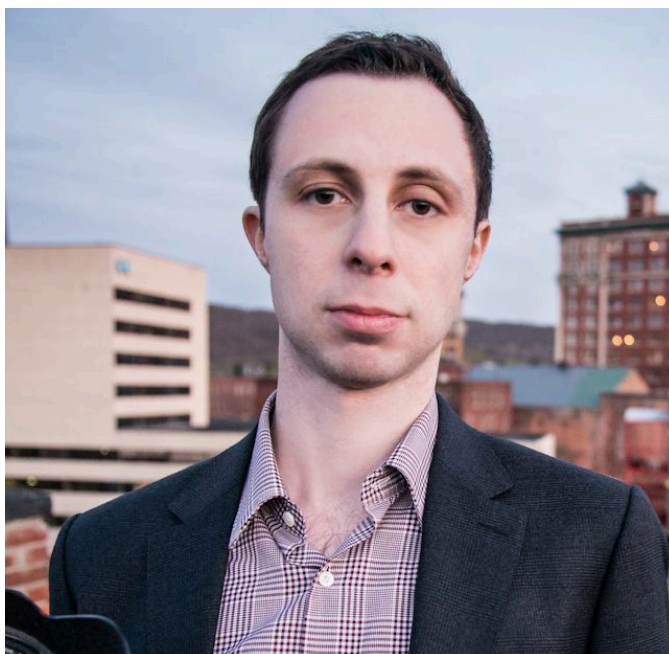
Nearly every aspect of the festival is grassroots. “The people that are doing this — as we call them our tech directors — they have full-time jobs in other areas, like IT departments,” Lerner said. “But like us, they had a passion for our area, for growing our community and doing something really cool by combining technology and art.

“We like to look at ourselves as the intersection between art and technology,” Lerner continued. LUMA provides the projection mapping engineering expertise to enable all forms of creatives to create new types of immersive expressions that would otherwise be impossible. Today, LUMA attracts artists from around the world. “Every year I like to say to my partner, Josh, ‘It’s not just new artists, but now: What’s the new country? What new culture are we collaborating with?’” he said.

Overcoming Past Challenges With a Groundbreaking Solution and Team

Working on a tight budget with technologies and equipment new to the LUMA team came with challenges they weren’t aware could be different.

Lerner kept running into the same problems using lamp-based projectors from various vendors. “We had lots of issues, particularly with edge blending and reliability,” he said. Knowing what he does now, “We were troubleshooting certain things that we didn’t need to troubleshoot.”



LUMA co-founder, Tice Lerner



LUMA co-founder, Joshua Ludzki



Interactive animations were projected in 360 degrees onto a fifteen-foot-tall faceted totem of Slavic deity, Sviatovid.

LUMA/COURTESY OF BARTKRESA STUDIO

Many of the animations are mapped down to individual bricks. “With a limited amount of time to set up — we’ve got to get that exact match, and that’s hard. And if we run into other issues, whether it be power issues or an edge blending issue, or just even something as simple as a signal issue from the output — that’s time lost, when we could be working on the creative,” Lerner added.

During the planning of LUMA 2019, Lerner met with their rental partner, Panavid, who said they had some new Panasonic laser projectors. “I was beaming with excitement. I’m like, ‘We’ve got to try these out.’”

Lerner considered the use of Panasonic projectors to be a groundbreaking moment for the LUMA 2019 event. Thirty of Panasonic’s large venue 3-Chip DLP® SOLID SHINE, 30,000-lumen laser projectors brought the festival to life. “The difference was night-and-day for us,” he said. “It allowed us to focus more on the important creative side.”

There were numerous problems solved with the Panasonic projectors. “These projectors use such little power that it didn’t stress our systems out,” Lerner said. “And we didn’t see any weird problems, like EDID problems, where we lose our video signals randomly. These are things we had to deal with in past years, that we didn’t run into in 2019 — virtually at all.”

Completely Transformative

Lerner was in for more than a few pleasant surprises when

his team began working with the Panasonic team and projectors. “They brought in those little tricks and the things that we didn’t know how to do, that saved us an immense amount of time,” he said.

Blending and Mapping: The LUMA team used to design all edge blending and mapping in software on a PC. “When the Panasonic team came, they networked all the projectors together and used Panasonic software to align the grids with the projectors and other related hardware versus the way we were doing it. It was faster and cleaner.” Panasonic’s Multi Projector Monitoring & Control Software was used for networking, and Geometry Manager Pro was used to support mapping.

“The biggest advantage of using Geometry Pro is that you’ve got the advantage of the full power of the software that Panasonic built into the projectors,” Lerner said. The Panasonic software proved to do a better job than the mapping software on the PC at correcting a lot of the initial distortion and from the angles of the projectors and brightness variations caused by overlapping. “That gets you maybe 30- to 50% of the way there, so that by the time you’re entering the mapping software, you’re dealing with the fine details of getting the animation to fit.”

Physical Installation: “Lifting the projectors we used to use was like a death sentence. It can be scary getting large venue projectors where they need to be,” Lerner said. “The



From Medusa to a guest appearance by Pandora herself, the Pandora's Box animation was a building-sized adventure that captured the audience.

Increased Efficiencies

Aside from achieving best-in-class visuals, the LUMA Projection Arts Festival also realized significant energy and cost savings and precious installation setup time.

- Using Panasonic's projectors, the team was able to cut energy usage by 50%, reducing approximately 4,000 watts of energy per projector down to approximately 2,000 watts per projector.
- The Panasonic projectors were 32% lighter than those used in previous years, making the installation process easier, quicker and, most importantly, much safer.
- Projectors were smaller, taking up 46% less volume than previous years, reducing the overall footprint. Using the PT-RZ31KU allowed LUMA to drop the number of projectors on one art installation from six to three, making the setup significantly easier.
- Using Panasonic projectors and the technical support team, a 25% improvement was realized, completing setup in three days rather than the usual four days.
- With less downtime the team was able to focus more time on creating a richer experience for the viewer.

Panasonic projectors were like half the weight, and it made everyone feel safer."

The Panasonic Support Team: "Everybody runs into some thing, but when you get 10-somethings, that builds up," Lerner said. "I felt like, having not only a reliable projector but also a team of experts that know these protectors inside and out, we were able to focus on the creative, and we were able to finish earlier." This gave the creative teams time to focus on what was important. "It comes back to the art form. It's about perfection. That means that the night of, we're not rushing to get the last touches on making it just work, that those last moments can be spent, again, lining up a brick or just a minute little detail. We can focus on just polishing an already good product," Lerner added.

What Matters

Nobody is more critical of how an image is presented than its creator. Lerner explained, "We had so many people, both our artists as well as the people that viewed the festival, that said, 'Everything looks so much better this year.'" They made particular note that the quality of the images seemed better. "The brights were brighter, which gave us darker darks," Lerner added. The minute details of gradations between more subtle contrasts of different shades of colors, or from a shadow to a highlight — all felt better. It felt richer. It felt crisper. Lerner reflected, "At the end of the day, for me, it's all about the experience."

Packing a Punch for Large Venue and Outdoor Experiences

Besides these two new 3-Chip DLP® projectors, Scott Wellington, Senior Product Manager – Projectors for Panasonic Visual Systems, said, “There are some amazing new features that are designed to make the use of these products easier and more efficient.” This also means it is easier to handle and easier for logistics purposes, particularly when using multiple projectors. “Anything that we can do to expedite or help facilitate the whole process is what we’re trying to do,” he said.



Native 4K and 50,000 Lumen — PT-RQ50KU

In a class of its own, Panasonic’s PT-RQ50KU represents a milestone in projection technology. Serving flawless Native 4K (4096 x 2160) images with a laser engine that combines one red laser and two blue lasers operating at different wavelengths, light output is doubled from the same footprint as the 26,000 lm PT-RQ35KU 4K projector. Deployed at sporting events, arena concerts, outdoor mapping attractions, or museum exhibitions, the PT-RQ50KU’s refined power will exceed the highest expectations.

Key Features:

An all-new laser engine expands color-gamut to 114% of the current PT-RQ32KU flagship, achieving lush, vibrant hues that pull audiences into the artist’s world. A new red laser enhances two blue lasers, which output light at different wavelengths for high color accuracy. Combined with digital frame-by-frame control to manage light output, according to the scene’s contrast and brightness requirements and dedicated red-laser cooling to precisely control temperature, the PT-RQ50KU attains vivid reds and deep, natural blues for spectacular on-screen color expression.

Panasonic’s original Gradation Smoother function reduces banding noise in gradients of shaded color evident in content that lacks the optimal color bit-depth. Operators can select

Panasonic’s PT-RQ50KU, 50,000 lumen, native 4K projector delivers color-rich images and a breathtaking viewing experience.

three levels of image correction appropriate to the severity of the problem or disable the function when it’s not needed.

Edge-blend uniformity on curved screens is difficult to achieve with line-based black-level border adjustment. Warped image edges result in unequal blend-widths, and a lack of uniformity in overlapping areas is exposed when dark scenes are projected. PT-RQ50KU gains new black-level calibration that allows black borders to be reshaped to suit screen curvature using up to 17 control points in much the same way as the Free Grid function. Adjacent images can be matched within a 0.5-dot margin — ideal for 4K video projection — while a wider range of adjustment in finer increments is also enabled.

The PT-RQ50KU’s laser engine and optical drive doubles output power from the same compact footprint as the PT-RQ32KU. A redesigned airflow path and new finless radiator boost the efficiency of the liquid cooling system, while a separate cooling for the red laser is regulated by Dynamic Digital Control for excellent image consistency and high reliability. Space-saving design with integrated cooling systems brings



the logistic efficiencies of all-in-one projection to large venue staging, saving operators time and money.

Newly introduced within Multi Monitoring & Control Software and accessible via web browser, Remote Preview allows projectionists to check the content being received by the projector via a Wi-Fi[®] - or LAN-connected laptop. It works with the projector in standby, with the shutter on, or when direct sunlight makes inspecting on-screen images difficult. It gives a chance to fix errors between the source and projector before setup is completed.

With the PT-RQ50KU, upgraded features for Geometry Manager Pro are built into the software and do not require paid activation. Simply download and install Geo Pro to a PC to simplify advanced multiscreen geometric adjustments and uniformity correction. With the optional ET-CUK10V Auto Screen Adjustment kit, automatic and simultaneous calibration of multiple screens (including curved-screen correction) using a compatible camera helps expedite edge-blending and color-matching in mapping applications with automatic calibration for black level, brightness uniformity and stacking.

PT-RQ50KU projectors can be paired with a smartphone via near-field communication when the projector is off and disconnected from AC power by touching the device against the projector's NFC touchpoint. Adjust selected projector settings using the Smart Projector Control app, such as Projector ID and IP address, while waiting for power to be connected and setup to begin. Fleets of projectors can be prepped for immediate network connection and setup the

moment power rolls out on the installation site, saving time and resources. After the event, projectors can be reset to factory defaults while unplugged and ready for crating, an action that used to require OSD menu projection.

To further simplify setup and operation of the PT-RQ50KU, an information monitor is located on the side panel adjacent to terminals and physical controls. The monitor provides menu-based navigation for smooth setup of Projector ID and basic network configuration. It also shows projector status, including temperature, runtime and active signal data, as well as error codes, should a problem be detected.

Read here for more on the [PT-RQ50KU 3-Chip DLP[®] Laser Projector](#).

Perfect Pairing – Short Throw-Distance and Zero Screen Offset Lens

Paired with Panasonic's PT-RQ50KU 3-Chip DLP[®] Projector, the ET-D3QW200 short throw-distance and zero screen offset lens delivers breathtaking Native 4K images from very short throw-distances with flexible adjustment to streamline installation. Involve the audience more closely in the projection-designer's world. Viewers can approach to within about 1.8 m (5.9 ft) from a 350-inch (Native 4K, 4096 x 2160, 17:9) image without casting a shadow.

Powered Vertical Lens-Shift eliminates screen offset to further enhance audience engagement.

Throw-ratio of 0.55–0.65:1 (4K, 4096 x 2160, 17:9), powered

zoom and V/H Lens-Shift (Vertical: -8%, +50%, Horizontal: 0%, +17%) make it easy to deliver large Native 4K images at short throw-distances from confined spaces while supporting flexible image adjustment without needing to relocate the projector during installation, saving time and effort.

Small, Bright and Packed with Features — PT-RQ35KU

“Top of mind for me in 3-chip, is our new projector, the PT-RQ35,” said Panasonic Senior Product Manager Scott Wellington. “It’s got a few new very cool features. Remote Preview is just one highly desirable example.”

The High Frame Rate Upgrade with the PT-RQ35KU enables increasing processing to 240 Hz. “This is a big, big deal,” Wellington said. This allows a user to increase processing to 240 Hz. “This will be an advantage for people that are looking for a lower latency and better video reproduction.”

Not to be overlooked, Wellington said, “also very important is that the RQ35 is probably the smallest in its class right now.”

Despite its high brightness and jaw-dropping image quality, PT-RQ35KU Series is the smallest and lightest 3-Chip DLP® product in its class and can be transported and installed with just two people. Save on labor costs and enjoy greater convenience when space is limited. A combination of two blue and one red laser expands color-space reproduction by 114% over the PT-RQ32KU. Vivid red and pure blue reproduction heightens realism for an immersive experience and takes high-resolution content to the next level. Redesigned airflow path, cooling system, and finless radiator reinforce reliability. Dynamic Digital Control regulates red laser.

Despite its high brightness and jaw-dropping image quality, Panasonic’s PT-RQ35KU Series is the smallest and lightest 3-Chip DLP® product in its class and can be transported and installed with just two people.

The RQ35 features Quad Pixel Drive, Panasonic’s original technology based on 1920 x 1200-pixel (WUXGA) DMD chips. It rapidly shifts each pixel vertically and horizontally to produce an image with a maximum physical resolution of 3840 x 2400 pixels (4K/16:10).

- Laser 3-Chip DLP, 32,000 lumens (center), 4K (with Quad Pixel Drive on)
- Lamp-free laser projection with dust-resistant liquid cooling system for 20,000 hours maintenance-free operation
- Smart Projector Control with NFC for mobile access to network configuration such as IP address setup
- Preactivated Upgrade Kits for Geo Pro Software
- Two blue and one red laser module expands color-gamut reproduction

Visit here for more on the [PT-RQ35KU](#).

3-Chip DLP, 1-Chip DLP, or a 3LCD Laser Projector?

Today, there are projectors to fit every budget and every application, but looking deeper than budget, lumen output and lenses are features that might make one a better fit than another.

[Check out this link to learn more.](#)



Outdoor Experiences

Companies are seeking to create more immersive and experiential outdoor events. During the past 24 months, Panasonic's Joe Conover, strategic manager of Themed Entertainment Solutions, said that with an increased awareness of projection mapping is creating a big draw. While in Las Vegas recently, he noted people were gathering around various landmarks for selfies or to experience a short show.

"We already know that utilizing projection mapping certainly has that draw, and it's an elevated experience," Conover said. "It's certainly much more immersive and provides you that selfie moment." Expect to see many more outdoor projection mapping experiences in the near future.

CASE IN POINT 2

An Immersive Outdoor Guest Experience with 3D Mapping by PaintScaping

The Winterthur Museum, Garden and Library is set on 1,000 acres in Wilmington, Delaware, and includes a 175-room house that was once the private home of Henry Francis du Pont. In 2014, the museum welcomed 200,000 visitors.

In March 2020, when most buildings were closed to the public because of COVID-19, "we were wondering how we would have our traditionally very popular yuletide season when people would probably not be able to go indoors," said Carol Cadou, director and CEO of Winterthur Museum. The Winterthur team turned to world-renowned visual storytelling and 3D mapping

The Winterthur Museum, Garden and Library team turned to world-renowned visual storytelling and 3D mapping experts at Los Angeles-based PaintScaping to create a spectacular outdoor experience to immerse its visitors.



PAINTSCAPING



PAINTSCAPING

Above: Philippe Bergeron, President, and CEO of PaintScaping in front of the Winterthur Museum, where the spectacular Mr. Harry's Party came to life.

Right: Spanning 100 feet wide and four stories tall, Mr. Harry's Party came to life mapped to the architecture in front of the museum with a single, Panasonic, 50,000 lumens, 3-Chip DLP® SOLID SHINE projector with Native 4K resolution.



PAINTSCAPING



PAINTSCAPING

experts at Los Angeles-based PaintScaping to create a spectacular outdoor experience to immerse its visitors.

During the 1920s, the DuPont family held a yearly Christmas celebration called [Mr. Harry's Party](#). "We tried to emulate what the DuPont's would do," said Philippe Bergeron, president and CEO of PaintScaping. Bergeron created the story around DuPont, his wife and their two daughters, covering party preparations on the evening of the celebration. "We tried to incorporate what really happened at the party; they had musicians, jugglers, magicians, a ventriloquist, and there was a lot of drinking and dancing."

Spanning 100 feet wide and four stories tall, Mr. Harry's Party came to life mapped to the architecture in front of the museum with a single, Panasonic, 50,000 lumens, 3-Chip DLP® SOLID SHINE projector with Native 4K resolution (PT-RQ50KU). This was Bergeron's first time working with a Panasonic projector, and he wasn't disappointed. "We could have easily stretched to 150 feet, and it would have looked phenomenal, with that one projector, maybe even 200 feet," he said. Razor-sharp images of moving figures in the windows and colorful holiday images danced on the outside of the building, creating a wondrous immersive experience. "The colors and the 4K resolution were just superb. It really was a stunning image — the colors were supersaturated."

A Breakthrough

One of the biggest problems in mapping can be the number

of projectors needed for large projects. "That's why the PT-RQ50KU is so transformational in this business," Bergeron said. "Because all of a sudden, instead of using two, three, four projectors, you can use one, which is great. It's a lot simpler to achieve results, and your chances of failure are much less, not to mention the shipping, the logistics." A single Panasonic projector was placed in an enclosure 95 feet from the image front of the Winterthur Museum.

When choosing which projector to use for mapping, Bergeron explained that the two primary considerations are lumens and lensing. "Panasonic has a big edge on lumens right now, and they are the only ones with a 13:1 lens." Clients often ask where the projector will sit in relation to the image. Bergeron offers a quick example. "If you want your image to be 100 feet wide and you use a 0.4 lens, then it's 0.4 times 100, so the projector would be 40 feet away."

The PT-RQ50KU laser projector is significantly more compact and weighs much less than similar-lumen projectors from competitors. "For this 50K lumens projector, to be that small is another breakthrough for Panasonic," Bergeron added.

Three-phase cooling systems are one of the components that make other projectors larger and heavier than the Panasonic 50K, Bergeron explained. "One thing we miss about the lamp projectors, and I'm not going to lie here, is that we used those projectors as a heater for cold-weather projects."



Museums

Designed for use with Panasonic 1-chip DLP projectors, the ET-DLE020 Ultra Short Throw Zero Offset Zoom Lens (inset) with a 0.280-0.299:1 throw ratio is capable of projecting on 100- to 400-inch diagonal screen sizes.

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When it comes to using projectors for creating themed environments, museums have a unique set of challenges. The indoor spaces need to function day in and day out, and oftentimes there is no AV staff on hand to fix problems as they arise.

A great deal of design and installation time and money is spent upfront getting everything aligned, mapped and perfect. Thousands of people move throughout the exhibit spaces creating imperceptible movement within the building by individuals but results in an earthquake combined with dust storms to the projectors.

Panasonic projectors are unique problem-solvers and, even more importantly, the team behind them is committed to ensuring the highest-quality experience for museum-goers. "Panasonic is the partner that is there for the long haul," said Panasonic's Joe Conover, strategic manager of Themed Entertainment Solutions. "We provide a long-term solution. We're not going to drop off a bunch of projectors at your door and wish you good luck. We want to be there for the long haul."

Problem-solvers

Designed for use with Panasonic 1-Chip DLP projectors, the ET-DLE020 Ultra Short Throw Zero Offset Zoom Lens with



a 0.280-0.299:1 throw ratio (WUXGA) is capable of projecting on 100- to 400-inch diagonal screen sizes. Museum-goers can stand nearly 1 foot away from the projector and not cast a shadow. Unique to this ultra-short-throw lens is that it has a powered zoom.

Geometric Adjustment is a suite of built-in functions operated via the projector remote control that corrects distortion when images are projected at an angle, onto curved screens, uneven surfaces, or over wall obstructions. Correction extends to spherical, cylindrical and other complex screen shapes without the need of a connected PC.

Selected projectors with built-in Geometric Adjustment also support Geometry Manager Pro software for Windows PC. Users can control and calibrate projectors from a laptop via ethernet.

Optional Auto Screen Adjustment Upgrade Kit (ET-CUK10V): After activation, users can connect a camera to a laptop and use it to gather data for the automatic and simultaneous calibration of all projectors in the system, achieving seamless edge-blends and uniform colors over multiple flat or curved screens. Big time-saving tool!

Learn about more problem-solving tools [here](#).

The Sweet Spot for Museums

When your budget doesn't allow for a 3-Chip DLP® projector, Panasonic's Scott Wellington, senior product manager for projectors, said, "At the high end of the single-chip, I would lean towards our [PT-RCQ10](#) for a lot of different reasons." At 10,000 lumens, this model has quite a bit of brightness. Perfect for many museum applications, the RCQ10 has the ability to accept a 4K signal and, with a feature called Smooth Pixel Drive, can generate a higher output of 2715 x 1697 (WQXGA) than its native output of 1920 x 1200 (WUXGA).

"We believe that whether it's a museum, a live event, or a classroom — we call these mission-critical applications because it's in front of a live audience, no matter where you are," Wellington said. "And it's got to run, and it's got to work." The RCQ10 has a dual-drive laser engine. "If a laser fails at any given point, our light source system is redundant. So that the brightness maintains itself and there's very little, or minimal, or noticeable loss of brightness. This is really important."

Key features that distinguish the RCQ10 from the pack are:

- Rich Color Harmonizer exceeds the limits of conventional 1-Chip DLP™ image quality with a new color-filter design and proprietary processing.
- Smooth Pixel Drive pixel-wobbling system produces detailed images beyond the projector's panel resolution, and generates an output of 2715 x 1697.
- Near-field communication function to instantly pair a smartphone to a projector.
- Excellent reliability with dust-resistant and filterless design contributes to 20,000 hours of maintenance-free operation.
- Multi Monitoring & Control Software and Early Warning Software.
- Dual-drive laser engine, engineered for continuous 24/7 operation.
- SLOT NX provides the capability to add an additional interface board for DisplayPort, HDMI, 12G-SDI and DVI-D.
- Geometry Manager Pro software to expand geometric and multiscreen setup and calibration capabilities via PC.

These are only a few of the outstanding features of the RCQ10. Learn more about Panasonic's PT- RCQ10, and its other [1-Chip DLP offerings here](#).



Panasonic's PT-RCQ10, 10,000 lumen projector is highly versatile for many museum applications.

3LCD Delivers

For budget-conscious applications, Panasonic offers a range of LCD projectors that deliver. The PT-MZ16KU 3LCD SOLID SHINE Laser Projector's features include:

- Laser 3LCD, 16,000 lumens, WUXGA resolution.
- Silent (38dB in normal mode) and light construction (22kg) is ideal for lecture theatres and seminar rooms.
- 20,000 hours of maintenance-free operation due to the dustproof construction and long-lasting eco filter.
- The triple drive engine ensures nonstop operation with a failover function. A secondary backup signal input and the monitoring function reduce the impact of potential technical faults.
- Supports uncompressed 4K/60p video-signal input via HDMI® or DIGITAL LINK terminals.
- Flexible installation with a choice of seven optional zoom lenses. Easy setup with Geo Pro software and DIGITAL LINK function.



Panasonic's PT-MZ16KU 3LCD SOLID SHINE laser projector is feature-rich.



The Statue of Liberty Museum features three connected theaters, each with its own floor-to-ceiling curved screens, one measuring 17 feet by 24 feet and two measuring 12 feet by 20 feet. These uniquely shaped screens display visuals are using Panasonic PT-RQ32KU 3DLP 4K laser projectors.

CASE IN POINT 3 Creating an Immersive Museum Experience

The Statue of Liberty Museum, which opened in May 2019 on Liberty Island in New York, was conceived to tell a powerful story. Able to accommodate up to 25,000 visitors a day, its first experience — an awe-inspiring short film — needed a theater that would deliver an immersive, engaging experience visitors would remember for a long time.

The installation had to overcome the challenges of deploying the correct projection blend onto a uniquely structured surface and creating a fully integrated technology system to accomplish this goal. The Statue of Liberty-Ellis Island Foundation, which raised funds for and managed the museum's creation, collaborated with Panasonic to deploy visually engaging technology to allow visitors to learn about the history of the Statue of Liberty.

The foundation worked with Diversified and Panasonic to develop and implement the technology needed to create an immersive museum experience. Diversified provided dedicated consultation on all AV solutions in the museum, including coordinating the installation of the custom projection screens in the theater. To display the museum's film, *Liberty Enlightening the World*, Panasonic deployed floor-to-ceiling



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projection onto three curved, asymmetric screens that visually showcased Liberty's past, present and future. Thanks to this collaboration with the Panasonic and Diversified teams of engineers, the Statue of Liberty Museum is now able to create vivid graphical impressions that add emotional connections to the history of Liberty.

By expanding the space and utilizing Panasonic projection technology, the Statue of Liberty Museum was also able to give a higher number of visitors access to Liberty's history. Before the construction of the museum and theater, there was very little technology being utilized on the island because of its remote location. However, since Panasonic was able to create a fully integrated technology system, the museum can

consistently deliver visually resonant images to millions of visitors.

Customizing the Solution

Previously, the statue's story was told in an exhibit housed within Lady Liberty's pedestal. Enhanced life-safety upgrades limited the number of visitors who could access the exhibit, which led to the development of the new, standalone museum structure. With this expansion came the immersive theater. When walking into the space, there are three connected theaters, each with its own floor-to-ceiling curved screens, one measuring 17 feet by 24 feet and two measuring 12 feet by 20 feet. These uniquely shaped screens display visuals are powered by Panasonic PT-RQ32KU 3DLP 4K laser projectors to captivate visitors watching the museum's video. "When you're standing in those rooms, and you're looking at historical footage, or a drone shot of the statue at night, it's really breathtaking," said Diane Toland, Project Director for the Statue of Liberty-Ellis Island Foundation Inc.

The original museum was created in the 1980s and deployed little to no technology. The foundation was determined to make the theater as exciting as possible. The new projection technology deployment was a huge step forward: With floor-to-ceiling projection, compelling video visuals, all within the presence of Lady Liberty herself, the theater borders on an IMAX experience. However, the curvature of the walls representing the folds in Lady Liberty's robe presented a challenge to deploy the correct projection blend.

"We needed to use Panasonic laser projectors to get that particular curve," said Carol Feely, Diversif's project manager for the Statue of Liberty Museum project. "We certainly needed to deploy their projectors with edge blending technology." To create accurate, crisp and undetectable projection blends, the museum worked with Panasonic's team to install eight Panasonic PT-RQ32KU 3DLP 4K projectors and Panasonic's edge-blending technology. With the projectors' high brightness of 26,000 lumens and the software's automatic color-matching and geometric adjustment, the museum was able to deploy a fully immersive experience for the video.

Creating Unique Museum Experiences



Reverse Pyramid

The eye-popping reversed pyramid floating midair reflects a floating ocean surface and skyscrapers standing upside down. Panasonic projectors realize a powerfully authentic visual space at an immense scale.



"AI" Wall

This is a highly immersive video space where Panasonic technology brings together the appeal of 4K displays and 4K projectors. Panasonic 4K display accurately reproduces the delicate emotions of the artist in their touch and even the years felt from the cracked paint. The background is created with high brightness and high-definition images from a 4K projector to complement and bring out the artist's work. In addition, POVCAM captures the audience in real time and reproduces the images into self-portraits with the touch of a famous painter using artificial-intelligence technology.

It's All About Building Relationships

In any business, solid relationships are at the core, ensuring longevity, but not all companies take the time or have the resources to nurture relationship-building.

During a recent conversation with an integration firm, Joe Conover, strategic manager of Themed Entertainment Solutions at Panasonic, said, "They knew our competition more than us. Of course, they knew we make a great product; but there are many benefits we provide, and a lot of times we also rely on our product to tell the story." Conover is determined to change this one relationship at a time.

The questions become: "We know you have a great product, but as a company, how can you help us? What other value, what other solution can you provide for my themed entertainment projects?"

Panasonic has been active in most of these areas for several years, but it's now time to get that message out to integrators who see the company as just having great products.

"A valuable resource we provide is that our engineers can help during the design phase," Conover said. "Having us in those design conversations upfront will help inform the business model." Too often, integrators might not be awarded a bid because they're not familiar enough with an overall process. "We are putting on a different hat to help integrators understand exactly what they're trying to accomplish. These discussions don't always have to lead back

to Panasonic," Conover said, adding, "It will, if we're the right solution."

Panasonic's Themed Entertainment Group can help guide the entire process from design to help with understanding the content workflow and to be on-site with boots on the ground.

"There's so much that we offer," Conover explained, "from training to extended services, services in the field, or remote service from multiple locations." The Panasonic team can develop the business model and demonstrate an ROI. "This can help our integrators add more value to the client," he said.

Because of the pandemic, some integrators have fewer resources. "We're behind them as a company supporting the integrator, so they can go into a client and say, 'I've got Panasonic behind me with five engineers supporting us, they have a full-service team that can come out.' In addition, we have the Osaka-based projector factory team who are ready to support us 24/7," Conover added.

Conover feels that, today, it's even more critical for Panasonic to be there as a stimulus to support its integrators. We'll help develop partnerships that continue to push the limits of immersive experiences not only with our products but also our services. This full solution approach allows Panasonic to be a valued partner and showcase projects where art and technology come together to create long-lasting memories.

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