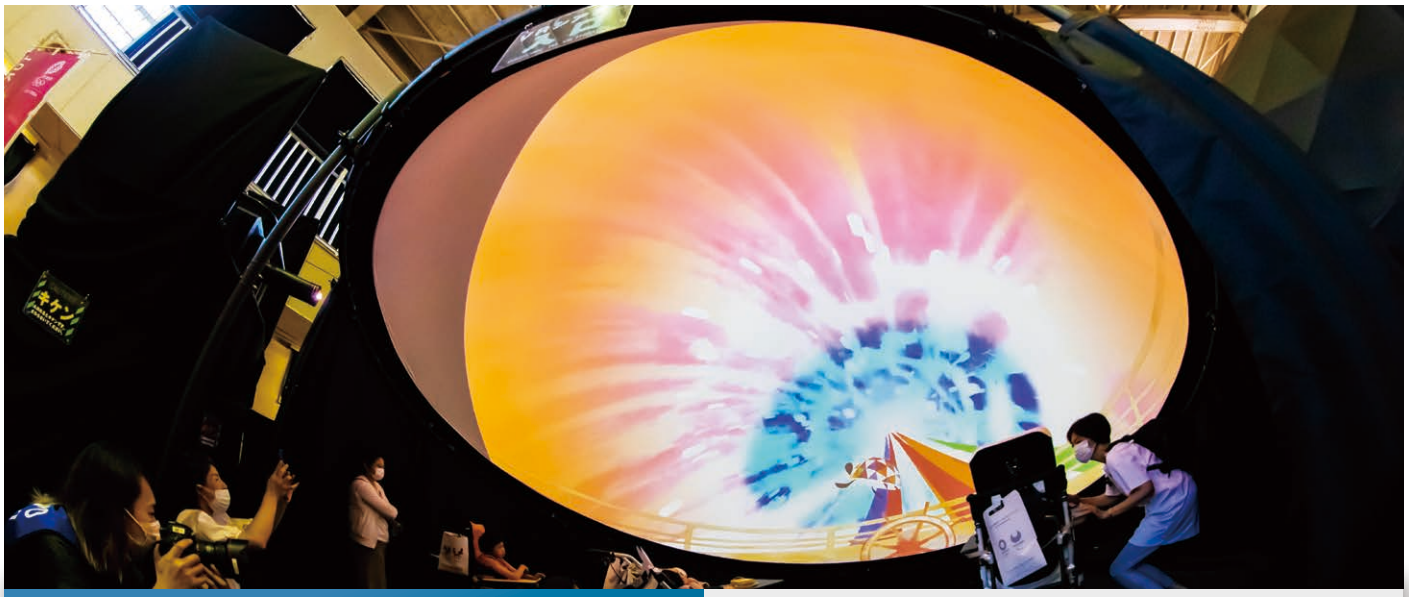
Stunning projections on a dome-shaped screen with a fisheye lens and a single projector

Worldwide Olympic Partner



Barrier-Free VR Spectating: "Reserve Seat for the Future Stars"

Installed system: **Projection Mapping**

Date of installation: July–August 2021 Location: Tokyo

Challenge:

- Delivering a realistic experience of the Olympic and Paralympic Games Tokyo 2020 to children unable to visit venues

Solution:

- Creating impressive VR projections on a dome-shaped screen with a fisheye lens and just one projector for reduced installation adjustment time and fewer required units

Background of System Installation

VR projections bring competition venue images to life

The Tokyo Organising Committee of the Olympic and Paralympic Games and the Tokyo Metropolitan Government proudly presented Barrier-Free VR Spectating: "Reserve Seat for the Future Stars"—a special event that gave children with limited mobility due to a disability or illness the opportunity to experience being an Olympic spectator. Panasonic participated as a technical collaborator for the event, which was held at five special needs schools in Tokyo. Virtual reality domes provided realistic experiences of the competitions, and the latest VR projection technology created special "views" otherwise only possible by physically going to the venue including images of the competitions as seen from spectator areas.

Reasons for System Installation

Stunning projections made possible with a fisheye lens

This event was designed to provide audiences with a simulated stadium VR experience created for group viewing by projecting images onto a dome-shaped screen. Whereas conventional setups would require multiple projectors and precise adjustment work to seamlessly blend the images together on the dome, this event required just one projector for projecting the VR images thanks to the fisheye lens. The result was a realistic virtual experience with significantly less time and effort needed for installation.

Toward becoming one of the most innovative events in history

The Tokyo Organising Committee of the Olympic and Paralympic Games is using various tools including VR, AR (augmented reality), robots, and other technologies to bring positive reform to the world and make Tokyo 2020 the most innovative Olympic and Paralympic Games in history.

■ Website of the Tokyo Organising Committee of the Olympic and Paralympic Games: https://www.tokyo2020.jp/ja/index.html

◀ VR Theater and Tokyo 2020 Mascot Robot Tour events were held in the gymnasium of the special needs school

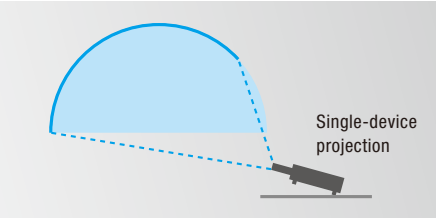
Effects Achieved by System Installation

Providing realistic projections across the entire dome

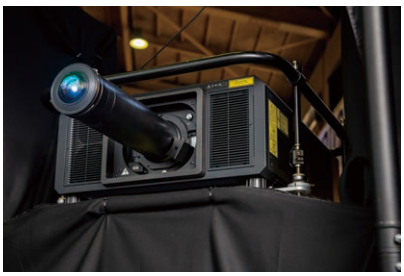
This event included projected images of Tokyo 2020 Opening Ceremony and of volleyball and badminton competitions. The images were projected onto dome-shaped screens about 6 m in diameter using PT-RQ22K 3-Chip DLP® Laser Projectors and ET-D3LEF70 Fisheye Lenses. With a maximum angle of view of 91.6°*, the ET-D3LEF70 Fisheye Lens could project images in all directions of the dome to create an immersive VR experience from a single projector. The lens is also capable of ultra-high-resolution WQXGA (4K+) projections with high brightness (30,000 lm class) for beautiful recreation of every detail of the competitions, giving viewers an impressively realistic experience enjoyed by both students and their families.

* With Super XGA screen resolution; opposite angle when the lens is shifted to the maximum value.

Fisheye lens projection area example

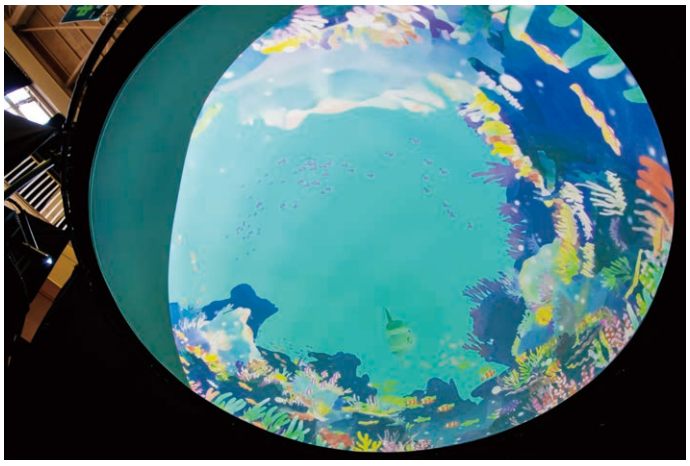


▲ Participants were divided into groups and took turns experiencing images projected onto two dome-shaped screens set up in the school gymnasium

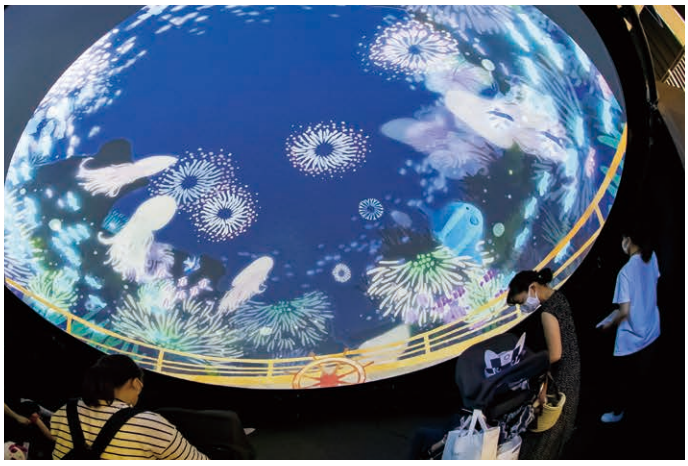


▲ The system included a PT-RQ22K 3-Chip DLP® Laser Projector equipped with an ET-D3LEF70 Fisheye Lens. The projector was placed on a platform to prevent participants' shadows from appearing on the screen

▲ The same images were projected from a single VR player onto two different screens



▲ This is one of the images projected onto the dome-shaped screen from one of the projectors



▲ The dome shape provided an immersive VR experience to viewers

Equipment introduced

3 Chip DLP® Laser Projector
PT-RQ22K (x2 units)

Fisheye Lens
ET-D3LEF70 (x2 units)

Supplier Panasonic System Solutions Japan Co., Ltd.

Media & Entertainment Business Division
Connected Solutions Company, Panasonic Corporation