

Indiana University requested a unique, immersive, bezel-less, ultra-high resolution display that would be used to present, view, and collaborate via high-performance interactions with data.

IGI had previously designed and installed advanced visualization systems for IU and was chosen to design, fabricate and install a large scale, custom solution to fit their needs.

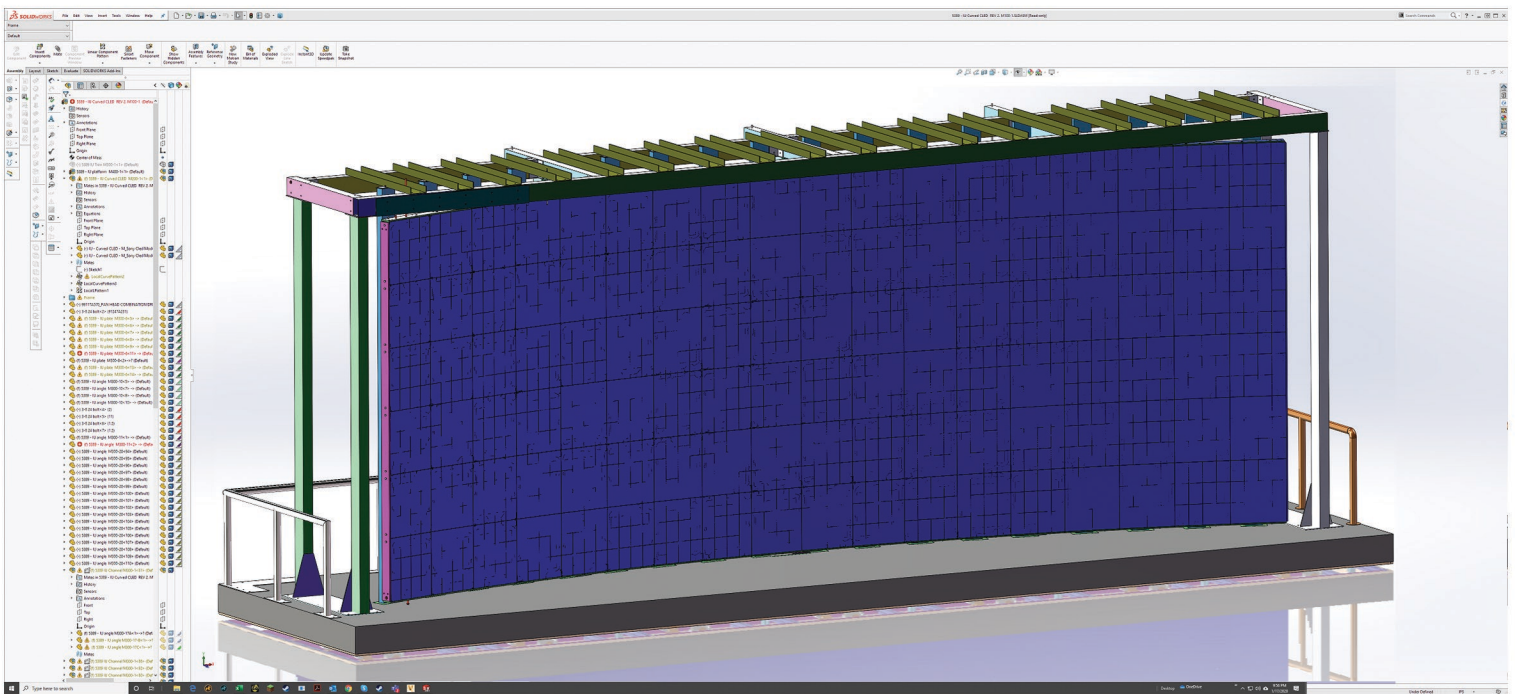
They knew exactly what they wanted: a very large Sony Crystal LED with a curved screen, that would also be mobile, to be used in a variety of ways and locations within Wrubel Commons in the Cyberinfrastructure Building at Indiana University Bloomington.

Challenge accepted.

The result was the largest curved Sony Canvas in the USA and the first mobile installation of the Sony CLEDIS™ in the world.

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January 2020



When Sony first introduced their new Crystal LED Integrated Structure (CLEDIS™), nicknamed Canvas, IGI was the first to demonstrate the technology outside of Sony corporate in Japan. In August of 2016, IGI built a Sony Canvas demo for their 4K Forums in Detroit and Los Angeles.

IGI had purchased their own demo unit in order to conduct R&D and develop IGI custom mounting structures and alignment tools. Because the alignment is so critical to the image quality of the Sony tiles, a very unique alignment jig is required. This jig is only available from Sony and used by Sony staff. IGI did not want to be encumbered in their creation of custom solutions by this limitation so they designed and built their own alignment jig. IGI's jig uses 4 digital microscopes and a creative multi-color LED shadow casting technique to achieve alignment of the individual tiles. This was necessary due to the extremely tight tolerances of +/- no more than 40 microns of a seam between the tiles.

Indiana University's unique requirements, a 24' 2-degree curved screen located on a movable platform, presented several challenges. "This movable curved screen structure posed several interesting mechanical engineering challenges," IGI President, Pat Hernandez said, "but this is what IGI is very good at: large, complicated, custom projects that require a lot of expertise in mechanical engineering and fabrication."

After the site survey, IGI engineering immediately had concerns about damage to the display. Mostly, because the floor in the facility was not perfectly level. The fear was of the platform flexing during movement which could ultimately damage the LED tiles, so IGI developed a unique engineering solution to this problem.

We determined that the wall would need to be supported from above. An additional structure was designed and fabricated to essentially wrap the outer edge of the tile wall assembly ensuring that all of the tiles would move together as one solid unit.

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The real challenge came in designing the overhead hanging structure. Since this was not a flat wall, a very strong, 26 foot header was designed to support over 4,000 pounds of LED hardware, and its own weight, without sagging in the middle.

The third mechanical engineering challenge was the entire platform had to be movable by only a few personnel without damaging the existing ceramic tile floor. Overall weight was a factor as it could not be too heavy. For this consideration, the structure was fabricated from aluminum and then supported with 28 soft-compound 8" casters in order to spread the load adequately.

The IGI Large-Scale Curved Mobile LED Wall integration project all happened within a tight time-frame due to Indiana University wanting the system ready for their 200th anniversary/bicentennial event. IGI had the design, engineering and fabrication resources needed to complete the project, which included scheduling flexible off-hours work on-site to complete the installation when not being used by the customer.

In the end, IGI made the deadline, the solution works as promised, and Indiana University is very happy. Plans are currently underway to install a second wall. "The Crystal Display Wall in the Cyber-infrastructure Building is a remarkable achievement of engineering, design, and technology integration," said Scott Birch, Manager, IU Advanced Visualization Lab. "It quite literally is the world's first and only curved mobile Sony CLED Display Wall and it is truly breathtaking. With a resolution above 4K, or "More K" as we in the AVL are fond of saying, this display highlights scientific, data, and artistic visualizations with stunning clarity and brightness."

IGI supports other large-scale, high-resolution, advanced visualization systems for Indiana University and they chose a 9-year IGI Extended Support contract to ensure the performance and long-term usability of the Crystal Display Wall.

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