



**CHRISTIE<sup>®</sup> MICROTILES<sup>™</sup>**  
THE NEW DIGITAL CANVAS | THE HISTORY



## HISTORY

# THE CHRISTIE MICROTILES STORY

Bob Rushby and Mike Perkins were sitting in a Tokyo hotel bar a few years ago, sipping on single malt whisky and throwing around ideas, when the inspiration for Christie MicroTiles first started to take shape.

Their employer, Christie Digital Systems, was a global leader in projection technology, and the company was doing well. But like any good company, it needed to keep innovating, and there was only so much more that was possible with projectors.

Rushby, the company's Chief Technology Officer, and Perkins, Senior Product Developer, worked in a business that was all about bigger and brighter. But as they chatted, they started talking about going small. "We thought," Rushby recalls, "maybe we can turn this all on its head..."

Some four years later, and research efforts that ranged from making screens self-aware to testing ease-of-use by asking Bob's wife if she got it, Christie® MicroTiles™ is ready for release and positioned to change the way rich, full-motion visuals are presented in large spaces like retail and public buildings.

It's an entirely new, modular display technology – invented by Rushby and Perkins and then developed and patented by Christie – that uses elements of DLP®, LED and rear-projection to create unique, visually compelling systems. This is technology that allows architects and retail designers to throw out the supposed rule book on how large-format, motion display systems have to work in big spaces. It lets designers turn walls into digital canvases.

Christie MicroTiles are visual building blocks that can be assembled to create just about any size or shape. Instead of trying to figure out where to put big rectangular screens, Christie MicroTiles allow architects and space designers to fit the displays to the physical environment instead, and make the tiles another building material.

Christie MicroTiles produce a vibrant color spectrum never seen before on displays, and eliminates all the operational headaches that have long been part of working with large format displays.

### A COMPELLING NEW SOLUTION FOR LARGE SPACES

Set for launch in late 2009, the Christie MicroTiles system is being marketed globally as a solution for large public spaces, retailers, media companies and agencies and utilities with large command and control systems. It is a radical departure for a privately-held company that has been in the projector business for 80 years and has systems in 75,000 locations globally. But it represents the diversity Rushby and Perkins were looking for back in Tokyo.

Back from that 2005 business trip to Japan, Rushby went to a local Home Depot and bought a few glass building blocks to illustrate to his team the beginnings of an idea for a modular system that could be almost infinitely

stacked and joined, and not be confined by the traditional rectangular shapes of display systems. They also bought a few tiny LED pico projectors to start testing what was possible with light sources that would run cooler and last far longer than bulbs.

Instead of trying to figure out how to achieve the desired brightness, clarity and quality from large displays, testing focused on small displays that could deliver an ultra-sharp, high contrast image in a compact package. Getting to that big, high impact visual became a simple matter of joining and stacking the little tiles to get to the size, shape and resolution desired.

The testing showed promise, so Rushby started running the concept by customers when he was in Europe. "The interesting thing is that they immediately got it," he says. "It was not just the scale of the screens that they liked, but that scale, in any shape."

Customers liked the notion of large displays that looked good not only from across a store or atrium, but also up close, where technologies such as LED boards tend to visually fall apart. They liked the notion of screens that could run up columns and frame doors and adapt to the physical properties of a space.

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"All through the development cycle, I was involved in meetings with potential customers," adds Perkins. "These meetings would involve the creative designers as much as the purely technical engineering staff. And it never failed to surprise me how quickly people would get the concept. We would have a 20-slide presentation, and by slide three you could see the wheels spinning. A few times we barely got past that third slide. The creative types get it immediately, and start trying to apply it to problems and opportunities they have. They would start throwing around crazy ideas for new ways to apply Christie MicroTiles that I would never have thought of."

The harder sell was within the hallways of Christie, recalls Rushby. It's a company that for decades has been all about projection systems, and this was a big change. A lot of methodical planning – early samples, graphic renderings, rounds of market and business research, deep looks into the data – eventually led to Christie MicroTiles getting the full development green light in Spring, 2008.

#### DISPLAYS THAT ARE SELF-AWARE

The biggest challenge, and biggest achievement, was making Christie MicroTiles self-aware and self-configuring.

Walls of LCD and plasma monitors, or stacked and joined LED modules, all need to be carefully

and regularly calibrated so that all the units match colors, brightness and contrast. It's a big, fussy, time-consuming job that never goes away, and when the visuals don't match up, everyone notices.

Christie's engineers put the time and expertise in to make that whole process go away. Each tile has microprocessors engineered to pay attention to neighboring tiles, and auto-adjust and balance how things look. So when someone installs a Christie MicroTiles array and stacks them 12 wide and four high, there is no software system needed to locate and position all the units and get them all painstakingly calibrated. "Everything just works itself out within 15 seconds of it getting turned on," says Rushby.

The other big development driver was coming up with a system that was easily maintained – something critical in helping effectively argue that Christie MicroTiles offer not only a superior visual solution, but a Total Cost of Ownership that is lower than other large display technologies when labor costs are factored in.

The R&D team worked off of something they called The Jane Factor. "I've been an engineer for 30 years and I have never met another engineer who set out to make something hard to use," says Rushby, "but it happens." He enlisted his wife Jane, a Kindergarten teacher,

to be part of the extended testing team.

"It had to be simple enough that a non-technical person like Jane could set up some Christie MicroTiles, tear them all down, move them and set them up again somewhere else."

The Christie MicroTiles are 12" (306mm) high by 16" (408mm) wide, and 10" (254mm) deep, light enough to easily stack, and daisy-chained together with nothing more than simple line and power cords that require no real technical acumen. The units run cool and have a Mean Time Between Failure rating of 65,000 hours, meaning it would take more than seven years of continuous use before the displays start to degrade or break down.

If servicing is required, it's all done easily from the front, and the most complicated component, the light engine, can be replaced in 15 minutes or less. The actual screens are shatterproof acrylic which improves the feasibility of having these displays in public areas.

The Christie MicroTiles also come with a Christie-developed software tool that enables architects, designers and systems integrators to use photos of the targeted space, design in the displays on a PC, and spit out simulations of what they will look like, and exactly what needs to be ordered to make it happen.



The pitch has been quite simple: it looks far better than what's out there now, offers far more design flexibility, sets up easily, takes care of itself, and works reliably for years.



What also came out of the development process was an understanding and effective use of a known phenomena called the Helmholtz Kohlrausch (or HK) Effect. By carefully testing light sources, the Christie team was able to produce more saturated colors and brighter, more vibrant visuals on the tiles. The bottom line is resulting visuals that have no equal in the display business.

Humans respond much more strongly to very pure, very saturated colors than they do to dull washed out colors," explains Perkins. "We perceive the saturated colors as being brighter. Measuring instruments may tell you one thing, but your eyes will tell you something else. Objectively, the HK Effect tries to quantify how much brighter the saturated colors appear. The subjective effect is that the purer colors you get from a Christie MicroTiles display are punchier, more vivid, more exciting, more engaging, and just plain better to look at."

The displays generate 115 per cent of the color spectrum possible from NTSC video signals, meaning viewers are seeing colors they have never seen before on displays. "That's one of the first comments we get when we demonstrate the tiles," says Rushby. "They literally say, 'Holy Cow! Look at the colors.'"

Along with that "Wow!" factor, that level of color reproduction is also important and attractive to leading brands that go to extraordinary lengths to maintain the integrity of their fonts, wordmarks, logos and exact colors. A motion display that vividly and reliably reproduces their exact colors has considerable attraction.

Christie has been quietly showing key customers the technology for several months, and prior to the formal launch already had several orders on the books for a variety of

projects around the globe. The pitch has been quite simple: it looks far better than what's out there now, offers far more design flexibility, sets up easily, takes care of itself, and works reliably for years.

"We've all seen stuff out there that really doesn't work," says Rushby. "We just asked ourselves, 'Why does it have to be that way?'"

*A wholly-owned subsidiary of Japan's Ushio, Inc., Christie Digital Systems is a global leader in visual solutions for world-class organizations, offering diverse applications for business, entertainment and industry. A leading innovator in film projection since 1929 and a pioneer in digital projection systems since 1979, Christie® has established a worldwide reputation as a total service provider and the world's single source manufacturer of a variety of display technologies and solutions.*

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