Spotlight on SXRD

Introducing the
VPL-GTZ380

Contents

Introducing the VPL-GTZ380 laser projector

Overwhelming image expression with spectacular 10,000 lumen brightness, native 4K resolution, high 16,000:1 contrast and wide DCI-P3 color

Breathtaking images, near or far

The VP-GTZ380 faithfully displays true 4K resolution (4096 x 2160) images, with no upscaling or pixel shifting tricks often used in lesser projectors. The finest details are breathtakingly crisp and clear, even when your audience is closer to the screen in environments like corporate showrooms and lobbies.

Immersive, seamless images on any scale

Remarkably quiet and compact, the VPL-GTZ380 features a familiar four corner mount design that's ideally suited to multi-projection installations including planetarium domes, large exhibitions and gallery spaces. Ultra-deep black levels – just one of the hallmarks of Sony's unique SXRD technology – reduces the visibility of intrusive banding when multiple projector images are edge-blended to create a super-sized picture.

Find out more about the **VPL-GTZ380 laser projector >**

Immense color, undimmed

The VPL-GTZ380 achieves the full DCI-P3 color space that's 1.35 times wider than the sRGB 93% achieved by other projectors. An additional red laser diode dramatically expands color volume, with none of the brightness loss common to other high-end models that use a built-in color filter. The immense color accuracy of the VPLGTZ380 makes it a compelling choice for environments such as art galleries and museums.

Ideal for CG	Even more virtually real	Authentic night scenes
Latest graphics processing technology displays up to 4K 120Hz RGB 4:4:4 10-bit images with just two Display Port cables.	The VPL-GTZ380 supports dual 4K 60Hz 3D signals to accommodate today's demanding VR, industrial design and visualization applications.	The additional infrared laser source makes the VPL-GTZ380 ideal for pilot training and rescue simulation applications using night vision.

Ultimate processing power

Unmatched optical performance is complemented by Sony's high-performance X1 Ultimate for projector processor. The same technology found in our high-end BRAVIA© displays is optimized further for thrillingly lifelike images with enhanced resolution, color, contrast and dynamic range plus reduced digital noise.

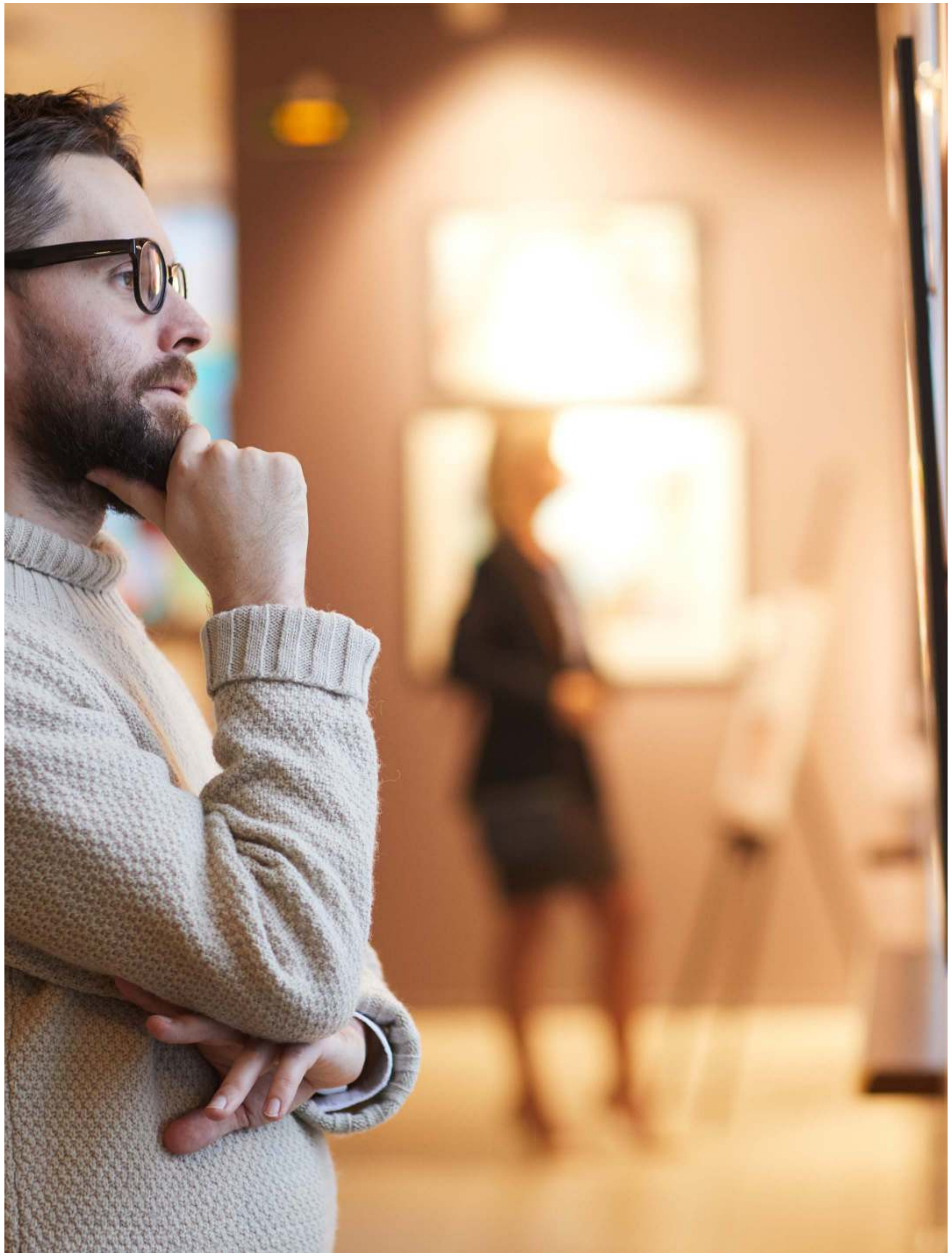
Imaging innovation

Cutting-edge Sony imaging technologies allow the the VPL-GTZ380 to reproduce effortlessly expressive high-brightness images with stunning richness, color and detail in a remarkably compact chassis weighing just 112 lbs (51kg).

Latest 4K SXRD panel	Advanced cooling
The compact, durable new-generation SXRD panel allows the VP-GTZ380 to deliver true 4K images with a spectacular 10,000 lumen brightness.	The advanced phosphor wheel design features a patented spiral fin that ducts heat away efficiently for impressively cool operation – a frequent issue with other high-brightness projectors.
Wide color gamut	**Optimized picture processing**
The laser light source achieves a remarkable 100% DCI-P3 color space without brightness reduction – 135% wider than conventional sRGB projectors.	As found in Sony's BRAVIA professional displays, the flagship X1 Ultimate picture processor is optimized for advanced projector applications.

Corporate and Showrooms

Impress your customers with breathtaking imagery

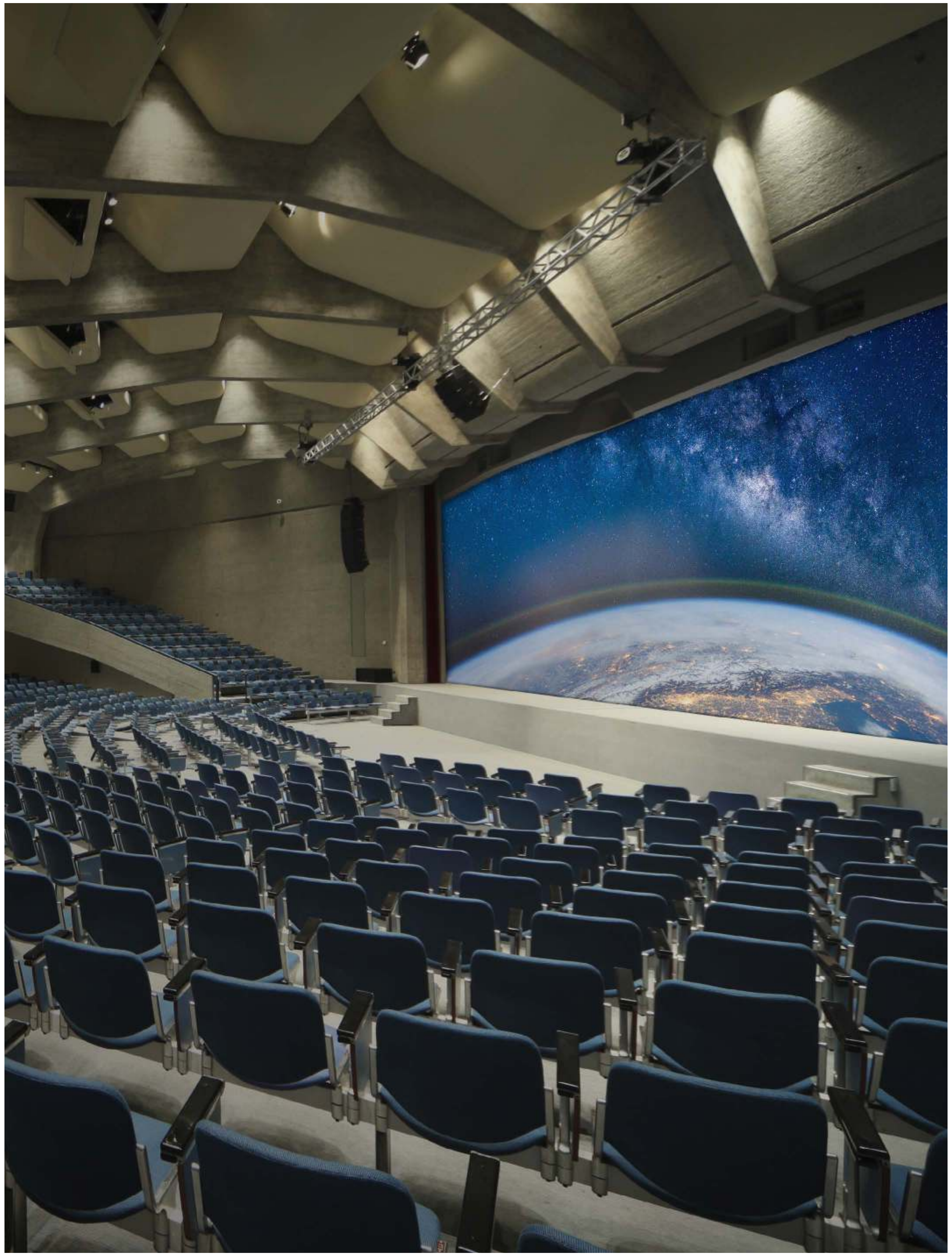


Museums, Galleries and Planetariums

Immerse your visitors in the ultimate entertainment experience

Simulation and Training

Create hyper-realistic training environments



Education

Engage your students for the ultimate in immersive education experiences

Spotlight on SXRD

Types of microdisplays

With hundreds of video projectors on the market, the range of choice appears endless. Yet for all the superficial diversity, under the hood these projectors use only three basic types of projection chips.

- Transmissive Liquid Crystal Display (LCD). Sometimes called HTP-S, for High Temperature Poly-silicon, these chips work like the LCD panels common in televisions and other devices. Light shines through them to create the picture. The chips open and close down light transmission to create light and dark values for each pixel. Sony's BrightEra® chips are examples of contemporary projection LCDs.

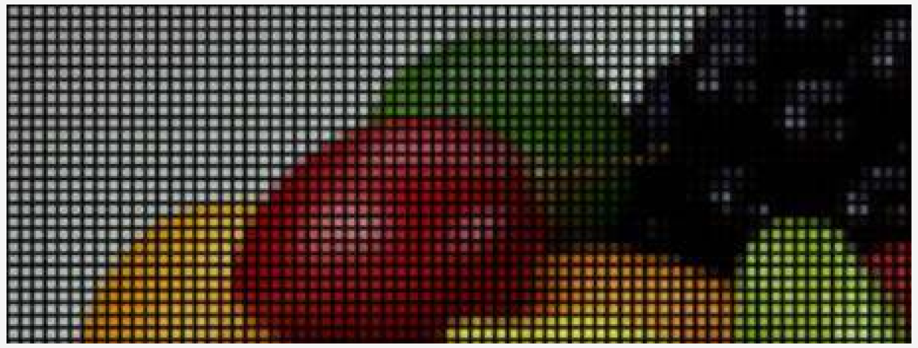
- Digital Light Processor® (DLP®) is the Texas Instruments trademark for a class of digital micromirror devices. These use tiny tilting mirrors to reflect light toward either the screen or a heat sink. The mirrors are essentially one-bit devices: fully on or fully off. To create shades of grey, the mirrors rapidly alternate between on and off states. The greater proportion of on-states, the brighter the pixel will be.

- Liquid crystal on silicon (LCoS). Like transmissive LCD, this system uses liquid crystal to control the flow of light for each pixel. As with DLP chips, the light reflects off a mirrored surface toward the screen. Where light passes through the transmissive LCD layer once, light must pass through the LCoS LCD layer twice, which makes for higher contrast. The SXRD® chip is Sony's proprietary version of LCoS.

The issue of inter-pixel gaps

When Sony developed the SXRD panel, the dominant microdisplay technology was transmissive LCD. As the name implies, transmissive LCD requires the light to shine through. Because the pixel transistors are transparent, they don't cause a problem. Unfortunately, the wires that address and power the pixels are not transparent. They must run alongside the pixels, creating substantial "inter-pixel gaps" that block the light. These gaps were so big that they occupied as much as 50% of the screen. This left an active picture area (or "fill factor") of just 50%.

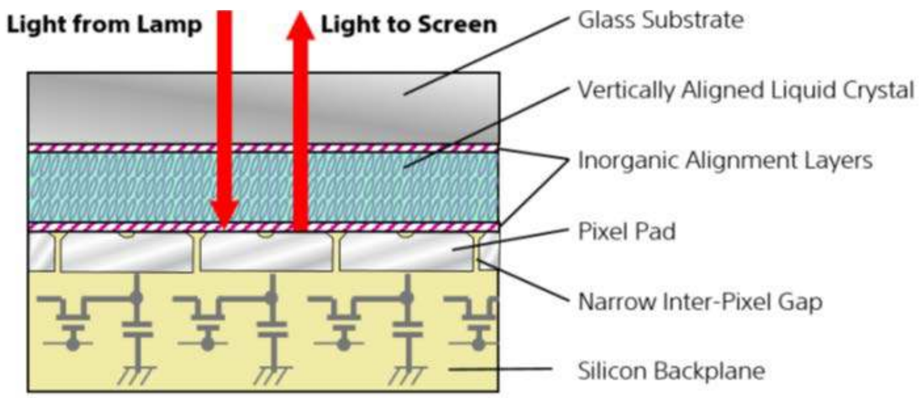
A fill factor of 50% creates issues in projector design. It lowers image brightness, because so much of the projector's lamp light is blocked. It creates "screen door effect" in the projected image, giving each pixel an individual outline. And in terms of system design, large inter-pixel gaps also require large pixels, which make high-resolution chips relatively expensive. Sony recognized that the transition to HD projection demanded a smarter approach.



Wide inter-pixel gaps can make it seem as though you're looking at the image through a screen door. Hence the name "screen-door effect."

The SXRD solution

Sony's answer was the Silicon X-tal (crystal) Reflective Display (SXRD®), a proprietary version of LCoS technology, Instead of light shining through the chip, the light reflects off a polished aluminum surface, behind which we can hide the transistors and all the pixel address wires. The benefits are profound.



The SXRD panel in cross section. Light from the projection lamp enters through the glass substrate at the top, reflects off the mirrored surface and passes back out through the Liquid Crystal, toward the screen.

SONY

High fill factor

Hiding the pixel address wires enables the inter-pixel gaps to be quite small. So the proportion of the chip surface devoted to active picture area can be quite high: 92% in our first-generation chips, compared to the 50% fill factor for the transmissive LCDs of the time. This enables Sony to deliver high resolution without sacrificing brightness.

High contrast, low black level

From the outset, the SXRD panel achieved very high native contrast. Previous LCD projectors had used Twisted Nematic (TN) liquid crystal, which normally displays white. The SXRD panel uses a proprietary Vertically Aligned Nematic (VAN) liquid crystal, which normally displays black. The normally black state helps prevent stray light from washing out the image. This improves black levels and increases contrast. With succeeding generations of chips, Sony upgraded the chip-making process to drive contrast higher still. We refined the pixel surface, eliminating the center “contact divot” and beveled edges. We also improved the liquid crystal alignment. These upgrades dramatically reduced light scatter, optimizing black levels and maximizing contrast.

High pixel density

There are two ways to increase the native resolution of a microdisplay projector: larger chips or higher pixel density. Unfortunately, large chips are expensive; and they require larger, more expensive light engines, optical blocks and lenses. That’s why Sony went the other route, shrinking the pixels and increasing pixel density. Sony’s first generation SXRD achieved 12,000 pixels per square millimeter. In comparison, our current GTZ Series projectors achieve about 61,000 pixels per square mm – higher density than competing DLP® and transmissive LCD projectors. High pixel density leads to superb cost performance.