



The Perfect Experience / —

PRESS Release

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***World's highest*¹ 35 megapixel pixel count:
More than 17 times Full High-Definition***

JVC Develops 1.75-inch 8K4K D-ILA Device

~ World's first*¹ single display device achieving Super Hi-Vision*² (33 megapixels)~

Victor Company of Japan, Ltd. (JVC) announces a new addition to its lineup of proprietary D-ILA (Direct-Drive Image Light Amplifier) high-definition reflective liquid crystal devices for projectors. The newly developed 1.75-inch 8K4K D-ILA device has the world's largest number of pixels*¹ and is able to display images of approximately 35 megapixels (8192 x 4320 pixels), the equivalent of more than 17 times the level of Full High-Definition. This means that a single display device can now produce Super Hi-Vision images and can display images with the highest number of pixels currently defined under international standards.

*¹ As a projection-type display device, as of May 2, 2008.

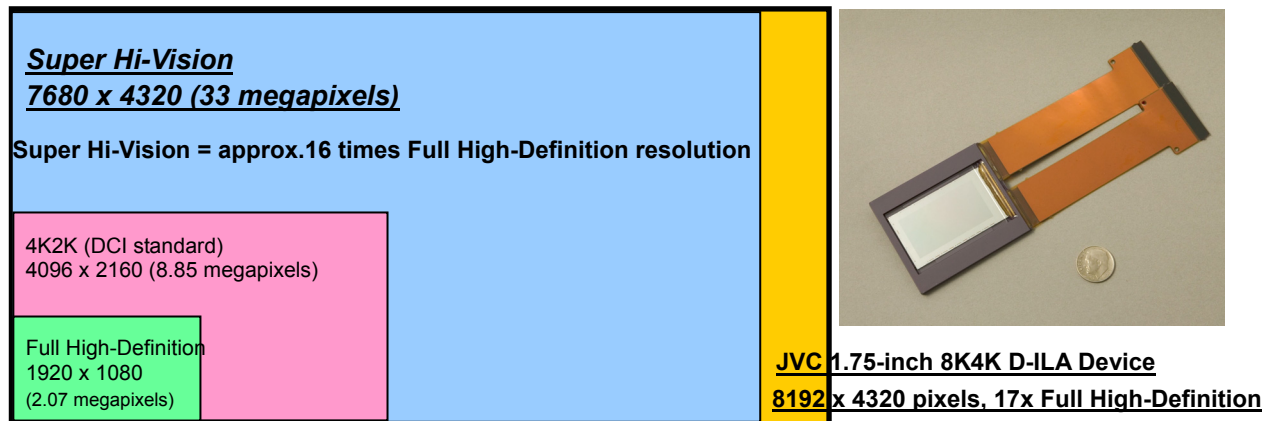
*² Super Hi-Vision is a TV broadcasting service currently under development at NHK; a single image has approximately 33 megapixels (7680 x 4320 pixels), with 60 frame/second sequential scanning and 22.2 multichannel sound. Image format is international standard ITU-R BT.1769, SMPTE 2036. Diagonal size is 1.67 inches at Super Hi-Vision standard pixel dimensions of 7680 x 4320.

After JVC developed the initial 7.86-megapixel (3840 x 2048 pixels) 4K2K D-ILA device in the summer of 2003, it subsequently further evolved the technology for highly realistic, high-definition images through a range of test viewings and verification testing, resulting in the development of JVC's first commercial 4K2K D-ILA device (1.7-inch device size, 5,000:1 device contrast ratio) and the 4K2K D-ILA projector incorporating that device in September 2004.

In June 2007 JVC developed a 1.27-inch 4K2K D-ILA device that was the world's smallest device of its kind, having a 6.8µm pixel pitch and 4096 x 2400 pixels, and in February 2008 it began marketing a newly commercialized professional D-ILA projector, DLA-SH4K, incorporating that device.

Through the development of a new production process and new pixel structure for even finer pixels, JVC has now succeeded in developing the 1.75-inch 8K4K D-ILA device, the world's first device to achieve real Super Hi-Vision definition level. The new device has approximately 50% higher density in its ratio of area per pixel as compared to the 1.27-inch 4K2K D-ILA device, which was originally the world's smallest 4K device. Furthermore, the new device has achieved a video display of approximately 35 megapixels, the world's highest pixel counts*¹, while continuing to provide the D-ILA series' characteristics such as "high-quality images without a distracting pixel structure", "high light availability", and "high contrast ratio".

Resolution comparison of Full High-Definition, 4K2K, and Super Hi-Vision (simulation)



Features of New 1.75-inch 8K4K D-ILA Device

1. The 4.8 μ m pixel pitch fine pixel technology makes possible a device that is just 1.75 inches on the diagonal while achieving ultra-high-definition images of 35 megapixels (8192 x 4320 pixels), the highest pixel count in the world.
2. The device resolution of 8192 horizontal x 4320 vertical dots is fully compatible with the Super Hi-Vision standard (7680 x 4320 pixels) being promoted by NHK as next-generation broadcast technology. Able to display ultra-high-definition images that are 17 times Full High-Definition and 4 times conventional 4K2K (the DCI 4K digital cinema standard), the new device can be used for a wide range of leading-edge ultra-high-definition imaging applications.
3. The 0.24 μ m gap between pixels achieves a high aperture of 90% or higher surface devoted to image, while maintaining ultra-high resolution. In addition, technology adopted to reduce disorder caused by liquid crystal orientation has made it possible to limit extraneous light such as scattered and diffracted light from reflective surfaces, with the end result being a high contrast ratio of 20,000:1 for device contrast.
4. By applying the same inorganic alignment layer used on previous D-ILA devices, the tradition of long life and high durability is successfully maintained.
5. JVC's extensive production experience and technology made it possible to achieve both reduced liquid crystal cell gaps and high image uniformity, with the goal being to achieve quick liquid crystal response.
6. It is possible to create a device driver for the ultra-high-bandwidth signal of 8K4K resolution by adopting a new package structure that accommodates the optimized internal driver design and the increased number of drive signal line inputs.

Development Background

In 1996, JVC embarked on the development of ultra-high-definition image systems to surpass High-Vision definition. The company developed the first 7.86-megapixel (3840 X 2048 pixels) 4K2K D-ILA device in summer 2003 and began supplying projectors containing this device for research applications in March 2001.

In June 2007, JVC developed a 1.27-inch 4K2K D-ILA device having a 6.8 μ m pixel pitch and 4096 x 2400 pixels, and in February 2008 it began marketing a newly commercialized professional D-ILA projector, DLA-SH4K, incorporating that device.

While pursuing these development activities, JVC has also been contributing to research and development of ultra-high-definition image systems domestically and internationally through cooperation with the standardization of the Digital Cinema Initiative (DCI) 4K2K specifications and by providing projectors for the Super Hi-Vision 8K4K system being developed by NHK.

In recent years, the use of Full HD has continued to spread among households worldwide. At the same time, however, proposals are being made vigorously for new television broadcasting standards that go beyond HD, and great efforts are also being made proactively to satisfy the growing need for next-generation, high-definition images that surpass HD in fields such as digital cinema, presentations, monitoring/control, and medical applications.

JVC's new 1.75-inch 8K4K D-ILA device is a display device that satisfies expanding ultra-high-definition imaging requirements by providing the world's highest level^{*1} of resolution. In addition to the contribution that the device will make to progress in next-generation ultra-high-definition imaging technology such as Super Hi-Vision, JVC also plans to utilize it in development of the ultimate in imaging technology: ultra-realistic 3D display technology.

Lineup of D-ILA High-Definition Devices

Device	Panel Size	No. of Pixels (H x V)	Aspect Ratio	Use
1.75" 8K4K	1.75 inch	8192 x 4320	17:9	New Developments, Research of High-Definition Pictures
1.7" 4K2K	1.7 inch	4096 x 2160	17:9	Research of High-Definition Pictures
1.27" 4K2K	1.27 inch	4096 x 2400	16:9.4	Installed in Projector, DLA-SH4K
0.7" Full High-Definition	0.7 inch	4096 x 2160	17:9	Installed in Projectors, DLA-HD100 & HD1

Major Specifications

Device size	1.75-inch diagonal
No. of pixels (H x V)	8192 x 4320 pixels
Pixel pitch	4.8 μ m
Gap between pixels	0.24 μ m
Aperture ratio	90% or higher
Device contrast ratio	20,000:1
Response time (tr + tf)	4.5ms
LC mode	Vertical Aligned LC
LC alignment film	Light stabilized inorganic alignment film

What are D-ILA Reflective Liquid Crystal Devices?

D-ILA is the name given to JVC's proprietary high-performance reflective liquid crystal devices for projectors. These are typical LCOS (Liquid Crystal on Silicon) devices that provide both high brightness and high definition.

JVC successfully developed the 1.3-megapixel SXGA type device in October 1997 and launched the D-ILA projector the same year. Since that time, the company has accumulated many years of production experience with devices for high-end projectors and continually released new products: in May 2004, the company launched the world's first domestic Full HD front-projection system and then launched rear-projection systems into the US market in the July the same year.

The D-ILA Full High-Definition home theater projector DLA-HD1 launched in January 2007 utilized a newly developed 0.7-inch Full High-Definition D-ILA device and a new optical engine to achieve 15,000:1 native contrast ratio and "true black" expression without using an iris mechanism. Furthermore, the successor model DLA-HD100 introduced in December 2007 achieved the industry's highest*⁴ 30,000:1 native contrast ratio. Both models were well reviewed and proved great hit products in the global market.

The professional D-ILA projector, DLA-SH4K, which went on sale in 2008, achieves both 10,000:1 high contrast ratio and about 10-megapixel resolution more than four times the Full High-Definition level. This overwhelming image quality has received high praise, particularly in the presentation field.

*⁴ For a home theater projector, as of May 2, 2008, based on JVC survey.

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