

**FOR IMMEDIATE RELEASE**

**Super-resolution technology to convert video of various resolutions to high-definition**

-Converting television broadcasts of mixed-resolution to high definition images-

Tokyo, September 24, 2008 – Hitachi, Ltd. (NYSE: HIT / TSE: 6501) announced today the development of super-resolution technology to create high-definition images from video images of various resolutions. In contrast to conventional technology, which converts video of a given resolution to a pre-determined level of high definition image, the technology developed uses original signal processing technology to convert video of various resolution levels to the optimal level of high-definition image. As a result, it is possible to create high-definition images from video containing images of various resolutions on the same display, such as in television broadcasts. Further, as well as converting SD<sup>\*1</sup> video to near HD<sup>\*2</sup> video, this technology also enhances full HDTV<sup>\*3</sup> (1920x1080 pixels) resolution images to provide even more beautiful crisp high-definition images.

In recent years, full HD (1920x1080 pixels) and thin large screen TV products are becoming increasingly popular and abundant. Low resolution images shown on standard TV become blurred when stretched to display on these new products. In order to overcome this problem, super-resolution technology - an image processing technology - is used to convert the low resolution images to clear high resolution images.

Conventional super-resolution technology converts video of a given resolution to a pre-determined level of high definition image, such as SD (for DVDs) to HD. However, in television broadcasts which may contain mixed images on the same screen, for example, from a studio in HD and images from a local relay station in SD, it was difficult to present an overall high resolution image using a pre-determined level conversion technique.

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In response to this need, Hitachi has developed a super-resolution processing technology which converts input video of various resolution levels to the optimal level of high resolution image without compromising perception of depth (perspective). As a result, it is now possible to enjoy high resolution images from a variety of images sources. Further work will be conducted to optimize signal processing algorithms for super resolution and develop dedicated LSIs to achieve super resolution technology optimized for TV and other imaging devices.

Details of the technology developed:

**(1) Adaptable super-resolution processing to convert input video of differing resolutions**

In order to handle varying resolutions levels, original signal processing technology was developed. As a result, it became possible to deduce the original resolution of the input video so that even video recorded in SD and converted to HD resolution in the broadcast studio, could be processed to the optimal level of HD based on the original resolution level. Where videos of varying resolutions may appear on the same display, such as in TV broadcasts, optimal processing may be applied to each different resolution area. This technology, as well as converting SD video to near HD video, also enhances full HD (1920x1080 pixels) resolution images to provide even more beautiful crisp high-definition images.

**(2) Preservation of perspective**

One problem generally found in super-resolution processing is that when the overall blur of the image is improved, some perspective (perception of depth) is lost. The super-resolution technology developed discriminates between the regions where “blur” is to be removed or “untouched,” and processes accordingly thus enabling transformation to high-definition images while preserving perspective.

**Notes**

- \*1: Standard Definition: standard resolution level such as in terrestrial analog broadcasting and DVD
- \*2: High Definition: higher resolution level as in terrestrial digital and (Japanese) digital satellite broadcasting
- \*3: HDTV: High Definition Television

**About Hitachi, Ltd.**

Hitachi, Ltd., (NYSE: HIT / TSE: 6501), headquartered in Tokyo, Japan, is a leading global electronics company with approximately 390,000 employees worldwide. Fiscal 2007 (ended March 31, 2008) consolidated revenues totaled 11,226 billion yen (\$112.3 billion). The company offers a wide range of systems, products and services in market sectors including information systems, electronic devices, power and industrial systems, consumer products, materials, logistics and financial services. For more information on Hitachi, please visit the company's website at <http://www.hitachi.com>.

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