

# HP Technology Doubles the Resolution of Digital Projection Displays

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*Latest innovation brings higher resolution to a lower price*

PALO ALTO, Calif., June 9, 2004 -- HP today announced that it has developed a **technology that enables twice the resolution of digital projection displays without increasing the cost of the projector.** HP has filed patent applications related to this resolution enhancement technology, code-named "wobulation," which resulted from extensive work performed by HP's Imaging and Printing Group.

When combined with Digital Light Processing (DLP) technology from Texas Instruments, "wobulation" allows for a digital image to be projected at double its resolution – without changing the light modulator or increasing pixels – while maintaining a crisp image. The result is that better resolution is available at a more affordable price. HP was an early supporter of DLP technology and its current digital projector portfolio includes DLP offerings for the entire spectrum of business customers.

"We applied our technology expertise in digital imaging and printing to digital projection and found a way to improve image quality without increasing cost," said Steve J. Brown, vice president, Digital Projection and Imaging, HP. "Today's announcement underscores our ongoing commitment to provide all of our customers with the products and solutions that allow them to enjoy more and be more effective in all that they do."

In typical digital projection displays, increasing image resolution

requires increasing the number of pixels in the spatial light modulator (SLM). This significantly increases the complexity and cost of the SLM and therefore the final product. Because the SLM is usually the most expensive component in a digital projection display, HP's "wobulation" technology is an economical method of increasing the resolution of digital projection displays without changing the SLM.

"Wobulation" technology works by generating multiple sub-frames of data while an optical image shifting mechanism then displaces the projected image of each sub-frame by a non-integral number of pixels. The sub-frames are then projected in rapid succession to appear as if they are being projected simultaneously and superimposed. The resulting image has significantly higher resolution than images produced by conventional digital projection devices.

The resolution enhancement technology is applicable to both front projection and rear projection applications. HP's "wobulation" technology is not dependent on a particular SLM technology and is expected to work with future SLM technologies. HP plans to introduce front projection and rear projection products in 2005 based on the "wobulation" technology.

The original press release is available at [www.hp.com](http://www.hp.com)

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