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[EE TIMES](#)[EE TIMES ASIA](#)**SYSTEMS & SOFTWARE****New deals boost developments in holographic storage**By [Margaret Quan](#)
[EE Times](#)

December 9, 2002 (4:30 a.m. EST)



MANHASSET, N.Y. — Two startup companies developing holographic media and data storage technology have reported boosts they say will help them push the emerging technology forward.

InPhase Technologies Inc. (Longmont, Colo.) received a \$2 million grant from the U.S. government's Advanced Technology Program to develop and demonstrate rewritable recording materials for holographic data storage systems. Separately, Aprilis Inc. (Cambridge, Mass.) acquired 21 patents belonging to Manhattan Scientific Inc., a Los Alamos, N.M., company that tried but failed to commercialize a holographic data storage system.

Analysts hailed the developments as boding well for holographic data storage, a 40-year old technology that offers the promise of ultrahigh storage densities and data access rates, but which no company has yet successfully commercialized.

Developing rewritable media is the logical next generation for InPhase, a Lucent Technologies spin-off. The company expects to produce small volumes of its write-once holographic data storage media and Tapestry system beginning in 2004.

InPhase Technologies says it has also struck a new strategic-development relationship with Hitachi-Maxell Ltd. The Japanese company has invested in InPhase as part of a \$6.3 million investment round that's scheduled to close with an additional \$8.7 million in funding by September 2003.

According to the agreement, Hitachi-Maxell will contribute recording-media manufacturing expertise at its facility in Tsukuba, Ibaraki, Japan.

Lisa Dhar, vice president of media development at InPhase Technologies, said the 40-person company will concentrate on tuning its media and drives to the needs of the professional-video market, with an eye to replacing tape drives. InPhase also plans to sell media to other developers of holographic-storage systems, Dhar said.

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Hardware push

Aprilis, a Polaroid spinout, meanwhile, will use the Manhattan Scientific patents to enhance the performance of its holographic storage media and to build a hardware platform that will allow recording and access of data on that media, said president and chief executive officer John Berg.

In return for the patents, which are mostly related to building the hardware system, Manhattan Scientific received a stake in Aprilis along with an unspecified amount of cash. Berg said the patents include optical architectures for read/write optics in drives using disk and card factors.

Aprilis is shipping samples of a pilot version of its proprietary write-once, read-many (WORM) holographic storage media, Berg said. Released in November, the WORM drive supports a storage capacity of 200 Gbytes and a data transfer rate of 100 Mbytes/second in a CD/DVD form factor. The disks have been shipped to 15 customers including Sony, Pioneer, Panasonic and Samsung, Berg said, and Aprilis expects to ramp production to 25,000 holographic disks by the end of 2003. The company produced revenue from the samples totaling roughly \$1 million this year.

Berg said that Aprilis eventually plans to introduce media in disk and card formats targeting both professional and consumer entertainment markets. It is not yet working on rewritable media or drives.

Analyst Wolfgang Schlichting, research manager for removable storage at International Data Corp. (Framingham, Mass.), called the Aprilis and InPhase deals "good news" for a technology about which there is "still a lot of doubt." The agreements will provide the companies with both development cash and credibility to prove that holographic storage is not "science fiction," he said.

Too futuristic?

Though neither company has plans for near-term commercial products, technology is not the biggest hurdle they face, Schlichting said. Credibility is.

"In data storage you have to show that data is safe and reliably stored and that you can support it and move it," he said. "Especially because of the previous failed attempts to bring products to market, the perception of holographic storage is that it is too futuristic."

Another problem for holographic data storage, he went on, is that the research is always trying to hit a "moving target" in outpacing today's magnetic storage. Magnetic drives achieve aerial-density improvements of 60 percent per year and enjoy a whole industry infrastructure that holographic data storage lacks.

Schlichting said Aprilis clearly leads the fledgling field with media and intellectual property that have roots in developments at Polaroid. But the additional funding will help make InPhase Technologies a contender in the nascent market.

In Europe, two companies — Optistore of Germany and Optilink of Sweden — are also in the race to develop the intellectual property for holographic storage. Also, IBM Corp.'s Almaden Research center in San Jose, Calif., has a research effort in this area as well.

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