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## Databases on CD-ROM

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# Databases on CD-ROM

By Carol Tenopir

DATABASES on CD-ROM (compact disc-read only memory) are expected to impact the database world in 1986. Several prototype products were exhibited at the July ALA conference, and CD-ROM products attracted the most attention in the exhibits and discussions at the Online '85 meeting in New York in November and at the International Online meeting in London in December. Some recent conferences have been devoted entirely to optical discs of all types, including CD-ROM. Several of the products seen at these meetings are now available for purchase.

## Why compact discs

Compact discs are being used by database publishers as a high-density medium for distribution of databases or database subsets (see my column in the May 15, 1985 *LJ*, p. 42). Libraries can subscribe to these CD-ROM databases much as they now do with printed materials. The discs are mailed to subscribers on a quarterly, monthly, or yearly basis for searching on the library's own microcomputer that is equipped with a CD-ROM reader. Some database distributors provide the necessary hardware.

Unlike remote databases that charge for online connect time, locally held databases can be searched as much as desired with no additional charges. A library can budget for databases like other subscriptions. They are ideal for database searching by patrons, eliminating concern for password protection or online charges.

Floppy disk and magnetic tape subsets have been available for several years, but the CD-ROM is expected to replace them because optical (laser) media offer several advantages over the magnetic media.

Optical discs provide high-density storage. One CD-ROM 4.75-inch disc holds 600 megabytes (600,000,000 characters) of storage. According to

Digital Equipment Corporation (DEC), that is equivalent to 1600 floppy disks (the capacity of floppy disks varies widely, from only 100K bytes on a single-sided, single-density floppy, to 1.6 megabytes on an IBM/AT floppy and over five megabytes available soon on some systems). The CD-ROM capacity is equivalent to 200,000 single-spaced pages or 46 days' worth of continuous data transmission at 1200 baud. The entire *Encyclopaedia Britannica* fits on one compact disc.

Optical discs are more durable. Each disc has a protective coating. As an optical medium they are not sensitive to magnetic fields, dust, or fingerprints. A beam of light reads the discs rather than a head in contact with the surface, so discs are expected to last at least ten years.

CD-ROM discs cannot be erased or altered once they are created, a real advantage from a database publisher's standpoint because the integrity of the publication is preserved. "Read Only Memory" means that once a compact disc is mastered at a production facility it cannot be changed. Erasable and Direct Read After Write (DRAW), one-time-write, many-time-read digital discs will be available soon primarily for use as computer storage devices.

All optical digital discs, including CD-ROM, are created by a high-powered laser that burns pits into the disc. The initial mastering of a disc is expensive, but economy is realized by making multiple copies of the master at the production site. To read a compact disc it is inserted into a CD-ROM reader which contains a laser beam that focuses on the disc's tracks. The light beam is reflected differently from the pits than from the unpitted areas. The two states of reflected light correspond to the binary 1s and 0s in digital information. CD reader access speeds are much slower than Winchester disc drives (½ to 2 seconds for CD as compared to 30-50 milliseconds for the Winchester disc drive). Their many other advantages seem to overcome this disadvantage for these applications.

CD-ROMs are favored by many in the database industry over other optical digital technologies because CD readers are relatively inexpensive and are widely available. Major manufacturers are working on a standard CD format, to make it possible to run a variety of discs on the same reader. Not all database producers agree that CD-ROM is the best optical medium. Information Access Company's InfoTrac system (described in my column in *LJ*, May 15, 1985, p. 42) and others use 12-inch optical discs instead of CDs. There have been long delays in getting a CD-ROM mastered.

For further information about CD-ROM technology see: Nancy K. Herther, "CD ROM Technology: A New Era for Information Storage and Retrieval?," *Online*, November 1985, p. 17-28; and Brower Murphy, "CD-ROM and Libraries," *Library Hi Tech*, Consecutive Issue 10, 1985, p. 21-28.

For a description of all optical disc technologies including CD-ROM, see: Information Systems Consultants, Inc. *Videodisc and Optical Digital Disc Technologies and Their Applications in Libraries*. Wash., D.C.: Council on Library Resources, Inc., January 1985.

## DEC library

Digital Equipment Corporation (DEC) entered the CD-ROM database market in 1985 as a distributor of science/technology databases. Eventually DEC plans to produce an entire "library" of CD-ROM databases for the corporate, government, and university markets. Currently DEC is distributing ten databases (eight subsets of large bibliographic databases, one complete bibliographic database, and one directory). They are: 1) *COMPENDEX: Aerospace Engineering*; 2) *COMPENDEX: Electrical and Computer Engineering*; 3) *COMPENDEX: Chemical Engineering*; 4) *NTIS: Computers, Communications, and Electronics*; 5) *NTIS: Environmental Health and Safety*; 6) *NTIS: Medicine, Health Care, and Biology*; 7) *NTIS: Aeronautics,*



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*Aerospace, and Astronomy*; 8) *Chemical Abstracts: Health and Safety in Chemistry*; 9) *Royal Society of Chemistry: Current Biotechnology Abstracts*; and 10) *Fraser Williams: Fine Chemicals Directory*.

The *COMPENDEX* and Chemical Abstracts databases cost \$1195 each for the first year for the databases only, or \$3485 including a CD reader. The NTIS databases are \$1150 each alone or \$3440 with a reader. The RSC database is \$1395 or \$3685 and the *Fraser Williams Directory* is \$999 or \$3285. Each of the nine bibliographic databases is updated quarterly; the directory is updated twice a year.

For the price, a subscriber receives a compact disc containing both the database and the *MicroBASIS* search/retrieval software. A user's guide, software documentation, and telephone helpline are included.

*MicroBASIS* is a version of Battelle's Software Products *BASIS* software. *BASIS* is a popular mini or mainframe software package that is widely used for in-house information retrieval applications. *MicroBASIS* allows free-text searching of up to 550 megabytes of information on a CD-ROM. It offers proximity searching, truncation, set building, prefix or suffix searching, and Boolean logic. For more information contact: Battelle's Software Products Center, 505 King Ave., Columbus, OH 43201; (614) 424-5224.

DEC's database library is only one part of their entry into the CD-ROM market. In addition, they will provide database preparation services for private or commercial database producers who want to convert their existing databases to CD-ROM. Prices for this Application Development Services Program range from \$15,000 to \$75,000 depending on the current state of a customer's data and the complexity of the final database.

DEC has created a standard format for structuring data on CD-ROM, called Uni-File. If widely adopted, the Uni-File standard will solve problems of incompatibility between computer systems. DEC announced that many major software and disc mastering/replication companies back the Uni-File standard.

In December DEC made available Uni-File compatible, desk-top CD readers for the IBM XT and DEC MicroVAX computers priced at \$2300.

For more information contact: Digital Equipment Corporation, Maynard, MA 01754; (800) 258-1710.

### SilverPlatter

SilverPlatter Information Inc. (a merger of IMLAC Standard Information Systems and International Standard Information Systems) has several

CD-ROM databases now in test mode. Prototypes of *PsycLIT*, *ERIC*, *PAIS*, *EMBASE* (*Excerpta Medica*), and *LISA* (*Library and Information Science Abstracts*) were demonstrated at the July ALA meeting. *AV Online* (formerly *NICEM*) has now been added. According to Chris Pooley, director of marketing and sales in the United States, SilverPlatter is "talking with a host of [other] information providers . . ."

*EMBASE* will be available this summer at a yearly subscription price expected to be \$8500 for academic libraries and between \$10,000 and \$15,000 for corporate libraries. One disc will hold 1984 only. *ERIC* and *PsycLIT* begin testing this month in ten libraries, with an expected release date of June 1986. *ERIC* will be priced in the "neighborhood" of \$3000 to \$4000 per year, a yearly subscription to *PsycLIT* will be \$5000. Market research is under way to determine prices and release

expected to be "under \$1500."

The search software was developed by SilverPlatter. It supports Boolean logic, proximity searching, free-text or specified-field searching, and truncation. Function keys are used for commands. Pooley says the software is designed for both expert users and novices. The expert searcher can go directly to the information desired without being "encumbered by [a series of] menu screens"; the novice can use built-in help functions.

The library market is the primary target for these databases. SilverPlatter envisions both librarians and end users using the CD-ROM databases. Because of the wide range of databases available, SilverPlatter is an exciting alternative to online remote-databases searching for academic, public, and school libraries. For more information: Chris Pooley, SilverPlatter Information Inc., 37 Walnut St., Wellesley, MA 02181; (617) 239-0306.

### University Microfilms International

University Microfilms International (UMI) is now testing both CD-ROM and 12-inch optical disc databases. Prototype products include the 1984 issues of 42 journals of the Institute of Electrical and Electronics Engineers (IEEE), an index extracted from the *INSPEC* database, and the *Dissertation Abstracts* database. Unlike other optical disc products, UMI envisions combining remote and local database searching using an OCLC model 300 work station. UMI will track usage so they can charge users each time an article is printed from the disc. The optical disc product is thus viewed as a support system to online remote access.

For more information (especially, at this early stage, if you are a publisher interested in working with UMI) contact: Christine Ellis, University Microfilms International, 300 N. Zeeb Rd., Ann Arbor, MI 48106; (313) 761-4700 or (800) 732-0616.

### CD-ROM guidebook

One indication of the expanding number of CD-ROM applications is the December 1985 publication of *Optical/Electronic Publishing Directory*, a CD-ROM guidebook. Aimed at the library market, the *Directory* lists CD-ROM technology, publications, peripherals, and services. It concentrates on databases and "data products," and does not cover music or film entertainment products. One-time cost is \$20, a subscription including at least two supplements in 1986 is \$30.

For more information contact: Richard A. Bowers, Information Arts, P.O. Box 1032, Carmel Valley, CA 93924; (408) 659-5135.

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dates for *LISA* and *PAIS*. All of the above databases will be updated quarterly. *AV Online* will be available in June for \$800, to be updated annually.

A subscription to all of these except *EMBASE* includes the full database, not a subset. If a single disc for a database gets full, an archival disc will be made. Quarterly updates will continue to replace the current information disc. For example, an archival disc of *ERIC* might contain information from 1966 (when the database began) through 1977. The current disc in this hypothetical example would include information from 1978 to the present.

All of the databases distributed by SilverPlatter use the same hardware configuration. User libraries will need an IBM-PC or compatible with 256K bytes of main memory for each work station desired. A printer is optional, but recommended. SilverPlatter will sell Hitachi CD-ROM readers at a price

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