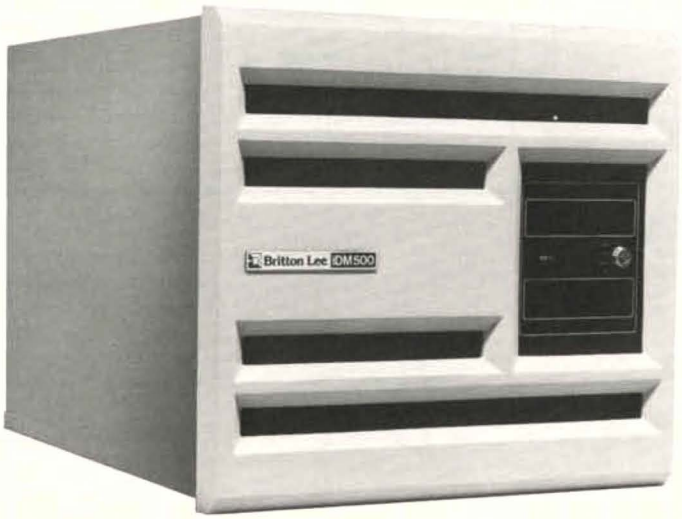
Britton Lee

IDM 500 RELATIONAL DATABASE MANAGEMENT SYSTEM

The IDM 500 Intelligent Database ™ Machine is the first member in a growing family of database machine products from Britton-Lee. The IDM 500 is a complete relational database management system based on hardware designed exclusively for database management.

The IDM 500 can be used as a stand alone system supporting multiple intelligent terminals or as a centralized database resource for one or more mainframe or minicomputers. Located between the disks it manages and the computers it serves, the IDM 500 is ideally suited for large to very large scale database management applications.



A COMPLETE RELATIONAL SYSTEM

Unlike many systems which claim to be relational, the IDM is a complete relational database management system based on the rigorously defined but simple to understand relational data model.

The powerful adhoc query capability provided by a relational system allows programmers and users non-procedural access to data. This eliminates the need to navigate through complex database structures and allows queries which can retrieve data from an entire database.

Because relational database commands are extremely powerful, much of the work previously done by application programs is now done within the IDM 500, resulting in programs which are smaller, faster to develop, and easier to maintain.

The IDM 500 provides those features found in the best database management systems including full concurrency control, transaction management, security, database backup, and crash recovery.

The IDM 500 also provides a fully integrated data dictionary implemented as relations within each database. Combined with the IDM 500's self documenting and stored command features the data dictionary provides powerful tutorial and self-help tools.

The IDM 500 also provides features not found in most database management systems. Its dynamic or "live" backup facility allows a database to be dumped while it is being used. Complex or frequently used commands can be stored in an IDM 500 database in a preprocessed form which provides increased performance and convenience. An audit logging and retrieval feature provides a complete record of database changes including user, time and data information. A random access file system provides for storage of programs and text to stand alone systems and a common file system to multiple computers.

A TRUE DATABASE MACHINE

The power and flexibility provided by relational database management has previously been available only from large software packages running on general purpose computers. Because software packages make use of general purpose operating and file management systems they run slowly—especially in multi-user environments. The IDM 500 was specifically designed to overcome these limitations.

Unlike general purpose backend processors, the IDM has been custom designed to execute relational database management tasks at extremely high speeds. By off-loading the task of database management into the IDM 500, the general purpose computer is free to run application programs in parallel with the database machine. Operating as a centralized database resource, the IDM 500 can offer multiple dissimilar computers access to common databases.

A HIGH PERFORMANCE, HIGH CAPACITY SYSTEM

The IDM 500 offers performance and capacity not achievable with conventional database management systems. Multiple processors working in parallel combined with a high performance memory system provide the high throughput required by most applications. In addition, the IDM 500 makes good use of its resources by providing optimized disk control, overlapped seeks, overlapped disk reads and intelligent scheduling.

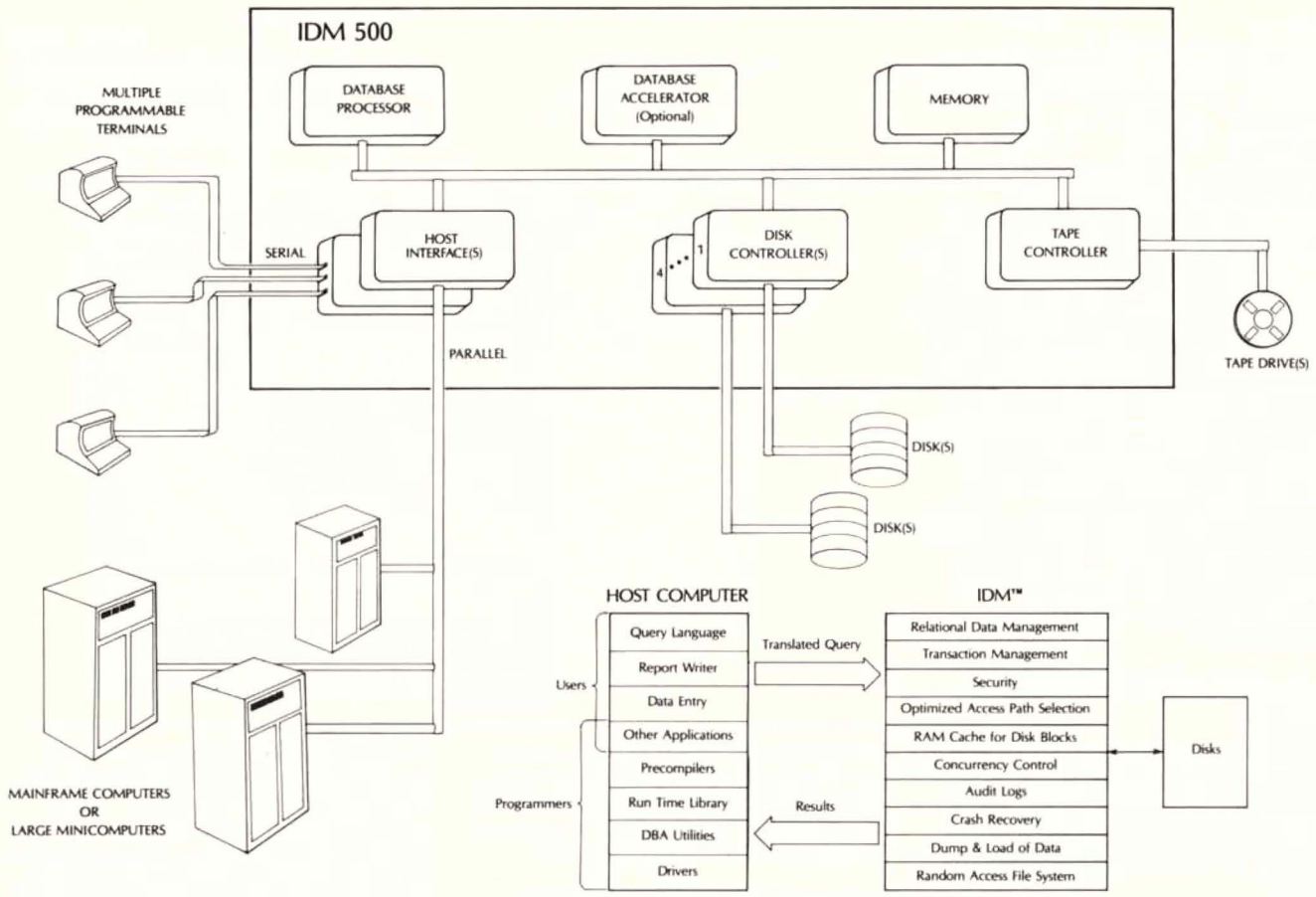
The Database Accelerator option provides additional processing power with its advanced, high speed (ten million instructions per second) pipelined architecture. With the Accelerator, the IDM 500 is able to process data in real time as it is being read from disk. The result is ever higher performance.

Because the IDM 500 is a high performance system, it can support a large number of users, and large amounts of cache memory and disk storage. In fact, the IDM 500 can support up to 4096 users accessing up to 32 billion bytes of data. For those applications requiring less performance or capacity, the low cost IDM 200 is available.

DEPENDABILITY BACKED BY SERVICE

The bottom line in database management is dependability. The IDM 500 was designed to guarantee data integrity and to minimize system downtime. This helps to reduce the cost of ownership. System integrity features include: error detection and correction for disk and main memory subsystems, self-diagnostic hardware, and software consistency checks.

Servicing is simple with Britton-Lee's built-in board level fault isolation and board level repair policy. In addition, the IDM 500 is fully supported by Britton-Lee's nationwide sales and service organization.



IDM 500 SPECIFICATIONS

(all figures are maximums unless otherwise stated)

Database Type:
Relational

Performance:
Up to 10 Transactions per second (typical)[1]
Up to 30 Transactions per second with Database Accelerator option (typical)[1]

Capacity:
Main Memory: 5.5 Mbytes
Disk Storage: 1 to 16 SMD disk drives[2]
Databases per IDM: 50
Relations (files) per database: 32,000
Attributes (fields) per relation: 250
Tuples (records) per relation: 2 billion
Tuple width: 2,000 bytes
Number of users: 4,096

Data Types:
1, 2, 4-byte binary integers
4, 8-byte binary floating point (limited support)
1–31-digit packed decimal (BCD) integers
1–31-digit packed decimal (BCD) floating point (exponent range $10^{-1,023}$ to $10^{+1,022}$)
1–255-byte variable length character fields

Indexing:
Clustered indices per relation: 1
Non-clustered indices per relation: 254
Attributes (keys) per index: 15
Index type: B*-tree

IDM 500A/B Base Configurations:
16-Slot Chassis, Front Panel and Power Supply
(1) Database Processor
(2) Memory Timing and Control
(3a) 1/2-Mbyte Main Memory (IDM 500A)
(3b) 1-Mbyte Main Memory (IDM 500B)
(4) SMD Disk Controller (supports up to 4 drives)[3]
(5) Host Interface (Serial or Parallel)

IDM 500 Options:
Database Accelerator (improves performance up to 10 times)
1/2- and 1-Mbyte Main Memory (up to 5.5 Mbyte total)
SMD Disk Controller (up to 4 controllers total)[3]
Tape Controller (supports up to 8 transports)[4]
Parallel Host Interface (IEEE-488 1978, 250K bytes/sec max.)
Serial Host Interface (8 lines, RS-232C, Asynchronous, 19.2K baud max.)

Physical Specifications:
Front Bezel:
  Height: 17.50 inches
  Width: 19 inches
Chassis:
  Height: 17.50 inches
  Width: 16.75 inches
  Depth: 26 inches
Weight: 170 lbs. maximum, 150 lbs. ave
Conforms to EIA RS-310-C Rack Mount Standard

Electrical Specifications:
20A max. at 115 volts +10%–20%
10A max. at 220 volts +10%–20%
50/60 Hz AC +10%–10%

Environmental Specifications (Operating):
Temperature: 10 to 40 degrees C
Relative Humidity: 20% to 80%
Altitude: –305 to +2,740 meters

Notes:
[1] Performance is dependent on IDM 500 configuration, database design, and command complexity
[2] The IDM 500 has an absolute maximum address space of 32 billion bytes
[3] Storage Module Drive (SMD) compatible (1.2 Mbytes/sec max.)
[4] Pertec Formatter Interface compatible (125 inches/sec max.; 3,200 BPI max.)

Britton Lee, Inc.

90 Albright Way, Los Gatos, CA 95030.
(408) 378-7000 Telex: 172585

Sales Offices in:
Los Gatos, CA (408) 378-7000
Los Angeles, CA (213) 784-7444
Princeton, NJ (609) 921-3113
Washington, DC (703) 790-0440
Chicago, IL (312) 364-6400
Houston, TX (713) 890-8769
London, England 01-572-0397

D100 1-82 Printed in USA