Microcomputer Data Management Software

Microcomputer data management software has recently experienced the highest growth rate of any major application including spreadsheets and word processing. Though the total installed user base does not come close to that of either spreadsheets or word processors, the impact of this evolving breed of automation cannot be overstated. This survey is intended to give a potential or current user of data management software a comprehensive overview of the current market.

What is data management software and what does it mean to users and their workplace? The answers to this multipart question are in a grand state of flux. New and highly improved software, a slow but steady crystallization of the industry's concepts and definitions, and an ever-increasing public awareness give us hope that someday, in the not-too-distant future, there will be method (and standards) to this madness.

The following several paragraphs will give a brief summary of basic database terminology and concepts. Current microcomputer data management software is likely to use two or more of these storage methods, the various combinations of which result in seemingly infinite variations from one package to the next. Fortunately, database concepts are often accurately described in terms of real-life, business situations.

A **sequential** file is like a bakery's list of customers. Each name is in some prearranged format. For simplicity, let's presume first name last, last name first, and then an account number. Optionally, all the names can come one after another in alphabetical order, and they are all of various lengths.

A **random** file is much the same except that the names are put into "cells" or "fields" of identical length. The advantage of doing this is that one can now calculate where the tenth customer is in a "file" using the known field length. For the price of a longer file (more blank spaces) the end result is usually a significant increase in "retrieval" speed.

For demonstration purposes let us say the baker's accountant needs all the customers ordered by account number. The baker must either "sort" all his customers by account number and then re-sort or else devise some other means. By numbering his customers as they appear alphabetically the baker can then create a separate list or "index" of all his customers in numeric order and where they appear—a "pointer" in his original file. For example, client number 274 points to the main file location 110. Since the client at 110 is "Dough, John, 274" the baker has successfully created an index to his sequential or random file. We now have two files, a main client file and an index by account number to that file.

An infant **relational** database would be created if the baker decided to make a list of addresses and "join" conceptually the two main files by account number . . . which of course he does. By relating as many meaningful files by account number as he wishes, the baker can set up a relational database that is a computer model of his business. Applications can be developed that function on his database (for example: a program that checks a client birthday index file and automatically generates a daily mailing list of clients to send birthday cards and cake order forms to). There are, of course, more mundane tasks, including accounts receivables, payables, invoicing, or general ledger, which could utilize the same relational feature.

Let us presume the baker's timely automation results in expansion to a multimillion-dollar franchise operation, and he now desires a complicated online production inventory database that would be updated frequently. Creating and reindexing relational pointers might take too much storage and time if the interrelationships were multileveled and complex. By setting up files in a more rigidly structured fashion, more specifically in an inverted tree fashion with distinct levels, we can create a **hierarchical** database system. The advantages of doing so include reduced storage requirements and typically faster retrieval times. Data does not have to be reindexed as it is updated since the growing data tree reflects implicitly the new relationships. Disadvantages to this scheme include much less flexibility and more difficulty in developing meaningful retrieval applications quickly. An example of a hierarchical relationship using the baker's business would be ingredient inventory for baked goods production. Resources like flour and sugar are used by any one of a number of production locations: doughnut, bagel, cake, cupcake, and cookie areas, simultaneously. Information is frequently updated. Each time a batch of baked goods is made, an update must be made to local storage of the ingredients used. Use of that ingredient diminishes not only local inventory but must also reflect a drop in total inventory of that ingredient. The inventory at the doughnut, bagel, cake, and other production areas can be grouped underneath a master "node" hypothetically called Total Inventory. Use and replenishment of the local baking materials can automatically update the total storage values, which are hierarchically above because Total Inventory is actually a calculated sum of the local inventories.

Finally, subscriber data for the baker's newsletter, "Doughnut Week in Review," must be updated and sorted often. An independent consultant develops a subscription control system based on a **binary tree** file. A binary tree has the special characteristic of being able to locate a single desired chunk of information, or "record," from

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among many other records. In just 16 or fewer comparisons a binary tree file can be used to select a single record from up to 65,535 records. This is done by continually branching deeper and deeper by factors of two into a prearranged data file.

In addition to the type of internal file configuration described above, the function and features of each data management system are important selection criteria.

This edition of the Data Management survey presents information on 60 products representing 51 vendors. Part

One of the survey is a Dot Chart Index that lists key features and characteristics of each product. An explanation of these key features and characteristics appears below. Following this description is the Dot Chart Index which lists the vendors in alphabetical order.

Part Two of the survey follows the Dot Chart Index and provides a summary of each vendor's product. This section provides more detail on the features of each product. The introduction to Part Two explains the categories used in that section.

MICROCOMPUTER DATA MANAGEMENT SOFTWARE OUTLINE

SYSTEMS SUPPORTED

There are many different machines for which data management software is implemented. Currently, market realities indicate that the greater market shares belong to Apple and IBM database management software. For a further breakdown of "Other" systems (i.e., CP/M, MP/M, or UNIX), refer to the Operating Systems Supported section. Additional information is available, of course, in the individual survey section following the dot chart.

IBM ● includes the IBM PC 1, PC/XT, PCjr, and Portable PC.

IBM Compatibles ● indicates that the software runs on one or more of the IBM-compatible machines; possibly including the Compaq, Columbia, Corona, Hyperion, Eagle, and others.

Apple ● implies the ability to run on the Apple II, II+, IIe, IIc, III, Apple Macintosh, or Apple Lisa systems.

Other ● catch-all category that specifies the ability to run on machines other than those included in the IBM or Apple categories specified above ● these include CP/M and UNIX machines and are appropriately specified in the following Operating Systems Supported section.

OPERATING SYSTEMS SUPPORTED

PC-DOS/MS-DOS ● includes all systems that run under one or more of the following operating systems: PC-DOS 1.1, PC-DOS 2.0, PC-DOS 2.1, MS-DOS 1.25, MS-DOS 2.0 series, and vendor-modified implementations thereof that adhere closely to the IBM PC standard.

CP/M or MP/M ● includes all systems that run under one or more of the following 8-bit Digital Research operating systems: CP/M 2.2, CP/M 3.0, MP/M, or MP/M II, and work-alike operating systems from other vendors.

CP/M-86 or MP/M-86 ● includes all systems that run under one or more of the following 16-bit Digital Research operating systems: CP/M-86, CP/M-68K, Concurrent CP/M, or MP/M-86.

UCSD p-System ● denotes software that runs under the UCSD p-System; this includes SofTech and NCI implementations.

UNIX/XENIX ● implies any UNIX implementation and in some cases UNIX work-alikes; these include XENIX, IBM PC-IX, VENIX, UNOS, UNIPLUS, and others.

Other ● catch-all category for operating systems that are either purely proprietary or miscellaneous derivatives of a more standard operating system not included in the other classifications; also includes OASIS.

DATABASE TYPE

Most full-featured databases use multiple storage and retrieval schemas which are invoked individually or simultaneously. An example of this would be a sequential file (e.g., a list of names by room number in a hotel) that is indexed (those same names alphabetized in a separate journal with an indication, or "pointer," to their corresponding room number in the original hotel). Because of the resulting confusion of having multiple file

methods, classifying a data management system as relational, hierarchical, indexed sequential (access method ISAM), indexed random (access method IRAM), or otherwise is nearly impossible and most often at least slightly inaccurate. We have bravely classified, however, each one of these data management systems as either relational, hierarchical, or other. The designations were based upon both vendor indications and the actual file structure as revealed by the system's functions and limitations. The "Other" category most often referred to B-tree data management systems where the main data file or files were stored in a binary tree file structure.

Relational ● implies that the main data file or files are entered, edited, and retrieved in a relational manner; in a relational data management system, files are related by a key field or fields and can be processed concurrently as related by the key field; this suggests, correctly, that there should be no limit to the files related by a particular field; in practicality this is not usually so, especially in implementations on micros.

Hierarchical ● indicates that the main data files are related horizontally by membership to particular levels in a hierarchy of data, typically a screen level, and vertically to data above and below, usually data of screens preceding and following the level in question ● networked configurations are included in this category and constitute systems where the inverted tree of data has an associated and usually complex method of linking one data element to more than one parent data element.

Other ● program includes one or all of the following filing schemas: Binary Tree, sequential, random, and free-form.

FUNCTION

General Purpose ● indicates systems which offer basic data management facilities more sophisticated than filers and short of being full-featured development systems.

Application Generator ● indicates data management systems which can be used to develop reasonably involved applications; these usually include their own high-level programming language, very comprehensive system specification menus, or a close interface to an existing language (for example, The Software Store INFO 80 interface to Microsoft BASIC or SoftCraft Btrieve interfaces to multiple languages).

Filer/Data Manager ● specifies systems with file and data management facilities short of being truly multipurpose; usually geared to the first-time user or to a specific application such as mailing or reference lists.

Other ● catch-all category includes systems with unique functions; further information is available in the appropriate report in the survey section following the dot chart.

FEATURES

Various features have been chosen to give a general indication of the scope and breadth of data management capabilities and performance. This list by no means covers all the features of the data management software and is intended for quick visual comparisons and descriptions only.

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Menu Driven • indicates that a majority of the program provides user options in the form of menus.

Data Entry Facilities • specifies those programs that provide a prestructured or easily defined data entry subprogram.

Reporting Facilities • indicates that the program in question provides a facility to generate reports easily and/or a prestructured or "canned" reporting subprogram; the performance of the reporting facility is not taken into consideration in this category; systems with full-screen and printer formatting options are included alongside primitive heading and listing-only report generators.

Query Facilities • this category includes data managers with the ability to select out and report on specific criteria; this could be either a query language or a sophisticated menu system; an example query would be a listing of all clients who live in Poughkeepsie, NY and whose outstanding balances are greater than zero.

Programming Language/Debugging Facilities • indicates database management systems with their own programming language; typically this includes the full complement of database features that are provided in the system's interactive mode, as well as control of program flow functions like WHILE loops, FOR NEXT, or GOTOs with IF/THEN/ELSE; memory variables, and full-screen print and input functions are available; though not the most powerful, the most widely recognized such system is Ashton-Tate's dBase II.

Interfaces with Word Processors/Spreadsheets • this category indicates the data management systems that provide interfaces to either closely integrated programs or to at least one industry-standard means of distributing such data; standard ASCII text files for word processors or DIF (VisiCalc) format for spreadsheets are examples of common file formats.

Interfaces with Other DBMS Packages • indicates the capability to get data from and/or write data to another vendor's database management system; the most common such interface is to DBF files of dBase II; vendors interfacing with DBF files are trying to gain market share by retaining a user's time and inherent value investment in existing dBase II files while providing a higher-performance data manager or friendlier user interface.

Password Protection • suggests some form of inherent password protection scheme is used to maintain data integrity in a public environment; this can be either only at the file level where every time a protected file is opened, a password is required, or at multilevel sophistication where a more logical protected interface is obtainable; data management programs whose own high-level language can be used to program password protection but do not have the intrinsic capability to do so are not included in this category.

Sort/Merge Facilities • indicates the ability to change the original data file order or merge two identically or similarly defined files; indexing, which leaves the original data file order intact, is not included in this category; further information on the major manipulation facilities of a package of interest should be checked in either the survey following the dot chart or one of our full-length hands-on reports in the Software Packages By Vendor section.

Online Help Facilities • includes all systems with substantial Help facilities while online; does not include programs which provide only a limited command summary at the user's request.

MICROCOMPUTER DATA MANAGEMENT PRODUCT OUTLINE

COMPANY • PRODUCT	IBM	IBM Compatibles	Apple	Other	PC-DOS/MS-DOS	CP/M or MP/M	CP/M-86 or MP/M-86	UCSD p-System	UNIX/XENIX	Other	Relational	Hierarchical	Other	General Purpose	Application Generator	File/Data Manager	Other	Menu Driven	Data Entry Facilities	Reporting Facilities	Query Facilities	Programming Language/Debugging Facilities	Interfaces with Word Processors/Spreadsheets	Interfaces with Other DBMS Packages	Password Protection	Sort/Merge Facilities	Online Help Facilities
Abacus Data Inc • INFORMAX Series	•	•	–	•	•	•	•	–	–	•	•	–	•	–	•	–	–	•	•	•	•	•	–	•	•	•	•
ABW Corp • RL-1	•	•	–	•	•	•	–	–	–	•	•	–	–	–	•	–	–	•	•	•	•	–	–	–	–	•	•
Accountants Microsystems • Quad Series	•	•	–	•	•	•	•	–	–	–	•	–	–	–	•	–	–	•	•	•	•	•	–	–	–	•	–
Alpha Software • Data Base Manager II	•	•	–	–	•	•	•	–	–	–	–	–	•	–	•	–	•	•	–	–	•	–	•	–	–	•	–
Applied Software Technology • Qbase	•	•	•	•	•	–	–	–	–	•	–	–	•	–	•	–	–	•	•	•	•	–	•	–	–	–	•
Applied Software Technology • VersaForm	•	•	•	•	•	–	–	–	–	•	–	–	•	–	•	–	–	•	•	•	•	–	•	–	–	–	•
Ashton-Tate • dBase II	•	•	•	•	•	•	•	–	–	•	•	–	–	•	–	–	•	–	•	•	•	•	•	–	–	•	–
Ashton-Tate • Framework	•	•	–	–	•	–	–	–	–	•	•	–	–	•	–	–	•	–	•	•	•	•	•	•	–	•	–
Ashton-Tate • Friday	•	•	–	•	•	•	•	–	–	•	–	–	•	–	•	–	–	•	•	•	•	–	•	•	–	•	–
Capro Inc • Pro-IV	•	•	–	•	•	–	–	–	–	•	–	–	•	–	•	–	–	•	•	•	•	–	–	–	–	•	•
Compumax Inc • Microbase	•	–	–	•	•	•	–	–	–	•	–	–	•	–	•	–	–	•	•	•	•	–	–	–	•	•	•
Computer Software Design • Data Ace	•	•	–	•	•	•	–	•	–	•	•	–	–	•	–	–	•	–	•	•	•	•	–	–	–	•	–
Condor Computer Corp • Condor Database	•	•	–	•	•	•	•	–	–	•	•	–	–	•	–	–	•	–	•	•	•	•	–	–	–	•	•
Continental Software • UltraFile	•	–	–	–	•	•	–	–	–	•	–	–	•	–	•	–	•	•	•	•	•	–	•	–	–	–	–
Cosmos Inc • Revelation	•	•	–	–	•	–	–	–	–	•	•	–	–	•	–	–	•	•	•	•	•	–	–	–	–	–	–
Data Access Corp • Dataflex 2.0	•	●	–	•	•	•	•	–	–	•	•	–	–	•	–	–	•	•	•	•	•	•	•	–	•	–	–
Data Basic Inc • Kaleidoscope	•	–	–	•	•	•	–	–	–	•	–	•	–	–	•	–	–	•	•	•	•	•	•	–	–	–	•
Data Technology Industries • Probase	•	•	–	•	•	•	–	–	–	•	•	–	–	•	–	–	•	•	•	•	•	–	–	–	–	–	–
Day One Software • DAY ONE DBMS	•	–	–	•	•	•	–	–	–	•	•	–	–	•	–	–	•	•	•	•	–	•	•	•	•	•	•
Dynamic Microprocessor • Formula II	•	•	–	•	•	•	–	–	–	•	–	–	•	–	•	–	–	•	•	•	•	•	•	•	•	–	•

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COMPANY • PRODUCT	IBM	IBM Compatibles	Apple	Other	PC-DOS/MS-DOS	CP/M or MP/M	CP/M-86 or MP/M-86	UCSD P-System	UNIX/XENIX	Other	Relational	Hierarchical	Other	General Purpose	Application Generator	File/Data Manager	Other	Menu Driven	Data Entry Facilities	Reporting Facilities	Query Facilities	Programming Language/Debugging Facilities	Interfaces with Word Processors/Spreadsheets	Interfaces with Other DBMS Packages	Password Protection	Sort/Merge Facilities	Online Help Facilities
Fastware • THOR	●	●	●		●					●			●				●	●	●	●	●		●			●	●
Fox Research Inc • 10-Base	●	●		●	●						●			●				●	●	●	●		●			●	
GMS Systems Inc • Power-base	●				●						●				●			●	●	●	●						●
Information Builders Inc • PC/FOCUS	●				●						●					●		●	●	●	●	●	●			●	●
Information Unlimited • EasyFiler	●	●		●	●								●			●		●	●	●	●		●			●	●
Innovative Software • Fast Facts	●	●			●							●				●	●	●	●	●	●		●	●		●	●
Innovative Software • T.I.M. IV	●	●		●	●						●				●			●	●	●	●		●	●	●	●	●
Intel Corp • iDIS 86/735				●				●			●				●			●	●	●	●	●	●		●	●	●
Key Software Inc • ResQ	●	●			●						●				●			●	●					●		●	
Link Systems • DataFax	●	●	●	●	●						●		●		●			●			●				●	●	
Lotus Development Corp • Lotus 1-2-3	●			●	●								●				●	●		●	●	●	●	●	●		●	●
Lotus Development Corp • Symphony	●				●								●				●	●		●	●	●	●	●		●	●
MAG Software • MAG/base Series	●	●	●	●	●	●	●				●				●			●	●	●		●	●	●	●	●	●
MDBS/Application Development • MDBS I				●		●				●			●			●					●		●		●		●
MDBS/Application Development • MDBS III	●	●	●	●	●	●	●			●			●			●		●	●	●	●	●	●		●		●
MDBS/Consumer Products • Knowledge Man	●	●		●	●	●				●			●	●					●		●	●				●	
MicroPro International • InfoStar	●	●		●	●	●					●			●				●	●	●			●		●	●	
Microrim Inc • R:base 4000	●	●		●	●	●	●				●			●					●	●	●	●	●	●	●	●	●
Pearlsoft • Personal Pearl	●			●	●	●	●				●			●				●	●	●						●	●
Perfect Software • Perfect Filer	●	●	●	●	●	●							●			●	●	●	●	●	●		●			●	
Phase One Systems Inc • CONTROL				●						●	●			●						●					●	●
Relational Database • Informix	●	●		●	●				●		●			●				●	●	●	●		●		●	●	●
Relational Database • Personal Informix	●	●		●	●				●		●			●				●	●	●	●		●		●	●	●
Howard W. Sams & Co • INSTANT RECALL		●	●										●												●	●
Sensor-Based Systems • METAFILE	●	●			●						●				●			●	●	●	●			●	●	●	●
Sierra On-Line • The General Manager		●							●		●				●			●	●	●	●	●	●			●	●
SMC Software Sys • Thoroughbred IDOL	●	●	●	●	●				●				●		●			●	●	●	●			●	●	●	●
Softcraft Inc • Btrieve 3.0	●	●		●	●								●		●							●	●		●	
Software Connections • LAN:Data Store	●				●								●			●		●	●	●			●			●	●
Software Publishing Corp • pfs:File	●	●	●	●	●								●			●		●	●				●				●
Software Publishing Corp • pfs:Report	●	●	●	●	●					●								●		●			●		●		●
The Software Store • INFO 80			●	●						●		●				●		●	●	●	●		●		●	●	
SSR Corp • OMNIFILE	●				●								●		●			●	●		●		●		●	●	
Stoneware Inc • Advanced DB Master	●	●	●	●				●					●		●			●	●	●			●		●	●	●
Tarbell Electronics • Tarbell DB 3	●	●		●	●	●	●				●				●			●		●	●	●	●			●	●
TCS Software • Simple	●	●		●	●	●					●			●				●		●	●		●		●	●	
Tominy • Data Base-Plus	●	●		●	●				●	●	●				●			●	●	●	●	●	●		●	●	
Unify • Unify				●					●		●				●			●	●	●	●	●	●		●	●	●
VisiCorp • Visidex			●							●			●			●		●	●	●	●		●				
VisiCorp • Visifile	●	●	●		●								●			●		●	●	●	●		●		●		

MICROCOMPUTER DATA MANAGEMENT PRODUCT FEATURES

Package Name • this describes the name and version number of the data management system.

System Requirements • lists hardware models and operating environments which run the package • indicates the minimum RAM memory and disk storage required; the recommended RAM memory and disk storage and maximums follow if they apply • specifies terminals supported • lists printers specifically supported by software.

Type • recapitulates the type and function indicated by the dot

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chart; presents synopsis of overall power/features of the software and for what specific market.

File Limitations ● lists database file size limitations ● indicates other performance criteria like number of field types and number of files that can be opened at one time ● specifies the sorting and/or indexing limitations, including whether multiple keys are allowed and whether simultaneous indicies can be used.

Description ● expands upon type and function; describes major features, indicating capabilities worth highlighting ● describes interface facilities and indicates whether source code is available.

Price ● indicates system pricing and what that includes.

Support ● describes vendor's method of support and any additional fees involved for maintenance; indicates product credibility barometers like first delivery date and units shipped information if available from vendor.

MICROCOMPUTER DATA MANAGEMENT SOFTWARE LISTINGS

■ ABACUS DATA INC

1920 San Marco Boulevard, Jacksonville, FL 32207 ● 904-398-8547.

☐ INFORMAX Series (5, 10, 15, 20, 25)

System Requirements ● IBM PC and compatibles running under PC-DOS or MS-DOS with 128K bytes of memory and disk storage; CP/M-based 8-bit systems with a minimum of 52K bytes of memory; CP/M-86, TurboDOS, and MmmOST operating system-based microcomputers with 128K bytes of memory ● supports most terminals and printers and includes configurator for those not automatically handled ● hard disk is supported.

Type ● 5 separate components providing ISAM file management (Series 5), report writing (Series 10), relational database management (Series 15—single user), relational database management (Series 20—multiuser), and Pascal program development facilities (Series 25).

File Limitations ● supports 65K records per file; 50 fields per record; and 8190 characters per record/field ● 9 field types ● unlimited number of databases can be open at one time except in the reporter, where the limit is 5; supports 50 fields for indexing key; 50 fields for sort key; and unlimited number of indexes per file.

Description ● consists of 5 separate packages which provide ISAM file management, report writing, relational database management (single- and multiuser), and Pascal programming facilities ● all facilities are menu driven ● features include a query facility that can select information from up to 5 relations with 9 selection criteria allowed to be specified; numeric accuracy up to 18 digits and absolute value number range of 10 to the 13th power to 10 to the negative 4th power; up to 10 levels of security; up to 50 sort keys; merging facilities; online Help facilities; and online tutorial ● interfaces are provided for any standard ASCII file as well as an interface for dBase II database files.

Price ● the 5, 10, 15, 20, and 25 prices are $395, $595, $795, $995, and $1,195, respectively ● the Series 10 includes the Series 5 facilities (ISAM) as well as report writing; the Series 15 includes Series 5 and 10 facilities as well as the relational database management facilities; the Series 20 includes Series 5, 10, and 15 features as well as the multiuser capabilities; and the Series 25 includes everything ● upgrades are given full credit for the current installed package ● a demo disk is available for $85, which includes a reference manual; the full $85 is taken as a credit when purchasing any of the packages ● source code is not available.

Support ● telephone support is provided for technical assistance ● first introduced in mid-1982; approximately 1,800 packages are currently installed ● product is not copy protected.

■ ABW CORPORATION

P.O. Box 1047, Ann Arbor, MI 48106 ● 313-971-9364.

☐ RL-1

System Requirements ● IBM PC and compatibles running under PC-DOS or MS-DOS with 128K bytes of memory; CP/M- and CDOS-based microcomputers with 64K bytes of memory; CROMIX-based microcomputers with 128K bytes of memory ● supports most terminals and printers with a configurator for nonstandard terminals ● supports hard disks.

Type ● relational database management system with facilities that include a query language, program interfaces, editor, utilities, report generator, and forms processing.

File Limitations ● supports 65K records per file, 1023 characters per record/field ● provides 7 field types; supports an unlimited number of attributes, and the number of relations in a system is limited only by the amount of available disk space; number of indexes/relations and number of databases per system is unlimited; maximum number of simultaneously open files limited only by the amount of RAM buffering available ● key fields for indexing limited by record size.

Description ● a menu-driven relational database management system that includes a query language, program interfaces, relational editor, utility programs, a report generator, and a forms processing language ● features provided include both a natural and calculated join, projection, and selection relational operators; an ad hoc query language; multikey sorting capabilities; online help facilities; host language CALL-type facility; a menu-driven report writer; and a modified B-tree index that helps users keep track of dependencies in unnormalized files ● interface facilities are provided for standard ASCII files ● source code is not available.

Price ● $495 one-time license purchase fee; a demo disk is available for $50 ● diskette is copy protected.

Support ● no warranty or formal maintenance agreement; ongoing technical assistance is given on an ad hoc basis by telephone ● first introduced 1983; currently 200 installations.

■ ACCOUNTANTS MICROSYSTEMS INC (AMI)

3633 136th Place SE, Bellevue, WA 98006 ● 206-643-2050.

☐ Quad Series (Quad-80, Quad-86 & Quad PC)

System Requirements ● CP/M-80-, CP/M-85-, and MP/M-based microcomputers with 48K bytes of memory and 2 diskette drives (Quad-80); CP/M-86-based systems with 128K bytes of memory and 2 diskette drives (Quad-86); and IBM PC or compatible with 128K bytes of memory and 2 diskette drives (Quad-PC) ● supports hard disk ● supports most terminals including color, and printers available for supported systems.

Type ● provides limited relational database management capabilities with report generation and application development facilities.

File Limitations ● supports up to 32K records per file; up to 50 fields per record; up to 188 characters per field; and records of up to 1K bytes ● up to 4 files (10 in batch mode) can be open simultaneously; unlimited multikey indexing.

Description ● a limited relational database management system that provides project and select operations; provides report generation and applications development with an automatic menu developer ● features provided include full-screen editing and editing controls that can be applied down to the field level; users can develop and save their data entry screens; provides standard mathematical and Boolean operations which can be applied to all entry/retrieval and to cross-file operations; log, exponent, and trigonometric functions; IF-THEN-ELSE logic is provided for programming; and provides sort capabilities ● source code is not available ● standard ASCII interface is provided.

Microcomputer Data Management Software

Price ● $695 one-time fee for license purchase; new versions/releases are discounted for operating licenses.

Support ● telephone hot-line is available for technical assistance ● first introduced in August 1982; between 400 to 500 current installations; distributed through dealer network of 200 dealer outlets nationwide.

■ ALPHA SOFTWARE CORPORATION

12 New England Executive Park, Burlington, MA 01803 ● 617-229-2924.

□ Data Base Manager (DBM) II

System Requirements ● IBM PC or compatible system running PC-DOS 1.1/MS-DOS 1.25 or PC-DOS 2.0/MS-DOS 2.0 operating systems with 128K bytes (1.1 or 1.25) or 192K bytes (2.0) of memory and 2 disk drives ● all terminals and printers supported by the systems are supported ● hard disk is supported.

Type ● a record-oriented data management system which is designed to support spreadsheet and word processing packages from other vendors rather than to function as a standalone data manager.

File Limitations ● number of records per file is limited by disk storage capacity; supports up to 40 fields per record with up to 60 characters per field ● only a single database can be open at one time ● supports multikeys for indexing and sorts on up to 40 keys.

Description ● a menu-driven data management system with extensive data exchange facilities, which is designed to pull together spreadsheet, word processing, and database operations under a single command structure; most instructions are maintenance-type operations on fields designed to help users keep data organized ● features include: supports wildcard field/record and phonetic searches; allows dissimilar databases to be merged and reconfigured and also supports database merges on common fields; and global search and replace command ● provides a proprietary Digital Exchange (DEX) data formatting facility that converts downloaded mini/mainframe data into DBM II format; provides compatibility for VisiCalc's Data Interchange Format (DIF), Multiplan (SYLK format), and Lotus 1-2-3, and for any other spreadsheet that supports DIF files; also compatible with WordStar and any other word processing packages that support IBM PC-DOS ASCII files ● source code is not available.

Price ● $295 one-time license purchase fee that includes documentation and an audio cassette tape with verbal instructions ● a 7-minute demo disk is available which includes sample programs.

Support ● an 800 telephone number is provided for technical assistance ● first installed 1982; 3,000 installations.

■ APPLIED SOFTWARE TECHNOLOGY

170 Knowles Drive, Los Gatos, CA 95030 ● 408-370-2662.

□ Qbase

System Requirements ● Apple II, II+, or IIe with 64K bytes of memory, or Apple III with 128K bytes of memory, all running under Apple Pascal operating system and including 2 disk drives; IBM PC and compatibles, TI Professional PC, and DEC Rainbow; all require 128K bytes of memory and PC-DOS or MS-DOS operating system and 2 disk drives; Tandy 2000 PC with 256K bytes of memory running under MS-DOS operating system and requiring 2 disk drives ● supports hard disk ● supports any terminal and printer supported by the individual hardware systems.

Type ● file management system with data entry checking and reporting capabilities.

File Limitations ● supports up to 4M characters per file; up to 4,000 characters per record; supports 45 fields (Apple II, II+, and IIe) or 75 fields (all others) plus 99 columns per record ●only 1 file can be opened at a time; up to 2 fields can be used to create indexes; single index per database.

Description ● file management system with data entry checking and reporting capabilities; stores data in user-defined forms-type format rather than in record-type format; automatic error checking and filling (from tables) can be built into each forms-entry screen ● features provided include editing functions for enforcement of data entry when field is mandatory; checking of range limits of data items; checking for numerics, alphanumerics, certain alphanumerics, and minimum/maximum lengths; 3-level sorting, totaling, and subtotaling; printing capability also handles mailing labels; files and forms can be appended and modified; record selection can be based on 9 "ORs" and 3 "ANDs"; online Help facility; reports on up to 8 columns of data can be produced ● interfaces with any MS-DOS-based ASCII file as well as Lotus 1-2-3 formats ● source code is not available.

Price ● $189 one-time fee for license purchase ● demo disk is available, which includes tutorial.

Support ● telephone hot-line is available for technical assistance ● first installed 1983; over 500 installations.

□ VersaForm

System Requirements ● Apple II, II+, or IIe with 64K bytes of memory or Apple III with 128K bytes of memory, all running under Apple Pascal operating system and having 2 disk drives; IBM PC and compatibles, TI Professional PC, and DEC Rainbow, all with 128K bytes of memory and running under PC-DOS or MS-DOS operating system and having 2 disk drives; Tandy 2000 PC with 256K bytes of memory running under MS-DOS operating system and having 2 disk drives ● hard disks are supported ● supports all terminals and printers supported by individual hardware systems.

Type ● forms processor and data manager.

File Limitations ● supports up to 4M characters per file; up to 4,000 characters per record; supports 45 fields (Apple II, II+, IIe) or 75 fields (all others) plus 99 columns per record ● only 1 file can be open at a time; up to 2 fields can be used to create indexes; single index per database.

Description ● business forms processor and data management system; provides customized forms to be created with automatic filling, data entry checking, and limited calculation facilities ● other features include report facility which allows users to prepare analytic and management reports of specified fields from selectively retrieved forms; files and forms can be appended and modified; data sorts of up to 3 levels; report designs once created can be stored for future use; automatic totaling, subtotaling, and page titling; online Help facility; calculations are available automatically or on an as-needed, scratch-pad basis ● interfaces provided for are standard ASCII, Lotus 1-2-3 spreadsheet files, and Pascal Text files ● source code is not available.

Price ● $389 to $489 (depending on operating environment) one-time fee for license purchase ● demo disk and sample programs are available; tutorial is also available.

Support ● telephone hot-line is available for technical assistance ● first installed 1981 ● over 3,000 installations.

■ ASHTON-TATE

10150 West Jefferson Boulevard, Culver City, CA 90230 ● 213-204-5570.

□ dBase II

System Requirements ● 8-bit microcomputers based on Intel 8080/8085 or Zilog Z80 running under CP/M, CDOS, or CROMIX operating systems with 48K bytes of memory; 16-bit microcomputers based on Intel 8086/8088 running under CP/M-86, MS-DOS, or PC-DOS with 128K bytes of memory; Apple II, IIe, and III with CP/M card and 56K bytes of memory ● supports most terminals and printers and includes configurator for nonstandard terminals ● supports hard disk.

Type ● relational database management system with built-in programming language.

File Limitations ● supports 65K records per file; up to 1000 characters per record; up to 32 fields per record; 254 character fields; and field names of up to 10 characters ● provides 6 field types; up to 64 variables in memory with up to 256 characters each; any number of indexes per file; 100 characters per index; handles positive numbers up to 1.8×10 to the 63rd power and

Microcomputer Data Management Software

negative numbers up to 10 to the minus 63rd power with 10-digit accuracy; 2 files can be open simultaneously.

Description ● self-contained, relational database management facility with a built-in programming language ● features include instruction repetoire of almost 70 commands giving users direct control over file creation and maintenance, data searches, formatting, and programming; provides project, select, and join relational capabilities; interactive command mode allowing the same creation/manipulation of data that can be done within the programming language; debugging facility; multikey sorting; multikey indexing; merge facilities; arithmetic operators include add, subtract, multiply, divide, and are augmented with standard greater than/less than/equal to commands; string operators support concentanation with or without shifting ● reads data from files prepared by other language processors such as BASIC, FORTRAN, and Pascal; can create files in almost any standard format so that data can be input to other systems ● source code is not available.

Price ● $700 one-time fee for license purchase; new versions for those with prevailing license is $75; special quantity and educational discounts are available ● tutorial diskette is provided ● diskette is not copy protected.

Support ● 90-day warranty provided only for diskette failures ● on-going support is provided by telephone hot-line; preferential client service is available for a negotiable fee ● first introduced 1980; approximately 130,000 installations worldwide.

☐ Framework

System Requirements ● IBM PC/XT and compatible computers operating under PC-DOS or MS-DOS operating system with 256K bytes of memory, a terminal, and 2 disk drives ● supports IBM monochrome display with both graphs and text simultaneously.

Type ● an integrated application development package that provides relational data management facilities with a 140-function programming language, a full-featured word processor, spreadsheet facilities, business graphics, forms processing, and a unique outline generator.

File Limitations ● supports 3,000 database records with up to 10 fields, 200 pages of text, and 20,000 spreadsheet entries.

Description ● an integrated application development software package that includes capabilities for relational data management with a built-in, 140-function programming language, word processing, spreadsheet analysis, business graphics, forms processing, and a unique outline generator utility for organizing manuscripts made up of text, graphs, and columnar charts; PC-DOS programs can also be run from within the Framework program; Framework is designed around frames which appear similar to windows, but unlike 2-dimensional windows, frames will organize information; all of Framework's programs can be controlled and enhanced through the over-140-verb programming language known as Fred; graphics and text are supported simultaneously on the IBM monochrome display ● provides an interface with Ashton-Tate's dBase II relational database manager where Framework can then be used to easily generate some of the more complicated as well as graphics outputs; also interfaces with Lotus 1-2-3 and other ASCII files.

Price ● $695 is the suggested one-time fee for license purchase ● package is copy protected.

Support ● telephone hot-line is available for technical assistance ● scheduled for release in July 1984.

☐ Friday

System Requirements ●·CP/M, CP/M-86, MS-DOS, and PC-DOS operating system-based microcomputers with 64K bytes of memory on CP/M systems, 128K bytes of memory for other systems, a monitor, printer, and 2 single-sided diskettes (320K bytes) ● supports hard disk ● supports most hardware-supported terminals and printers without requiring configuration.

Type ● menu-driven data file manager with limited programming capabilities.

File Limitations ● supports up to 64K records; up to 999 characters per record; up to 32 fields; and up to 254 characters per field ● allows only a single file to be open; supports sorting on up to 5 keys.

Description ● menu-driven data file manager with limited programming capabilities which include data entry screen manipulation, fundamental arithmetic functions, and printer output report formatting; designed for simple, straightforward tasks; provides password protection; produces mailing labels with automatic space suppression between fields ● interfaces with dBase II files, Lotus 1-2-3, or WordStar.

Price ● $295 one-time fee for license purchase, which includes written tutorial and on-disk example file.

Support ● telephone hot-line is available for technical assistance ● first introduced August 1983.

■ CAPRO INC

12781 Pala Drive, Garden Grove, CA 92641 ● 213-725-8757.

☐ Pro-IV

System Requirements ● IBM PC or compatible running under PC-DOS or MS-DOS operating systems; Wang Professional running MS-DOS; and Convergent Technologies running CTOS ● all systems need 256K bytes of memory and 1M bytes of hard disk storage ● any terminal and printer supported by the individual systems are supported.

Type ● multiuser, multitasking database management system with an integrated business applications development facility.

File Limitations ● number of records supported is only limited by disk capacity of the system; supports up to 240 characters per field and up to 1000 fields per record ● up to 15 files can be open simultaneously; up to 5 key fields per index with up to 99 characters (50 characters under CTOS); 5 keys are also supported for sorting.

Description ● multiuser, multitasking database management system with integrated business applications development facility; applications development is nonprocedural and requires no code; developers fill out series of system design worksheets through the terminal, and the program is generated from these specifications ● features include multitasking capabilities with multilevel file security; arithmetic operators and conditional logic capabilities; online Help facility; merge facilities; record locking on multiuser system ● source code is not available ● provides standard ASCII interface facilities.

Price ● $2,000 (GEN-PRO full system), $200 (RUN-PRO runtime only) one-time fee for license purchase which includes training and reference manual.

Support ● telephone hot-line is provided for technical assistance ● introduced in 1983.

■ COMPUMAX INC

P.O. Box 7239, Menlo Park, CA 94025 ● 415-854-6700.

☐ Microbase

System Requirements ● CP/M-based systems with 48K bytes of memory and 2 diskette drives or a hard disk; IBM PC running under PC-DOS with 128K bytes of memory and 2 diskette drives or a hard disk.

Type ● menu-driven, screen-oriented information manager and report writer.

File Limitations ● supports records with up to 50 fields; file size is limited only by disk capacity ● handles only a single file at a time.

Description ● a menu-driven, screen-oriented information manager with report writing capabilities ● features include locate and select commands with keyword search ability; the ability to modify, add, delete, or increase record sizes; provides Boolean operators; data entry checking; password protection; online Help facility; sort capabilities; reports can be produced on up to 16 columns of information ● provides an interface with other programs written in Microsoft BASIC ● source code is not available.

Microcomputer Data Management Software

Price ● $149 one-time fee for license purchase that includes full support and a one-year warranty.

Support ● telephone hot-line is available for technical assistance ● program is not file protected.

■ COMPUTER SOFTWARE DESIGN (CSD)

1911 Wright Circle, Anaheim, CA 92806 ● 714-634-9012.

□ Data Ace

System Requirements ● CP/M-86, PC-DOS, MS-DOS, UNIX, and XENIX operating system-based microcomputers including IBM PC, NEC, Hitachi, Panasonic, Fujitsu, Victor 9000, and DEC PDP-11; requires 64K bytes of memory and 2 disk drives ● Radio Shack TRS-80 Models II, IV, 12, and 16 running under TRS-DOS operating system with 64K bytes of memory and 2 disk drives ● supports hard disks ● supports all terminals and printers supported by the hardware.

Type ● provides full implementation of relational database management facilities and includes 2 languages.

File Limitations ● supports records with up to 25 fields and up to 225 characters per record; these parameters are based on a normalized file which tends to reduce a file to many small components rather than a few large components; the number of files and databases on a system is limited only by the disk capacity ● multiple files can be open simultaneously.

Description ● a full implementation of relational database management facilities that was expressly designed for the micro environment rather than redesigned from the mini or mainframe environments; includes 2 languages: Data Interrogation Language (DIL) that is a basic, relatively unstructured language providing usable query capabilities but limited programming facilities; and a Data Manipulation Language (DML), which is derived from Polyforth, that encourages a structured programming style but is definitely not a beginner's language ● features include: provides instructions for all relational algebra; provides a feature called "notational relation," which is an inverted reflection of an existing relation, which allows data to be sorted by every field; provides all relational commands including a dynamic join function; includes a full-screen editor ● source code is not available ● interfaces with any standard ASCII file.

Price ● $595 (single-user), $995 (multiuser) one-time fee for license purchase that includes documentation; 70% to 80% multicopy discounts are available ● a demo package is available for $20; 30-day free trial is also available.

Support ● telephone hot-line is available for technical assistance ● first introduced in 1981; currently installed in about 1,000 installations ● program is not copy protected.

■ CONDOR COMPUTER CORPORATION

2051 South State Street, Ann Arbor, MI 48104 ● 313-769-3988.

□ CONDOR Database (Condor 1/Condor 3)

System Requirements ● Zilog Z80, Intel 8080-, 8085-, 8086-, or 8088-based microcomputers running under CP/M, MP/M, CP/M-86, MS-DOS, PC-DOS, CDOS, or TurboDOS operating systems; Z80, 8080, and 8085 systems need 64K bytes of memory, while 8086 and 8088 systems need 128K bytes of memory; all require CRT and disk storage ● hard disks are supported ● supports all terminals and printers supported by hardware.

Type ● a relational-like database management system with a self-contained data language.

File Limitations ● supports up to 32K records per file; 2- to 1024-byte records; up to 127 fields per record; up to 127 bytes per field ● supports 5 data types; up to 32 fields can be used for sort and index keys.

Description ● a relational-like database management system that provides capabilities for creating, maintaining, inputting, and updating information, report writing, and analysis; includes a data language that uses English-like commands ● features provided are: data entry and updating using CRT screens; includes full audit trails; supports batch operations; STAX command which provides statistics on minimums, maximums, average, and total;

an online Help facility; COMPARE command that compares 2 data files and creates a resultant set; and a SELECT command, which selects data records meeting up to 32 logical conditions with Boolean operations and AND/OR functions ● provides facilities to interface with standard ASCII files ● source code is not available.

Price ● $605 (CONDOR III, the full relational database capabilities, multiple facilities, operation and development system), $295 (CONDOR I, single-file data manager) one-time fee for license purchase; upgrades from CONDOR I to III are available for difference in price plus $50; new releases are available for $50 ● license purchase includes documentation.

Support ● telephone hot-line is available for technical assistance ● first installed 1980; over 60,000 installations.

■ CONTINENTAL SOFTWARE

11223 South Hindry Avenue, Los Angeles, CA 90045 ● 213-417-8031.

□ UltraFile

System Requirements ● IBM PC running PC-DOS, with 128K bytes of memory and 2 disk drives ● supports hard disk ● supports any terminals and printers supported by IBM PC.

Type ● file manager with report writing and graphics capabilities.

File Limitations ● supports up to 32K records; record lengths up to 1K bytes; up to 50 fields per record; and up to 100 character fields ● allows only a single file to be open at one time.

Description ● file manager that also includes report writing and graphics capabilities; designed primarily for nonspecialists and includes detailed menus to guide users through operations; data is entered through Data Entry Questionnaire, where it is formatted either automatically or through user formatting; data can also be entered in batch mode where data was created by another program or a word processor ● other features provided include automatic verification of data entry fields where user has defined valid values; query facilities that support up to 5 selection criteria for selecting or excluding records; online forward or backward browsing through a file; global changes to the files can be made by replacing fields with constants, a copied value, or a calculation; data records can be plotted on graphs with lines, areas, bars, 3-dimensional bars, circles ● interfaces with most word processing packages and standard ASCII text files ● source code is not available.

Price ● $195 one-time fee for license purchase which includes a clearly written user's manual.

Support ● telephone hot-line is provided for technical assistance ● first installation 1983 ● unknown number of installations.

■ COSMOS INC

123 Ferntree Drive West, Morton, WA 98356 ● 206-496-5974.

□ Revelation

System Requirements ● MS-DOS or PC-DOS operating system-based microcomputers with 320K bytes of memory and 2 disk drives ● supports hard disks ● supports most terminals and printers supported by hardware systems ● supports Intel 8087 arithmetic processor.

Type ● relational database management system oriented toward the knowledgeable user with programming experience.

File Limitations ● supports up to 65K-byte records; unlimited number of fields all of variable length; file size is limited by disk capacity ● multiple files can be open simultaneously; and multiple key fields are available for indexing.

Description ● relational database management system that is designed toward the knowledgeable user with programming experience; provides capabilities for user-defined menus to facilitate data entry and retrieval; includes dictionary facilities and menu-driven report generation facilities; supports a communications option which links an IBM PC user to mini/mainframe IBMs; and provides numerous data entry validity checks ● provides standard ASCII interface facilities ● source code is not available.

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Price ● $950 one-time fee for license purchase; the next release of the product is provided free of charge.

Support ● telephone hot-line is available for technical assistance ● first installation 1983 ● unknown number of installations.

■ DATA ACCESS CORPORATION

4221 Ponce de Leon Boulevard, Coral Gables, FL 33146 ● 305-238-0012.

□ Dataflex 2.0

System Requirements ● supports a host of operating systems and networks including CP/M, MP/M, CP/M-86, MP/M-86, MmmOST, TurboDOS OS/80, TurboDOS 80, Molecular N-Star-80, Action DPC/OS, IBM PC-NET, DMS Hi-Net, PC-NOVAL, Davong, XNET, and 3-Comm; the 8-bit systems require 52K bytes of memory, while the 16-bit systems require 90K bytes of memory; 600K bytes of disk storage are also required ● hard disks are supported ● most available terminals and printers are supported ● multiuser operations are supported.

Type ● a relational file structure that uses multikey ISAM for indexing with programming facilities and a query language.

File Limitations ● supports up to 64K records; up to 4K bytes per record; up to 255 fields per record ● multikey indexes are supported; unlimited number of files can be open simultaneously.

Description ● relational-type file structures that are accessed by multikey ISAM methods with multilevel B-tree indexing; includes programming capabilities with 46 commands, a query language, and a menu development facility ● other features provided are: program development can be run in a fully preprompted, menu-driven mode; operational options in the menu mode can be password protected; interactive data entry and file update/maintenance capabilities; supports all of the relational algebra operations in the form of a relational calculus; includes a data dictionary; user-developed macros can be stored and called later ● source code is available ● interfaces provided include WordStar, Magic Wand, and standard ASCII files.

Price ● prices vary depending on options for various configurations of single-/multiuser, 8-/16-bit systems; $1,250 one-time fee for license purchase for concurrent 8- or 16-bit versions; $400 one-time fee for a Pascal Library/Source package.

Support ● telephone hot-line is provided for technical assistance and maintenance problems ● first introduced in 1982; 4,500 packages currently installed ● distributed through 7 national and 3 international outlets ● program is not copy protected ● demo disk with sample programs is available.

■ DATA BASIC INC (DBI)

102 South Main Street, Mount Pleasant, MI 48858 ● 517-772-5055.

□ Kaleidoscope

System Requirements ● CP/M-based systems with 64K bytes of memory and a minimum of 320K bytes of diskette storage; MS-DOS-based systems with 128K bytes of memory and 320K bytes of diskette storage ● supports hard disk; supports most generic-type terminals and printers.

Type ● provides data management facilities for a basically hierarchical file structure with 1:1 and 1:n relationships, and provides support for pointer arrays; some relational operations can be simulated.

File Limitations ● supports file sizes of up to 32K records; up to 20 fields per record; up to 255 characters per record ● 9 files can be open simultaneously; index key fields and characters per field for index key fields are limited only by field sizes and number of characters per field; no limit on number of indexes available per file; supports 6 levels of sort fields.

Description ● supports a file structure that is basically hierarchical with 1:1 and 1:n relationships and supports pointer arrays; provides facilities for some relational operations to be simulated; files are created and basic reports generated through an editor; file data is manipulated through several integrated utilities; files are maintained (added to/changed/deleted) by a redesign utility; like files can be combined with an append utility

● features include a menu generator which allows procedures to be linked and controlled; customized screen generation and maintenance through a separate utility; application development through a high-level language that consists of 30 commands and includes an escape command for incorporating BASIC commands into the development sequence; and online Help facilities ● provides automatic interfaces for data files from Lotus 1-2-3, Multiplan, and VisiCalc spreadsheets; WordStar, WordPerfect, and Wang Word Processing; and standard ASCII files ● source code is not available.

Price ● $695 one-time fee for license purchase ● demo disk and sample programs are available.

Support ● telephone hot-line is available for technical assistance ● first introduced January 1983 ● currently 5,000 installations.

■ DATA TECHNOLOGY INDUSTRIES

701-A Whitney Street, San Leandro, CA 94577 ● 415-638-1206.

□ Probase

System Requirements ● CP/M-based, 8-bit microcomputers with 64K bytes of memory and 2 diskette drives; CP/M-86-, MS-DOS-, or PC-DOS-based 16-bit microcomputers with 128K bytes of memory and 2 diskette drives ● supports hard disks ● supports all generic terminals and printers.

Type ● relational database management system that is fully programmable and optionally includes program generators.

File Limitations ● supports up to 65K records; maximum record size is 1024 bytes with up to 64 fields per record; fields can be up to 64 characters ● single database file open; multiple index key indexes; and multiple indexes available.

Description ● a relational database management system providing full programming capabilities as well as having an optional set of program generators; generators include Quick Gen for creating data entry and display programs with menus provided throughout the process; Report Gen for providing the user with flexibility in retrieving information in report form while also generating menus; and Menu Gen, a program generator used to develop menus that can tie the above-mentioned generators together or can be used to develop hierarchical menu structures ● other features include 16 macro instructions to aid in program generation; a "comment on condition" function that allows short textual comment to be included in the report capabilities ● up to 3 fields can be compressed in a report, thereby saving space ● source code is not available ● standard ASCII interface is provided.

Price ● $650 one-time fee for license purchase that includes the 3 generators; $300 one-time fee for license purchase without the generators.

Support ● telephone hot-line is available for technical assistance ● program is not copy protected.

■ DAY ONE SOFTWARE

618 Shoemaker Road, King of Prussia, PA 19406 ● 215-337-8255.

□ DAY ONE DBMS, Version 3.01

System Requirements ● requires IBM PC, PC/XT, and compatibles under PC-DOS 1.1 or 2.0 and MS-DOS 1.25/2.0; standard CP/M micros under CP/M 2.2, Concurrent CP/M, and MP/M ● minimum 96K bytes of memory under PC-DOS/MS-DOS; 64K bytes of memory under CP/M; single diskette drive minimum mass storage requirement; 128K-byte and dual drive PC-DOS/MS-DOS system recommended; supports up to 16 drives ● configuration program for terminals under CP/M system includes options for ANSI Standard, VT100, DataView, DigiLog, Epson QX-10, HZ-1500, Intertec Superbrain, Kaypro 4 and 10, LNW TRS-880 Model III, Monroe 8800, Osborne 1, Otrona Attache, ADM-3A, Soroc, Sanyo, TeleVideo 910, 912, 920, and 950, Vector Graphic, Heath/Zenith, Eagle Models 1-4; no installation program for custom terminals ● outputs to straight ASCII printers.

Type ● relational application generator with custom screens and report writer; offers application development facilities short of its own programming language.

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File Limitations ● number of files per database is limited by particular DOS implementation; up to 65,535 records per file; to 891 fields per record with up to 255 characters per field, limited by a 3000-character record size maximum ● supports multiple field types including alpha, numeric, SS number, phone, date, zip code, and state; up to 15 variables in memory; up to 9 database files open simultaneously ● indexing on up to 3 fields with a total of 5 concurrent indexes per database; up to 9 sort fields.

Description ● DAY ONE DBMS is a relational database application and menu generator written in compiled BASIC and assembler; targeted to small business and departments of large corporations, DAY ONE can generate reasonably sophisticated applications without the use of a programming language; menu driven, with password protection on file and submenu levels; online Help; offers ability to custom design up to 9 screens per record and generate custom reports of data entered ● can output DIF file format for spreadsheet programs; additionally, can read from and write to Ashton-Tate dBase II DBF files; source code is not available.

Price ● $695 includes a manual, tutorial, and program disks.

Support ● informal phone support; product first delivered in September 1983; over 550 copies have been sold.

■ DYNAMIC MICROPROCESSOR ASSOCIATES INC

545 Fifth Avenue, New York, NY 10017 ● 212-687-7115.

□ Formula II

System Requirements ● CP/M- and MP/M-based systems with 64K bytes of memory and 300K bytes of disk storage; CP/M-86-, MP/M-86-, MS-DOS-, PC-DOS-, and TurboDOS-based systems with 96K bytes of memory and 300K bytes of diskette storage ● hard disk is supported ● all terminals and printers supported either automatically or through front-end configurator.

Type ● an integrated ISAM file manager, code generator, limited word processor, and report generator.

File Limitations ● supports an almost unlimited number of records per file (1 billion records); record sizes up to 76,200; up to 100 fields per record; up to 1024 characters per field ● 7 field types are supported; up to 6 files can be open at one time; memory variables are unlimited; up to 2 index files can be used on each file with up to 1024 characters per index length.

Description ● an integrated package that provides an ISAM file manager with B-tree indexing and some relational capabilities for combining multiple files, a code generator (using "C" English-like commands), limited word processing (text manipulation), and a report writer; these functions and commands are integrated through combinations of commands and menus to produce applications ● features include a menu generation facility with user-defined prompts; multilevel password protection; unlimited multikey sorting capability; automatic totaling and averaging; key searching facilities by wild card-type characters; automatic field and page break processing; compressed printing capabilities; supports screen sizes of 255 characters wide with up to 135 columns; and supports I/O redirection ● provides interfaces for standard ASCII files, Lotus spreadsheet files, and dBase II files ● source code is not available.

Price ● $695 one-time fee for license purchase ● a free, self-running demo program is available.

Support ● Dynamic Microprocessor Associates Inc deals only with distributors and OEMs and does not support end users directly; warranties and maintenance is determined by each dealer's policy ● first introduced in 1983; 500 current installations ● Formula I was introduced in 1979 and sold about 5,000 copies ● package is not copy protected.

■ FASTWARE

200 Freeway Drive, East Orange, NJ 07028 ● 201-676-6100.

□ THOR, Version 1.6

System Requirements ● Apple II, II+, and IIe under DOS 3.3; IBM PC, PC/XT, and compatibles under PC-DOS 1.1 and 2.0/MS-DOS 1.25 and 2.0 ● requires at least 128K bytes of memory in the IBM version, 64K bytes of memory in the Apple version; 192K bytes with 1 disk drive is recommended; THOR

does not increase in performance in systems over 192K bytes; maximum mass storage is a single 10M-byte hard disk ● supports standard Apple and IBM terminals ● outputs to any one of a user-defined set of 9 printers including preconfigured options for IBM Graphics (Epson MX), Okidata 82, C. Itoh 8150, Anadex.

Type ● a specialized thought processor/word processor based on B-tree index, ideal for students or other people who need to organize thoughts automatically; free-form data field requires no data definition, offers fast retrieval of "thoughts" from a particular "state-of-mind."

File Limitations ● the file system is set up with a unique terminology and structure; an application can be up to 8M bytes large; each set of a possible 25 screens can have 5 field "category contents" from a choice of 255 different 12-character categories; a thought can have up to 40,000 entries ● up to 255 different key fields are available for indexing; can re-index at any time, but this requires new category fields to be reentered.

Description ● vendor claims THOR is a 30% word processing and 70% database or thought processing system; the file system is unique in that any thought can have up to 25 screens full of data in a free form; text is searchable throughout the application's thoughts; THOR is written in Microsoft-compiled BASIC and includes features such as menu-driven operation, free-form data entry screens, a "state-of-mind" screen for brain searching, and hard disk support ● THOR can interface with most major word processing packages including WordStar using a straight ASCII output format; source code is not available.

Price ● $295 includes program disk, tutorial, hard-copy manual.

Support ● informal phone support; product first delivered February 24, 1984; currently, installed user base is approximately 100.

■ FOX RESEARCH, INC

7005 Corporate Way, Dayton, OH 45459 ● 800-358-1010.

□ 10-Base Version 1.1

System Requirements ● IBM PC and PC compatibles such as Compaq, Eagle, Corona, Columbia, and Sperry; PC-DOS/MS-DOS Version 2.0 or higher; requires 192K bytes of RAM and 2 360K-byte drives; recommend hard disk; maximum storage determined by DOS.

Type ● relational; general purpose; based on SQL, IBM high-level database language; targetted for all user types plus system integrators.

File Limitations ● unlimited files per database; number of records per file based on disk storage; unlimited fields per record; 9,999 characters per field; 32,000 characters per record; 3 field types including integer, decimal, and character; 9,999 characters per string ● 16 files can be open at once; 16 database files open at one time ● unlimited key fields for indexing; 9,999 characters for indexing; 5 sort fields; 1 simultaneous index.

Description ● implementation of SQL, IBM high-level mainframe database language on microcomputers; documentation written for nontechnical end user ● menu driven; data entry screen; reporting facilities; query capability; custom report generator; up to 100 custom data entry screens; query language; hard disk support ● relational file manipulation; multikeyed sorting; merging; indexing; insertion ● demo disk available ● sample programs and tutorial provided ● online Help; toll-free phone support; backup copies allowed ● interface facilities to WordStar, MailMerge, SuperCalc, Lotus 1-2-3, and other programs through ASCII, ASCII delimited, and DIF files.

Price ● $495.

Support ● toll-free phone support; training program for dealers, distributors, and Fortune accounts ● first delivered in December 1983.

■ GMS SYSTEMS INC

12 West 37th Street, New York, NY 10018 ● 212-947-3590.

□ Powerbase

System Requirements ● IBM PC with 256K bytes of memory running under PC-DOS and having 2 double-sided, double-

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Microcomputer Data Management Software

density diskettes ● supports hard disk ● supports most terminals, but no color monitors, and most printers.

Type ● indexed data file manager with data entry, query, and reporting facilities.

File Limitations ● supports up to 65K records; up to 64 fields per record; up to 80 characters per field; and up to 1600 character records ● 6 field types; one database can be open at one time; supports up to 6 indexes per file.

Description ● menu-driven, indexed data file manager with facilities for data entry including multipage report generation and query; provides capabilities to create, modify, and list ● supports multikeyed indexes; all report options are chosen from a hierarchy of screens; has a Help message line; and allows user to abort work in progress with "Start-Over" option ● provides standard ASCII interface ● source code is not available.

Price ● $395 one-time fee for license purchase which includes a written tutorial ● demo disk is available for $10.

Support ● telephone hot-line is available for technical assistance ● first installed November 1983; unknown number of installations.

■ INFORMATION BUILDERS, INC
1250 Broadway, New York, NY 10001 ● 212-736-4433.

□ PC/FOCUS

System Requirements ● IBM PC or PC/XT; Wang Professional Computer; TI Professional Computer; PC-DOS/MS-DOS Version 2.0 or higher; requires 512K bytes of RAM and at least 5M bytes of hard disk storage.

Type ● application generator and decision support tool; relational and hierarchical structure; shared relational 4th generation DBMS ● targetted at information centers in Fortune 1000 companies, applications development from novice users to small businesspersons, and vertical markets through VARs (Value-Added Resellers), systems houses, and OEMs.

File Limitations ● limit of files per database dictated by disk storage; records per file limited only by disk storage; 250 fields per record; no limit to characters per field up to 4K characters in database; 4K characters per record; approximately 10 standard field types; unlimited characters per string; unlimited variables in memory; 16 database files can be open at one time through the relational joint facility; 250 key fields for indexing; unlimited characters for indexing; 32 sort fields; unlimited simultaneous indexes.

Description ● this is basically a microcomputer implementation of the mainframe product called FOCUS; it is the only product on market that is basically the same on both the mainframe and microcomputer; allows full micro-mainframe connection through asynchronous or bisynchronous communications; nonprocedural, it uses full English statements ● when connected to a mainframe that has FOCUS, the user can download from VSAM, ISAM, QSAM, IMS, IDMS, TOTAL, ADABASE, and DL/1 files using the LINK module on the mainframe; modules include: reporting and query, graphics, statistics, and financial modeling ● full-screen data entry; relational join facilities; artificial intelligence front end provided called Table-Talk for ease of use; artificial front end called File-Talk allows automatic creation of master files; automatic procedure generator is currently in development ● menu driven; data entry screen; reporting facilities; query capability; menu generator; custom report generator; up to 16 custom data entry screens per file; query language and programming language are available; debugger; passwords down to a single value within a field; data encryption; hard disk support; relational file manipulation; multikeyed sorting; merging; multikeyed indexing; insertion ● demo disk available; sample programs optional; tutorial with computer-based training for both PC/FOCUS and mainframe FOCUS available on the personal computer; online Help facilities; phone support; user's group is established; backup copies allowed ● interface to any PC-compatible word processor; graphics through DIF files; ASCII file compatible; interface to Lotus and VisiCalc; source code not available.

Price ● $1,595 (quantity 1 to 5); $1,450 (quantity 6 to 19); $1,295 (quantity 20 to 39); $1,150 (quantity 40 to 74); $950 (quantity 75

and above); GSA discount schedule for Federal government; discounts to educational institutions; price includes all modules.

Support ● full consulting services available from installation through ongoing consulting; full hot-line support in corporate headquarters plus regional hot-line support at major geographical locations; full educational facilities with classroom courses at New York headquarters running every day of the year, includes beginning classes in FOCUS through advanced classes for programmers; regional education support plus in-house training at client site; computer-based training available for FOCUS or PC/FOCUS through IBM's Interactive Presentation Systems on the mainframe and through computer-aided instruction on the microcomputer; national FOCUS User's Group, called FUSE, meets annually ● first delivered May 1983; current version is 1.0; over 75,000 FOCUS and PC/FOCUS installations.

■ INFORMATION UNLIMITED SOFTWARE, INC
2401 Marinship Way, Sausalito, CA 94965 ● 415-331-6700.

□ EasyFiler

System Requirements ● IBM PC, PC/XT, and PC compatibles; TI Professional; Compaq; runs on all versions of PC-DOS/MS-DOS ● requires 64K bytes of RAM under DOS 1.1 and 96K bytes under DOS 2.0; minimum of 2 floppy drives or a hard disk ● supports over 60 popular printers.

Type ● file and list manager; targetted to businesses requiring mailing list management.

File Limitations ● 60,000 records per file; 50 fields per record; 255 characters per field; 100 characters per record; 7 field types including date, "$," integer, character, social security number, telephone number, and others; 10 key sort fields with 5 simultaneous sort fields.

Description ● file and list manager with easy-to-use features; has flexible report generator, built-in calculator, and ability to search for files by phonetic approximation; screens lead novice user through sorting and forms design ● menu driven; data entry screen; reporting facilities; query capability; custom report generator; custom data entry screen; hard disk support; multikeyed sorting; merging; insertion ● demo disk, sample programs, and tutorial are provided; online Help; phone support ● interfaces with EasyWriter II and ASCII files.

Price ● $400.

Support ● 6-month warranty including phone support; if, after phone tech support, the program does not perform as documentation says it will, money-back is guaranteed; extended phone support by subscription for 1 year at $60 includes a technical newsletter, free product updates, and Screen Report, an electronic bulletin board ● first delivered in May 1982.

■ INNOVATIVE SOFTWARE, INC
9300 West 110th Street, Suite 380, Overland Park, KS 66210 ● 913-383-1089.

□ Fast Facts, Version 1.0

System Requirements ● IBM PC, PC/XT, and compatibles running under PC-DOS 1.1/2.0/2.1, MS-DOS 1.25/2.0 ● 128K bytes of RAM minimum to run; program does not support RAM over 128K bytes; minimum configuration is 2 double-sided floppy disk drives; disk storage limit is equal to the total practical disk storage on each particular system ● preconfigured for IBM PC-compatible screen and keyboard ● will output straight ASCII to printer connected to system.

Type ● hierarchical filer and list manager written in compiled BASIC and designed for any user requiring rapid list management; performs a specific function; not a full data management system.

File Limitations ● up to 1,500 records per file, the operating system limits how many files on disk; up to 50 screens of information per record; a field can be one entire screen of 80x23 characters; single record can be 92,000 characters long ● only alphanumeric field types are supported; up to 60 characters per string; one file can be open at a time ● one key field maximum for indexing, can be one entire screen; up to 2 simultaneous indexes.

Microcomputer Data Management Software

Description • filer and list manager with rapid retrieval capabilities; offers menu-driven operation, data entry and reporting facilities, and query capability; can produce custom reports; full cursor capabilities, input screens permit a large quantity of text • interfaces with word processors through ASCII files, spreadsheets through DIF files, and can send data to and from Innovative's own T.I.M. IV; source code is not available.

Price • $195 includes programs, tutorial, and documentation.

Support • phone support on product, backup copies are allowed; first delivered July 1983; number of units shipped is unavailable from vendor.

☐ T.I.M. IV

System Requirements • IBM PC, PC/XT, and compatibles, TI-PC, DEC Rainbow, NCR-PC, Burroughs B 20, and Wang-PC all under PC-DOS 1.1/2.0/2.1 or MS-DOS 1.25/2.0; requires a minimum and supports a maximum of 128K bytes of RAM; 2 320K-byte diskette drives minimum; maximum mass storage is equivalent to system limit • supports the preconfigured terminals of the computers above • prints out in straight ASCII format to any system printer.

Type • menu-driven, relational, general-purpose, database management system; offers data entry facilities, structured reporting and file maintenance subprograms.

File Limitations • up to 32,767 records per file; 40 fields per record; 60 characters per field; up to 2400 characters per record; 2 screens allowed per record • supports 8 field types including U.S. and European date, alpha, numeric, time, calculated, inverted, and sequential; to 60 characters per string; 2 databases can be opened at one time • up to 3 key fields for indexing; up to 3 simultaneous indexes.

Description • T.I.M. IV is a pseudo-relational, general-purpose data management system written in compiled BASIC for small business and personal use; vendor claims the product is easy to use, that the package is fully menu driven with the ability to jump to an absolute menu, and that 2 files can be linked and transacted upon; manual provides information on developing a BASIC interface to T.I.M. IV files; additionally, features custom data entry, layout, 4-across mailing labels; multikeyed sorting and indexing where indexing can be done on one primary and 2 secondary keys; password protection at the file level and online Help commands • interfaces with straight ASCII, DIF, and Innovative's Fast Facts files; source code is not available.

Price • $395 includes documentation, sample BASIC interface listings, and example files.

Support • phone support; backup copies are allowed; first delivered in November of 1979; vendor claims over 20,000 have been sold.

■ INTEL CORPORATION, END-USER SYSTEMS ORGANIZATION (ESO)
P.O. Box 9968, Austin, TX 78766 • 512-258-5171.

☐ iDIS 86/735 (Intel Database Information System)

System Requirements • interfaces with almost any microcomputer or terminal with RS-232C serial port; XENIX compatible • includes Intel 8086-based microcomputer.

Type • relational; cluster controller and general-purpose DBMS for terminals or personal computers to mainframe link.

File Limitations • unlimited files per database; number of records per file based on disk storage; unlimited fields per record; unlimited characters per field; 6 to 10 field types; unlimited characters per string; hardware limits variables in memory; hardware limits number of files that can be open at once; hardware limits database files open at one time; unlimited key fields for indexing; unlimited characters for indexing.

Description • total hardware and software DBMS system based on Intel 8086 microprocessor, 768K bytes of RAM, 35M-byte, 8-inch Winchester disk drive and 1M-byte, 8-inch floppy drive; can handle up to 105M bytes of Winchester storage; capable of uploading and downloading to corporate mainframe databases; targetted to major corporate end users; not directed to MIS department but to a distributed network of end users with data still

under control of DP department • menu driven; data entry screen; reporting facilities and query capability provided; menu generator; custom report generator; unlimited custom data entry screens; query language and programming language are available; passwords • hard disk support; relational file manipulation; sorting, merging, multikeyed indexing, and insertion are capabilities • demo disk, sample programs, and tutorial are provided; online Help; toll-free phone support; third-party, add-on software; installation program for terminal; backup copies allowed • interfaces with Horizon word processor and with any word processor compatible with XENIX on 8086-based system, Multiplan, DBF files, or Lotus 1-2-3 files.

Price • $25,000 to $35,000.

Support • company will install and bring the system up to running; price includes classroom training, 60-day warranty, and 1-year phone support; afterwards hot-line maintenance is available on a continuing-basis contract; newsletter is published.

■ KEY SOFTWARE, INC
2350 East Devon Avenue, Suite 138, Des Plaines, IL 60018 • 312-298-3610.

☐ ResQ

System Requirements • IBM PC and PC/XT; Compaq and Compaq Plus; Chameleon; Hyperion; runs on all versions of PC-DOS/MS-DOS • requires 128K bytes of RAM and 2 double-sided, double-density floppy drives; hard disk recommended; either monochrome display or color/graphics board and color monitor.

Type • general purpose; relational structure; marketed both to the novice user and more experienced user.

File Limitations • unlimited files per database; 32K records per file; 60 fields per record; 80 characters per field; 3 field types including character, number, and date; 8 levels of sorting.

Description • menu-driven DBMS that allows the novice to learn and employ the product with relative ease • menu driven; data entry screen; query capability; menu generator and custom report generator provided; custom data entry screen • 10 levels of password security available; multikeyed sorting and merging • tutorial and full documentation are provided • software interface to ASCII files and Lotus 1-2-3.

Price • $395.

Support • telephone support; $20 for updates.

■ LINK SYSTEMS
1452 2nd Street, Santa Monica, CA 90401 • 213-394-3664.

☐ DataFax Version 3.0

System Requirements • IBM PC and compatibles; Apple II and III; Sage; Corvus Concept; NCR Personal Computer; runs on PC-DOS/MS-DOS 2.0 or higher, Apple Pascal 2.7, Softex Pascal, NCR Pascal • requires 64K bytes of RAM for Pascal Version and 96K bytes of RAM for PC-DOS Version; 128K bytes of RAM recommended for PC-DOS; minimum 2 floppy drives; maximum hard disk storage of 1M bytes for database.

Type • relational structure; general purpose; marketed for both the novice and the advanced user.

File Limitations • limit of files per database dictated by disk storage; unlimited key fields for indexing; 28 characters for indexing; 1 simultaneous index.

Description • free-form (unstructured) DBMS with unlimited key word cross-reference retrieval • menu driven; query capability provided • passwords • hard disk support; relational file manipulation; multikeyed sorting, merging, indexing, insertion provided • demo disk and tutorial; phone support; backup copies allowed • interface facilities for any ASCII files; source code not available.

Price • $299.

Support • full technical and customer support with replacement of product if any problem; newsletter • first delivered in November 1982; 10,000 installed.

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Microcomputer Data Management Software

■ LOTUS DEVELOPMENT CORPORATION

161 First Street, Cambridge, MA 02142 • 617-492-7870.

□ Lotus 1-2-3

System Requirements • IBM PC, PC/XT, and 3270 PC; Compaq Portable and Compaq Plus; Texas Instruments Professional Computer; Zenith Z100; Wang Professional Computer; Bytec Hyperion; DEC Rainbow 100 and 100+; GRiD Compass; developing versions for the Tandy TRS-80 Model 2000, Hewlett-Packard HP 150, Apple Macintosh, and Apple II+ and IIe with Rana 8086/2 add-on; requires PC-DOS/MS-DOS Version 2.0, 192K bytes of RAM, and 2 floppy disk drives; will support up to 640K bytes of RAM and hard disk storage • printers and plotters supported include Ampex 6-pen Amplot II, Calcomp 8-pen Model 84, Hewlett-Packard 6-pen HP 7475A and 2-pen HP 7470A, Strobe 1-pen Models M100 and M200, IBM 8-pen XY/749, Houston Instruments 8-pen DMP-29, Enter 1-pen Sweet P, C. Itoh Matrix 8150 Series, GE 3000 Series, Canon ink-jet A-1210, Diablo Ink-jet Model C, Epson FX 80, FX 100, MX-80, and MX-100 with Graftrax, Inforunner Riteman, MPI Printmate 150, Printek 920, Printronix MVP, Toshiba P1350, Transtar T315, Anadex 9620A, Integral Data Systems (IDS) Prism 80 and 132, NEC 8023, Okidata Microline Series, and Texas Instruments TI850.

Type • integrated multifunction software with limited DBMS; targetted to spreadsheet users, decision makers, and middle management.

File Limitations • number of files per database unlimited, based on disk storage; 2,048 records per file; 256 fields per record, 256 characters per field; field types include character, "$," numeric, and scientific; 1 file can be in use at a time; 2 levels of sorting allowing both ascending and descending.

Description • integrated package with text processing, graphics, database, and spreadsheet; all data entry is based on the spreadsheet with records and fields corresponding to rows and columns with database limitations correlating to the spreadsheet parameters; graphics portion allows 5 types of graphs including bar and line graphs, pie charts, stacked bar charts, and X-Y graphs • menu driven; reporting facilities, query capability, and menu generator are provided; query language and programming language are also available; hard disk support; multikeyed sorting to 2 levels • demo disk, tutorial, online Help, and phone support provided; third-party, add-on software; 1 backup copy supplied; software interface through DIF files and VisiCalc files; supports Microsoft Windows; Quarterdeck DesQ multiwindow software integrator; and Interactive Data Corporation micro-mainframe network, XSIM, and XDMS database.

Price • $495.

Support • training available through dealers or Lotus corporate training; 1-2-3 courses are $495 including guide, training aids, and 10 student workbooks; Lotus instructs trainers for corporate accounts; phone and dealer support • first delivered January 1983; distributed by Micro D, SOFTEAM, and Softsel; sold by Computerland, IBM Product Centers, Sears Business Systems Centers, Entre Computer Centers, Compushop, and other computer and software retailers; Lotus sells direct to corporate accounts; sold by value-added retailers and hardware OEMs; Hewlett-Packard, Zenith, Bytec, and Dunsplus sell special versions for their systems and services.

□ Symphony

System Requirements • initially for IBM PC, PC/XT, and 3270 PC; PC-DOS/MS-DOS; minimum requirements are 320K bytes of RAM and 1 floppy disk drive • supports a wide variety of printers.

Type • integrated multifunction software package including word processing, database, form and mail merge capability, communications, spreadsheet, graphics, and window management; marketed to corporate users, developers, and installed user base of Lotus 1-2-3.

File Limitations • number of files per database unlimited, based on disk storage; 8192 records per file; 256 fields per record; 256 characters per field; sorting to 3 levels.

Description • multifunction software package with nearly total integration; menu driven; query capability; custom report generator; query language; programming language; passwords; hard disk support; relational file manipulation; sorting to 3 levels; insertion, tutorial, online Help available • allows add-on product creation (future products to allow time management, project scheduling, communications programs to access mainframe databases, presentation graphics, decision support systems, statistical packages, and spelling checker; will support 16-line display on portable computers; allows users to go directly to MS-DOS then return to exact point in Symphony application.

Price • $695; upgradeable from Lotus 1-2-3 for difference in price.

Support • sold and supported through dealers such as Computerland, Sears Business Systems Centers, Entre Computer Centers, and IBM Product Centers; support and sales direct by Lotus to corporate accounts; also sold through computer manufacturers and value-added resellers; first delivery scheduled mid-1984.

■ MAG SOFTWARE INC

21054 Sherman Way, Suite 305, Canoga Park, CA 91303 • 213-883-3267.

□ MAG/base Series, Versions 4.0 (16-bit) & 3.2 (8-bit)

System Requirements • IBM PC and compatibles, CP/M-80-based machines, Apple II series with CP/M card; runs on all versions of PC-DOS/MS-DOS; CP/M-80 Version 2.2; CP/M-86; Concurrent CP/M • 8-bit versions require 52K-byte transient program area with 64K bytes of RAM recommended; 16-bit versions require 128K bytes of RAM; 8-bit version requires 2 240K-byte floppy disk drives; 16-bit version requires 2 320K-byte floppy disk drives; no maximum on disk storage • terminals supported include IBM, all ANSI, and ADM-3A, among a list of 30 different terminals.

Type • relational structure; general-purpose package; 3 products targetted from novice user to advanced programming professional; MAG/base 1 is for novice, while MAG/base 3 is most complex.

File Limitations • number of files per database is based on disk capacity; up to 999,999 records per file except MS-DOS version, which is 32,650 records; 999 fields per record; up to 4096 characters per record on 16-bit systems; 1024 characters per record on CP/M-80 versions; 50 characters per field; 7 field types including alpha, numeric, "$," date, Y/N, and others; 50 characters per string; number of variables in memory is hardware limited; up to 5 files open at one time with MAG/base 2 and 3; up to 99 key fields for indexing; up to 500 characters for indexing; 99 sort fields; 10 simultaneous indexes.

Description • easy-to-use series of general-purpose, relational DBMSs; files created with one package can be used with the other 2; allows easy upgrade through 3 versions of the program for only the difference in cost • menu driven; data entry screen provided; reporting facilities; menu generator is available on MAG/base 3 only; custom report generator; programming language on MAG/base 3 • hard disk support; relational file manipulation on MAG/base 2 and 3; multikeyed sorting, merging, indexing, and insertion provided • demo disk sold separately as fully functional MAG/base; sample programs available; online Help; phone support; installation program for terminal; backup copies allowed • software interface facilities include DBF files (dBase II) and ASCII text files.

Price • $295 (MAG/base 1); $495 (MAG/base 2); $795 (MAG/base 3); MAG/base 1 can be exchanged for MAG/base 2 or 3 and MAG/base 2 can be exchanged for MAG/base 3 for difference in price; source code not available.

Support • phone support available although the developer recommends contacting dealer first; newsletter; product upgrades for free within first 90 days, afterwards $120; first delivered in 1978 as Prism, then in 1982 as MAG/base; about 10,000 installed; distributed by Software Wholesalers, Softeam, Lifeboat Associates, SofSel, Westico, dealers, and direct sales.

■ MICRO DATA BASE SYSTEMS (MDBS) INC/ Application Development Products

85 West Algonquin Road, Suite 400, Arlington Heights, IL 60005 • 800-323-3629, 312-981-9200.

Microcomputer Data Management Software

☐ MDBS I, Version 1.10

System Requirements • any CP/M 2.2-based, single-user system • requires 64K bytes of RAM plus 2 floppy disk drives; no maximum on hard disk storage • terminals supported include: ADDS, Lear Siegler, Ampex, Datamedia, Hazeltine, Zenith, Hewlett-Packard, Infotron, Novell Workstation Terminal, Pickles & Trout driver, Soroc, TeleVideo, VT102 compatibles; MDBS will design installation tables for any terminal that is not on the installation list.

Type • extended networking database similar to the Cullinet IDMS that is on the mainframe market; large-scale applications generator; targetted to professional software developers, large corporations, and government applications.

File Limitations • unlimited files per database; 65,535 fields per record; 65,535 characters per field; no practical limit to characters per record; 10 field types including integer, decimal, and character; 9,999 characters per string; 16 files can be open at once; 16 database files open at one time; unlimited key fields for indexing; 9,999 characters for indexing; 5 sort fields; 1 simultaneous index.

Description • implementation of SQL, IBM high-level mainframe database language on microcomputers; unlike relational DBMSs, MDBS uses pointers to manipulate the database; DBL (database language) allows the user to set relationships including 1 to 1, 1 to many, many to 1, and many to many; documentation written for nontechnical end user • reporting facilities, query capability, query language, and programming language available; passwords and data encryption security is available; hard disk support; sorting and insertion capabilities • demo disk, sample programs, and tutorial provided; online Help; phone support; user's group established; installation program for terminal; backup copies of program allowed; automatic backup of files • software interface facilities include word processing, spreadsheet, and graphics through ASCII files and DIF files.

Price • $1,300 (basic database) up to $2,215 with all options; options that can be purchased separately include: Query ($400); Dump and Reload System with dynamic restructuring ($400); and RTL Recover and Transaction Logging safeguard ($400).

Support • phone support; MDBS Consulting and Developmental Products in Dallas, Texas, is a subsidiary for outside consulting, training, and custom programming of applications; the MDBS User's Group, Inc is located at P.O. Box 7575, Rego Park, NY 11374 • first delivered around 1979.

☐ MDBS III, Version 3.06

System Requirements • IBM PC and compatibles, Apple with CP/M card, Altos 586, Pixel (68000 based), Wicat (68000 based), DEC PDP-11/24 to -11/70, PDP-11/73 microVAX, and DEC micro 11 Plus (PDP-11/23); runs on all versions of PC-DOS/MS-DOS; CP/M-80 Version 2.2; CP/M-86; Concurrent CP/M; MP/M-II; MP/M-86; UNIX Version 7, DEC version of UNIX, and Human Computer Resources UNIX; XENIX; TurboDOS; Altos-8086 OS; interface soon available for 3/COM networking and IBM's LAN • requires 64K bytes of RAM for 8-bit CP/M and at least 128K bytes for other versions plus 2 320K-byte drives; maximum storage of up to 165 hard or floppy drives or any combination of 16 drives • terminals supported include those configurable under MS-DOS, ADDS, Lear Siegler, Ampex, ANSI standard monochrome and color monitors, Human Designed Systems, Datamedia, Hazeltine, Zenith, Hewlett-Packard, Infotron, Panasonic, Nokia Data, Novell Workstation Terminal, IBM PC, Pixel, Pickles & Trout driver, DEC Rainbow, Soroc, TeleVideo, Texas Instruments Professional Computer, Victor 9000, VT102 compatibles, Wang PC; MDBS will design installation tables for any terminal that is not on the installation list.

Type • extended networking database similar to the Cullinet IDMS that is on the mainframe market; large-scale applications generator; targetted to professional software developers, large corporations, and government applications.

File Limitations • unlimited files per database; 65,535 fields per record; 65,535 characters per field; no practical limit to the characters per record; 10 field types including integer, decimal, and character; 9,999 characters per string; 16 files can be open at

once; 16 database files open at one time; unlimited key fields for indexing; 9,999 characters for indexing; 5 sort fields; 1 simultaneous index.

Description • implementation of SQL, IBM high-level mainframe database language on microcomputers; unlike relational DBMSs, MDBS uses pointers to manipulate the database; DBL database language allows the user to define set relationships including 1 to 1, 1 to many, many to 1, and many to many; documentation written for nontechnical end user • menu driven; data entry screen; reporting facilities, query capability, menu generator, unlimited custom data entry screens, query language, and programming language provided • passwords and data encryption security provided • hard disk support; multikeyed sorting; indexing and insert available • demo disk, sample programs, and tutorial are provided; online Help, phone support, and user's group established; installation program for terminal; backup copies of program allowed; automatic backup of files • software interface facilities include word processing, spreadsheet, and graphics through ASCII files and DIF files.

Price • $3,195 up to $12,500 (PDP-11/70) for database alone; up to $30,000 with all options included; options include: Screen Master screen generator ($1,200 to $2,375), Query System ($1,575 for 8-bit, single-user, up to $4,700 for multiuser PDP-11/70), RTL (Recovery and Transaction Logging) automatic backup system ($2,500 to $10,000), IDML (Interactive Data Manipulation Language) with DDL (Data Description Language) and 118 Data Management Systems commands to allow the user to utilize commands without a host program during simulation and trouble-shooting ($1,250 to $3,750); Design Modification Utility can open a database which was closed due to inconsistency in data, gets statistics on free space in the database area, and allows the user to change passwords after the database is already designed ($325 to $625); ISDU (Interactive Screen Definition Utility) works in conjunction with the Screen-Master as a short-cut screen painter during screen generation ($600 to $1,200); and RDL (Report Definition Language) writes reports based on definition and automatically generates a C-coded program ($1,575 to $3,125).

Support • phone support; MDBS Consulting and Developmental Products in Dallas, Texas, is a subsidiary for outside consulting, training, and custom programming of applications; the MDBS User's Group, Inc is located at P.O. Box 7575, Rego Park, NY 11374 • first delivered around 1980; approximately 3,500 installed to date.

■ MICRO DATA BASE SYSTEMS (MDBS), INC/ Consumer Products

P.O. Box 248, Lafayette, IN 47902 • 317-463-2581.

☐ The Knowledge Man, Version 1.06

System Requirements • IBM PC, PC/XT, and compatibles; Wang PC; Notica Data PC look-alike; TRS-80 Model II under Pickles & Trout CP/M; DEC Rainbow; Panasonic; Pixel; most 8086- and 8088-based systems; runs on all versions of PC-DOS/MS-DOS • requires 192K bytes of RAM; requires 2 160K-byte disk drives; 2 320K-byte drives or hard disk recommended • terminals supported include ADDS; Lear Siegler ADM-32, ADM-36, ADM-3A, ADM-5; Dialog 80; ANSI Standard Monochrome and Color; HDS Concept 10; TeleVideo 910 and 950; Victor; Hazeltine; HP Business Assistant; Zenith Z19 • most basic printer supported.

Type • relational structure; general-purpose and integrated package function; targetted to intermediate and advanced user.

File Limitations • number of files per database is based on disk capacity; 65,535 records per file; 255 fields per record; 65,535 characters per record; 4 field types including logic, string, numeric, and virtual; 65,534 characters per string; the number of variables in memory is hardware limited; no software limit to number of files open at one time; unlimited key fields for indexing; 65,535 characters for indexing; unlimited sort fields; unlimited simultaneous indexes.

Description • general-purpose relational DBMS that allows integration with modular add-on packages • data entry screen, query capability, and custom data entry screen capability; query and programming language provided; debugger • passwords

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and data encryption security • hard disk support; relational file manipulation; multikeyed sorting with ascending and descending at same time; multikeyed indexing; insertion • demo disk, sample programs, and installation program for terminal are provided; backup copies allowed.

Price • $500; options include $325 for K-Graph sophisticated graphics package, $100 for K-Paint interactive forms design program, and $175 for K-Text text processor; source code not available.

Support • phone support; training seminars; third-party books on market • first delivered in May 1983.

■ MICROPRO INTERNATIONAL CORPORATION

33 San Pablo Avenue, San Raphael, CA 94903 • 415-499-1200.

□ InfoStar

System Requirements • IBM PC and PC/XT; general MS-DOS machines; 8-bit and 16-bit CP/M-compatible machines; Tandy 2000; DEC Rainbow; Texas Instruments Professional Computer; runs on all versions of PC-DOS/MS-DOS; CP/M 2.2 and higher; CP/M-86 • 8-bit version requires 48K bytes of TPA; 16-bit version requires 96K bytes of RAM; 2 320K-byte drives minimum requirement • supports above 30 terminals plus extensive menu of printers.

Type • relational structure; general-purpose package; marketed to the novice, small business, branch offices of large corporations, managers, and professionals such as doctors, dentists, and lawyers.

File Limitations • limit of files per database dictated by disk storage; 64K records per file; 245 fields per record; maximum of 32K characters per record; 255 characters per field; standard field types; 28 characters per string; 16 to 255 database files can be open simultaneously depending on memory; 32 key fields for indexing; 120 characters for indexing; 32 sort fields; 1 simultaneous index per database file.

Description • easy-to-use, nonprocedural applications package; building of forms is done through duplication of forms by simple screen painting; no programming involved; logically steps user through building the database; error checking in data entry portion of product verifies character length and data type • part of the MicroPro family of products; InfoStar includes DataStar for customized data entry and retrieval plus ReportStar for reporting, sorting, and file updating; InfoStar+, for PC and compatibles only, includes StarBurst for integration with other MicroPro products • menu driven; data entry screen; reporting facilities and menu generator on InfoStar+ only; custom data entry screen; passwords optional with InfoStar+; hard disk support • relational file manipulation, multikeyed sorting, merging, multikeyed indexing, and insert provided • sample programs available for InfoStar+; tutorial available for InfoStar+; online Help; installation program for terminals and printers; backup copies allowed • interfaces with WordStar, CalcStar, PlanStar; reads ASCII files and CBASIC program-like files with comma delimiter and carriage return; produces .PRN files for word processing; in InfoStar+, dBase II files can be read in through StarBurst; Release 1.6 contains a database restructuring utility to allow user to automatically modify database as business needs change, a data dictionary to give listing of all data attributes and characters of entire database, a Computer Aided Instruction facility, and a new front end and menus for ease of use; the Pro Solutions series of applications is an extra-cost option to Release 1.6; the modules include mail list/business letter applications, a prospect tracking system, and other applications as they become available.

Price • $595 for InfoStar+; $495 for InfoStar.

Support • on-screen tutor; full documentation in 3 manuals; reference cards and getting-started booklet; full dealer support • distributed through computer dealers; first delivered as Version 1.0 in November 1982; Version 1.6 delivered May 1984.

■ MICRORIM INC

3380 146th Place, SE, Building E, Bellevue, WA 98007 • 206-641-6619.

□ R:base 4000, Version 1.11

System Requirements • IBM PC, PC/XT, and compatibles;

Hewlett-Packard HP 150; DEC Rainbow; Texas Instruments Professional Computer; Convergent Technologies; Burroughs; runs on all versions of PC-DOS/MS-DOS; CTOS • requires 256K bytes of RAM, 2 320K-byte drives; hard disk recommended.

Type • relational structure; general-purpose package; optional extended report writer available.

File Limitations • 40 files per database; number of records per file based on disk storage; up to 400 fields per record; 1,500 characters per field; 1530 characters per record; 6 field types including data, "$," integer, real, text, and time; 1500 characters per string; 40 variables in memory; up to 40 files can be open at once; up to 10 sort fields.

Description • designed for ease of use; simple commands enable the first-time user to define formats and files easily for information storage and retrieval; features include: data entry screen, reporting facilities, query capability, menu generator, and a custom report generator as add-on option; unlimited multiple custom data entry screens are provided; query language and programming language are available • passwords and data encryption security; hard disk support; relational file manipulation; multikeyed sorting, merging, and insert available • demo disk, tutorial, and online Help facilities; phone support • software interface facilities include ASCII files, DIF files, and any word processors, spreadsheets, graphics, and DBMSs in ASCII format.

Price • $495 for PC-DOS/MS-DOS and $795 for CTOS.

Support • 30-day warranty; maintenance contract of $150 per year includes telephone support service, application notes, and new release enhancements • first delivered October 1983.

■ PEARLSOFT

25195 Southwest Parkway, Wilsonville, OR 97070 • 503-682-3636.

□ Personal Pearl

System Requirements • IBM PC and compatibles; Z80- and 8080-based machines with 52K bytes of TPA; 8088- and 8086-based machines with 128K bytes of RAM; runs on all versions of PC-DOS/MS-DOS; CP/M 2.2 and 3.0; CP/M-86; Concurrent CP/M • can operate with 1 single-sided, double-density drive but at least 2 double-sided, double-density drives or hard disk are recommended • supports 30 different terminals.

Type • relational structure; general-purpose package; marketed to the novice and small business.

File Limitations • unlimited files per database; unlimited records per file; 250 fields per record; 80 or 132 characters per field up to the width of the screen; 20,000 or 30,000 characters per record based on width of screen and available memory; 3 field types including character, number, and date; 80 or 132 characters per string based on the width of the screen; the number of variables in memory is based on available RAM; 10 database files can be in use simultaneously; 20 key fields for indexing; 64 characters for indexing; 5 sort fields; up to 20 simultaneous indexes.

Description • comprehensive relational DBMS with visual user interface; uses nonprocedural program generation • menu driven; data entry screen; reporting facilities, query capability, custom report generator, and custom data entry screen with scrolling are provided; hard disk support; relational file manipulation; multikeyed sorting, merging, multikeyed indexing, and insert are available; demo disk, sample programs, tutorial, and online Help facilities; phone support; third-party, add-on software; installation program for terminals; backup copies allowed; source code not available.

Price • $295.

Support • telephone support; first delivered June 1982; current version is 1.92; distributed through dealers; 80,000 delivered.

■ PERFECT SOFTWARE

702 Harrison Avenue, Berkeley, CA 94710 • 415-527-2626.

□ Perfect Filer, Version 1.23

System Requirements • IBM PC, PC/XT, and compatibles; TI-PC

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running PC-DOS 1.1/2.0 or MS-DOS 1.25/2.0; CP/M machines in multiple formats including standard IBM 3404 8-inch ● requires a minimum and supports a maximum of 128K bytes of RAM (64K bytes under CP/M); a single disk drive is required, maximum storage up to the system limit ● terminal installation program only on 8-inch disk drive, format CP/M; all other formats are machine specific ● fully supports any ASCII system printer that can backspace.

Type ● indexed random access file and list manager with mail merge facilities; written in "C" for the users requiring list management and mail merging facilities; not a full-featured database.

File Limitations ● up to 20 separate lists on a disk; 9,999 records per file, up to 70 fields per record; up to 80 characters per field; up to 1000 characters per record ● 4 field types include alpha, numeric, alphanumeric, and logical; only one file can be open at one time ● up to 5 fields can be used for sorting; files are not indexed.

Description ● indexed random access method (IRAM) filer provides interface for mail merge facilities with Perfect Writer; features hard disk support, menu-driven operation, reporting facilities, and query capabilities; custom report and screen generation ● optionally comes as part of an integrated word processing and spreadsheet and filer package from Perfect Software; source code is not available for purchase.

Price ● comes bundled with many systems, dealer prices vary; includes manual and tutorial.

Support ● phone support is available; package was first delivered in first quarter of 1982.

■ PHASE ONE SYSTEMS, INC

7700 Edgewater Drive, Suite 830, Oakland, CA 94621 ● 415-562-8085.

☐ CONTROL

System Requirements ● Onyx, IBC, Radio Shack Models 2, 12, and 16, TeleVideo 804, Altos, or any other system based on OASIS operating system ● requires full partition of 44K bytes of TPA and 2 drives; hard disk recommended; package itself takes up to 300K bytes of storage.

Type ● relational structure; general-purpose package; multiuser package with full file and record locking capabilities.

File Limitations ● 16 files per database; number of records per file based on disk storage up to 65,535 records; unlimited fields per record; 255 characters per field; 512 characters per record; 6 field types including alpha, integer, floating point, date, and "$"; 255 characters per string; hardware limits the number of variables in memory; up to 16 files can be open at once; 1 database file open at one time with lookup at up to 15 other files; 8 key fields for indexing; 128 characters for indexing; 16 sort fields; 1 simultaneous index.

Description ● multiuser DBMS based on OASIS operating system; designed for ease of use; has powerful English-like query language with direct sorting; does not require programming; optional reporting facilities and query capability are present; optional custom report generator; up to 9 custom data entry screens allowed; query language is called ACCESS; replaces programming language with easy-to-use application generator; passwords handled by OASIS operating system ● hard disk support; relational file manipulation; sorting; indexing provided as sequential, keyed, and direct; insertion; online Help; free phone support; OASIS User's Group; third-party, add-on software available; terminal installation and printer installation handled by OASIS operating system; backup copies allowed ● optional software interface through ASCII files.

Price ● $695 including sort utility; front end to report writer (FORMS): $250.

Support ● full technical telephone support provided free; 2-day training seminar held monthly; quarterly newsletter available under OASIS contains feature articles on different parts of OASIS operating system including the DBMS ● first delivered about 1981; current version is 5.7; between 20,000 and 25,000 installed.

■ RELATIONAL DATABASE SYSTEMS, INC

2471 East Bayshore Road, Suite 600, Palo Alto, CA 94303 ● 415-242-1300.

☐ Informix

System Requirements ● IBM PC, PC/XT, and compatibles; UNIX-based systems; runs on PC-DOS/MS-DOS Versions 2.0 and higher; UNIX ● PC version requires 256K bytes of RAM and 2 floppy disks, hard disk recommended; UNIX version requires 512K bytes of RAM plus hard disk; UNIX version of program takes up 600K bytes of storage plus whatever storage is required for data ● terminals required are those required by UNIX TermCap (Terminal Capability).

Type ● relational structure; general-purpose package; marketed for systems integrators and sophisticated users.

File Limitations ● files per database and records per file are unlimited; 2048 fields per record; 2048 characters per field, 2048 characters per record; 11 field types including: European data, YY/MM/DD, MM/DD/YY, character, integer, long, floating point, double, "$," serial, and composite; 2048 characters per string; the number of variables in memory is controlled by dynamic allocation; operating system defines limits of files open at one time; 8 database files open at one time under UNIX; 10 database files open at one time under PC-DOS; unlimited key fields for indexing; 118 characters for indexing; unlimited sort fields; 8 simultaneous indexes.

Description ● relational DBMS built on C-ISAM for integration with other UNIX-compatible products; Informix is also available for minicomputers; C-ISAM is embedded in the UNIX kernel by Zilog and other manufacturers that sell UNIX and UNIX-based systems; language developers have also embedded C-ISAM into their language products; Informix is compatible with any C-ISAM-based language or product ● philosophy behind Informix is that a DBMS should not try to address the broad range of user expertise, therefore the vendor has another product marketed to the novice user—Personal Informix ● interfaces with HORIZON word processor and spreadsheet, Standard UNIX File Format; the Access method developed by the vendor is also used by other language developers; Software Ireland SIBOL and Micro Focus COBOL use the RDS Access Method and interface with Informix through that Access Method; menu driven; data entry screen; reporting facilities features include query capability, menu generator, custom report generator, unlimited custom data entry screens, and query language ● password security; hard disk support; relational file manipulation, multikeyed sorting, merging, multikeyed indexing, and insertion are available ● demo disk, sample programs; tutorial to be released in July; online Help and phone support provided; third-party, add-on software; installation for terminals through TermCap; backup copies allowed; source code is available.

Price ● $795 for PC version; $1,600 for microcomputer UNIX version; $40,000 for source code.

Support ● telephone hot-line for fee; updates for nominal fee; training at vendor location or on-site; quarterly newsletter beginning third quarter of 1984; first delivered February 1981; current version No. 3.2; approximately 5,000 installed.

☐ Personal Informix

System Requirements ● IBM PC, PC/XT, and compatibles; UNIX-based systems; runs on PC-DOS/MS-DOS Versions 2.0 and higher; UNIX ● PC version requires 256K bytes of RAM and 2 floppy disks, hard disk recommended; UNIX version requires 512K bytes of RAM plus hard disk; UNIX version of program takes up 600K bytes of storage plus whatever storage is required for data ● terminals required are those required by UNIX TermCap.

Type ● relational structure; filer/data manager package; marketed for novices and executives.

File Limitations ● files per database and records per file unlimited; 2048 fields per record; 2048 characters per field, 2048 characters per record; 10 field types including: European data, YY/MM/DD, MM/DD/YY, character, integer, long, floating point, double, "$," and serial; 2048 characters per string; the number of

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variables in memory is controlled by dynamic allocation; operating system defines limits of files open at one time; 8 database files open at one time under UNIX; 10 database files open at one time under PC-DOS; unlimited key fields for indexing; 118 characters for indexing; unlimited sort fields; 8 simultaneous indexes.

Description ● filer/data manager that can share same data files with full Informix; both Personal Informix and Informix can be present in a multiuser system, allowing the novice to use files simultaneously with a programmer on same system; built on C-ISAM for integration with other UNIX-compatible products; Personal Informix is also available for minicomputers; C-ISAM is imbedded in the UNIX kernel by Zilog and other manufacturers that sell UNIX and UNIX-based systems; language developers have also imbedded C-ISAM into their language products; Informix is compatible with any C-ISAM-based language or product ● the philosophy behind Personal Informix is that a DBMS should not try to address the broad range of user expertise, therefore the vendor has another product marketed to the sophisticated user—Informix ● menu driven; data entry screen; simple reporting facilities; query capability; menu generator; limited custom report generator; 1 custom data entry screen per file; query language; no passwords; hard disk support; no relational file manipulation; multikeyed sorting, merging, multikeyed indexing, and insert available ● demo disk and sample programs provided; tutorial explains how to use files created on Informix for Personal Informix; online Help; phone support; third-party, add-on software; installation for terminals is through TermCap; backup copies allowed ● interfaces with HORIZON word processor and spreadsheet, Standard UNIX File Format; the Access method developed by the vendor is also used by other language developers; Software Ireland SIBOL and Micro Focus COBOL use the RDS Access Method and they interface with Informix through that Access Method; source code is available.

Price ● $295 for PC version; $495 for microcomputer UNIX version.

Support ● telephone hot-line for fee; updates for nominal fee; training at vendor location or on-site; quarterly newsletter beginning third quarter of 1984.

■ HOWARD W. SAMS & CO

4300 West 62nd Street, Indianapolis, IN 46268 ● 800-428-3696.

□ INSTANT RECALL

System Requirements ● Apple II, IIe, and compatibles running Apple DOS 3.3 ● requires and supports only 48K bytes of RAM; minimum disk storage is one DOS 3.3 disk drive; supports only up to 8 files on up to 2 drives ● preconfigured for Apple terminal ● prints out to any ASCII printer connected to PR#1 expansion slot.

Type ● sequential, free-form filer and data manager for entry-level database users and those interested in a card file-type database; INSTANT RECALL is highly specialized and does not offer application development facilities.

File Limitations ● up to 4 28K-byte files per disk, up to 2 disks online at one time; an INSTANT RECALL record is actually a 40-column by 21-line screen; up to 8000 screens can be contained, practically, in one file; theoretically, up to 14K screens can be stored; a field can be the entire screen ● alphanumeric is the only field type available; only one file can be open at any one time ● there are 2 key fields possible for search—each can be 14 characters long; searches are executed in RAM entirely with optimized search software, making response time almost instantaneous.

Description ● an optimized filer/data manager that permits extremely fast searches of data files up to 28K bytes; it is intended for the entry-level database user; features a full search of 28K bytes originally on disk in well under 5 seconds—under 1 second if file is currently in RAM; includes insertion and merging features; option to print a list of commands on the printer at any time; special block print feature allows print of a specific range of the screen; supports MOVE, MODIFY, REPLACE, and DELETE screen functions ● does not interface with other packages like word processors or spreadsheets; assembler source code is not available.

Price ● $60 includes 51-page manual, optional backup copy after registration for a $5 fee.

Support ● informal phone support to registered users; product was first delivered in the first quarter of 1982; since then, approximately 3,000 copies have been sold.

■ SENSOR-BASED SYSTEMS

15 East Second Street, Chatfield, MN 55923 ● 507-867-4440.

□ METAFILE, Version 8

System Requirements ● IBM PC, PC/XT, and compatibles running under PC-DOS 1.1/2.0 or MS-DOS 1.25/2.0; requires at least 128K bytes of RAM and 2 diskette drives; 256K bytes are recommended; system will support 640K bytes and disk storage to the system limits ● installed for standard IBM PC terminal ● will interface in standard ASCII with almost any printer.

Type ● flat-file, B-tree indexed relational database application generator with integrated word processing; full-featured database application development system.

File Limitations ● 65,000 records per file; 250 fields per record; 235 characters per field; 1000 characters per record ● character, number, and date field types; 250 characters per string; 65,000-byte variable workspace in memory; up to 5 database files may be open at one time; 3 key fields for indexing with a maximum index key length of 250 characters.

Description ● relational applications development package with a host of software development features including its own interpretive language, password protection, merging, indexing, and sorting; fully interactive debugger "attention" key allows step-by-step and single command execution directly from source; geared toward advanced software developers ● interfaces with its own word processor and with DIF files; source code is not included.

Price ● $995 includes documentation, system, and demo disk.

Support ● phone support; first delivered May 1980; over 5,000 units have been sold.

■ SIERRA ON-LINE, INC

Sierra On-Line Building, Coarsegold, CA 93614 ● 209-683-6858.

□ The General Manager, Version 2.0Y

System Requirements ● Apple II, IIe, or III running Apple DOS 3.3 ● requires a minimum and supports a maximum of 64K bytes of memory; requires a single drive; package will support up to 4 drives ● preconfigured for Apple II keyboard and screen ● interfaces with Epson, Apple, Okidata printers, customization menu also available for other printers.

Type ● hierarchical application generator with its own programming language; screen-oriented records filing.

File Limitations ● up to 117 disk volumes giving a total database size of 16,777,216 bytes; 16 screens of 819 bytes per screen; 91 possible fields per screen; maximum field length is 39 for Apple II and 79 for Apple IIe; up to 99 calculations between fields ● alpha, numeric, generated, and output field types; index key field length maximum is 100 bytes.

Description ● hierarchical applications generator with its own programming language; language is Applesoft BASIC modified to provide database manipulation and control functions; menu driven with data entry, reporting, and query capabilities; hard disk support; sorting, indexing, and automatic insertion ● outputs optionally to an ASCII file for word processing interface; source code is not available.

Price ● $230 includes 2 sample data disks, program disk, manual, and user's tutorial.

Support ● phone support; first delivery first quarter of 1981; after 90-day warranty, $5 charge plus $2 for shipping of a backup copy.

■ SMC SOFTWARE SYSTEMS

1011 Route 22, P.O. Box 6800, Bridgewater, NJ 08807 ● 201-685-9000.

Microcomputer Data Management Software

☐ Thoroughbred IDOL 4.0

System Requirements ● IBM PC/XT under PC-DOS 2.1; Apple Lisa running XENIX; UNIX System III systems ● requires at least 128K bytes of memory for single-user implementation and 256K bytes of RAM for multiuser implementation, and at least one 5M-byte hard disk; supports up to 1M bytes of RAM but minimum is satisfactory for most applications, 10M-byte disk storage is recommended; maximum disk storage equivalent to particular version of operating system ● configurable to most any terminal through SMC-BASIC installation procedure ● configurable for parallel or serial printout in straight ASCII only.

Type ● B-tree structured for single- or multiuser; general-purpose database filer and application generator; includes SMC-BASIC and source code for comprehensive application development.

File Limitations ● up to 1,000 files per database; up to 8 million records per file; up to approximately 70 fields per record, limited by a single data entry screen; up to 70 characters per field; up to 1400 characters per record ● supports alpha and numeric field types with built-in range and value checking; approximately 24,000 characters allowed per string in SMC-BASIC; 572 variables in memory; one database file open at a time; up to 14 files open at a time ● indexing not supported in this B-tree structure; sort field limited only by number of fields per record (70).

Description ● IDOL 4.0 is a B-tree-structured data management system written in SMC's own SMC-BASIC; source code provided as well as SMC-BASIC; features interface to SMC-BASIC professional development language, menu-driven operation, and prompted query capabilities ● can run on the PC/XT in multiuser mode under Thoroughbred OIS by SMC, in single-user mode under MS-DOS 2.1, and on the Apple Lisa under XENIX; additionally supports UNIX System III ● constrained to one data file open at a time; vendor claims limited SMC-BASIC programming can enhance IDOL to multifile capability; additional programming can either enhance basic product or create an entire turnkey application package ● file record dimensions limited significantly only in the amount of information that can fit on a single display/data entry screen; package includes extensive facilities to create menu, data entry, and report screens; includes tutorial, online Help, and the capability to create online documentation for any menu selection or data element ● IDOL applications can interface with SMC accounting packages including accounts receivable, accounts payable, general ledger, order processing, fixed asset, payroll, purchase orders; no preprogrammed options available to interface with word processors, spreadsheets, or other DBMS systems; vendor indicates a graphics package interface is forthcoming.

Price ● $595, source code and SMC-BASIC included; multiuser version requires Thoroughbred O/S.

Support ● toll-free support hot-line; updates at nominal charge of $15 plus $25 shipping fee; system first delivered in 1979; 10,000 to 15,000 packages delivered to date.

■ SOFTCRAFT, INC

P.O. Box 9802 #590, Austin, TX 78766 ● 512-346-8380.

☐ Btrieve, Version 3.0

System Requirements ● IBM PC, PC/XT, and compatibles; TI-PC, HP 150, Victor 9000, Zenith Z-100; 128K bytes of RAM required, 1 disk drive minimum; the system capacity is the mass storage maximum ● uses native terminal of machine running software ● prints standard ASCII to almost any interfaced printer.

Type ● binary tree application generator utility for interfacing with a number of development languages; not a standalone applications generator, nor is it a full relational or hierarchical database.

File Limitations ● Btrieve does not recognize any fixed file/record/field-type limitations; one of the few restrictions imposed is that of a field of less than or equal to 4090 characters ● field types and internal dimensions of the database are up to the program developer; up to 24 sort and 24 indexing keys are supported; the system defaults to allow 8 files open at one time; this can be changed to allow the limits of the operating system.

Description ● Btrieve is a binary tree subprogram that can exist and be called by Microsoft BASIC, Pascal, COBOL, Microsoft "C," (Lattice "C"), and CI C-86 languages; geared toward serious developers, it provides database capabilities to applications written in the above languages; provides auto-recover from crash feature ● DIF, SYLK, or other interface to applications must be programmed by user; source code is not available.

Price ● $245 includes program disk, manual, tutorial, and sample listings.

Support ● phone support; automatic updates for $50 a year or $15 for latest update.

■ SOFTWARE CONNECTIONS INC

2041 Mission College Boulevard, Santa Clara, CA 95054 ● 408-988-0300.

☐ LAN: Data Store

System Requirements ● IBM PC with 192K bytes of memory running PC-DOS operating system (1.1, 2.0, or 2.1) and with a single, double-sided, double-density diskette drive; supports multiple diskette drives and hard disk.

Type ● indexed, multiuser data file manager development software for local area networks.

File Limitations ● supports up to a 16M-byte database; up to 1K-byte records; up to 50 fields per record; and up to 100 bytes per field ● supports up to 16 key fields for indexing and sorting; sorting can only be done on key fields.

Description ● multiuser indexed data file manager that provides a set of procedures to handle information entry, storage, and retrieval ● features provided include multipage data entry forms; password protection; online Help facility that references page number in the manual for additional details; automatic duplicate record checking; concurrent error protection for multicomputer local area networks; and provision for commas in numeric data entry fields ● source code is available.

Price ● $495 one-time fee for license purchase, which includes manual that serves as expanded tutorial ● a short course is available that provides a fast introduction to the program and hands-on practice.

Support ● telephone hot-line is available for technical assistance ● first introduced November 1983; number of installations not available from vendor.

■ SOFTWARE PUBLISHING CORPORATION

1901 Landings Drive, Mountain View, CA 94043 ● 415-962-8911.

☐ pfs:File & pfs:Report

System Requirements ● Apple II, IIe, and III under Apple DOS 3.3 and SOS; IBM PC, PC/XT, and compatibles, TI-PC under PC-DOS 1.1/2.0 and MS-DOS 1.25/2.0; minimum RAM is 64K bytes unless under PC or MS-DOS 2.0, where it is 128K bytes; 2 disk drives minimum and maximum storage ● uses native terminals of personal computers the program is purchased for ● interfaces to any ASCII-compatible printer.

Type ● file and report manager geared to first-time user; not a full database package.

File Limitations ● 2200 records per file for PC-DOS and MS-DOS versions; 1000 per file on Apple systems; 100 items per page, with 32 pages; 1679 characters per field; record size is 32 screen-fulls of data ● only one file can be open at a time; 2 sort fields maximum.

Description ● pfs:File and pfs:Report work together in handling basic information management for the first-time user; features include menu-driven, custom report generation, online Help, and hard disk support (PC-DOS and MS-DOS versions only) ● interfaces with pfs:Write and any other word processor that can read an ASCII file.

Price ● pfs:File $140 for IBM PC-DOS and TI-PC versions, $125 for Apple II, IIe, $140 for Apple III; pfs:Report $125 for all versions; includes program disks, documentation, and tutorial.

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Support ● phone support; products first delivered in second quarter of 1981.

■ THE SOFTWARE STORE

706 Chippewa Square, Marquette, MI 49855 ● 906-228-7622.

□ INFO 80

System Requirements ● CP/M microcomputers, Apple II and IIe with CP/M option; requires 64K bytes of memory and a TPA of at least 53K bytes; requires 500K bytes of disk storage minimum; supports CP/M mass storage maximums ● supports DEC, IBM 3101, TRS-80, TeleVideo, Visual, Heath/Zenith, Ampex, Apple II, Beehive/Cromemco, Intertec Superbrain, Kaypro, and Qume terminals; does not support ANSI standard ● outputs straight ASCII to printer, only requires selection of top-of-form command.

Type ● hierarchical general-purpose database for the CP/M environment.

File Limitations ● 50 fields per record, 255 characters per field, fixed-length record is 1K bytes, variable-length record is up to 12,750 characters ● 7 field types include character, several numeric, date, and dollar fields; 1 file with one key file can be open simultaneously; 50 key files for indexing with a maximum total of 1024 characters.

Description ● INFO 80 is a general-purpose, hierarchical database that can also be used to set up menus, which can call other programs like WordStar or a spreadsheet; it is developed to meet the needs of a CP/M site that needs a custom database and general applications software integrated; it features sequential and random file options, menu-driven and customizable menus, hard disk support, and limited online Help ● outputs in straight ASCII or in Microsoft File Structure format.

Price ● $395 includes 4 disks and manual.

Support ● upon filling out registration card, user becomes eligible for free phone support; the product was first delivered in 1977; currently, over 1,000 have been distributed.

■ SSR CORPORATION

1600 Lyell Avenue, Rochester, NY 14606 ● 716-254-3200.

□ OMNIFILE

System Requirements ● IBM PC running PC-DOS 1.1 or 2.0 with 128K bytes (1.1) or 192K bytes (2.0) with 2 disk drives ● supports all terminals and printers available with microprocessor hardware ● supports hard disk.

Type ● data management package.

File Limitations ● number of records supported is limited only by disk capacity; supports up to 64 fields per record; and up to 1828 characters per field ● supports up to 2 indexes and up to 5 fields for indexing with up to 63 characters; only 1 file can be open at a time; up to 5 fields available for sorting.

Description ● menu-driven data management package with multipage data entry forms ● features include user menu generation facilities; password protection down to field level; updates to multiple key fields; duplicate record checking; use of IBM cursor and function keys; built-in query language; provides multikey sorting capabilities ● source code is not available ● includes interfaces for standard ASCII files, WordStar word processor, Lotus spreadsheet, and VisiCalc DIF files.

Price ● $425 one-time fee for license purchase ● program and system tape are copy protected ● demo disk is available.

Support ● telephone hot-line support is provided ● sample programs and written tutorial are provided ● first introduced November 1983.

■ STONEWARE, INC

50 Belvedere Street, San Raphael, CA 94901 ● 415-454-6500.

□ Advanced DB Master (ADBM), Version 2.0

System Requirements ● all UCSD p-System microcomputers including Apple II, IBM PC, Sage IV, Eagle Spirit XL, and others; requires a minimum and recommended memory of 256K bytes of RAM, maximum memory is 640K bytes; system requires one disk drive minimum and can support up to 16M bytes of online mass storage ● comes configured for native terminal ● outputs ASCII files to printer; support for Epson MX-80, FX-80, Okidata Microline 92, and NEC 8023A printers.

Type ● general-purpose file and database manager suitable for both sophisticated users and novices.

File Limitations ● up to 255 screen forms, 1 million records on multiple volumes, 250 fields per record, 250 characters per field; 3000-byte record size ● 7 field types; 255 characters per string; one file can be opened at any one time; indexing can be performed on up to 10 fields as long as the total length does not exceed 50 bytes; up to 3 indexes in ascending or descending order can be used simultaneously; sorting can be on 20 criteria whose sum length is 50 or fewer bytes.

Description ● general-purpose database management system for the UCSD p-System environment; includes such features as keyboard macros, 3 types of password protection, sorting, merging, indexing, and customizable screens, browse mode, 10-lesson tutorial for quick start-up ● data exchange module can read and write data from ADBM to PC-DOS, Lotus, VisiCalc, Multiplan, and dBase II files; interface to word processing is through ASCII files; source code is not available.

Price ● $595 includes 250-page manual.

Support ● phone support; first delivered October 1983; number installed not available from vendor.

■ TARBELL ELECTRONICS

950 Doulen Place, Suite B, Carson, CA ● 213-538-4251.

□ Tarbell DB 3

System Requirements ● IBM PC, PC/XT, and compatibles under PC-DOS 1.1/2.0/2.1 and MS-DOS 1.25/2.0; CP/M 2.2, CP/M-86, MP/M, and MP/M-86 microcomputers with at least 128K bytes of RAM; TPA of 48K bytes are satisfactory on 8-bit CP/M micros; requires 1 disk drive; will support to maximum system mass storage ● uses terminal as a file output ● supports standard printers in ASCII without special formatting commands.

Type ● relational application generating database with binary tree indexes; full database with its own programming language.

File Limitations ● 65,535 records per file; up to 100 total fields for all open files; 4K characters per field; 4K characters per record ● 4 field types including numeric, alpha, Julian date, and multiline; 4K strings; 20 variables in memory; 19 files can be open at once as long as the total number of fields is less than or equal to 100; up to 100 key fields for indexing, speed of the index run is the actual limiting factor; 100 key fields must be within 4K characters for indexing; 18 simultaneous indexes are possible; 100 sort fields.

Description ● DB 3 is a full-featured, relational data management system written in CB-80; binary tree indexes are used in association with the relative files; its programming language is an implementation of almost the entire command set of CB-80 with enhancements in the data store and retrieval functions; includes full IF/ELSE, GOTO, and multilevel run options ● DB 3 interfaces with spreadsheet packages using ASCII files; source code is not available.

Price ● $249 includes 100-page loose-leaf manual.

Support ● phone support; first update is free, $25 thereafter; updates are valid across versions for different microcomputers as well; first delivered in October 1982; 700 units installed.

■ TCS SOFTWARE, INC

3209 Fondren Road, Houston, TX 77063 ● 713-977-7505.

□ Simple, Version 3

System Requirements ● IBM PC, PC/XT, and compatibles running PC-DOS 1.1/2.0/2.2 and MS-DOS 1.25/2.0; CP/M 2.2 microcomputers; 128K bytes of RAM are required and recommended on 16-bit machines; 64K bytes of RAM required on CP/M microcomputers; 2 drives minimum; supports maximum mass storage of operating system ● terminal configuration program available in CP/M version ● interfaces in ASCII to system printer with no special formatting commands.

Microcomputer Data Management Software

Type • general-purpose, relational database which has an intimate interface to the TCS Software account software files; primarily a reporting and retrieval database management system.

File Limitations • 150 fields per record, 250 characters per field, 1000 characters per record • 7 field types include alpha, numeric, double and single float, date, and 2 types of dollar fields; only one database file may be open at a time, up to 8 key segments for indexing under MS-DOS, 3 for CP/M; 125-character-long segments; 64 characters allowed for index string length.

Description • Simple 3 interfaces to files generated by over a dozen TCS accounting software packages; its primary use is as a query and reporting module to the TCS system; it is menu driven, and has flexible reporting and query capability, hard disk support, a tutorial, and an English-like query language • also interfaces with TCS Q*WORD word processor and TCS utilities as well; source code is not available.

Price • $300 to $500 depending on dealer pricing and bundling; includes installation, training, and support.

Support • through software dealer, recently available SOFT*SURANCE support at additional cost; as of June 1, purchase or package will include 30 days of unlimited toll-free customer support.

■ TOMINY, INC

4221 Malsbary Road, Building One, Cincinnati, OH 45242 • 513-984-6605.

☐ Data Base-Plus

System Requirements • IBM PC, PC/XT, and compatibles running under PC-DOS 1.1/2.0 and MS-DOS 1.25/2.0; DEC Rainbow under MS-DOS; Altos 586 and 8600 under XENIX; HP 150 and Sharp Computer PC-5000 under MS-DOS; UNIX System III on an Onyx; IBM System/34, 36, and 38; IBM Series/1, IBM 43XX, 30XX, and 370/XX mainframes.

Type • fully relational application generator with total cross-compatibility between the micro, mini, and mainframe worlds; includes networking capability.

File Limitations • 15 data sets open; up to 14 logical files per dataset; up to a trillion records per file, up to a trillion fields per record; 240 characters per field • 2 field types, character and numeric; 240 characters per string; 64K-byte data space; all files can be open at once; 11 maximum fields for indexing totaling less than or equal to 120 characters; 11 simultaneous indexes • under PC-DOS and MS-DOS, no terminal installation is necessary, XENIX and UNIX System III both provide a terminal installation program • Data Base-Plus supports any standard ASCII printer without using special print font control codes.

Description • Tominy is a fully relational transportable data management system with 2 programming languages: Tominy COBOL and Data Base-Plus; Tominy COBOL is an ANSI 74 subset which generates Data Base-Plus code; vendor claims software is identical from one machine to the next; the system provides every performance feature categorized except for online Help and interfacing with other DBMS packages • source code is not available; Data Base-Plus stores all its data files within a large system datafile—this allows it to open all files at once, a necessary feature for true relational database functions.

Price • $5,850 for the IBM PC single-user version, $1,500 for Data Base-Plus programming language, $1,500 for Tominy COBOL; networked system available under LAN:OMNINET; for 1 to 4 users $12,000 is base price, for 5 to 8 users add $3,000 to the base price, for 9 to 12 users add an additional $3,000; purchase requires 4-day class at a fee of $2,000 plus travel.

Support • maintenance schedule for 1 year; 15% of purchase price renews maintenance schedule.

■ UNIFY

9570 SW Barber Boulevard, Portland, OR • 503-245-6585.

☐ Unify, Version 3.1

System Requirements • most UNIX supermicros including the NCR Tower, Fortune, Plexus, Charles River Data; supports all terminals supported by particular implementation of UNIX; supports printers without special font and format control codes.

Type • relational application generator that is frequently OEMed; provides very sophisticated query interface.

File Limitations • 256 files in a database; 2 billion records in a file; 256 fields per record; 256 characters per field • 7 field types include numeric, alpha, amount "$," float, string, date, and any combinations; 256 files can be open at the same time (database files are actually within one system file); 256 key fields for indexing; 256 fields for sorting; typically one primary key and 4-way hashed thereafter.

Description • Unify is an advanced relational data management system; offers features of menu-driven operation, reporting facilities, query capabilities, a query language based on IBM's Sequel called SQL, and powerful indexing and sorting functions; Unify provides 90 subroutines to RM-COBOL and the "C" language for applications development; Unify is frequently available OEMed—Onyx's OnBase for example; an option to treat all inclusive contiguous disk data files as RAW UNIX files results in extremely high-speed performance compared to other UNIX-based systems • Unify interfaces with the Quadratron word processor and Supercomp spreadsheet; supports the proposed ISIS data exchange standard.

Price • $1,495 for the IBM PC, $14,500 for other versions; includes tutorial, manual, and 3 months of free software phone support.

Support • phone support costs $1,200 per year after the first 3 free months.

■ VISICORP

2895 Zanker Road, San Jose, CA 95134 • 408-946-9000.

☐ Visidex, Version 1.1

System Requirements • Apple II and IIe under DOS 3.3 modified by VisiCorp; 32K bytes of RAM required, 48K bytes of RAM recommended, software does not recognize RAM over 48K bytes; one drive minimum, 2 drives maximum • preconfigured for native Apple II and IIe terminal mode • supports printer in ASCII mode without special format or font characters.

Type • indexed, random-access filer; provides functions similar to a card file with the enhancement of automated searching for strings.

File Limitations • up to 120,000 total stored characters, up to 1938 screens with free formatting—an Apple II screen is a record; 40 columns per string • one alphanumeric field type; one file open at a time; 128 characters for indexing located at bottom of screen 2 lines at a time.

Description • Visidex is an electronic card file that functions much like a regular card file would; enhancements include the ability to index the file by what was most recently typed into a 128-character indexing field; automatic dating with an electronic clock card and printing are available; templates for data entry are supported; Apple IIe 80-column mode is not supported • Visidex can output to an ASCII file and thereby interface with many Apple II word processors; written in assembly language; source code is not available.

Price • $250 includes documentation, registration card, one data disk, and a quick-reference guide.

Support • phone support; first delivered March 1981.

☐ Visifile, Version 3.0

System Requirements • IBM PC, PC/XT, and compatibles under PC-DOS 1.1/2.0/2.1 or MS-DOS 1.25/2.0, TI-PC under MS-DOS; requires at least 128K bytes of memory, supports a maximum of 512K bytes; 2 160K-byte diskettes minimum disk storage; supports native personal computer terminals, no installation required • does not support any special control codes or format characters on printers that would necessitate installation.

Type • binary tree filer for general-purpose use; interfaces with other Visi-series packages.

File Limitations • 18 files per floppy; 32,700 records per file; 104

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fields per record; 255 characters per field ● 5 field types; up to 30 characters per string; only one file may be open at a time; 1 primary and 9 secondary keys for indexing not exceeding 250 characters in length; up to 18 simultaneous indexes.

Description ● Visifile is a binary tree filer written in uncompiled BASIC; it features menu-driven operation, data entry, reporting, and query capability; custom reports and data entry screens can be generated; produces label and form letter output for mail merging ● interfaces with VisiWord word processor and VisiCalc;

source code is not available.

Price ● $300 includes Quickstart course, pocket reference card, and manual.

Support ● phone support, 8:00 AM to 12:00 PM and 1:00 PM to 3:00 PM Pacific Standard Time; first delivered September 1982.

● **END**