



Prime INFORMATION/pc

Features

Fourth generation, Relational-based data management and applications development environment for the IBM PC/XT, IBM PC/AT and Prime's PERFORMER™ PC option, running MS-DOS/PC-DOS 2.1 and up.

Includes English-like non-procedural query and report language, interactive data definition, defaulted data entry screens based on the dictionary and easy-to-use programming language.

Allows transparent communications to Prime's powerful 50 Series™ superminicomputers for remote record and file access; includes file transfer capability as well as terminal emulation for direct 50 Series logins.

Provides functional equivalent of Prime INFORMATION™ and SIMPLE™ on the 50 Series with data dictionary, command syntax and source program compatibility.

Offers many powerful features not usually found on PC products:

- fast prototyping of entire applications
- automatic, customized and free-form screen generation
- automatically-generated documentation for screens and reports
- automatic maintenance of inverted (alternate key) files
- automatic multiple file update
- all variable length files, records and fields
- fast, hashed-key access to data and dictionaries
- multi-valued fields and associations
- I-type descriptors providing concatenated, conditional, computed, other file-related and programmable fields

- multiple dictionary-stored views of same file
- multiple files sharing the same dictionary
- fully customizable, user or application-specific vocabulary
- command stack editor to easily build paragraphs of commands in the vocabulary file
- embedded prompts within command lines
- command line editor to eliminate retyping
- fully-integrated, multi-level menu subsystem
- built-in and user-extendable online HELP
- full access to DOS commands
- extensive program development tools
- phonetic search capabilities in query language.

Description

Prime INFORMATION/pc is a powerful, Relational-based data management and applications development environment for your IBM PC/XT, IBM PC/AT or Prime's PERFORMER PC option, running MS-DOS/PC-DOS 2.1 or higher.

Working at your own personal computer, you can:

- create, access and update local or remote databases
- issue commands in a natural language style
- query and report on database information
- prototype and develop screen-oriented database applications
- write your own programs to perform complex database and analytical operations.

Communications

Prime INFORMATION/pc lets you access records and files on remote 50 Series superminicomputers. As a result, you can treat a database stored on a 50 Series system as though it were stored on your own PC. From your PC, you can extract, manipulate and update database records, as well as upload and download files.

A terminal emulation facility lets you use your PC as a 50 Series terminal so you can login and use software on a remote 50 Series system.

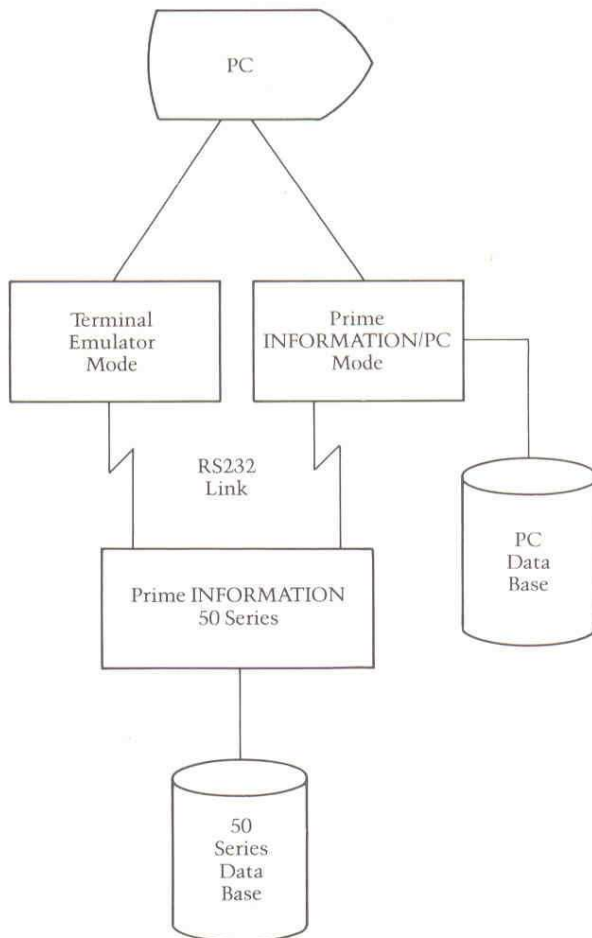


Figure 1: Communications

Compatibility

Prime INFORMATION/pc is essentially equivalent to Prime INFORMATION and SIMPLE on the 50 Series. Data formats, dictionary definitions, command level syntax, the Editor and INFO/BASIC source code are virtually identical to their counterparts in Prime INFORMATION and SIMPLE on the 50 Series. Only Option P (Program Generation) is missing from SIMPLE's Main Menu.

The major differences between Prime INFORMATION/pc and Prime INFORMATION and SIMPLE on the 50 Series are caused by the dissimilar operating environments: DOS and PRIMOS. Thus, PERFORM level operations related to PRIMOS do not exist on Prime INFORMATION/pc, and access to DOS commands is available through Prime INFORMATION/pc's vocabulary file to enhance ease of use. Programmers will note that although the debugger is very different on Prime INFORMATION/pc, it still facilitates fast testing in INFO/BASIC.

In general, overall compatibility is high – in excess of 95 percent.

Components

The true strength of Prime INFORMATION/pc is derived from the tight integration of all its powerful components:

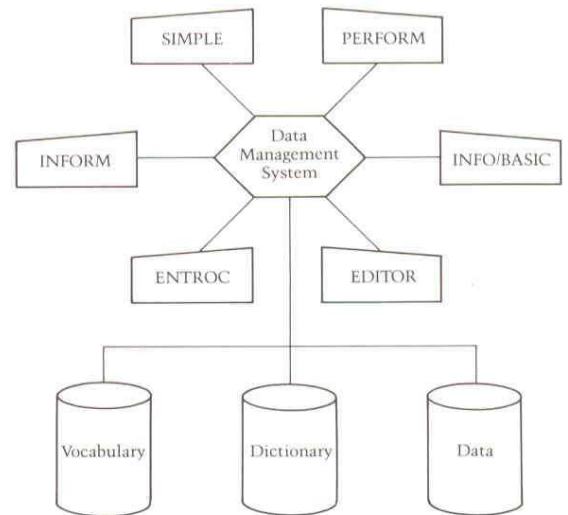


Figure 2: Components of Prime INFORMATION/pc

Prime INFORMATION/pc software includes a powerful, Relational-based data management system that offers variable-length fields and records in separate data and dictionary files for data independence.

PERFORM™ software is a user-friendly command interface with an online HELP facility and natural language vocabulary files that you can add to or change easily with a command stack editing facility.

INFORM™ software is a non-procedural query and report language that lets you extract, sort and format data from a Prime INFORMATION/pc database easily.

SIMPLE™ software is the comprehensive application development and prototyping component that provides automatic or customized screens and reports, interactive data definition and automatically generated documentation.

INFO/BASIC™ software is a structured programming language that combines the simplicity of BASIC and the flexibility of PASCAL and C with powerful set-oriented database manipulation commands and an interactive debugging facility.

EDITOR is a completely integrated and easy-to-use line editor that works on all Prime INFORMATION/pc entities (data records, dictionary records, source programs, vocabulary records).

ENTROC™ software is an easy-to-use data entry/inquiry facility, providing an alternative to SIMPLE screens.

The integration of the components of Prime INFORMATION/pc means, for example, that while you are in EDITOR, you can invoke a PERFORM command, or execute an INFORM query or even edit another program or data record. When you are finished, you can return to the original edit session.

PRIME INFORMATION/pc – DATA MANAGEMENT SYSTEM

The Relational-based Prime INFORMATION/pc data management system provides full support for variable-length records and fields. You can easily define, store, update and retrieve information without having to worry about arbitrary limits on file or record sizes.

Data is kept in tables, which can consist of any number of groups, of variable-length records. A record, in turn, can consist of any number of fields; and a field can contain any number of variable-length values and subvalues. Figure 3 shows the relationships for files, records, fields, values and subvalues.

It also shows that you may establish as many Prime INFORMATION/pc User Accounts as you wish at the System Directory level, and that Dictionary (DICT) files are separate but related files from the Prime INFORMATION/pc data files. You may have as many files within an account as you like.

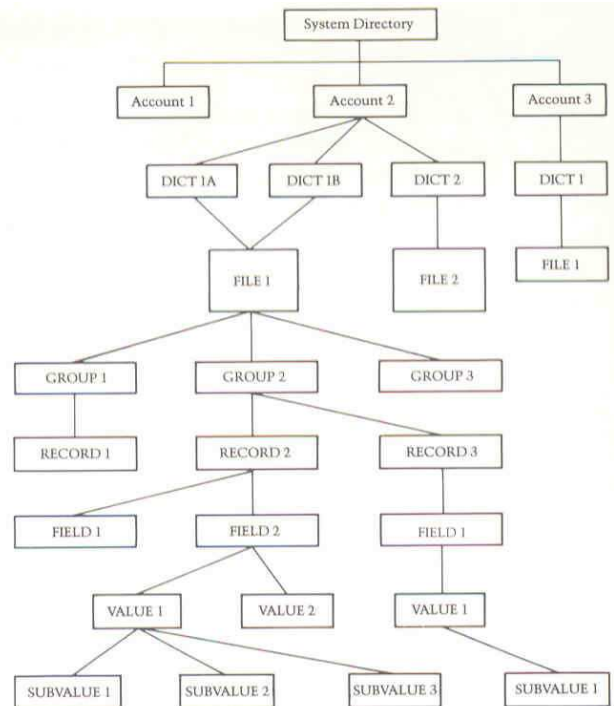


Figure 3: Data Organization

MS-DOS and Hashed Files

Prime INFORMATION/pc supports two kinds of files: DOS directory files and Prime INFORMATION/pc hashed files.

DOS files are the same as the files already familiar to you on your PC. You can directly read and write DOS sequential files to or from your DOS directories.

Prime INFORMATION/pc hashed files are files (both data and dictionary) that you access via a key field. For example, when you store a record, Prime INFORMATION/pc computes its storage address based on the value in the key field. Prime INFORMATION/pc passes the key field value to a hashing algorithm (or program) that returns the record storage address. Whenever you want to access the record, you supply its key field value, which Prime INFORMATION/pc re-hashes to find the record's address.

Prime INFORMATION/pc hashed files are random-access files supported and maintained directly by Prime INFORMATION/pc's data management system. They can reside in a PC directory or on a remote 50 Series system disk.

Data and Dictionary Files

Prime INFORMATION/pc distinguishes between data files and dictionary files. Data files contain actual data records. Dictionary files contain template descriptions, which Prime INFORMATION/pc uses to build data records. Each record in a dictionary file defines the name of a field, the type of field, its display format, its internal storage format, whether the field is single or multi-valued, any field validation or audit checks, and the relationships (if any) of the field to other fields, records and files. It may also

refer to fields in other related files, thus allowing multiple file views to be created in a single dictionary file.

You can associate more than one dictionary file with a data file, and more than one data file can use the same dictionary file. This many-to-many relationship between dictionary and data files provides flexibility in database organization and lets you maintain multiple views of the same data, with the views being independent of the actual data files.

The combination of Prime INFORMATION/pc's dictionary files and variable-length field storage format lets you add new fields and redefine existing fields without having to reload the associated data files. Because of this data independence, you can develop applications without knowing in advance the maximum length of fields, the number of values that a field can have, or the number of records that a file will contain. The Prime INFORMATION/pc data management system dynamically handles any changes that you make.

Field Types

In a Prime INFORMATION/pc dictionary file, you can define a variety of field types:

- **Data Fields** store data and can take almost any form. By default, Prime INFORMATION/pc treats a data field as a string of characters. However, if you require that data be input in a particular form, you can include a conversion specification in the field's dictionary definition to validate the entered data. Data can be alphabetic, numeric, or alphanumeric. Supported formats include date, time and monetary.
Data fields are the only field types that take up space in data records. All other field types exist only as definitions in a dictionary file. Values for these other field types are calculated and returned only when you request them in a query or report.
- **I-Type Fields** are calculated from data fields or other I-type fields or taken from a field in another related file. Examples of I-type fields include arithmetic calculations, concatenations of several field values, conditionally-processed fields, and fields whose values are determined by system-supplied functions or a user program.
I-type fields are similar to formulas on a PC spreadsheet.
- **Phrase Fields** group several data and I-type fields for convenience of reference. For example, a phrase field called ADDRESS might actually consist of the data fields: STREET, CITY, STATE, and ZIP.
- **User-Defined Fields** let an application place records in the dictionary (not the datafile). Such records are meaningful only to the application. Prime INFORMATION/pc takes no direct action on such fields. Interpretation and use is left up to the application.

PERFORM – Command Level Interface

PERFORM, the Prime INFORMATION/pc command environment, provides a vocabulary-driven interface that lets you enter commands in your own words.

Any MS-DOS/PC-DOS directory or subdirectory can be a Prime INFORMATION/pc account. For each such account, you have your own vocabulary file, which you can customize or even translate into a non-English language. A vocabulary file contains keywords, phrases and "throwaway" words. Throwaway words are words that are meaningful to you, but are irrelevant to the system. For example, to display all employees with the last name of Jones, you might enter the following PERFORM sentence:

```
LIST THE RECORDS IN THE PERSONNEL  
FILE WITH A LAST.NAME OF JONES
```

RECORDS, IN, THE, FILE and A are examples of throwaway words. The system ignores them when it processes the command. The PERFORM sentence shown above could have been entered as:

```
LIST PERSONNEL WITH LAST.NAME OF  
JONES
```

Prime INFORMATION/pc provides a powerful command stack editor to aid you in adding phrases, sentences, and paragraphs. For example, using this editor, you can store the sentence shown above in the vocabulary file as a record named PERSONNEL.REPORT1. Once it is stored, you can execute it by entering "PERSONNEL.REPORT1" at the command prompt. The command stack editor also allows inline modification and re-execution of previously issued commands to save retyping. You can even re-execute a whole series of commands as a paragraph.

A command line editing facility lets you use the PC editing keys to modify the line you are currently entering prior to its execution.

An online HELP function is available for all commands. You can extend the HELP function so it covers not only the commands that come with Prime INFORMATION/pc, but any commands you add as well.

Inform – Query and Reporting

INFORM, Prime INFORMATION/pc's non-procedural query and report language, gives you immediate access to data stored on your PC or on a remote 50 Series system. INFORM makes it easy for you to extract (select) data, sort it and print it in a report. You can start with a simple query and then build on it to produce more complex queries to extract varying levels of data.

You can save any query or report request for later execution or modification. Since INFORM provides relational capabilities, you can construct a single request that accesses data from two or more related files.

A sample INFORM query is shown below:

```
SORT THE PERSONNEL.DATA FILE BY AGE
BY LAST.NAME BY FIRST.NAME WITH
LAST.NAME SPOKEN "KELLY" AND WITH
EMPLOY.DATE AFTER 1-1-86 PRINT NAME
ADDRESS BREAK.ON "P" AGE SALARY
DEPARTMENT LPTR
```

This example produces a printed report of personnel hired after January 1, 1986 whose last name sounds like "Kelly." The report will be in order by age and name, listing address, salary and department. A new page begins with each new age. "LPTR" directs the output to the printer instead of the terminal. Note the use of the throwaway words THE, FILE and PRINT to improve readability.

SIMPLE Utility Menu				Date: Jan. 1	
LISTINGS		MAINTENANCE		MISCELLANEOUS	
File		Display	Print	Q - Clear file	Q - Quit this menu
Cross references	A	1	1	P - Delete file	Y - Command subst.
Dictionary	B	2	2	R - Reserved	Z - Beginner's aid
Documentation	-	3	3	S - Data file maint.	
Outdated screens	C	4	4	T - Reserved	
Screens	D	5	5	U - Reserved	
Reserved	E	6	6	V - Reserved	
Account:				W - Delete screens	
Cross references	G	8	8	X - Delete aref	
Reserved	H	9	9		
Documentation	-	10	10	OTHER ACTIONS	
Outdated screens	J	11	11	20 - Create cross reference	
Screens	K	12	12	21 - Reserved	
Files	L	13	13	22 - Reserved	
Vocabulary	L	14	14	23 - Set a file pointer	

Which one? ... (Enter "Foption" for help.)

Figure 5: The SIMPLE Utility Menu

If you are an experienced user, SIMPLE gives you a wealth of advanced features to help with more complex applications. These advanced features help you to produce customized screen layouts and report formats, specify multiple file accesses, cross-index files and work with multiple screens. SIMPLE also allows you to execute INFO/BASIC programs from data entry screens.

SIMPLE provides the following options for screen input checking: data type validation, size and pattern matching, upper and lower limit checking, field value and key verification, mandatory entry, date, time and monetary field format checking.

A screen can update several files at once. A screen or report can include data from several files. You decide which files and fields to access and update and under what conditions processing should occur. Multiple screens can be linked together to form a job.

SIMPLE – Applications Development Tool

Prime INFORMATION/pc gives you the tools to develop and use integrated database applications on your PC or in conjunction with Prime INFORMATION on a 50 Series system. Using SIMPLE, the Prime INFORMATION/pc applications development package, you can quickly and easily prototype, develop and use such applications.

SIMPLE allows even an inexperienced user to define and manage databases interactively, produce reports and screen designs and enter, retrieve and update data.

SIMPLE's menu-driven hierarchical approach to application development guides you through every step of the development process. The entire process takes the form of an interactive question and answer session, with extensive use of defaults to speed the development process. Full on-line help is available whenever you need it.

Two menus are provided: a Main Menu for the application development process, and a Utility Menu for maintenance and documentation of the applications.

SIMPLE		SIMPLE - Main Menu		Date: Jan. 1	
Copyright © 1986 Prime Computer, Inc. Natick, MA 01760				Rel: 1.0	
A	- New file setup				
B	- Dictionary definition				
C	- Data entry/update				
D	- Display report				

E	- Print report				
F	- Print custom report				
G	- Customize screen				
H	- Customize report				
I	- Use another file				
J	- Job definition				

LO	- Log off				
Q	- Quit				
U	- Utility menu				
Which one? ...					

Figure 4: The SIMPLE Main Menu

Inverted (Alternate Key) Files

Using SIMPLE, you can create an inverted file for faster access to any Prime INFORMATION/pc file when the primary key is unknown. For example, a customer file record that has been filed by customer number or address when the customer number is unknown.

Inverted files are automatically maintained by SIMPLE, providing only SIMPLE is used to update and add records to the data file.

Automated Documentation

SIMPLE can print up-to-date, comprehensive documentation for any data entry screen or process. The documentation includes:

- an image of the screen and its attributes
- all screen fields in the process/prompting sequence
- the file/field relationships for each screen field
- the details of each screen field, including defaults and attributes
- user-specified help instructions
- a complete listing of the associated dictionary.

SIMPLE also documents the detailed specifications of custom report templates.

INFO/BASIC – Advanced Program Development

For those applications requiring specialized programming, Prime INFORMATION/pc offers INFO/BASIC, a high-level, structured programming language.

Because it uses BASIC language syntax and built-in functions to access and manipulate data, INFO/BASIC is easy to learn and use. Novice programmers need only minimal training, while experienced programmers have the resources to solve complex problems quickly and accurately. INFO/BASIC's interactive debugging tool aids all programmers in program development and testing.

One of INFO/BASIC's most powerful features is the ability to execute PERFORM and INFORM commands from within an INFO/BASIC program. This means, for example, that you can execute a query or report from an INFO/BASIC program and then return to the program after displaying the query results or printing the report.

Other INFO/BASIC features include:

- functions for creating and modifying variable-length dynamic arrays of fields, values and subvalues.
- read, write and print statements that operate on variable-length data
- substring extraction based on specified value delimiters
- intrinsic mathematical and logical functions.

Editor

The Prime INFORMATION/pc editor is an easy to use tool for system maintenance and development. You can use it to build and modify data, programs, dictionary entries and vocabulary file entries. It features its own command stack editor, an "OOPS" error facility, an XEQ function to execute PERFORM and INFORM commands and source formatting to produce readable structured INFO/BASIC code.

ENTROC – Structured Update Facility

ENTROC is a structured, full-screen file update facility with database editing and verification facilities. ENTROC can process any system file, plus edit and verify input data according to criteria that you define.

Ordering Information

Prime INFORMATION/pc can be ordered through Prime's U.S. telemarketing number. Just pick up the phone and call toll free 1-800-343-2533. And order product # 8508-PC.

Configuration Guidelines

The minimum configuration guideline for Prime INFORMATION/pc is the IBM PC/XT, IBM PC/AT or PERFORMER PC Option, with 512KB of memory. This implies a minimum disk requirement of a 10MB hard disk and a single floppy disk. The floppy is used to load the software but can be used for data storage as well.

The recommended configuration is 640KB of memory and an 8087 co-processor chip for better performance.

The only software required for Prime INFORMATION/pc is MS-DOS or PC-DOS, revision 2.1 or higher.

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