SOFTWARE DATA SHEET

2200

ISS

(INTEGRATED SUPPORT SYSTEM)

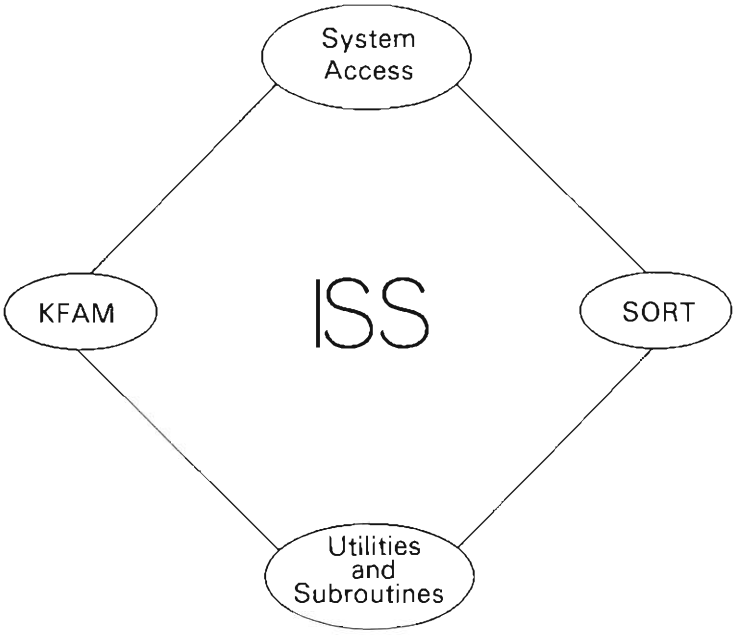
The Integrated Support System (ISS), developed for the Wang 2200 Series product line, is a highly versatile software system which provides a wide range of programming and utility support through its file access software, utility functions, and pre-defined subroutines. The utility programs are user-controlled routines which allow program files to be copied, compressed, decompressed, listed, sorted, cross-referenced, and compared to other files. Special purpose utility functions allow creating, editing, or printing a reference file, as well as displaying or printing the contents of a data file. Screen/Disk subroutines perform standard programming tasks related to either user/screen or program/disk interaction and greatly reduce an application programmer's need to write repetitious, detailed routines.

The Key File Access Method (KFAM), an indexed sequential access method, offers rapid access to data by means of subroutines capable of handling both random and sequential record access. The versatile SORT subsystem, a major function of the ISS utility system, supports a variety of both record and file formats for sorting records.

ISS begins with system start-up procedures, displays current system information allowing for its modification, and maintains a hierarchy of menus which furnish access routes to both ISS support software and user-written application programs. The start-up procedure makes standard system data available to all software in the system.

Wang Laboratories offers two major ISS releases, ISS-3 and ISS-5. These releases support the 2200 Series, including the 2200T, VP, LVP, MVP, SVP, PCS-II, and PCS-III. (See the ISS Releases table.)

- Start-up Procedure
- Utilities
- Screen Subroutines
- Disk Subroutines
- Key File Access Method
- SORT Subsystem



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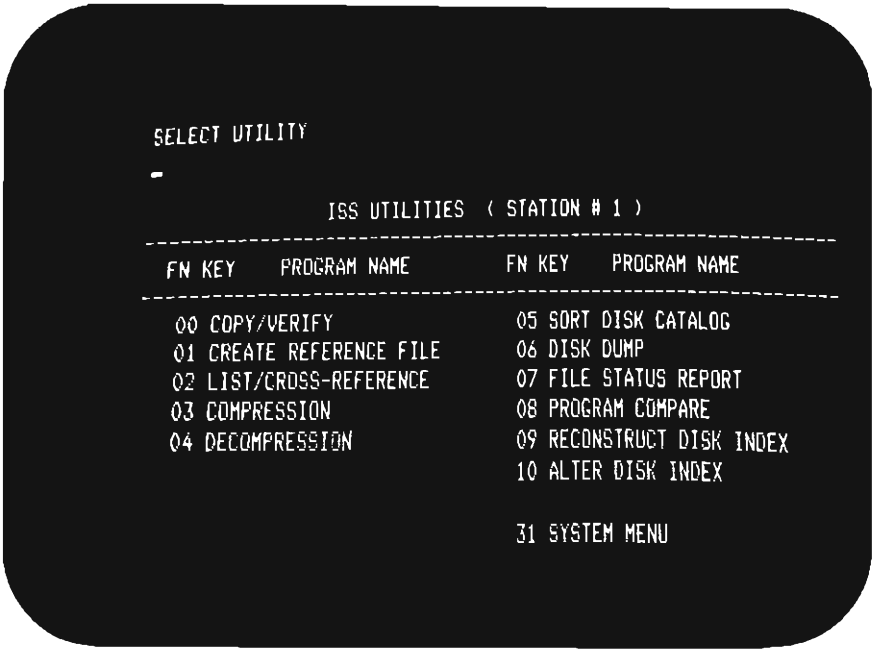
Wang Laboratories, Inc.
One Industrial Avenue, Lowell, MA 01851, Tel. (617) 459-5000, TWX 710-343-6769, Telex 94-7421



PROGRAM SUPPORT UTILITIES

The following utility programs assist the application programmer by providing important standard functions for disk file maintenance.

- Copy/Verify — Copies files from one disk to another with the option to allocate extra space to a file. Copied files may replace existing files or be stored as new files.
- Create Reference File — Creates, edits, or prints the contents of a system reference file in the form of a cataloged data file which can be utilized by several of the ISS utilities.
- List/Cross-Reference — Lists and/or creates a cross reference for a specified program file.
- Compression — Reduces the amount of memory and disk space required by a program and increases execution speed by eliminating spaces, unessential line numbers, and REM (remark) statement lines.
- Decompression — Separates compressed or multistatement program lines into single statement lines.
- Sort Disk Catalog — Prints or displays all entries on the disk index in alphabetical or disk sector sequence.
- Disk Dump — Displays or prints the contents of a specified data file in multiple formats.
- File Status Report — Closes or displays the status of specified multiplexed/multistation data files for one or all stations.
- Program Compare — Compares the text of each pair of specified program files on a line-number-by-line-number basis.
- Reconstruct Disk Index — Recovers a disk catalog whose index has been scratched.
- Alter Disk Index — Optionally displays or changes the contents of a disk's catalog index, and renames files. (Not available in ISS-3.)

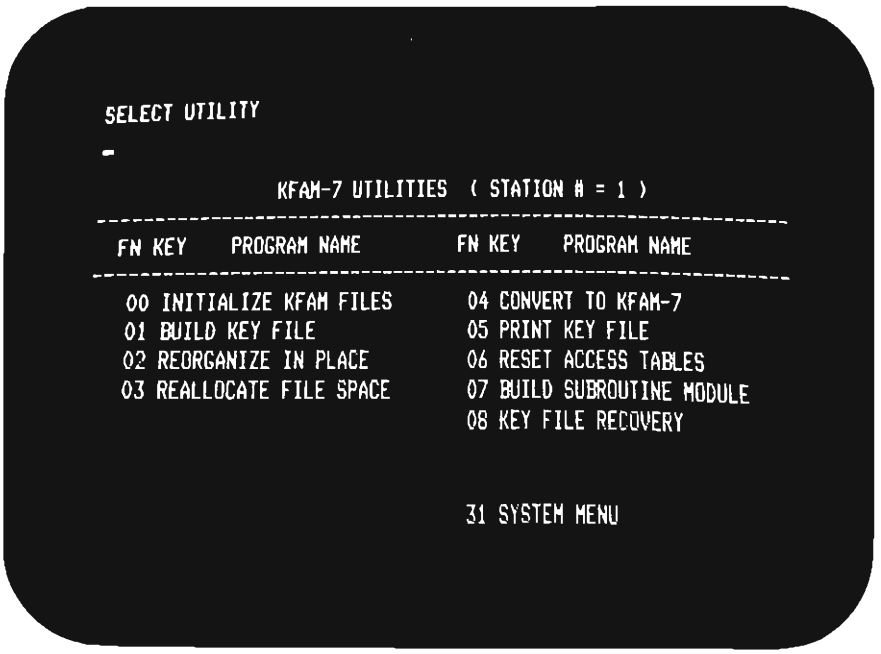
SCREEN/DISK SUBROUTINES

A set of subroutines facilitate application programming by providing a simple interface between user-written application programs and a wide range of tasks requiring system-to-disk and system-to-user interaction. Because they do not overlap, all subroutines may be used in the same program.

- Data Entry — Validates keyboard entries as numeric or alphanumeric input, checking each entry for its value and length.
- Date Routines — Allow the entry and use of dates in the Julian and Gregorian forms.
- Select/Validate Disk Addresses — Validates a specified disk address and selects (assigns) that disk address to a specified disk file number. (Not available in ISS-3.)
- Search Index — Searches a disk catalog index for a file name and indicates the status and type of file.
- Allocate Data File Space — Opens and allocates file size for a new data file.
- Free Unused Sectors — Examines a specified file in a disk catalog area and reduces the number of sectors, when possible.
- Limits Next — Returns the names, status, and type of each file on a disk in index sector sequence.
- Open/Close Input/Output — Provide conventions and routines for assigning and processing creation dates, volume numbers, and recycling periods for data files by utilizing specialized header and trailer records.
- Multiplexed/Multistation File Open/End/Close — Control multiple station access to specified data files and provide file password protection.
- Translation Table Subroutines — Assign specific sets of hexadecimal codes to an alphanumeric array for translating EBCDIC to ASCII and ASCII to EBCDIC.

FILE ACCESS METHOD

As shown in the ISS Releases table, there are two versions of KFAM (KFAM-5 and KFAM-7) to accommodate fundamental differences between products in the 2200 Series. These versions allow access to data file records according to ascending, descending, or random key sequence. This indexed sequential access method maintains a key file containing an index for locating user file records. KFAM utilities can initialize and reorganize both user and key files, build a key file from a user file, print the contents of a key file, build modules from chosen subroutines, recover a key file for an existing data file, and provide error-recovery procedures.



KFAM subroutines are the operational heart of the Key File Access Method. These subroutines, when incorporated into a user-written application program, can open and close KFAM files, locate random or sequential user file records, and add or delete keys in the key file. The following are important KFAM features.

- A key file carries a reference of every active record in the user file.
- KFAM's utility software can reorganize each record in the user file into ascending key sequence and then rebuild the key file. Records may be accessed sequentially in ascending and/or descending order.
- Data files meeting KFAM requirements are easily converted to user file and key file formats.
- A key file and the user file it indexes need not be located on the same disk.
- A subroutine which successfully opens or closes the requested user file automatically opens or closes the companion key file.
- File access modes provide a multiple user file access system for KFAM disk files.
- A sector protection option in interactive access modes can be used whenever more than one station has access to a sector.
- KFAM-7 supports varying CPU configurations: multiplexed, single bank, and multiple bank. It also supports multiple key files for a single user file (sector protection must be user-implemented for multiplexed CPUs) and maintains a duplicate key convention.

SORT

The ISS-3 and ISS-5 releases contain a SORT subsystem (SORT-4) which can be executed by a user-written set-up program. When sorting is completed, the subsystem can specify automatic loading and special input and/or output.

A sort key, which can have as many as ten ascending or descending fields in each record, determines output record order. Available types of sorts are: a full-record output sort, a key sort full record output, and a key sort address output (tag sort). Input file formats include general sequential files, ISS Open/Close sequential files, and KFAM files. Additionally, SORT-4 supports files containing variable length records, packed numeric fields, or the 2200 Telecommunications format.

ISS Releases		
Description	**ISS-3**	**ISS-5**
Software		
Start-up	●	●
Program Support Utilities	●	●
Screen/Disk Subroutines	●	●
SORT-4	●	●
KFAM-5	●	
KFAM-7		●
CPU Support		
2200T	●	
PCS-II	●	
PCS-III	●	
2200SVP	●	●
2200VP	●	●
2200LVP		●
2200MVP		●

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One Industrial Avenue, Lowell, MA 01851, Tel. (617) 459-5000, TWX 710-343-6769, Telex 94-7421

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