Chapter 1

INTRODUCTION
AND FACILITIES

Get on the
Fast Track!

SYS-ED/
Computer
Education
Techniques, Inc.
Objectives

You will learn:

• Sorting.
• Merging.
• Copying.
• Utilities and other features.
1 Product Information

Syncsort is a sort/merge/copy utility designed to operate efficiently and provide high performance processing.

Syncsort can be initiated through JCL: Job Control Language or invoked from a program written in COBOL, PL/1 or Assembler language.

Exit routines may be written in COBOL, Fortran or Assembler language to provide a JCL sort additional programming flexibility.

Syncsort has three basic functions:

<table>
<thead>
<tr>
<th>Sorting</th>
<th>Rearranging dataset records to produce a specific sequence.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merging</td>
<td>Combining up to 32 pre-sequenced datasets into one dataset which has the same sequence.</td>
</tr>
<tr>
<td>Copying</td>
<td>Reproducing a dataset without going through the sorting process.</td>
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</tbody>
</table>
Syncsort provides three sorting techniques:

<table>
<thead>
<tr>
<th>Disk Sort</th>
<th>This is the standard sorting technique.</th>
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<tbody>
<tr>
<td>MAXSORT</td>
<td>Is a maximum capacity sorting technique with an enhanced breakpoint/restart capability. MAXSORT can sort collections of data - regardless of size - optimized for use with a limited amount of disk space.</td>
</tr>
<tr>
<td>PARASORT</td>
<td>Is a sorting technique where input is a multi-volume tape dataset and concatenated tape datasets. PARASORT improves performance through the utilization of multiple parallel tape drives.</td>
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</table>

A sort logically consists of four phases:

1. The control statements and JCL information are read and analyzed as part of establishing parameters for the sort.
2. The input data is read into main storage and sorted.
3. If necessary, intermediate results are written to temporary storage devices.
4. The sorting process is performed and the sorted data is written to the specified output device(s).
3 Merging

A merge combines up to 32 pre-sequenced datasets into a single dataset with the uniform sequence.

A merge has two phases which perform these functions:

1. The control statements and JCL information are read and analyzed and the operational parameters for the merge are established.

2. The files are merged and the merged data is written to the specified output device(s).
4 Copying

A copy reproduces a file and completely bypasses the sorting process.

A copy has two phases which perform these functions:

1. The control statements and JCL information are read and analyzed and the operational parameters for the copy are established.

2. The copied file is written to the specified output device(s).
5 Utilities and Other Features

The OUTFIL allows multiple output files to be generated with a single pass of the sort input data.

Each of these files can have unique specifications that determine:

- Which records are to be included.
- How the records are to be formatted.
- Which report capabilities are to be used.

All these files can be written to the same output device, or each can be written to a different device.
6 Selecting Records, Reformatting Records and Summarizing Fields

Record selection, record reformatting, and summing are other important Syncsort Data Utility features.

Record selection with the INCLUDE/OMIT feature permits certain records to be included in or omitted from an input dataset based on comparisons between two data fields or between a data field and a constant.

Record reformatting provided by the INREC/OUTREC facility after input and before output allows the user to:

- Delete or repeat portions of records.
- Insert spaces, characters, and binary zeros.
- Realign fields.
- Convert numeric data to its printable format.
- Convert data to its printable hexadecimal format.

The ability to delete unnecessary fields before sorting using INREC can provide important performance benefits.

The SUM feature allows records with equal sort control fields to be deleted and optionally summarizes numeric fields on those records.