CP-V E00-11

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1.0   PRODUCT DESCRIPTION

1.1   Purpose

The purpose of the E00 release of CP-V is to provide for distribution to the field of a major Development release, including support for Xerox 560 Multiprocessing. Many other areas have been enhanced and approximately 434 SIDR fixes are included with this release.

1.2   Features/Areas of Enhancement

The major features of CP-V E00 and areas of development enhancement are described below.

1.2.1   Xerox 560 Multiprocessing Support

CP-V handles two Xerox 560 central processors as a pool of execution resources which operate within a common pool of main memory. One processor is designated the primary processor, and the other is called secondary processor. The primary processor schedules and handles I/O operations, schedules user tasks for execution, performs monitor service requests, and executes user tasks. (User tasks normally consist of a time slice of user problem program execution.) The secondary processor executes assigned user tasks in the CPU slave mode. A program is returned to the primary processor if it calls a monitor service, traps, or if its time slice expires. Thus the primary treats the secondary processor as a "compute peripheral".

Multiprocessing operation is totally transparent to user jobs; in fact, the user program is unaware of which processor currently is executing its procedure, and typically, both processors contribute time to the execution of a user job. Following a slightly different system initialization procedure, the computer system operator sees no operational differences between multiprocessing and mono-processing systems.

Xerox 560 CP-V multiprocessing systems can continue operation in a degraded mode after the loss of either central processor in the system; depending upon the type of failure, operation may be continuous or may usually be resumed after an automatic system recovery process, or may require manual intervention to switch the master/slave CPU relationship and reboot of the system. Diagnosis and repair of the failed processor can thus be deferred to a maintenance period.

1.2.2   Greater Than 128 User Systems

CP-V will allow systems to be generated which will support more than 128 simultaneous batch, on-line and ghost users. The number of users which may be supported is a function of the physical hardware available, features included in the system, and the peripherals supported. The upper bound on the number of users is 254 (user #0 and #255 are pre-assigned to other functions).

The following list represents a typical system which will support more than 128 users:

CPU	Dual Sigma 9
Core	256K
Number of batch users	16
Number of on-line users	169
Number of ghost users	15
Number of COC buffers	338 (2 per line)
Number of words in COC ring buffers	85 (1/2 per line)
Number of CFU's	120 (~0.6 per user)
Real Time	No
TP	Yes
IRBT	Yes
ENQ/DEQ	Yes
Tape units	8
Disk drives	15

1.2.3   Command Files

CP-V supports the execution of job control commands read from a keyed or consecutive file in batch and time-sharing subject to certain limitations and restrictions. Command files are invoked utilizing the !XEQ command.

1.2.4   Library Editor and Maintenance Utility Routine (LEMUR)

This feature provides on-line and batch users with the ability to create, manipulate and utilize program libraries.

> NOTE: This feature utilizes a new form of library structure and necessitates reloading of existing libraries. Loader extensions have been included to take advantage of the new structure and it will not function with old library structures.

Features provided by LEMUR are:

- Building Library Load Modules - lets the user construct a library load module from specified ROM's using the overlay loader.

- Building ROM Modules - lets the user include ROM's in a library without converting them to library load modules.

- Allow multiple libraries within an account.

- Deleting Modules (ROM or Library Load) from a Library - lets the user delete a specified portion of a library, all references to it in the dictionary, and its synonym.

- Deleting a Library - lets the user delete a library and all of its synonyms.

- Copying Modules from One Library to Another - lets the user copy a library module and its synonyms from one library to another.

- Copying libraries - lets the user copy a library and its synonyms.

1.2.5   File Management Enhancements

- ### Data Encryption/Decryption

  This enhancement provides an additional level of security for data in keyed
  and consecutive files. While it is not intended to provide the level of
  security required for classified material, it does provide sufficient security
  to render sensitive data not readily available. The option is invoked by
  specifying a seed, unique to the user, which is used to encode data written
  to or decode data read from keyed or consecutive files.

- ### Job Files

  This enhancement provides a new file disposition called JOB. The JOB
  file is a temporary file which is saved across job steps and released when
  the job in which it was created terminates. Additionally the JOB file allows
  a processor to be written such that it may be executed concurrently by more
  than one user logged on under the same account without file name conflict.

- ### Dual ALLOCAT Data

  ALLOCAT has been enhanced to improve secondary storage reliability. A
  copy of ALLOCAT data is maintained in the PFA area of secondary storage
  and is utilized when the accuracy of the primary data is in doubt or other-
  wise inaccessible. With this enhancement it is possible to recover from
  situations involving the loss or destruction of ALLOCAT's data and in some
  cases the entire system swapping device. An installation could generate a
  pack-swapping system and a RAD-swapping system, each of which can be
  booted under the files of the other. A PFA-RAD-less system can be removed
  from the computer simply by removing the packs from their spindles. Later,
  the system may be restarted by remounting the packs and booting the system
  under the files.

  There are restrictions as to what system may be booted under the files of the
  other successfully. As a general restriction, both systems must have been
  generated such that the devices containing PFA and PSA have identical DCT
  indexes in both systems. If this rule is not followed, an 89-10 software check
  will result.

- ### Performance Improvement

  File Management has been enhanced to improve performance when creating
  keyed files out of order by modifying the building, searching and buffering
  schemes used to locate a given key position.

It should be emphasized that the process of building a large keyed file out of order is inherently inefficient. The recognition of the X'B' TYC return to signal the requirement to close and reopen the file so that a multi-level structure can be provided is commended to the user's attention. Alternatively, the use of the SORT processor is a much more efficient method in those cases where it is applicable.

● <u>Access Date</u>

It has been found that most installations do not utilize the ability to purge files which have not been recently accessed. Since there is a noticable increase in overhead required to maintain access date changes for files which are not modified, the close file process has been modified to not read the File Information Table, change the access date and write the FIT when no M:WRITE or M:DELREC procedures were executed during an open period.

To change the close process to perform access date updates as in the D00 release, it is necessary to change the instruction at alter line 2464 in CLS as indicated. The patch to accomplish the change is:

CLOSE/CLS+.63D/B CLS+.616(B CLS+.421)/

1.2.6   COC Enhancements

A number of enhancements have been included in E00 in the area of COC.

- **Automatic COC Configuration**

  If the AUTO option is specified on the PASS2 COC command, the COC line tables will be configured automatically. Any time COC initialization is performed, the COC hardware will be interrogated as to line speed, and the parameters normally specified by RATES, TYPE, and 2741 will be set up in the line tables. A summary of the new configuration will be output on the line printer. The timing algorithm defaults are:

Baud rate/type	Default algorithm number
110	5
300	5
600	5
1200	0
2400	0
2741	1

  The defaults may be changed by GENMDing the COCG load module, e.g., to change the default 300 baud algorithm to 0:

  :GENMD,COCG   ALGO300,0(5)

  If the installation has 150 baud lines, auto configuration should not be used, as it cannot distinguish 150 baud lines from 2741 lines.

- **COC Line Turnaround Mode Resetting**

  If NV10 (as opposed to NT21) interface modules are being used in the COC hardware, it may be necessary to reset turnaround mode particularly after running COC diagnostics or powering up a COC. COC initialization will reset turnaround mode if called by power failsafe recovery, a PO or cold disc boot, or CLOCK-3. Since resetting turnaround mode involves causing a disconnect on dial-up lines, and since LOGON can normally reset turnaround mode on only the lines in turnaround mode, it may be desirable to disable the turnaround resetting mechanism in initialization. This can be accomplished as follows:

  :GENMD,COCG NOTAFLG,1(0).

- ● New COC Translation Tables

  Two new translation tables are available. By specifying "APL" on the PASS2 COC command, support may be included for terminals that use a variation of ASCII intended for an APL language environment.

  It is generally used for terminals such as Tektronix CRT's, and Diablo 1550's and Xerox 3010's with an APL typewheel. Also, 2741-type terminals using the CALL/360 code set may be supported by specifying the "CALL360" option on the PASS2 COC command.

- ● RECOVERY SAYS–STAND BY–

  The recovery greeting should now be displayed properly on any terminal capable of receiving the message.

- ● Online System Availability Status

  When the system is booted or if the KEYIN"ON" or CONTROL"OUM" parameters are increased, and sense switch 2 is not set, the following message will be typed on non-2741 hardwired lines with DATASET READY true but no user associated:

  SYSTEM IS UP

- ● Online Terminal Header Spacing

  The TEL PLATEN command now allows the user to specify the number of lines before and after the page heading on terminal output. The format is:

  PLATEN w, l, lb, la

  where

w	is the platen width
l	is the number of lines per page
lb	is the number of lines before the header
la	is the number of lines after the header, before the first user line

- ● COC backspace overstrike editing now allows the insertion and deletion of characters at any point on the input line.

- ● A function (ESC-D) has been added that usually allows a user to retrieve the last line entered. The line is transferred back into COC input buffers, and echoed as if the user had just re-typed the line. The line may then be corrected via editing, and resubmitted to the reading program.

- ● A snapshot (ANLZ dump) of the monitor may be obtained asynchronously by typing ESC-ETB (usually ESC CONTROL-W). Normal processing resumes after writing the core image. This feature must be enabled by placing the user's line number in the root cell DUMPLINE.

- ESC-Q now displays the user's scheduler state.

- The main COC modules have been split into root, UMOV, and ghost modules. The names are:

Version	Root Portion	UMOV Portion
Mini	MINCOCR	MINCOCU
Regular	COCR	COCU
TP	TPCOCR	TPCOCU

The ghost module and LM name is COCG. -

1.2.7   Edit Enhancements

Edit has been extensively enhanced in several areas and utilizes some of the new E00 features in its implementation.

- Line Feed Function - If only a line feed is entered and an SE range has previously been specified, the SE range will be reset to the first record after the SE range and the record typed in the format specified by the last RR, TC, TS or TY command entered. If no such commands have been entered, the record will be typed in the TY command format.

- Up Arrow Function - performs the same function as line feed except the SE range is reset to the first record preceding the SE range.

- A new short form of the copy command is available for copying a file over itself and has the form

                              C[OPY] fid[,n[,i]]

- XEQ Command - causes EDIT to obtain commands from a file instead of from the user's terminal.

- ECHO Command - causes commands accepted from an XEQ file to be printed or not depending on setting.

- CRPT Command - implements the new file management feature, encryption/decryption in EDIT and specifies the "seed" to be used for encryption/decryption of file contents.

- TABX Command - causes tab characters to be replaced with blanks or not depending on setting.

- IP Command - is identical to the IN command except that if the specified sequence number exists the command is immediately aborted.

- RR Command — causes EDIT to type the contents of each record in the range specified and allow the user to modify each record using the COC backspace editing functions.

- String Selection Expression — several commands have a new function for selecting records to be acted upon. The commands affected are FD,FT,FS,SE,SS,ST.

The String Selection Expression (sse) has the following form:

$$[NOT]/string/ \left[\left\{ \begin{array}{c} AND \\ OR \\ EOR \end{array} \right. [,NOT]/string/ \right\} \right] \ldots$$

where NOT, AND, OR, EOR are interpreted as logical operators. String selection expressions have no inherent limit on the number of binding operators. The following is a legal command:

SEI-100;/A/OR/B /OR/C/OR/D/AND/E/AND,NOT/F/;730/ABC/;TC

It would type (in compressed format) and overwrite columns 73 thru 75 with ABC each record that:

1.   contained an A or a B or a C or a D

2.   and contained an E

3.   and did not contain an F.

The expression is scanned from left to right. There is an accumulator that is initially in the true state; as each binding operator (AND, OR, or EOR) is encountered, it is evaluated and its logical function and value are applied to the accumulator. If the accumulator is in the true state at the end of the expression, the rest of the command is carried out; otherwise, it is skipped and the next record in the range is processed.

- Align Specified Columns intrarecord command — (A) causes EDIT to perform either a right or left shift of a part of a record to align one specified column with another.

- Several commands have been given expanded meaning in the record as well as the intrarecord mode.

- There are two new move commands — MKP and MDP, identical to MK and MD respectively, except if any records exist in the destination range no moving or deleting will occur and the following message will be issued.

      —C1: DESTINATION RECS EXIST

- Trying to delete a record or range that doesn't exist causes the following warning message to be printed:

    —NOTHING TO DELETE

- The system error message file is used in reporting most I/O errors.

- I/O error messages are preceded by the filename and account number.

- The user is warned if he tries to edit a load module or other non-EDIT compatible file as follows:

    —filename.account; FILE NOT CREATED BY EDIT (KEYM NOT 3)

- The format used (i.e., TY, TS, or TC) when first printing each record in ST mode is now the format of the last TY, TS, or TC command specified.

- Characters that cannot readily be entered from the user's terminal may be entered in hexadecimal form, e.g., the following command would change the string 'CR' to a carriage return character:

    /CR/S #0D

- The number of CAL1's executed by the SE command has been reduced (typically) by two-thirds.

- All commands may be entered in lower case.

- I/O error recovery has been improved.

1.2.8   PCL Enhancements

PCL has been enhanced in several areas in response to SIDR's and to improve its general utility. The following is a list of those enhancements.

● File extension has been implemented with the new COPY command INTO preposition.

    COPY A INTO B

● LIST command has a range specification to allow listing of a subgroup of files within an account.

● PRINT command has been implemented under PCL and functions the same as the TEL PRINT command.

● MOUNT command has been implemented to allow tapes to be mounted in the mode (IN, OUT, OUTIN) specified by the user.

● SPR command allows users to space records forward or backward on free form unformatted tape.

● WEOF command allows device specification for the device on which the EOF is desired.

● ERROR SAVE/RELEASE controls the disposition of output files when errors occur during copying commands.

● ERROR code – command prints the corresponding error message from the ERRMSG file.

● REW/REM/COPY AT#123456 no longer requires file name to be specified.

● *COMMENT allows comment lines within the PCL command stream.

● PCL will abort if in the batch mode the same error message is repeated 20 times in a row.

● PCL will set step condition codes to the greatest PCL error severity level encountered when run in the batch mode.

● Simple LIST command output is columnar.

● LIST with attributes will list non-date items on one line if spacing permits. It also provides KEYMAX for keyed files, time of modification, and the time and account of the LIST.

● LIST FT permits the same options as those provided for LIST LT.

● REVIEW command will ignore "D" typed by the user before the name of the file being reviewed is finished typing. "E" terminates the review.

● REVIEW command counts the number of deleted files and granules released.

● REVIEW command allows specification of account and password. Deletion of files in accounts other than the reviewers is subject to privilege and access.

● DELETEALL command counts released granules.

● New options for COPY, COPYALL, COPYSTD:

-VOL allows specification of tape sets

-CRPT implements the new file management data encryption/decryption feature

-NB strips trailing blanks if present

● Some general comments about COPY, COPYALL, COPYSTD:

-Most option combinations that make sense have been made to work.

-An online hexadecimal dump of a file produces an EBCDIC equivalent on the same line.

-During an online hexadecimal dump, one break key stroke skips to the next record to be printed, two break keys will result in the message:

-ENTER X TO ABORT.

-The BIN/BCD automatic mode for card punching now allows a mixed input stream (i.e. BCD information followed by BIN information followed by BCD information, etc., when punched on the card punch, will produce correct results).

-The CS (card sequencing) option allows correct sequencing information to be placed on a mixed input stream when punching cards.

-Specification of the options BIN or BCD override the automatic BIN/BCD mode.

-An error on decompression of a compressed input source will cause the bad information to be printed. If ERROR SAVE had previously been specified the decompression process will continue and the error will be ignored.

● By way of example, the following commands now function properly in CP-V E00 PCL:

```
°SPE    FT
 SPE    AT#123456
°COPY  AT#123456/ACI(C) to AT#234567/ACI(FMT(V),BLK(4000),C,TX,CS
 COPYALL .:E00CI(C) TO LP(K)
 COPY  UTS.:E00CI(C,3-99) INTO ERRMSG(LN(4000))
 COPYALL TO LT#1#2#3
```

followed by

```
 REM    LT#1#2#3
```

```
°SPE    FT
 SPE    AT#123456
 COPY  AT#123456/ACI(C) to AT#234567/ACI(FMT(V),BLK(4000),C,TX,CS)
 COPYALL .:E00CI(C) TO LP(K)
 COPY  UTS.:E00CI(C,3-99) INTO ERRMSG(LN(4000))
 COPYALL TO LT#1#2#3
```

followed by

```
 REM    LT#1#2#3
```

will cause the correct volume to be removed.

1.2.9   Miscellaneous Enhancements

1.2.9.1 On-line VOLINIT is available in E00 and is fully described in the CP-V E00 OPS Reference Manual.

1.2.9.2 !SET commands as described in the CP-V E00 BP and TS Reference Manuals are allowed in the batch stream subject to the current on-line restrictions.

1.2.9.3 The installation may specify at SYSGEN time a 32-bit value which is used to clear memory storage obtained for programs run on the system.

1.2.9.4 The on-line user has been given the ability to see tape related messages that are printed on the operators console and the ability to escape (Y^c) out of situation requiring operator intervention. The command to enable or disable this feature is [DONT] ERROR where the default is DONT ERROR.

1.2.9.5 A new system ghost, GOOSE, has been added to start up ghost jobs after a system recovery. The ghosts to be started are contained in an EDIT-compatible file called M:GHOST in :SYS. The file is originally built by PASS2 by using the :GHOST command. Normal system ghosts will continue to be started as with previous versions of CP-V without the use of GOOSE.

1.2.9.6 The hot card reader code is included in source in E00 but is disabled; to enable this feature, the following patch should be inserted into the E00 patch deck:

```
/HOTCARD/NOP (B CLOCK 4+.71)/
```

1.2.9.7 Symbiont Enhancements

     •   Banner Pages

        Online printer output is now delineated by one banner page at the beginning and one at the end instead of two at the beginning. The trailing banner page states how many pages of output have been printed. (Batch job output continues to have two pages at the beginning and an accounting page at the end.) The trailing page count should make output separation easier.

        Banner pages may be inhibited entirely on output with a form name, via the new LDEV (NOBANNER) option.

The user may specify information to be added to the lines of the header banner page, via the new LDEV (LABEL, info) option.

● **Spill/Fill**

A symbiont spill/fill feature is available to the A0 privilege user. A symbiont stream is assigned to be used for fill[spill] by specifying the FILL[SPILL] option on an M:LDEV call.

Fill is like (OUT) with two new parameters allowed:

   (PRIO,nn) to specify the RBBAT priority to be given the file.
   (SYSID,iiii) to specify a job i.d. other than that of the current user to be assigned to the file.

Spill is like (IN) with selection criteria allowed. If any of the parameters FORM, SYSID, WSN, DEV are specified, a file will be acquired which meets those criteria. The parameter (PRIO, low, high) may also be specified for selection by RBBAT file priority; only files with low ≤ priority ≤ high will be considered.

(RBBAT priorities 0–F are input files; 11–20 are output priorities (corresponding to input priorities 0–F).

The FPARAM parameter is recognized on M:OPEN of a DCB to a spill stream. An M:LDEV (FILL) FPT suitable for re-creation of the file will be placed in the FPARAM area.

If a crash occurs, partially-spilled files will be saved and partially-filled files will be deleted.

An M:READ will receive a symbiont file record exactly as it exists in the file, complete with control bytes (see DB Tech. Manual). An M:WRITE must also specify these bytes. They are included in the ARS record size.

● The :RBLOG file will EXECUTE only under LDEV instead of having a password.

● An extension to the TEL CANCEL command,

     !CANCEL jid.acct#

allows C0 privilege users to cancel jobs batched in other accounts.

1.2.9.8   M:SNAP procedure on-line dump format will be printed as four or eight columns of hexadecimal information depending on platen information. PSD and register snaps are optional depending on specifications for the M:SNAP procedure.

1.2.9.9 FSAVE Command Enhancements

- Data cards are now free format except that the account number must begin in column #1.

- The use of "psuedo" account numbers and file names is allowed to start in a given area of file names or account numbers.

- Pairs of +START and +STOP commands are legal.

- Mixing of +START, +SELECT and +SKIP is legal. It will be necessary to use a psuedo file name with the +SELECT or +SKIP command to select a file from a "SKIP" account.

- FSAVE reads all commands via M:SI, thereby allowing commands to come from a file.

1.2.9.10 DELTA Enhancements

- Conditional instruction breakpoints -

    e,,loc,val;Br   stops at e if the contents of loc is in relation
                         r to val.

- Enhanced symbol table capabilities:

    -reserved words (B, S, ANLZ, etc.) may be defined and used if not in the first field (BGE B).

    -Symbol;KD prevents any further use of 'Symbol', including output.

- ;V enters user break control routine (formerly and also CNTRL-SHFT-O).

- Symbols longer than 7 characters (up to 31) are displayed and must be typed with the full character count.

1.2.9.11 Sysgen Enhancements

- The COPYSTD and resulting duplication of files is eliminated:

    -PASS3 adds names of handlers to the LOCCT for M:MON rather than copying the files. The account specified in the LOCCT for HANDLERS (2.) is used if the file exists there; otherwise, the current account is used.

    -DEF will search a list of accounts (specified by ASSIGNing READ accounts to F:INCLUDE) for any INCLUDE item that doesn't exist in the current account.

1.3   Supporting Publications

The reference manuals which describe version E00 of CP-V are listed below:

CP-V	BP Ref. Manual*	90 17 64H
CP-V	OPS Ref. Manual*	90 16 75H-1(11/76)
CP-V	SP Ref. Manual*	90 31 13B-1(11/76)
CP-V	SM Ref. Manual*	90 16 74H-1
CP-V	TS Ref. Manual*	90 09 07H
CP-V	TS Users Guide	90 16 92D-4
CP-V	RP Ref. Manual	90 30 26C-1
CP-V	TP Ref. Manual	90 31 12A-3
CP-V	Data Base Tech. Manual	90 19 95D

*Corrections for these manuals are in the element 707000-91 E00.

2.0   HARDWARE CONFIGURATION

CP-V runs in a minimum configuration of 64K words of memory; however, the minimum requirements are dependent on the options selected (for example, the TP option requires a minimum of 80K memory). Combinations of options may require more than the standard minimum for CP-V.

CP-V supports a larger than 128K memory on both the Sigma 9 and the Xerox 560. CP-V supports up to a 512K memory on the Sigma 9, and up to 256K memory on the Xerox 560.

CP-V Multi-Processing support is provided for a Sigma 9 with up to four (4) CPU's and two (2) CPU's on the Xerox 560. Minimum memory recommendations for multi-processing are 128K for two CPU's, 192K for three CPU's, and 256K for four CPU's.

3.0 · SIDRs CLOSED

The E00 release of CP-V contains 434 difficulty and improvement SIDR fixes. The SIDRs closed are itemized under the principle catalog numbers listed below.

707000 - Submitted Against CP-V General

28483	27027
28398	27001
28331	27000
28289	26879
28288	26878
28271	26795
28263	26782
27938	26778
27863	25873
27376	25729
27366	24725
27111	24603
27030	24106

707001 - File Maintenance

28492	27359
28342	27336
28339	27243
28267	27209
28261	27183
28249	27175
28220	27022
28216	26907
28187	26906
28102	26837
28098	26710
27799	26497
27774	26199
27773	26152
27586	26151
27552	25994
27551	24917
27525	24012
27522	

707002 - File Management

28236	27120
28209	27118
28096	27091
28035	27088
27993	27087
27928	27035
27927	27036
27844	27035
27821	27032
27765	27023
27687	27021
27675	27020
27660	27019
27593	26860
27509	26799
27481	26790
27439	26789
27393	26788
27206	26663
27185	24912
27179	24911
27174	23751
27163	12290

707003 - System Management

28565	27330	26999
28449	27314	26998
27674	27311	26997
27673	27304	26994
27671	27293	26913
27654	27119	26800
27652	27115	26794
27614	27113	26785
27610	27042	26781
27599	27040	26774
27570	27028	26445
27569	27006	26125
27486	27005	23516
27391	27003	21630
27390	27002	20170

707004 - Communications

28515	27427
28319	27397
28140	27358
28033	27296
28030	27295
27923	27294
27856	27290
27826	27255
27815	27195
27754	27161
27609	27155
27589	27147
27573	27037
27547	27033
27436	26783
27431	26757
	24918

707005 - Recovery

28407
28341
28111
28049
27695
27653
27574
27456
27444
27411
27377
27298
27207
27173
26903

707006 - Software Checks

28197
27793
27681
27647
26933
26615

707007 - Operator Communications

27950
27786
27591

707008 - SYSGEN

28070
27696
27583
27529
27445
27416
27395
27256
27191
27157
27140
27139
27043
27039
26798
26775
26771
26770
26613

707009 - Debug Tools

27487
27485
27454
27379
27213
27196
27029
24278

707010 - Loaders

28455	27888	27178
28403	27771	27114
28381	27689	27024
28317	27688	26986
28071	27401	21125
27909	27188	

707011 – Symbionts

28066	26624
28047	25389
28046	25315
28045	25193
27985	24729
27901	24338
27884	22751
27849	22449
27840	22346
27557	21349
27465	11305
27226	08120
26634	

707012 – Accounting and Performance

28368	27208
28178	27162
27967	27018
27881	26080
27756	26023
27607	25973
27523	25962
27478	25479
27430	22690
27407	22404
27291	

707013 – Monitor Services

27755
27536
27418
27403
27351
26843

707014 – Initialization

28156	27419
27809	26801
27600	26368
27422	25643

707015 – Reliability

28069	27343
27637	27214

707016 – Command Processors

28375
28257
28230
27989
27981
27959
27922
27827
27663
27641
27612
27513
27508
27479
27406
27405
27315
27274
27225
27170
27169
27168
27127
26791
26787
26545
26091
26090
26067
25828
25773
25591
25386
24102
24023
23798
23128
23095
23092
22281
21385
11787

707017 - Utility Processors

28420	27516	25929
28264	27489	25739
28244	27463	25692
28243	27437	25587
28242	27410	25541
28240	27373	25540
28173	27317	25530
28117	27263	25082
28105	27245	25031
28079	27101	24897
28051	27050	24723
27971	26846	24512
27920	26679	24340
27890	26503	24272
27845	26494	24173
27823	26484	24166
27813	26402	23913
27796	26399	23844
27791	26385	23437
27760	26308	23435
27701	26288	22695
27664	26287	22462
27611	26149	22418
27602	26144	22417
27579	26130	22413
27575	26099	22410
27564	26060	22398
27549	25967	

4.0   RELEASE CONTENTS

4.1   E00 Release Tapes – 707000-26/46/66

Two single volume FSAVE tape sets contain all the input necessary to generate a CP-V E00 system. These tapes contain the following accounts which will be described separately.

FSAVE tape SN #00E0, account :SYS, contains the following accounts:

:E00BO	Relocatable binary
X	Non-supported utility programs
CPVPROC	Standard processor load modules

FSAVE tape SN #00E1, account :SYS, contains the following accounts:

:E00CI	Compressed source
COBLIB	COBOL library
RPGLIB	RPG library
CDBGLIB	COBOL Debug library
SORTLIB	SORT library

4.1.1   :E00BO

Binary files for all CP-V modules. In addition, all processors and control files needed to perform an E00 SYSGEN are included. The processor names begin with "$$" and the control file names begin with "$". All CP-V assembly SYSTEMS (BPM, RTPROCS, etc.) are included here in compressed format. Also included on the E00 release binary tape is the CP-V on-line Diagnostic Programming System (on-line DPS), consisting of a set of ROMs to load the program "OLTEST". For further information refer to documentation number 706497-11A01.

4.1.2   X

Account X contains a set of utility programs which are not supported, but which are used by Development Programming and tend to be useful to CP-V installations. The source for each program is included so that improvements or modifications can be made by an installation. All of the load modules created have (READ, NONE), (EXEC, ALL). Some files in account X which are particularly useful are these:

JOBMNSTK..........This file should be batched (with the E option) after a new system is generated in order to reload these programs in account X which load with MONSTK.

JOB................This file can be batched (with the E option) to compile and load all of the programs in account X.

HELP...............The HELP program will describe each program in account X and give information about the use of each program. For information on how to use HELP, call it and type: ?

TSS................Time-Sharing Simulator. This program is useful for placing a simulated time-sharing workload on a CP-V E00 system without the need of additional computer hardware

to process communication I/O.

TERM................ TERM allows the user to:

- Set almost any specifiable terminal attribute.

- Set terminal attributes by specifying a terminal name.

- Define new terminal names and their attributes.

For more information, call TERM.X and type: HELP

4.1.3   CPVPROC

Account CPVPROC contains the following standard processors:

FILE NAME	PROCESSOR	VERSION	
$:STDDEF	AP	C01	
$:STDMET	META	H01	H01
:BLIB	FORT	F01	F00
:LIB	FORT	F01	F00
:PO	FORT	F01	F00
:POO	FORT	F01	F00
:P1	FORT	F01	F00
:P11	FORT	F01	F00
AP	AP	C01	
APL	APL	D01	C02
APLTRMSB	APL		
BASIC	BASIC	D01	C0
COBOL	COBOL	F00	E0?
EASY	EASY		
ERRNOTES	RPG*	C00	B01
FLAG	FLAG*		
FORT	Ext. FORTRAN IV	F01	F00
FORTLIB	SYSTEM FORTLIB		
MERGE	MERGE*	F02	F01
METASYM	METASYMBOL	H01	H01
RPG	RPG*	C00	B01
SORT	SORT*	F02	F0 [DELETE] E00
TEXT	TEXT*	B00	A02
SIML	1400 SIMULATOR*		E00

*These processor file names were excluded from the $DEFJOB file and should be added to the :INCLUDE cards if desired on the PO tape.

4.1.4   COBLIB

Account COBLIB contains the files which make up the COBOL library.

4.1.5   RPGLIB

Account RPGLIB contains the files which make up the RPG library.

4.1.6   CDBGLIB

Account CDBGLIB contains the files which make up the COBOL DEBUG library.

4.1.7   SORTLIB

Account SORTLIB contains the files which make up the SORT library.

4.1.8   :E00CI

Compressed files for all CP-V modules. DATADEF is included in :E00CI for assembling module PART in the CONTROL processor. It is not a standard CP-V release element and no development support of DATADEF is implied.

4.2   707000-11 Program Description

This document contains a description of the new features of CP-V E00, a list of SIDR's closed, SYSGEN procedures, release contents, etc.

4.3   707000-91   Reference Manual Updates

This document contains last minute CP-V E00 manual updates and corrections. The manuals subject to these changes are listed in section 1.3.

4.4   707000-76   Quality Assurance and Control Test Tape

The QUAC Test Tape contains the CP-V -   Test Case Library. Section 10.0 of this document describes the test procedures. The QUAC Test Tape is an FSAVE tape with an INSN = 00A0 and ACCOUNT = :SYS. (D00 - 76 still applicable to E00) .

4.5   707000-56   Compressed Listing Tape

The compressed listing tapes contain listings of all supported modules of CP-V; the tapes, which represent the contents of the :E00LO account, also contain the CP-V E00 technical manual data base. There are four single volume tapes in the set, all created under PCL; three contain the listings and the fourth contains the technical manual. The contents of the first three tapes are:

SN/Acct	Content
EOLO.:E00LO	Files AAPL to FIN
EOL1.:E00LO	Files FIXARG to QREMAKE
EOL2.:E00LO	Files RA to 7TAP

The fourth tape is SN EOL3 account :E00LO. This tape contains a group of files used to produce the technical documentation that is also released on the microfiche. These files are made available to the user to produce documentation tailored to his needs if desired.

Included are the EXTRACT load module, its compressed source and the complete CP-V E00 comment data base. See Appendix A for instructions on the use of EXTRACT.

$$EXTRACT -   The documentation program load module

$$EXTRACTCI -   Compressed source for EXTRACT

$$DB -   The complete E00 data base for EXTRACT as taken from the UTILIST LO files

Also included is a series of control files which can be used with EXTRACT to produce reports of special interest. These reports are included on the microfiche but not on the listing tapes.

$CCI -   All CCI modules

$CENTSYS -   Central system modules

$DEBUG -   Debug modules

$DISKFM -   File management modules

$FILEMAINT -   FILL, FSAVE, FRES

$HANDLER -   Handler modules

$INITREC -   Initialization and recovery modules

$LOADER -   Loader modules

$PCL -   PCL modules

$REMOTE -   Remote processing modules

$SYMCOUP -   Symbionts and cooperative modules

$TAPEFM -   Tape file management

4.6   707000-59   Microfiche

This element consists of the listings of all CP-V modules as well as technical documentation produced from the listing commentary by the EXTRACT processor.

VOLINIT   (706226-E00)

The E00 version of VOLINIT is a stand-alone program which initializes disk packs (writes headers and does surface checking). A description is in the CP-V Operations Reference Manual. Note: only the E00 version of VOLINIT may be used to prepare

packs for CP-V. Stand-alone VOLINIT is not supported by CP-V, but is included in the :E00BO account for convenience; the file names are $$$VOLINIT and $$$DISKLOAD ($$$DISKLOAD is a card-reader bootstrap and loader image).

5.0   SYSGEN CONSIDERATIONS

5.1   Introduction

This section describes SYSGEN processor changes as well as procedures to follow when doing an E00 SYSGEN (see Section 7.2 for SYSGEN warnings).

5.2   PASS2 Changes

The E00 SYSGEN processors have been modified to simplify the system generation process and provide some new features. The new features are:

- ;COC command has the following new options:

    AUTO causes the COC ghost to figure out at boot time the various line speeds and identify 2741 type terminals. If AUTO is used, the 2741, 7015, TYPE, RATE, and HD options may be omitted. AUTO should not be used if 150 baud lines which are not 2741 lines are to be used on the target system.

    APL causes the inclusion of APL translation tables.

    CALL360 causes the inclusion of the CALL/360 variation of the 2741 translation tables.

- The PASS2 overlaid load module has dropped the P2FECP elements file for E00, and no longer supports FECP.

- The PASS2 overlaid load module has added the P2GHOST element file for E00.

    :GHOST (NAME,ACCOUNT, PRIORITY)[,(NAME,ACCT,...)] has been added to the list of possible user commands permitted as input to PASS2. This command provides a means of adding automatic restart ghost names to those already recognized by the startup routines (ALLOCAT, ERR:FIL, FILL and RBBAT).

- Unmapped portions of the COC handler are put into the UMOV overlay if :HANDLERS2 command is specified. Also, in this case, PASS2 generated a dummy load module called "ROOTHAND" consisting of one value DEF.

- :IMC command has the SECURITY option which allows installations to specify a hexadecimal value to insert into all pages given to a restricted user; the default is 0.

5.3   PASS3 Changes

- If :HANDLERS2 command is specified during the PASS2 phase, then PASS3 places INITRCVR and SSDATU files at the beginning of the HANDLERS2 file.

- If :HANDLERS2 is omitted from the PASS2 input, PASS3 generates a file named "ROOTHAND" which consists of INITRCVR and SSDATU.

5.4   How to SYSGEN CP-V E00

CP-V E00 may be generated under any currently supported CP-V system. One restriction is that the current running system must have at least 30K of core available for loading the target monitor. If a 64K system does not have enough core available, the D00 starter system must be used as the host for doing the SYSGEN. The D00 starter system will run on any standard CP-V configuration (boot-time initialization adjusts for varying disk pack types). All of the E00 processors required to do a SYSGEN are contained in the :E00BO account and should be executed from there. In that way, it is immaterial what processors exist in :SYS of the host system. Note that the D00 starter system should not be used for anything other than performing the SYSGEN since it is very limited in capability and has a limited number of patches applied for space reasons.

All of the control files needed to perform a SYSGEN are included in the :E00BO account with names beginning with "$". Files whose names begin with '$$' are load modules used during the SYSGEN process. A PCL range copy may be used to obtain listings of the control files - COPYALL.:E00BO/$A,$9 to LP(K).

The control files in :E00BO are:

$P2BASIC	JCL and PASS2 data for a SIGMA 6/9 system with IRBT, Transaction Processing, and Real-Time included.
$P2X560	JCL and PASS2 data for a Xerox 560 system utilizing a 3214 swapper and NS peripherals.
$P2MULTI	JCL and PASS2 data for a dual Sigma 9 Multiprocessing system.
$P2RMP	JCL and PASS2 data for a Xerox 560 system utilizing a RMP swapper (3275) with Transaction Processing and Real Time included.
$P2MINI	JCL and PASS2 data for the E00 Starter System.
$P2NOCOC	JCL and PASS2 for a Batch Only System.
$LOCCTS	JCL and data to create the LOCCT files needed by PASS3.
$GENJOB1 $GENJOB2	JCL and data to perform all PASS3 loads.

$DEFJOB   JCL and data to write two PO tapes.

$SUPERJOB   JCL and data to create the :E00SGEN account.

In addition, the :E00BO account includes the following file:

DEVDMP   The DEVDMP file is a stand-alone program that will make a device copy of any RAD or pack on magnetic tape. It is loaded using the stand-alone loader, LOADDEVDMP, from account X. It is described in the CP-V Operations Reference Manual, 90 16 75. To obtain copies, use the following commands:

```
IPCL
COPY LOADDEVDMP.X TO CP(BIN)
COPY DEVDMP.:E00BO TO CP(BIN)
END
```

Step 1 –   (optional)   Boot starter PO tape, keying in "IPFTC" upon request. The device addresses are as follows:

NAME	ADDRESS	MODEL
TY--	A01	7012
LP	A02	7445
LP	A06	3465 (NS or 7446)
CR	A03	7140
9T	A80	7322 (Wang)
9T	A81	7322 (Wang)
9T	DF1	7333 (Potter)
9T	DF2	7333 (Potter)
9T	AC0	3345 (NS)
9T	AC1	3345 (NS)
DP	AE0	7271
DP	AE1	7271
ME	A10	7611
MC	A0B	FFFF (560 Remote Assist)

Change the address of the swapper, card reader, and printer (if necessary):

C/LL/DC ASSIGN OK (YES/NO)   NO

```
CRA03  =     CRndd
LPA02  =     LPndd
DPAE0  =     DPndd
```

The starter PO tape will boot on a system with any type standard supported disk packs (7242, 7271, 7275, 3275). It is necessary, however, to use reconfiguration cards in order to select the appropriate line printer and tape handlers. The easiest reconfiguration in this instance is to use :TYPE cards for each device type available, defining the complete system without

using the :SAVE card. Example 1 shows this for a 560 system, being booted on a 3275 (RMP) disk pack. (Note that the :TYPE card for the disk packs specifies 7271, even though the device is actually a 3275. This is because the system was SYSGENed for 7271 packs. Special code has been added to enable a 7271 pack swapper system to run on any kind of disk pack. In this system it is normal for the message "HGP TRUNCATED - TOO BIG FOR ALLOCATION DATA" to be typed on the operator's console during system initialization.)

Step 2 -   From the operator's console, initiate FRES as a ghost job (!GJOB FRES) and enter the following commands:

                        +VOL
                        00E0
                        +SELECT
                        :E00BO
                        CPVPROC
                        +END

             This will restore all files necessary to perform the target SYSGEN.

Step 3 -   LOGON under :SYS, LBE and BATCH the $SUPERJOB in :E00BO; this will create the :E00SGEN account. The target SYSGEN will be performed in this account.

Step 4 -   (optional) If password scrambling is not desired in the target system, it will be necessary to copy JIT from the CPVPROC account over JIT in the :E00BO account; this ROM for JIT has the ADEF SEED set to 0 which will disable password scrambling. Note: The SEED specified in E00 is the same as the value for D00; if password scrambling is currently in use, no change is required unless SEED was changed from its D00 value.

Step 5 -   In account :E00SGEN, BATCH $LOCCTS.:E00BO. This job will create all the needed LOCCT's in account :E00SGEN. Note: The LOCCT for SUMMARY has UNSAT = CPVPROC; if that account is not restored, the LOCCT must be modified to point to the account which contains the copy of :LIB which is in CPVPROC; any other :LIB will cause PREF's.

Step 6 -   In account :E00SGEN, copy the PASS2 control file from :E00BO which most closely matches your installation. Use EDIT to modify the file to match the installation. Either batch the job or run it on-line. Verify the results.

             The following error warning messages may be expected in the PASS2 jobs:

                        NO:COC COMMAND - a batch only system being generated.

                        WARNING: BUFFERS < 3*LINES

             The action taken by PASS2 in each of these cases is correct; the messages are for information purposes only.

Step 7   –   In account :E00SGEN, BATCH $GENJOB1.:E00BO. This GENJOB
will terminate by BATCHING a subsequent GENJOB. Verify all the
GENJOB output.

These jobs should run with only the following error messages:

- PASS3 of ISCL gives a severity level 3 message.

- PASS3 of RATLER gives a severity level 4 message.

- PASS3 of MOOSE has 11 PREF's for mono-processor systems only.

- PASS3 of RBBAT has 3 PREF's on non-remote processing systems.

These should not affect the operation of the system.

Two items to watch for are these:

- The end of the monitor root (which is mapped one for one) must
  be less than .8000. Look for;
  SUSPTERM $\leq$ .8000 in the map generated for M:MON.

- If the released structure of the overlays has been altered, make
  sure that each is less than 3K in size (except for UMOV).
  PASS3 of M:MON reports the size of each overlay and this
  size must be 2.9K or less.

Step 8   –   At this point, the :E00SGEN account will contain everything necessary to
generate a CP-V E00 PO tape. If other processors are desired on the PO
tape by installations, they should be added to the $DEFJOB INCLUDE
list and !ASSIGN F:INCLUDE account list prior to DEFing the tape.
(Note: All pre-B00 loaded processors and user-programs must be reloaded
before they will execute under the E00 version of CP-V.)

Step 9   –   If the installation desires the patch deck to be included on the PO tape,
restore the most recent patch file to :E00SGEN and EDIT the file $DEFJOB
to include an ASSIGN command at lines 4.5 and 16.5:

                  !ASSIGN M:PATCH,(FILE,filename)

In account :E00SGEN, BATCH $DEFJOB.:E00BO. This will create two
PO tapes, Serial Number CPE0.

Step 10 -   After booting the new CP-V PO tape, restore the library accounts from
              the release tapes. See Section 4 for the libraries supplied with the system.

              Note: Obtain current E00 patch deck from most recent SST.

5.5   How To Do a SYSGEN On and For a COC-LESS System

EDIT may be run as a ghost job from the OC. All steps are the same as above except as
noted:

Step 1 -   If the D00 Starter tape is used, add a reconfiguration card to partition out
              the COC (i.e., :REMOVE A10).

Steps 2-4 -   Run BATCH and FRES as ghost jobs from the OC. Be sure to type at least
              eight blanks after :E00BO and CPVPROC when using FRES.
              Use GJOB EDIT to insert a full name, account and priority into the various
              job cards which are contained in the JCL files in :E00BO ($GENJOB1,
              $GENJOB2, $LOCCTS, $DEFJOB). Then use GJOB BATCH to submit
              $LOCCTS.

Step 5 -   Select the PASS2 control job $P2NOCOC.:E00BO and modify it to match
              the installation desired. Note that the file contains a modified LOCCT
              for M:MON, the CP-V monitor. This must be run after $LOCCTS has
              finished.

Step 6 -   Same.

Step 7 -   Use GJOB BATCH to submit $GENJOB1.

Step 8 -   Same.

Step 9 -   Use GJOB BATCH to submit $DEFJOB.

Example 1 - Reconfiguration Deck for Starter Tape on a 560

```
:TYPE        TY7012,A01
:TYPE        LP3465,A02
:TYPE        CR7140,A03
:TYPE        9T3345,A80,A81
:TYPE        DP7271,EF0,EF1
:TYPE        ME7611,A05
:END
*
!EOD
```

6.0   INCOMPATIBILITIES

6.1 The LYNX processor performs all of the functions required of the LINK processor and for that reason maintenance support of the LINK processor will be withdrawn beginning with the release of CP-V E00. It is included on the E00 release tapes for conversion reasons. SIDR's submitted against LINK will be closed with "USE LYNX ON E00".

6.2 The LOGON processor has been changed to suppress the echoing of the user's response to

"LOGON PLEASE:"

to improve security.

6.3 With the inclusion of LEMUR into E00, all pre-E00 libraries must be reloaded. Loader changes have been made to take advantage of the new library structure and old structures will not be interpreted correctly. No conversion routine between old and new structure has been provided.

7.0   RESTRICTIONS/KNOWN PROBLEMS

7.1 Caveat for FIT Modifications on M:CLS

For CP-V D00, there is a significant exposure to the possibility of causing file system disruptions during system crashes. The results might be either 75-03 (file lost because of bad FIT) or 75-04 (many files lost for an account because of a link check in a file directory). To inhibit the entire FIT modification procedure for D00, use the following patch:

CLOSE/CLS+.3AB/B CLS+.3B3(BCR,4 CLS+.3B3)/   D00   1 OF 1

For CP-V E00, a significant rewrite of the logic for FIT modification was undertaken. There is still a possibility for 75-04 if an extended recovery occurs; however, the worst that will happen with a less severe crash is the possibility of two names pointing from a file directory to a file. This, of course, is a 75-03 for one of the names. In addition, when a password is added to a file which did not previously have one or when a password is deleted from a file which previously had one, the high order static descriptor bit for this file will be incorrect.

7.2 PREF's And Other SYSGEN Items

There are 11 PREF's associated with the module MOOSE when generating a mono-processing system. There are 3 PREF's in RBBAT if the target system does not include remote processing. The modules ISCL and RATLER load with severity levels 3 and 4 respectively. These are known problems and will not effect the operation of the system.

8.0   MAINTENANCE PROCEDURES

8.1   Patch Deck

In CP-V, corrections to problems are distributed to users via patches. Normally, only severity 1 or 2 problems will be patched. All others are closed as pending the next release.

A copy of the current patch deck which has been tested and used in a production environment is available as the file E00PATCH, in account PATCH, on the Xerox 560 in LADC. This file is updated once a week and a patch area of 750 words is assumed. Each patch contains the date, SIDR number, and the card sequence number. New patches are also added to the beginning of the file CHRONO-E00 (also in account PATCH). This file contains all the patches in chronological order with explanatory notes about each set of patches. The patch files are distributed monthly to field offices on the Field Software Support Tape (FSST).

8.2   Problem Reporting

Difficulties encountered in CP-V E00 should be reported through the SIDR system. Use of the SIDR system is described in the PAL (Program Availability List) Manual.

The system catalog number for CP-V is 707000. Program catalog numbers to be used in submitting SIDR's should reflect the following functional areas:

Prog. Cat. No.	Area Name	Included Functions
707001	File Maintenance	BACKUP/FILL, FSAVE/FRES
707002	File Management	All File Management functions for public and private files
707003	System Management	Scheduler, STEP, Memory Management, Swapper, SEGLOAD, LDLNK, ALLOCAT, GERM, and Real-Time
707004	Communications	COC and Remote Processing
707005	Recovery	RECOVERY, ANALYZE
707006	Software Checks	All software checks
707007	Operator Comm.	KEYIN
707008	SYSGEN	PASS2, PASS3, LOCCT, and DEF
707009	DEBUG Tools	DELTA, XDELTA, PMD, snaps and user dump facilities
707010	LOADERS	LOAD, LINK, LYNX
707011	SYMBIONT	Symbionts and cooperatives
707012	Acctg. and Perf.	SUPER, ACCTSUM, LOGON, RATES, CONTROL, and UTSPM

Prog. Cat. No.	Area Name	Included Functions
707013	Monitor Services	PROC's, CAL's, and CALPROC
707014	Initialization	SYSMAK, GHOST1, and DRSP
707015	Reliability	ELLA, ERRFIL, ERRLOG
707016	Command Proc.	CCI and TEL
707017	Utility Proc.	PCL, EDIT, DEFCOM, SYMCON, ERRMWR
707018	Miscellaneous	Error message file, Mailbox, and JIT
707019	Transaction Proc.	TP Terminal control, TP Queue initialization, management, and recovery

Prog. Cat. No.	Area Name	Included Functions

9.0   MONITOR SIZING

9.1   General Core Requirements

The optional features of CP-V E00 are listed below with their resident monitor core requirements.

IRBT	IRBT Support	3 pages + 1 page* per IRBT device
	2780/3780 & IRBT Support	4-1/2 pages + 1 page* per 7605 device
	7670 & IRBT Support	4-1/2 pages + 1 page* per IRBT device
	2780/3780 & 7670 & IRBT Support	5-3/4 pages + 1 page* per 7605 device
	2780/3780 Support	2-1/2 pages + 1/2 page (2780) or 1 page (3780) per 7605 device
	7670 Support	1-1/2 pages
	2780/3780 & 7670 Support	3-3/4 pages + 1/2 page (2780) or 1 page (3780) per 7605 device
MP.	Multi-Processing Support	1-1/2 pages + 1 page per active slave CPU

*These pages are subtracted from the maximum user size, but not from the swap space when the line is not logged on. Note that on large-core machines maximum user size is not affected by these pages since it is limited by other factors.

TP	TP Modules	2-1/2 pages
	Additional for Message Mode Lines	1-1/2 pages + 1 buffer page* per line
	Additional for Queue	5 pages**
	Also 2-5 pages of the TIC and TPC modules may be temporarily locked in memory during processing.	
RA	Read Ahead	1 page
	For Table Size, see RASIZE description on :IMC option.	
RT	Real-Time Modules	1-1/2 pages
	Additional for RESDF	number of pages specified by SYSGEN
	Additional for DYNRESDF	number of pages specified by SYSGEN***

*These pages are only required when TP is active.

**These pages are subtracted from the maximum user size, but not from the swap space when the line is not logged on. Note that on large-core machines maximum user size is not affected by these pages since it is limited by other factors.

***These pages are subtracted from the maximum user size, but are not actually acquired until they are needed.

9.2   Monitor Table Sizes Based On SYSGEN Parameters

Keyword

:SPROCS   9-1/2 words per shared processor entry
+ 1/2 word per entry if disk pack swapper
+ 1/2 word per entry if (BIG) specified
(Maximum 10-12-1/2 words per entry)

:IMC   1 word per physical work page (PWP,n)*
8-1/4 words per user (n+m+p) (MAXOL,n) + (MAXB,m)
+ 4-1/2 words per ghost job + (MAXG,p)
22 words initially + 3 words per entry (RASIZE,n)
+1/4 word per entry if (BIG) specified

:COC   4 words per buffer (BUFFERS,n)
6-3/4 words per line (LINES,n)
1 word per buffer (RING,n)
4 words per ECB (ECB,n)
96 words per Translate Table
1 byte per COC line (COUPLE)

:MON   2 words per entry (ENQ,n)
34 words per MPOOL (MPOOL,n)
40 words per CPOOL (CPOOL,n)
9 words per IOQ (QUEUE,n)
19 words per CFU (CFU,n)
Patch space (n words) (MPATCH,n)
1/4 word per physical page (CORE,n)
+ 1/4 word per physical page if (BIG) specified
(m-X'62') words (ORG,m)
308 words for Sigma 9 traps (SIG9)
444 words for X560 traps (X560)
45 words for Sigma 7 traps (SIG7) or (SIG6)
1961 words for MINICOC (MINICOC)
2718 words for COC (neither (TP) nor (MINICOC))
3119 words for TPOC (TP)*

:INTBL   1-1/4 words for every label (label,n,m)

:FRGD   12 words per entry (NINT,n)
See RT size for RESDF and DYNRESDF

:SCPU   7 words per CPU**

---

*TP systems only.
**MP systems only.

Keyword

:CHAN   2 words per CHANNEL (CIT entry)

:DEVICE   15 words per DEVICE (DCT entry)
                +3-1/2 words per tape device (AVR tables)
                +3-1/2 words per (PRIV) disk pack (AVR tables)
                +8 words per public RAD or pack (HGP tables)
                +n words per private pack
                        n = 20 for 7274
                             20 for 7271
                             35 for 7275

                        assuming default
                        logical cylinder sizes

                +5 words per RBT device
                +7 words per RAD or disk pack model
                +7 - 74 word CLIST per device

                        PUNCH = 74 words
                        DP   = 12 words
                        other   = 6-8 words
                        non-standard device -variable
                +4 words per non-standard device type

:RES   1/2 word per specified RES
                +6-1/4 words per RES option
                +1/4 word per (RES option) * (number of partitions)

:PART   6-3/4 words per partition

:LDEV   3/4 word per entry

:OPL   1-1/4 words per non-standard entry

:SDEVICE   3 words per symbiont device
                +(4-1/2 words)* (MXSTRM value)

---

*TP systems only.
**MP systems only.

10.0   CP-V E00 TEST PROCEDURES

10.1   The Test Tape

The QUAC TEST tape (707000-76E00) is an FSAVE tape, INSN 00A0, containing the E00 test case library in account C7308398 and $$$$FILL. The test case library consists of job sequences and the files necessary to run them. Test cases are organized in groups which exercise a particular area of the system. These groups are described below.

88TPDMS	TP-DMS Sample Application
88TPSIM	TP-Simulator Tests
88TPTIC	TP-TIC/QUEUE Tests
88TPTPC	TP-TPC/QUEUE Tests
88TPPFM	TP-Performance Tests
99GROUP1	General Exerciser
99GROUPEB	Job Step Control
99GROUPEE	Multibatch Scheduler (partitions)
99GROUPEE1	Multibatch Scheduler (resources)
99GROUPG	Swapper
99GROUPGA	LDEV
99GROUPIA	Monitor CAL's
99GROUPID	Shared Processors
99GROUPJ	File Management
99GROUPJA	ANS Tapes
99GROUPJB	Private Pack Tests
99GROUPKA	BACKUP, FILL, PURGE
99GROUPLH	DRSP
99GROUPNQ	ENQUEUE/DEQUEUE
99GROUPPA	CCI
99GROUPPQ	SUPER, CONTROL, SHOW
99GROUPRB	LOADER
99GROUPRMA	SYSCON/RMA
99GROUPRP	Restricted Processors
99GROUPRT	Real Time
99GROUPSA	PCL
99GROUPSC	BATCH
99GROUPT	Language Processors

A file 'LIBLIST' on the QUAC TEST tape contains the names and descriptions of the individual tests within each group. The test cases are identified by using the test name as the extended accounting information of the IJOB command. Tests that should abort are designated as such in the 'LIBLIST' file.

Most test cases are self-sufficient and rely on operator intervention only for tape mounting and key-in responses. Where operator intervention is required (as in the TP and RT tests), comprehensive instructions are displayed on the operator's console.

10.2   Use of the Test Tape

The following job is used to restore the QUAC TEST tape library, to authorize accounts, and initialize the system controls.

```
!JOB  :SYS, LBE, 7
!LIMIT (9T,1), (CORE, 50)
!FRES
+VOL
00A0
+END
!BATCH 99QUAC.C7308398
!FIN
```

Due to the special system control parameters necessary for certain tests, only one group should be run at a time. A group is entered into the batch stream with a

```
!BATCH groupname.C7308398
```

command. For example, to enter the PCL test cases use:

```
!JOB  :SYS,LBE,7
+BATCH  99GROUPSA.C7308398
!FIN
```

Test cases can be run selectively from within groups by using the DUCK program on-line. A description of how to use DUCK is in the file 'DUCKHELP' on the QUAC TEST tape. To run DUCK, copy it from account C7308398 into account :SYS and then !DUCK will start the program on-line.

10.3   Updating the Test Library

Test cases can be added or deleted by editing the relevant 88 or 99 GROUP. See the Time-Sharing Reference Manual (90-09-07) for Edit procedures. A new test tape can be generated by the following commands:

```
!JOB :SYS, LBE, 7
!BATCH QUAC.C7308398
!FIN
```

Some tests require processors and libraries which are not distributed with the CP-V releases. A list of the processors and libraries included in the E00 release can be found in Section 4. The installation can create a test tape containing all the necessary processors by restoring the QUAC tape under its present system and running the following (sample) job:

```
!JOB
!LIMIT (9T, 1)
!MESSAGE **USE OUTPUT TAPE #XXXX, RING IN**
!FSAVE
+DUMP
+VOL
00A0
+SELECT
$$$$FILL
:SYS DICTNARY      (required for MANAGE)
:SYS DMSDUMP
:SYS DMSINIT       DMS Modules
:SYS DMSLOAD
:SYS EDMSDUMP
:SYS EDMSFDP
:SYS EDMSINIT      EDMS Modules
:SYS EDMSLOAD
:SYS EDMSSUMS
:SYS FILEUP        (required for MANAGE)
:SYS MANAGE
:SYS REPORT        (required for MANAGE)
:SYS RETRIEVE      (required for MANAGE)
C7308398
COBLIB
DMSLIB
EDMSLIB
+END
```

APPENDIX A

EXTRACT

EXTRACT is a processor designed to produce tech manual type documentation and reports using specially formatted comments imbedded in the assembly listings. These special comments are all comment lines with a code letter in column two and asterisks in columns one and three as well as all REF's, DEF's and SREF's that have a non-blank comment field. A *,* is used for continuation.

The codes are:

       M   A one line description of each module.

       P   A paragraph or two describing in brief the purpose of a module and giving an overview of its operation.

       F   A brief description of each major function within a module.

       D   A detailed description of a routine in terms of such things as register usage, input, output, interfaces, etc.

       E   a description of an error condition at the point where it is detected.

       S   A description of a Screech Code at the point it is called.

       O   An explanation of some communication with the operator at the point where it is sent.

       C   A description of what has changed for this version of the operating system.

       K   A description of some concept of term that is useful in understanding the operation of a module.

       X   X-type comments are all REF's, DEF's and SREF's.

EXTRACT performs two major tasks; first, it calls all of the special comments from UTILIST compressed files of the assembly listings to form a data base, then it produces reports on the desired modules and codes from this data base.

EXTRACT commands have the form:

       COMMAND (OPTION), (OPTION) ...

The command may be continued at any point except within a word by ending the command with a semi–colon(;). Anything after the semi–colon will be ignored. The commands may be abbreviated to two letters and are:

EXTRACT   create data base from UTILIST compressed files. The legal options are CODES, MODULES, DATA and SOURCE (see option descriptions to follow).

REPORT   generate a report from the data base. The legal options are DATA, CODES, MODULES, SORT, ORDER, HEADING, LINES and FORMAT.

DELETE   remove specified comments from data base. The smallest unit that can be deleted is all of one type from one module. The legal options are DATA, CODES and MODULES.

ADD   add specified comments to an already existing data base. Due to the structure of the data base, it may be more efficient to EXTRACT the comments to be added into a second data base and use PCL to concatenate the two files. The legal options are DATA, CODES, MODULES, and SOURCE.

The options are as follows:

- (DATA, name, account, password) – specifies the name of the data base. The running account is the default.

- (CODES, code letter [,code letter]...) or (CODES, GLOSSARY) or (CODES,ALL) – specifies which types of special comments are selected for this command. The legal code letters are M,P,F,D,E,S,C,K,O,X. GLOSSARY is used only in selecting codes for the report command and causes all DEF's, M's and K's to be reported. ALL is the default.

- (MODULES, name or range [,name or range]...) or (MODULES,EXDATA) or (MODULES,ALL) – specifies which modules are selectef for this command. A maximum of ten names or ranges may be specified where a name is simply the name of a module and range is two module names separated by a dash (-), e.g., FILE1-FILE4. EXDATA implies that a file EXDATA exists in the running account and it contains a list of the modules to be used. ALL is the default.

- (SOURCE,account) or (SOURCE,LT $^\#$ x x x x,account) – gives the labeled tape serial number and account or simply the account of the UTILIST compressed LO files to be searched for comments.

- (SORT, sort parameter [,sort parameter]...) - specifies the order for the selected comments to be reported. The four legal sort parameters are:

  CODE   special comment type

  MODULE   module name

  LINE#   line number within the module

  NAME   name of the module, routine, screech code or other item being described by the comments.

  The first parameter given is the primary sort key, the second one given is secondary, etc. SORT is required for all report commands.

- (ORDER, code letter [,code letter]) - specified the order in which the requested codes are to be sorted. The default is alphabetical ((C, D, E, F, K, M, O, P, S, X) and any codes specified in the CODES option but not in the ORDER option will be ordered alphabetically after all those specified.

- (HEADING, text1, sort parameter, text2) - gives a heading to appear at the top of each page of output. Text1 is a 1-8 character field that appears at the far left of the heading. The first four characters of the current value of the sort parameter that is requested will appear in columns 10-13 of the heading. Text 2 is a 1-80 character field that begins in column 15 and makes up the main body of the heading.

- (LINES,x x x) - specifies the number of lines per page in the report.

- (FORMAT, sort parameter [, sort parameter]. . .) - specifies that a top of form is to be issued when the value of the specified sort parameter changes.

EXAMPLES

To create a data base file named DATA . . SAFE containing all comments from all the files in the running account:

>EX (DATA, DATA, , SAFE)

To create a data base DATA containing selected codes and modules from UTILIST compressed files on labeled tape #LIST:

>EX (DATA, DATA) , (CODES,M,P,X),(MODULES,:
>FILE1,FILE3-FILE7) , (SOURCE , LT#LIST)

To produce a report from a data base DATA on modules listed in the file EXDATA in the running account. The report is to contain codes M, P, F, D in that order and sorted so that the report is ordered by the names of the items described:

```
>RE (DATA, DATA) , (CODES,D,M,P,F) , (ORDER,M,P,F,D ) , ;
>(MODULES,EXDATA) , (SORT,NAME,CODE) , (HEADING, ;
>REPORT 1 , NAME,              THIS IS REPORT ONE )
```

To produce a glossary from all the modules in the data base DATA sorted by code M's first, then K's and DEF's, and ordered by module within each code by name within each module. The report is to have 50 lines per page and each code group should start at the top of a new page.

```
>RE (DATA, DATA) , (CODES, GLOSSARY) , (SORT , CODE , ;
>MODULE, NAME) , (ORDER,M,K,S ) , (LINES, 50 ) , ;
>(FORMAT , CODE )
```

To delete the P commands of module FILE 1 from data base DATA:

```
>DE (DATA,DATA) , (CODES,P) , (MODULES, FILE 1)
```

To add the F and D commands from a range of files in account :LIST to data base DATA:

```
>AD ( DATA,DATA ) , ( CODES,F,D ) , (MODULES,FILE 2−FILE9 ) ;
>, ( SOURCE , :LIST )
```