

UNIVERSITY OF MINNESOTA COMPUTER CENTER

Deadstart Systems Newsletter

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Send all comments, criticisms and contributions to the editor: T. W. Lanzatella

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NOTICE OF CHANGES TO THE OPERATING SYSTEM

Three modifications submitted for installation on the last tape which were suppose to fix problems in BATCH, LTD and MF501 did not work. These modifications have been corrected and will be reinstalled with this tape.

Bill Elliott provided a new version (and source) for CERTIFY and a new PP program NTC. The two programs together provide 9-track tape certification. Bill also added the CV parameter to the BLANK card, thus allowing EBCDIC labels to be written. Bill also added four new messages to LDU for use by operators when PURGEing a job. The new messages are 9-track oriented.

Rick Matthews supplied a modification which enables the loader to distinguish between a OPLD type record and a LDSET table (both are prefixed by 70). A OPLD encountered during program loading now results in a non-fatal error.

PROPOSED CHANGES TO THE OPERATING SYSTEM

Bill Elliott submitted the following three proposals:

1. A CW parameter should be added to the TDUMP command. The parameter would allow visual inspection of control words generated by disk and tape routines. The parameter will be most useful to staff members. The facility to dump control words is not presently available and would be used primarily as a maintenance tool.
2. An X processing option should be added to the PO parameter on the LABEL card. The parameter will be required for users who created multi-files under LEVEL 8 and now cannot read them under LEVEL 10 drivers (now that LMT label processing is up to ANSI standard). Presently PO = E must be specified which totally does away with any error processing-not desirable. The PO = X option would allow the user to select a no-error condition for all errors not connected with parity error recovery to include:
  - a. Override for LABEL NOT EXPIRED (as per user request in November UCC Newsletter).
  - b. Override for BLOCK COUNT ERROR IN TRAILER LABEL.
  - c. Override for BLOCK SEQUENCE ERROR

Other overrides may be added if they in no way interfere with parity error recovery.

3. A new control card and possibly a new macro named <sup>FORMAT</sup> should be installed. The new command would allow the format, density, processing options, noise size,

frame count, etc. to be changed after the tape has been assigned. It would become another entry point in RESEX and use many already existing routines there. Most useful for recovery of data from damaged tapes especially when used in conjunction with EXAMINE.

Stuart Lenz has begun a study on extending our KRONOS control language. The following five items are easy to add to the program CONTROL and leave all current control card sequences upward compatible. Several items have been requested by users.

1. Permit multiple expressions, separated by commas, on the SET and DISPLAY instructions, eg., DISPLAY (R1, R2, (R3 - R2)/R1).
2. Update the internal documentation on new Queue types (EXO, UTO, UVO, TSO).
3. Update the internal documentation and program symbol table to include the new Erexit function types; KLE, Operator kill; FSE, Forced error; DFE, Dayfile limit.
4. Add symbols for current elapsed Cptime (CET) and for job limit time (JLT) so as to allow test against these values.
5. To again modify the SETTLE instruction, this time to recognize expressions (CET + n), (n + CET), (JLT + n), (n + JLT) besides the current form (n). Another possible change would allow the use of the Ri registers.

JTC

Such changes are an obvious extension of the current KCL or simply an update to our current installation parameters. In terms of existing documentation, these changes do not effect the way these functions currently work, so a user who is unaware of the change will encounter no additional difficulties. Also note that other changes have occurred in this area (i.e., SIZE (lfn) that have no written user documentation at present and as such a WRITEUP document should be prepared).

Bob Williams has completed work on the program COPYCAT which will be used to gather permanent file accounting data. The program has been sysedited for the past week and has proven stable. A source version of the program will be placed on WPL pending Code Review Committee approval.

Bruce Johnson has nearly completed work necessary to introduce a new collection of hardware maintenance utility programs for the CYBER 74. Source versions of these programs; including RAN, ALS, CT3, CUL, EC3, MY1, will be placed on WPL pending the next Code Review.

Bruce would also appreciate some discussion on the infamous BIFT change (DSN 1, 7). Is it true that the current S2K works with the additional file type? Will the future version of S2K work with the additional file type? When is the new S2K going to be installed?

Marisa Riviere would like to change her program, RFM to include a RFWRI command. The command would perform a REPLACE against the specified file in the resident account directory. The need for this addition is evident from the large number of RFPUR, RFSAV command sequences used by staff members.

SYSTEM MAINTENANCE: PEOPLE AND PROCEEDURES

The first meeting of the Code Review Committee brought out one unanimous suggestion by staff members that a file containing code to be reviewed should be available before the Tuesday meeting - a cold code examination is not fruitful. Modifications will now be available on each of three different files under UN = YZE 6039, PN = STF.

TWLUPL Modifications to CDC program.

TWLMPL Modifications to UCC program.

TWLNEW New UCC programs.

The files will be updated whenever I receive a modification and will be complete on the Tuesday morning before the meeting.

Thoughts on SYSTEXT - A replay to ABM from Tim Salo

"The KRONOS operating system consists of PP programs, CPU programs, macro definitions and symbol definitions." (KRONOS Workshop Manual p. 1 - 5) The symbol and macro definitions in PPTXT and COMS decks are an integral part of the operating system. KRONOS at the University of Minnesota is a dynamic operating system - it is subject to change externally and particularly internally. In order that these changes occur smoothly and without impairment of system stability or reliability PPTXT and the COMS decks must be the only sources of the symbol and macro definitions.

A case in point are the Error Flag definitions. The KRONOS 2.1 Reference Manual lists 7 Error Flags, the KRONOS 2.1.2 Reference Manual lists 11B, the KRONOS 2.1 Workshop Manual lists 12B, the stock KRONOS 2.1 level 8 system has 12B and our current system has 16B. Andy wrote of "3 new CPU error exits." Two of these are local mods - the most recent implemented in code dated 74/12/16. The third new error flag was implemented by CDC in modset KNO002. KRONOS is a dynamic operating system even without local modifications. PPCOM will change considerably under level 10.

In order to facilitate orderly change in the KRONOS operating system I would recommend that:

1. All persons in the Systems Group (including language processor persons) must be aware of what symbols are defined in PPCOM.
2. The symbol and macro definitions in PPTXT and the COMS decks should be used. Constants should never be used for these definitions. If a program requires tables or code for each file type, origin type or error flag, it should be coded to handle changes in the number or position of the particular type definition or give assembly errors. This would shift the burden of correcting all code dependent upon PPTXT to the implementator of changes affecting PPCOM.
3. System programs written in languages which cannot access PPTXT directly, system programs not assembled with each new deadstart tape, and system program binaries with no source do not increase the reliability of the operating system. These types of programs should be viewed in the same light as undocumented programs - they can cause problems in the system, but few if any persons will be able to quickly find and correct the offending code. We have had several bad examples of these types of programs.
4. Symbol definitions in PPCOM and the COMS decks should be considered as internal

to the operating system. Use of the symbols outside of the operating system should not be recommended and use at your own risk. Rarely do non-system programs need these symbols, rather than, for example, device type codes.

5. It should always be possible to run a stock deadstart typae when necessary, for example, to convert a compiler written in its own language. A stock SYSTEXT should be available for exporting binaries.
6. Changes to PPTEXT should be documented in the DSN.

Thanks to Andrew Mickel's ferocious appetite for correspondence with other CDC sites and a few contacts of my own derived from ACM, the DSN now has a modest mailing list of people with mutual interest in KRONOS maintenance. To help encourage inter-site communication, each new site added to the mailing list will be mentioned in the DSN.

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