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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PSR 397/397

The PSR 397/397 installation tape finally arrived at UCC from Control Data. Because of the small number of modifications (consisting only of corrections to existing features) and their ease of installation, the base system will, this week, be updated through PSR 397/397 (KRONOS 2.1.1, Level 9).

NOTICE OF CHANGES TO THE OPERATING SYSTEM

In addition to the continued good supply of binary versions of the Level 11 tape drivers, Bill Elliott is responsible for the following changes.

a. It seems that whenever MAGNET is initiated from the console while the E,U display is active, the scopes blank. Bill supplied a fix for this bug.

b. Program 1DU recently mistook a meaningless FNT entry for a meaningful FNT entry and briefly hung the system. Bill supplied a fix for this bug.

c. Bill installed the recently approved CW parameter on the TDUMP command. The parameter directs TDUMP to print the control words generated by 1MT and CIO if defined on the device. This modification also increases the size of the OUTPUT buffer to allow a TDUMP to be written to a tape file if so directed.

d. Bill installed a Level 11 modification to MAGNET and 1MT which moves premature tape assignment processing into 1MT.

e. Bill made a cosmetic change to program 1DS by deleting all dead code; long ago moved into program 1DU.

Tim Salo enhanced program REBLOCK to recognize 9-track stranger tapes.

Alan Johnston supplied a modification to 1AJ which fixes multi-terminal job time limit processing. This is the problem which caused TELEX sorts to fail by time limiting - causing tremendous confusion to the TELEX user and to the help-line consultant.

Alan also furnished the following modifications:

a. A modification which fixes the problem of TELEX users losing files on recoveries and prevent busy direct access files after system crashes.

b. A correction for a timing problem in TELEX auto mode control byte processing. Users will no longer lose auto mode if they type a carriage return too soon after the line numbers.

c. Several Level 10 modsets which replace existing code.

Rick Matthews contributed a modification to LINK which fixes a bug discovered by Don Hamnes. The problem was that the SIMULA compiler occasionally produced a one word 7700 table. Although a bona fide 7700 table, LINK simply blew up in the situation.

PROPOSED CHANGES TO THE OPERATING SYSTEM

I have received a suggestion from a user, in a round about way, concerning the proposed enhancement to the RTIME command, DSN (1, 11 p.1). The user suggests (and I agree) that the ordinary language expression for date and time be of the form adopted by the National Bureau of Standards, ANSI and the International Standards Organization, i.e.,

75 NOV 25 - 10:00 a.m.

The chief difference between this and the proposed form being the ordering of the parts from the most to the least significant.

Bill Elliott contributed the following three proposals:

Adding about 20 lines of code to RESEX has produced a routine tentatively called EXP which will allow the operator to determine the express VSN (if any) for the VSN of his choice. This is especially necessary for jobs which may request a second reel in multi-reel sets. A call of the form X.EXP(SNXXXX) would determine if SNXXXX has an express number and if so, display it at a control point briefly before self destructing. EXP would be available from system origin only.

Delete the n.DROP command from DSD, substituting instead the PURGE command with message. PURGE presently has the capability to drop a running job with a message as well as a rolled job. Currently, PURGE is recommended but not enforced. Using PURGE rather than DROP removes the possibility of dropping the wrong job should 1RI/1RO suddenly swap jobs at a control point.

As a follow-up to comments made at the User's meeting concerning the current rates charged for magnetic tape transfers, I would suggest that current tape charges be reduced a minimum of 50% and ideally to 25% of the current rates thus bringing costs down from $1.50/KPR to between $0.75 and $0.35/KPR.

* Current transfer charges for tape are at minimum DOUBLE that for disk (assuming full PRU is utilized which is rarely the case anyway).

* It has lately been demonstrated that if a DI-1 becomes a DI-2, the amount of usable track area drops by 7.5%. Consider then that a tape PRU is 8 times the size of a disk PRU. Many times, a full tape PRU is not transferred. In some cases very little of the PRU can be utilized.

  In contrast, when a PRU is written to a disk, a FULL PRU must be transferred every time whether or not it contains useful information. With magnetic tape, only the required number of characters need be written.

* Over any given period of time, there is far less tape channel activity than disk channel activity. This would seem to make disk access more of a premium since it competes with operating system access to PP overlays causing bottlenecks and saturation while the PP awaits its turn.

* UCC owns its tape units outright. Current transfers average 275 KPR per day of which around 200KPR is chargeable (the rest used by system/accounting). This amounts to $300/day or more which would seem sufficient to meet the maintenance and costs by a wide margin.

* The most obvious reason for reducing rates is, of course, to encourage use of magnetic tape as an off-line storage medium to reduce the burden being placed on the permanent file devices. The present rate structure encourages users to leave large files on-line.

  Let's take a look at the cost structure as relates to a medium sized direct access file 10 half-tracks long (2140 sectors). To write this file to tape would require 255 PRU's each 512 words long. Keeping this much data on-line for a day (20 hrs.) would cost (20) (10tks) (.0064) = $1.28.

  Simply to place this much data on-line from tape (not to mention using it) would cost (10¢ mount) + (.255KPR) ($1.50) + (2.140KPR) (.10) = 70¢. Should he also wish to make modifications and re-write the data to another tape the charge would double to $1.40. Thus it appears that for data referenced more than once per day, the user cannot justify keeping data off-line on magnetic tape if he wishes to perform random access operations.

* Tape users are further penalized when they write short records, even moderately short ones. A PRU written, regardless of size, costs the same. As a disk PRU is 1/8 the size and 1/2 the expense, the cost to write a short tape PRU is 16 times the cost experienced writing a short disk PRU. This is certainly a severe penalty.

Pity the poor soul who wishes to ship data contained on 2000 cards to a friend using a machine built by an arch-rival. After all one can hardly expect IBM to go out of their way to read a Kronos-Internal format even if it is efficient. Our user would come out ahead by just mailing the cards parcel post in a plain brown wrapper. Writing one card per record, he will pay (2000 cds) (.001KPR/cd) ($1.50) = $3.00. Generally when one is considering writing cards to tape there are substantially more than a mere 2000 cards at stake, not to mention the CP time chewed up by the copy routine. Of course, he could have blocked them, you say, but up to now no utility has been available to easily effect this transformation. With the advent of BLOCKER, this dream may soon be a reality.

On the other side of the coin, it is not unusual for a REBLOCK run to wind up costing $60.00 of which the lion's share of the cost is PRU transfer costs.

To summarize then, until the rate structure is brought into line with our current version of reality, we shall have to expect the problems of increased equipment expenditures, TRT space, archiving and physical space limitations we all profess to abhor. Serious consideration should be made to implementing an exponentially increasing curve of charges for files in excess of, say, 30 tracks. Such users should be encouraged to make use of the private pack and magnetic tape.

Action should be taken now to investigate the possibility of upgrading our 607 units (which seem to be one of CDC's unwanted children judging by the fact that they have not seen fit to provide an on-line diagnostic for them) to 667 or 669 units the latter of which has proved to be quite reliable at other installations besides being orders of magnitude quieter making the operators life that much more tolerable.

For these reasons, I would advocate lowering tape charges to 25% of the current price (37.5¢ per KPR) or less. This to begin to repay those intrepid users for past high charges and to further encourage the use of magnetic tape even to the point of making it a loss leader if UCC is really concerned with the rate of disk storage growth projected for future years. While this may not slay the dragon, it will back him off into his cave until reinforcements can arrive.

Don Hamnes contributed the following proposal:

I propose changing the syntax of the DISPOSE card to allow unequivalenced file names, that is, the following would be allowed:

DISPOSE({<file name>|<file name>=<disposition code>}$_1^N$ {/<same as before>}$_0^1$)

Unequivalenced files would be handled as follows:

i. If the file name is PUNCH, PUNCHB, P8 or PLOTS, then the file is treated as if a disposition code of PH, PB, P8 or PL, respectively, had been specified.

ii. All other files would go to the print queue.

Also, equal signs would be disallowed as a general separator on the DISPOSE card because of possible ambiguity; thus,

DISPOSE(FI=PR=F2/S=EA)

would produce an error message but

DISPOSE(FI=PR,F2/S=EA)

would work.

The reason for this proposal is that the basic idea was submitted by a user as as suggestion; it would also save users some typing.

Mike Frisch furnished the following collection of proposals:

I would like to see a PMON (P-monitor) program made available for KRONOS users. It should be well-documented, easy-to-use and reliable (i.e., not crash the system). For the un-initiated, the original PMON was a MOMS program that sampled the P (program-address) register and kept counts of the number of times the value of P was in each given interval. The result was a histogram used with a loader map to show in what part of memory a program was spending most of its time. This part of the program is the part to optimize (assuming the best program method has been chosen beforehand) and the rest of the program can largely be ignored as far as optimization is concerned. PMON was an excellent applications program tool, but it was even used by the MNF development group to help optimize the computer. A new PMON could be very helpful to both staff and non-staff users.

TDUMP should be modified to give a dump in hexadecimal for 7 or 9-track tapes or disk files. The parameter "H" would be appropriate. H and O could be used at the same time. At the same time, unresponding options for ASC11 and EBCDIC dumps should be added. Perhaps "S" and "E" parameters could be used for this.

The "LENGTH" column in EXAMINE output should be changed to read n.m (e.g., 506.0, 507.8) to indicate words and tenths of a word. This will make it clearer to users how many words and part words are in a tape record.

The D parameter in DISPOSE indicating whether or not the dayfile is to be disposed should be extended to have D=YES and D=NO options to positively indicate what is desired. (D=YES would mean "dispose the dayfile.")

SYSTEM MAINTENANCE: PEOPLE AND PROCEDURES

Reply to Tim Salo - A.B. Mickel

I want to thank Tim Salo for replying to my statement concerning being familiar with SYSTEXT. It is a classic case of being so ignorant that one does not know what questions to ask. As far as I could tell, Tim provided some useful information and some common sense procedures for producing binaries. He also suggested certain new things be done and I hope someone does them (such as: changes to PPTEXT should be published in the DSN). I am grateful for the exchange and I hope that someone could document the WHERE and WHAT USES of all the system files, e.g., a stock SYSTEXT, MPL, etc. I'm sure I'm not the only programmer at UCC in the dark.

About Code Review:

Every manager and programmer as well, should read the famous (now a "modern classic") book by Gerald Weinberg called, The Psychology of Computer Programming, which is available in our own UCC library.

Not only are the virtues of code reading expounded, but also the aspects of team work, egoless programming, and structured programming techniques.