PRENTICE COMPUTER CENTRE

NEWSLETTER

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authorisation: Director of the Centre

1.0 COBOL VERSION CHANGES

KL10

On Monday October 16, it is proposed to change some versions of Cobol on system areas on the KA10 and KL10, so as to be able to take advantage of the release of a major new version, V.12. However, as it is realised that some major production suites of programs might possibly be affected by such changes, the version of Cobol on STD: will be left unaltered for the time being. If experience in routine use of V.12 is satisfactory, we propose to adopt it as standard over the Christmas break.

The changes to be made on October 16 are:-

OLD:Cobol V.6A/7	to be discarded
NEW:Cobol V.11	to go to OLD:
Cobol V.12	to be installed on NEW:
STD:Cobol V.10	remains unaltered

Libol for all versions will be installed on STD: so that core-image programs compiled by all of the above versions can continue to run without the need to re-compile. Notice is served, however, that we cannot retain four flavours of the Cobol operating system for ever and we will be advising users of old versions to re-compile their programs.

The prime aims in the release of V.12 are:-

(a) Correction of reported errors

(b) Improvement in the computational efficiency during execution - but at the expense of an increase in size.

(c) Provision of a peephole optimizer phase (which is invoked by the switch /O).

Users interested in the full details of the changes should consult DOC:COBOL.DOC and DOC:PHASE0.MEM (for details of the optimizer). As a general point, it should be noted that DEC are not able, as indeed we ourselves are not able to give indefinite support to superceded versions of software. Thus, it is necessary that we adopt within a reasonble time the new versions of software that are released. It is realized that this may require users from time to time to re-compile and possibly change programs to meet unforeseen incompatibilities which may arise. For this we apologise, but would point out that the new versions besides correcting reported errors do usually provide the potential for an increase in performance, as the test figures below indicate, and also provide a gradual increase in functionality.

The Cobol system implemented here is standard, except that on the KL10 the Business Instruction Set switch is applied, resulting in code

generation using the additional KL10 extended instruction set. One further change has been made to Libol, to apply a standard option which suppresses trailing blanks in writing Ascii sequential files. This differs from previous versions where each record would be padded out with trailing blanks to the record length specified. In testing the version of Libol, one further deficiency has been noted - namely, when fields are DISPLAYed, trailing blanks are removed from each output field or literal specified. This error has been reported and it is hoped that a patch now available will correct the problem before the system is transferred to NEW.

Performance Testing

In view of the significantly increased sizes, some concern was felt at the problems which might be caused by implementing this version and tests were conducted to estimate the effects of these increased sizes. The tests were conducted on the KL10 where the new version has the additional advantage of using the Business Instruction Set.

Compilation

Cost of compilation with V.12 has gone up. Increases of up to 20% were observed, though there is some variability due to a variety of factors, including the programs used for testing. This is to be expected, as the facilities provided in the compiler have increased significantly with recent versions.

Execution

This release makes special emphasis on the improvement of computational performance and to this end a compute bound task was created. The results with this test are as follows:

Version	Running size	CPU	(cost)	(%)	Mem	(cost)	(%)	Total cost
OLD:6A/7	27P	129	$14.24	43%	1811	$18.11	56%	$32.37
STD:10	34P	82	8.99	38	1468	14.68	62	23.69
NEW:12	43P	32	3.62	33	722	7.22	66	10.87
(opt)	43P	31	3.50	33	690	6.90	66	10.49

However, most real tasks are not compute bound and in a representative sample of user jobs, the results were much less spectacular, ranging from about the same cost to an improvement of a few per cent.

Some points may be made:

- sizes are significantly larger (16P or 8K in the example cited above) but this should be compensated for by the increase late last year in the prime shift Cormax from 32K to 40K.

- Despite the increase in size, computation times are significantly down so that costs should at least be comparable, perhaps better.

- Where advantage may be taken of the improved computational procedures substantial gains can be made.

KA10

Unfortunately this version of Cobol can not be used directly on the KA10 because in some cases it uses instructions unimplemented on the KA10. If it proves possible to implement this version on the KA10, this will be done, but until we have conducted further tests, versions will remain unchanged.

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Chris de Voil
extension 3023

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2.0 MAGNETIC TAPE DOCUMENTATION

A document on magnetic tapes has been prepared and is available on the system. This document provides information on tapes; the types of tapes available on the KA and KL system, and the various conversion programs that are applicable to convert tape to disk and disk to tape. While the Centre still provides a conversion service, the information is intended to enable interested users to convert their own tapes if they wish. It also documents the necessary system requirements for those users bringing in foreign tapes or producing tapes for transferring data to other installations. The document is fairly lengthy and users are advised to print the file on the line printer rather than the terminal. The file exists on the DOC directory as MAGTAP.DOC.

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Sarah Barry
extension 3941

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3.0 TERMINAL SUPPLIES

Supplies of ribbons and paper for TTY model 43 are to be available from the central store. Please contact the store before placing outside orders.

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D. Anderson
extension 3166

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4.0 USING THE TAPE UNITS ON THE HP2648A GRAPHICS TERMINAL

The TAPE program has recently been extended to support the tape cartridge units on the HP2648A graphics terminal. TAPE now accepts two new terminal types H2LEFT, H2RIGHT indicating respectively the left and right hand cartridge units of the HP2648 terminal.

The following command string copies the file SWITCH.INI from the user's disk area to the tape mounted in the left hand cassette drive.

        .TAPE TTY:/TYPE:H2LEFT=SWITCH.INI

Note that after the file transfer is complete the terminal reset button must be pressed to re-enable conversation with the computer.

The following command copies the file on the right hand cassette to a file called T2.DAT on the user's disk area.

        .TAPE T2.DAT=TTY:/TYPE:H2RIGHT

Note that the AUTO LF must be down during the file transfer and UP when conversing with the computer. Except as noted, no special keys or character sequences need be used to enable the file transfer.

This version of the TAPE program will be available on NEW: for some weeks for testing. To use it put NEW in your search list before issuing the TAPE command. This may be done either by
        LOGIN/NEW
or after login by
        .R SETSRC *NEW
        *(control) C

                                                Arthur Hartwig
                                                extension 3021

5.0 NEW MANUALS

We have recently received the following software catalogues.

Engineering Systems Software Referral Catalogue (second edition)
which lists some 95 packages (not all for the PDP-10) in various, generally

engineering oriented applications and

Commercial System Software Referral Catalogue
which lists some 121 packages in the suggested area.

It is understood that an Educational Catalogue is in press at the moment.

There is a large range of interesting material mentioned and it may be of value to check these catalogues. Unfortunately we have only one of each and are therefore unable to lend them out. Please arrange with the Program Librarian to see these documents.

G.A. Vandenberg
extension 3943

6.0 STATISTICAL PACKAGES CONSULTING

Our consulting service for Statistical Packages has been moved back to the Hawken Building. Eileen Lander is handling all enquiries and can be contacted on extension 3941.