PRENTICE COMPUTER CENTRE

UNIVERSITY OF QUEENSLAND, ST. LUCIA, QUEENSLAND, AUSTRALIA. 4067.

NEWSLETTER

N-283   1-August-83

CONTENTS

Authorized by the Director of the Computer Centre

Principal Service Centres

Consulting

PROBLEM AREA	MAIL BOX	NAME AND EXTENSION	
Operations and Programming			
Accounts	ACCOUNTS	Carol Walker	2188
Cobol	COBOL	Richard Armstrong	3962
Commands, system use and probs	COMMANDS	Ian Otto	2923
Database (VG, 1022)	DATABASE	Brett Peterson	2836
Fortran	FORTRAN	Robert Morrison	2836
Graphics	GRAPHICS	Mark Williams	2962
Micros	MICROS	Geoffrey Dengate	2835
Network	NETWORK	Bryan Claire	2960
Operations	OPERATIONS	Senior Operator	3212
PDP–11 Software	PDP11	Amelia Shanahan	3022
Program Library, Tapes	LIBRARY	Lee MacDonald	3943
Statistics	STATISTICS	Peter Akers	2951
		Greg Lehmann	3020
Text processing, Typesetting	TEXT	Andrew Broughton	2837
Non–specific problems	OPERATIONS	Senior Operator	3212
Engineering and Maintenance			
Development and communications	ENGIN	Graham Rees	3288
Mini/Micro support	ENGIN	Colin Lythall	3942
		Alan Langdon	2928
Mini and terminal maintenance	MAINT	Maralyn Kenley	3938
Griffith University:			
Consulting			7561
Computer Services			7560

1. Newsletter Summary

- Whilst the use of overseas networks is not significant in our total operations, there are increasing demands to access computers in other countries. Some users are following procedures which can result in double billing. The problem in transmitting <BREAK> or <INTERRUPT> to a remote host has been solved. The Centre now has on trial a connection to the Telecom Australia AUSTPAC packet switching system. One advantage of this will be to simplify the connection procedure to overseas computer systems.

- For those interested in 'symbol processing' areas such as natural language processing, symbol algebra, compiler writing, the programming language PROLOG based on predicate logic has been installed on the KL10.

- Information is provided on how to access the 1981 Census of Population on Housing now available on the KL10 computer in data base format (1022).

- Improvements have been made to the typesetting software to fix a number of problems.

- The dates of Prentice Computer Centre courses are notified — Introduction to PDP10, Typesetting, Text Processing (RUNOFF), Elementary TECO Editing, Software House 1022 Data Base System, Statistical Package for Social Science, Computer Aided Design.

- A notice of departmental computing equipment for sale is included.

Director
extension 2189

2. MIDAS and other Network Developments

The program MIDAS allows users who are logged in on the KL10 system (UQKL10) to use the Computer Centre's autodial unit to connect to overseas computer systems via the public switched telephone network. The most common usage to date has been to connect to overseas networks and hosts such as TELENET, SDC and LOCKHEED via OTC's MIDAS service. The Computer Centre has its own network accounts with OTC, and by using the program MIDAS, users have not had to worry about getting their own accounts with OTC. The program MIDAS makes use of the Computer Centre's OTC accounts, and passes the appropriate cost on to the user.

There have been some extensions made recently to the program MIDAS to allow more flexibility in its use. The new features will now be described, and compared with previous practice.

- Some new hosts are available.
  When the MIDAS program asks users to "Enter node name – ", specifying "MIDAS" connects users to OTC's MIDAS gateway, thus allowing them to use their own OTC accounts if they have them, and to select overseas networks that the Computer Centre does not currently have access to. This also allows users to select half–duplex operation if required — experienced typists find that immediate keystroke echo improves productivity. The default (past practice) has been to allow the MIDAS gateway or the overseas host to do the echoing (the overseas host dictates who does the echoing). Consult OTC MIDAS literature for half–duplex operation details.

  Please Note: Users with their own accounts should not select an overseas host using the Computer Centre's OTC account, then select another overseas host using their own OTC account without exiting from the program

1

MIDAS and running it again. This practice will lead to double billing — once by OTC for using the user's own OTC account, and once by the Computer Centre, because the program MIDAS can't detect that the user is not using the Computer Centre's OTC account any more. **YOU HAVE BEEN WARNED!!!**

When the MIDAS program asks users to "Enter node name — ", specifying "ACI1" or "ACI2" will connect users to ACI Computer Services. This is a locally accessible Bureau which also has access to other networks including AUSINET.

Hosts and networks already available include LOCKHEED, SDC, TELENET (all in the US) and NARRABRI (in NSW). Other hosts can be added to the list of registered accessible hosts by arrangement with the Prentice Computer Centre.

- <BREAK> or <INTERRUPT> can now be transmitted to the remote host. This has been a problem in the past because the local MICOM circuit switch intercepts this line state and causes the user's job to become detached. This is usually disastrous in terms of accessing particular overseas hosts.

To implement this, the character ^V (control–V) is used to indicate that the next character should be used locally to perform special functions. The following special functions are currently implemented:

    ^B   transmit a <BREAK>
    ^X   exit from the program MIDAS

Any other character will be passed through to the network as if ^V had not been typed. This allows a user to pass ^V to the network by typing two consecutive ^Vs.

Past practice used ^V to exit from the program MIDAS thus preventing the character ^V from being transmitted to the network.

An example of connection to the TELENET network follows (the user has an upper case only terminal):

    .R MIDAS<CR>

MIDAS bookings may be made by ringing extension 2188.
To send a <break> or <interrupt>, type ^V^B.
To exit from MIDAS, type ^V^X.
For a list of the currently registered nodes, type HELP.
Enter node name — TELENET<CR>
[MIDWTC Please wait for the telephone call to connect]
[MIDCON Connecting]

p 24

telenet
@C 30147<CR>   (Specify the destination computer)

telenet: call connected
Connected to THE SOURCE
> ID ZYX987<CR>   (Login on the overseas host)

Password? ...

                            (Overseas dialogue not included in example)

telenet: call cleared (c 0,d 0): dte originated

please log in: ^V^X   (Not echoed)

2

(Talking to UQKL10 again)

It should be noted that some of this will be superseded in the near future with the release of network services via Telecom's new nation wide network AUSTPAC. The University of Queensland has a 4800 baud connection into AUSTPAC, and AUSTPAC has connections into international computer networks. Initially, we will be able to support 5 simultaneous connections through our gateway to AUSTPAC (which appears in UQNET as node AUSPAC(22)). Users will SET HOST to AUSPAC, LOGIN on AUSPAC (to allow accounting of network usage), and then lodge a connection request, e.g. CALL YORK. Such a command would then establish a connection between the user's terminal and the public network gateway in the University of York's (UK) network. Functionally, this is similar to placing an ISD phone call, except we have assigned some names to commonly used computer numbers, and the cost structure is based on connect time and the volume and pattern of the data traffic. Whilst node AUSPAC exists in UQNET today, Telecom's and PCC's softwares are still undergoing testing, and the service is not currently available for general use, although we expect its release to be soon.

However, the MIDAS program will continue to be available because for the foreseeable future there will be remote computers that are not accessible via established public computer networks.

Bryan Claire
extension 2960

3. PROLOG

PROLOG is now available on the KL–10. It is a non–procedural language which is based on theorem proving and predicate logic and, according to the literature, should be given more than a cursory glance. It has found applications in a variety of "symbol processing" areas such as natural language processing, deductive databases, compiler writing, symbolic algebra, computer–aided design and robot problem–solving. For an introduction to PROLOG and its applications, readers are referred to the following articles:

BYTE, November 1981, page 384
    PROLOG – A Step Toward the Ultimate Computer Language

AUSTRALIAN COMPUTER JOURNAL, Vol. 15, No. 2, May 1983
    TUTORIAL PAPERS ON PROLOG.

The DEC–10 PROLOG system comprises an interpreter and a compiler (both written mostly in PROLOG). It is recommended that the new user should gain experience with the interpreter before attempting to use the compiler. For information on the documentation available, type the command

.HELP PROLOG

A CAI program, CAI.PL, to teach yourself PROLOG is also available. It is menu driven, prompting the user for a response. PROLOG requires that each response be terminated by a full stop (.) and a carriage return (CR). For information on running this program, type the command

.HELP PROLOG

If any difficulties are encountered they should be reported to the Program Librarian (x3943) or myself.

Geoffrey Dengate
extension 2835

4. 1981 Census Data

The collection District Summary information for Queensland, from the 1981 Census of Population and Housing, is now available for access via the 1022 data base system on the KL–10.

To understand the structure and content of the data base file, the user is referred to the following publication, copies of which may be obtained from the Australian Bureau of Statistics Office in Brisbane.

1981 Census of Population and Housing

Collection District
Summary File
Technical Details
Catalogue No. 21600

Australian Bureau of Statistics

The files of interest are stored on the private disk pack CENA: (which must be mounted using the MOUNT command), under the PPN [5,121]. It may be convenient to set up a logical path as follows:

.PATH CDB: = CENA:[5,121]

The data base is stored in the 1022 file CENQ81.DMS, and a separate definition of its structure is contained in the file CENQ81.DMD, a portion of which is reproduced below.

```
LRECL 4840
ATTRIBUTE CD_SERIAL_NUMBER ABBREV CDS INTEGER KEYED RANGE 30001 34734 LENGTH 5
ATTRIBUTE STATISTICAL_DIVISION ABBREV STD INTEGER KEYED RANGE 1 12 LENGTH 2
ATTRIBUTE STATISTICAL_SUBDIVISION ABBREV SSD INTEGER KEYED RANGE 1 3 LENGTH 1
FILLER 4
ATTRIBUTE STATE ABBREV STA INTEGER RANGE 3 3 LENGTH 1
ATTRIBUTE CENSUS_DIVISION ABBREV CND INTEGER KEYED RANGE 1 22 LENGTH 2
ATTRIBUTE CENSUS_SUBDIVISION ABBREV CNS INTEGER KEYED RANGE 1 99 LENGTH 2
ATTRIBUTE COLLECTION_DISTRICT ABBREV CLD INTEGER KEYED RANGE 1 25 LENGTH 2
ATTRIBUTE CHECK_DIGIT ABBREV CHD TEXT LENGTH 1
ATTRIBUTE LGA_SECTION ABBREV LGA INTEGER KEYED RANGE 1 99 LENGTH 2
ATTRIBUTE COMM_ELECTORAL_DIVISION ABBREV CED INTEGER KEYED RANGE 1 132 LENGTH 3
ATTRIBUTE STATE_ELECTORAL_DIVISION ABBREV SED INTEGER KEYED RANGE 1 9999 LENGTH
ATTRIBUTE LOCALITY ABBREV LOC INTEGER KEYED RANGE 0 99999 LENGTH 5
ATTRIBUTE SECTION_OF_STATE ABBREV SOS INTEGER KEYED RANGE 0 4 LENGTH 1
ATTRIBUTE STATE_AREA_CODE ABBREV SAC INTEGER KEYED RANGE 1 9999 LENGTH 4
FILLER 3
ATTRIBUTE POSTCODE ABBREV PCD INTEGER KEYED RANGE 4000 4999 LENGTH 6
ATTRIBUTE LGA76 INTEGER KEYED RANGE 1 999 LENGTH 3
ATTRIBUTE CD_CODE_76 ABBREV CD76 INTEGER KEYED RANGE 10000 229999 LENGTH 6
ATTRIBUTE CD_COMPARABILITY_76_81 ABBREV CDC INTEGER RANGE 0 8 LENGTH 1
ATTRIBUTE LGA81 INTEGER KEYED RANGE 1 310 LENGTH 3
ATTRIBUTE CONFIDENTIAL_CD ABBREV CCD INTEGER RANGE 0 2 LENGTH 1
```

```
ATTRIBUTE RECEIVING__CD ABBREV RCD TEXT LENGTH 8
ATTRIBUTE STUDY__AREA__CODE ABBREV STC INTEGER RANGE 0 9 LENGTH 1
ATTRIBUTE LATITUDE ABBREV LAT INTEGER KEYED RANGE 90000 300000 LENGTH 6
ATTRIBUTE LONGITUDE ABBREV LON INTEGER KEYED RANGE 380000 540000 LENGTH 6
ATTRIBUTE AREA INTEGER RANGE 1 99999999 LENGTH 8
FILLER 6
ATTRIBUTE FILE__SEGMENT__DATE ABBREV FSD DATE LENGTH 6
FILLER 151
ATTRIBUTE CELL1 ABBREV C1 INTEGER RANGE 0 9999 LENGTH 4
ATTRIBUTE CELL2 ABBREV C2 INTEGER RANGE 0 9999 LENGTH 4
ATTRIBUTE CELL3 ABBREV C3 INTEGER RANGE 0 9999 LENGTH 4
ATTRIBUTE CELL4 ABBREV C4 INTEGER RANGE 0 9999 LENGTH 4
ATTRIBUTE CELL5 ABBREV C5 INTEGER RANGE 0 9999 LENGTH 4
ATTRIBUTE CELL6 ABBREV C6 INTEGER RANGE 0 9999 LENGTH 4
ATTRIBUTE CELL7 ABBREV C7 INTEGER RANGE 0 9999 LENGTH 4
ATTRIBUTE CELL8 ABBREV C8 INTEGER RANGE 0 9999 LENGTH 4
ATTRIBUTE CELL9 ABBREV C9 INTEGER RANGE 0 9999 LENGTH 4
ATTRIBUTE CELL10 ABBREV C10 INTEGER RANGE 0 9999 LENGTH 4
ATTRIBUTE CELL11 ABBREV C11 INTEGER RANGE 0 9999 LENGTH 4
```

This DMD file defines a number (26) of self explanatory geographic attributes followed by 1065 data attributes with names CELL1 through CELL1065. These data attributes correspond to the 1065 data cells as defined in the Australian Bureau of Statistics publication. A number of the geographic attributes have been keyed to improve efficiency in the selection process.

Please note, this is a very large file (approx. 37,000 blocks) containing 4731 records with each record comprising 1091 attributes (26 geographic plus 1065 data cells). Hence, it is strongly recommended that a working file be created containing only those records of interest. Below is an example of commands used to create a 1022 data base, on the users PPN, containing only those records with a postcode of 4067.

```
.MOUNT CENA:
.PATH CDB: = CENA:[5,121]
.R 1022
*OPEN CDB:CENQ81
*FIND POSTCODE EQ 4067
*DUMP SET PC4067 BUFFER 5
*EXIT
```

The file PC4067.DMS will now exist and can be examined using the usual 1022 commands.

Before creating this 1022 data base, the raw data file underwent extensive checking and as a result of this checking, three records are not included in the final data base. The records included were those for the collection districts 31531, 31532 and 31533.

Any problems or enquiries should be directed to me.

Geoffrey Dengate
extension 2835

5. Upgrades to Typesetting System

The program which handles all formatting of your typesetting file (the JUSTIF program) has recently been upgraded to fix several problems that people were having. As well, an extra informative message has been added to tell you the length of your

typeset output (when it comes out of the typesetter) in points and millimetres.

First a brief overview of the bug fixes so you'll know what you can expect to work now that didn't before; or conversely, what horrible things you no longer have to put up with.

There were occasions that JUSTIF incorrectly justified a line of text (i.e. the end of the line on your output was nowhere near where you expected it to be). This was caused by two of the modules of the JUSTIF program working against one another rather than with one another. All cases were related in that they all contained a change back to the "normal" font after the first word on an output line. Actually this word was one that would have "spanned" the right margin and because of this was output on the following line, causing the interword spaces in the preceding line to be padded out somewhat. When this infrequent set of circumstances arose JUSTIF became confused about which character width tables to use, and hence the bad justification. If all this has been rather confusing, the good news is that in these cases now it justifies correctly.

As users of JUSTIF will no doubt be aware, to have "combination" characters output on the typesetter (such as é, or a̡) you used the backspace command /B. Well when any combination character was the first character on an output line the backspace didn't work, and so the two characters that you expected to be overprinted came out beside each other. Now this no longer happens, and the results are what you would have originally expected (but unfortunately never got).

As was mentioned at the beginning of this article, and new informative message has been added to JUSTIF to tell you how long your output will be. This information is given in points (printer's measure) to help you with column fit work where the length is essential, and in millimeters to help you get an idea of how much your typesetting will cost. (At current rates bromide output on the Compugraphic 8400 phototypesetter costs ½¢ per mm. for normal forms). An example of the message is showm below:

.R JUSTIF
[14:43:55]

[JUSTIF Version 301(210400)–2]
*DEMO/EXIT

[JNHQUE – JUSTIFYING FILE DSK:DEMO.TYP]
[TOTAL LEADING: 802 POINTS, 283 MM]
[JNHFIN – DEMO DONE]

Exit

If you have any problems using JUSTIF (either like the ones mentioned here or new undiscovered ones) please contact either myself or Barry Maher so we can help provide the best service possible.

For those users who have not yet learnt how to use the typesetting system, or for those that wish to increase their skill in using the system the new Computer Centre manual describing the system in detail will be availabe in late August. When available they may be purchased from the Hawken Batch Station.

Andrew Broughton
extension 2837

6. Information Concerning Courses

The table below lists the courses scheduled for the period August–September.

Please Note: With the impending installation of a new computer system, it is very possible that the Centre will *not* be able to offer either the number or variety of courses on the PDP–10 system and packages which are normally conducted in the November/December period, since this time may well be needed for training and the development and presentation of courses appropriate to the new system.

While we cannot be definite about such arrangements as yet, it is *recommended* that those planning to attend courses in November/December should seriously consider enrolling in an earlier course.

Schedule:

August

Introduction to PDP–10	August 2–5 4 half days 1–4pm each day
Introduction to PDP–10 (Griffith University)	August 2–5 4 half days 2–5pm each day
SPSS	August 8–12 5 half days 9am–12.30pm each day
Typesetting	August 15,16,18,19 4 half days 9–12am each day
Introduction to PDP–10	August 22–23 2 full days 9–12am + 1–4pm each day
SPSS (Griffith University)	August 24–26 3 full days 9–12am + 1–4pm each day
Elementary TECO Editing	August 25 1 full day 9–12am + 1–4pm
Introduction to PDP–10	August 29–September 1 4 half days 9–12am each day
1022	August 29–September 2 5 half days 1–4pm each day
CAD/CAM	August 30–September 2 4 full days 9am–5pm each day

September

SPSS	September 5–9 5 half days 9am–12.30pm each day
RUNOFF	September 5–9 5 half days 1–4pm each day

November

CAD/CAM	November 1–4 4 full days 9am–5pm each day

December

CAD/CAM	December 6–9 4 full days 9am–5pm each day

Notes:

1. Users without basic knowledge and experience of the DEC-10 system, together with some facility in the use of an editor, MUST attend the course "Introduction to PDP–10" before enrolling in any other course (except for the CAD/CAM course).

2. A brief description of the content of each course was provided in Newsletter N–279.

3. All of the above courses will be held in Room G13A – Hawken Building (except for the CAD/CAM course, which is held in the Graphics Room, Hawken Building).

4. Enrolments for all courses may be made by phoning *extension 3018*.

Barry Maher
extension 3021

7. Departmental Equipment for Sale

Apple II Europlus Computer (48K RAM), 2 disk drives with disk controller, 16K language card, Pascal Language System, DOS 3.3, various handbooks.

EXCELLENT CONDITION - Price $2,200 o.n.o.

Contact French Department (x2009) or Andrew Lian (x2238).