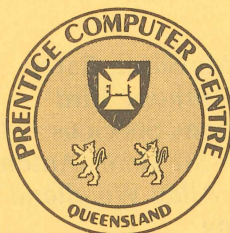


PRENTICE COMPUTER CENTRE

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



NEWSLETTER

N-317

December 1987

CONTENTS

1.	Newsletter Summary	1
2.	User Liaison	1
	2.1 Revised Charges 1988	1
	2.2 LaserWriter Service	2
	2.3 Skimmed Files on the KL	2
	2.4 Expiry Date for Computer Accounts	3
	2.5 Information Concerning Courses	3
3.	Large Systems Software	5
	3.1 UQVM System	5
	3.2 Avoiding Problems when sending network mail from UQVM ..	5
	3.3 SAS Upgrade from Version 5.08 to Version 5.16 on UQVM ...	5
	3.4 Yale Terminal Types.	7
4.	Distributed Computing	10
	4.1 PC Hard Disk Back Up Service	10
5.	Price Schedule for IBM 3083E Kits	11
	5.1 Student Credit-Class Course Kits	11
	5.2 Student Cash Kits	11
	5.3 Unrestricted Kits	12
	5.4 Restricted Kits	12

Authorized by the Director of the Computer Centre

Phone Numbers for Enquiries

External users may dial direct by prefixing these extension numbers with 377.

Management	Extension
Director – Mr Alan Coulter	2189
Deputy Director – Mr John Noad	3017
Manager, Applications Development – Ms Sarah Barry	4281
Manager, Distributed Computing – Mr Anthony Bird	3391
Manager, Engineering and Communications Services – Mr Graham Rees	3288
Manager, Finance and Administration – Mr Denis Antonellie	3963
Manager, Large Systems Software – Mr Allan Woodland	4017
Manager, Operations – Mr Ian Armstrong	3471
Manager, User Liaison – Mr Geoffrey Dengate	3944

Central Services HELP Desk (0830-1630) CCHelp for electronic mail **3025**

General Enquiries & Course Enrolments **3018**

Principal Service Centres

Personal Computer Support Group	4018
Contract Programming & Feasibility Studies – Ms Sarah Barry	4281
System Status Automatic Answering	3101
Central Systems Accounts (0830-1630) – Ms Lyndal Hill	2188
Program Librarian – Mr David Molloy	4075
Operations	3212
Data Entry – Ms Ngaire Brown	3967
Dial-up modem numbers	(300 bps) 377 2977
	(2400 and 1200 bps) 377 2922
	(1200/75 bps) 377 2655

Hardware Problem Reporting	Extension
PC Repairs and Maintenance	3938 †
Communications Fault Reporting	3938 †
Terminal and PDP-11 Fault Reporting	3938 †

Griffith University

External users may dial direct by prefixing these extension numbers with 275.

Director, Centre for Information Technology – Mr Mike Steel	7125
Computing Services Manager – Mr Ian Robertson	7561
General Enquiries – Ms Annabel Tyler	7745
PCC Mainframe Consulting (Tuesday)	7560
Computing Services Area – Science 2	7560

† After 4.45 pm and at weekends, X3938 is serviced by a message recorder. Users wishing to report PC, terminal, communications and other hardware faults can leave their name, number and fault details.

1. Newsletter Summary

- The Centre has increased basic charges for the IBM & VAX systems by 6%. The IBM kit structure has been further refined as a result of feedback from users. Very low cost student kits for credit class courses are available. A discount structure is now in place for the unrestricted kits. Exact details are provided regarding these changes.
- The last newsletter contained a couple of errors regarding the LaserWriter service. Updated information is provided.
- Users are again reminded about the need to renew computer accounts before 24th December 1987 and that files skimmed to tape from the KL-10 before 1984 will be deleted on 4th January 1988.
- Details of PC and mainframe courses are provided.
- The VM/HPO operating system software on the IBM-3083E will be upgraded to V5 prior to the commencement of first semester 1988. Users should report any difficulties they encounter as a result of this upgrade to the HELP Desk.
- A temporary workaround is provided for UQVM users who are having difficulties using the VM NOTE facility to send Electronic MAIL to off campus systems. We are working to rectify this problem.
- The version of SAS on UQVM is being upgraded. The new and improved features are described. Please report any problems you encounter with this new version to the HELP Desk.
- An article describes the relationship between terminals, and the terminal type it emulates to enable the terminal to work correctly on the UQVM system.
- The Personal Computer Support Group has purchased a streaming tape backup unit to provide a backup service for departmental PC's.

Geoffrey Dengate
ext. 3944

2. User Liaison – Geoffrey Dengate ext. 3944

2.1 Revised Charges 1988

Subject to approval by Senate the Prentice Computer Centre charges will be increased by 6% effective from 1-1-88. The price increase is based on the appropriate CTEC indices rather than increases in Prentice Computer costs. Costs for staffing, electricity, hardware maintenance, software licenses and consumables have in fact risen at a slightly faster rate than 6%. In addition to the price increase, the IBM kit structure has been further tailored as a result of feedback from our clients.

2.1.1 IBM Machine Charges

Details of the **new** IBM-3083E price schedule are attached. A summary of the major changes follows:

- a) Low cost kits for student use in credit-class courses are available. The price of a 1.5MB kit with 600KB of disk space is \$27.75 per semester. Larger 2MB kits are also available. These kits provide a very cheap mechanism for teaching classes of students using packages such as SQL, IFPS, SAS etc.
- b) Students can purchase 1.5MB kits directly from the PCC for \$45 per semester.

- c) Unrestricted CPU and I/O kits are available at normal priority, low priority (25% discount) and a new very low priority (70% discount). These unrestricted kits should satisfy the requirements of all heavy IBM users and provide cheap kits for users when response time and turnaround requirements are not high.
- d) The I/O limit for the 2MB restricted kit has been increased by 50% to assist the users of heavy I/O packages such as SAS.
- e) Both restricted and unrestricted kits can now be purchased with 3MB and 5MB in addition to the previously available memory sizes.
- f) Restricted kits have increased in price by roughly 6%.
- g) Charges for on-line disk storage and consumables (line printer paper etc.) will increase by 6%.
- h) Restricted kit owners who exceeded limits during 1987 were reclassified as very low priority users rather than being denied access privileges as advertised. The very low priority unrestricted kits were created to provide a kit at an appropriate price for these CPU intensive users where response time is not important. Effective from 1-1-88, users who exceed limits will be denied access for the remainder of the month unless the user upgrades the kit.

2.1.2 VAX Machine Charges

All VAX machine charges will increase by 6%.

2.1.3 KL-10 Machine charges

These will remain unchanged (except for consumables).

2.2 LaserWriter Service

As mentioned in the last newsletter, the Apple LaserWriter service has been relocated in the Operations area of the Computer Centre. The following corrections to the last article should be noted:

Bookings for the service can be made at the Help Desk on 3025.

The service is available from 8:30am until 10:30pm.

Please note that the equipment is provided for clients to use to produce their own high quality output from either a Macintosh or an IBM Personal Computer. Users are expected to have their files ready for immediate printing. The machines are not provided for use in creating or editing files.

As stated previously, this is a self-service setup provided for you to print your files. While the Operations Staff keep this service running (e.g. by loading paper into the printer and trying to solve simple operational problems) they are not in a position to answer technical queries on document preparation or use of Macintosh or IBM-PC software. Such queries must be referred to the HELP Desk or (via the HELP Desk) to the PC Support Group staff (extension 4018). If you want the Centre to do the printing for you, it will be necessary to complete a *PCC Small Job Requisition* or pay to cover the cost of that service in cash.

Ian Armstrong
ext. 3471

2.3 Skimmed Files on the KL

Prior to 1984, it was the practice on the KL system to skim to tape files from both offline and online storage which hadn't been accessed for a significant period of time. No skims have been performed since December 1983.

It is now planned to delete all these skimmed files from tape on 4 January 1988. To find out what files you have on skim tapes use the command **TDIR**. See **HELP TDIR** for details. If you have any files which should be retained, please contact me.

Ian Armstrong
ext. 3471

2.4 Expiry Date for Computer Accounts

On 24 December each year all PPNs on the DEC-10 and UICs on the VAX-11/780 expire, unless the Centre has been notified in writing that a PPN/UIC is required for another year. The term 'expire' means that all files owned by that PPN/UIC, both on-line and off-line, are deleted, any balance of commitment is credited to the user account(s), and the PPN/UIC and charge codes are deleted from the system.

It is imperative that if you intend to keep using your account for the following year you must complete the 'change of expiry date' form, prior to 24 December each year. Separate forms for KL and VAX accounts are at the Batch Station. Copies of these are attached to this newsletter.

We do this not to make life difficult for you, but merely to keep disk space clear and overheads down. Each year many people leave the University, go away on the Special Studies programme or finish post-graduate research and omit to notify us that they have finished with their account. Expiring accounts is our way, then, of keeping the systems operating efficiently for the user's continued benefit.

Userids on the IBM are currently set up with an expiry date nominated by the client. The date specified remains in force unless altered using the normal AUTH-UQVM form.

Lyndal Hill
ext. 2188

2.5 Information Concerning Courses

Enrolments for all courses may be made by phoning extension 3018. The following courses will be offered during the period December 7–March 2, 1988:

December

Typesetting (on KL-10)	December 7–11 5 half-days 9–12am each day
‡ Introduction to MS/PCDOS	December 8–10 3 half-days 9–12am each day
‡ Microsoft WORD Workshop (Outlining)	December 8 1 half-day 1–4pm
†• Introduction to Programming in FORTRAN	December 14–18 5 full days 9–12am + 1–4pm each day
‡ Introduction to DBASE III	December 15–17 3 half-days 9–12am each day

January

• Introduction to IBM3083E	January 5–8 3 half-days 9–12am each day
‡ Introduction to MS/PCDOS	January 4–6 3 half-days 9–12am each day

•	Introduction to SQL	January 11-15 3 half-days 9-12am each day
‡	Introduction to WORDPERFECT	January 12-15 3 half-days 1-4pm each day
‡	PC Overview	January 12-15 1 half-day 9-12am
‡	Introduction to DBASE III	January 19-21 3 half-days 9-12am each day
‡	'Desktop Publishing' Overview	January 26 1 half-day 9-12am
†	Introduction to VAX/VMS	January 27-29 3 full days 9-12am each day
‡	Introduction to MS/PCDOS	January 27-29 3 half-days 9-12am each day

February

•	Introduction to SAS	February 1-5 3 half-days 1-4pm each day
‡	PC↔Mainframe Communications	February 3 1 half-day 9-12am each day
•	Introduction to IBM3083E	February 8-11 3 half-days 1-4pm each day
‡	Advanced MS/PCDOS	February 10-12 3 half-days 9-12am each day
†	KL-10→VAX Conversion	February 16-18 3 full days 9-12am each day
‡	Introduction to WORDPERFECT	February 16-19 3 half-days 9-12am each day
†	Introduction to RDB	February 22-26 3 half days 9-12am each day
•†	Introduction to SPSS-X	February 22-26 3 half days 9-12am each day
‡	'Desktop Publishing' Overview	February 25 1 half-day 1-4pm
‡	Introduction to DBASE III	February 29-March 2 3 half-days 9-12am each day

• denotes IBM course † denotes VAX course ‡ denotes PC course
If marked †• please indicate when enrolling whether you would prefer your course account to be established on the VAX or IBM machine.

General Notes:

1. It is expected that users attending courses on specific packages (SQL, SAS, SPSS-X, DBASE III, etc) will be familiar with keyboard-usage, file-management and editing on the relevant machine (IBM, VAX or PC). Attendance at such short courses without this background provides many problems, as all courses are hands-on. Introductory courses are given frequently to allow familiarity with the fundamentals before attending courses on particular application packages.

2. All courses will be held in the Centre's teaching rooms near the Physics Annexe – the mainframe courses in Course Room 1 and the micro-computer courses in Course Room 2.
3. Staff, post-graduate students and kit-owners are admitted free to courses. The charge is \$10.00 per half-day session for other internal users; \$17.00 per half-day session for affiliated users; and \$37.00 per half-day session for external users.
4. Enrolments for all courses may be made by phoning ext. 3018.

Barry Maher/Nick Evans
ext. 3021

3. Large Systems Software – Allan Woodland, ext 3288.

3.1 UQVM System

It is intended to upgrade the VM/HPO system software on the IBM to Version 5 before the first semester 1988. More specific times will be published on-line when they become available.

Allan Woodland
ext. 4017

3.2 Avoiding Problems when sending network mail from UQVM

Some users have been sending mail from the UQVM system to off campus systems and finding mail delivery unreliable. At this stage the VM NOTE facility does not ensure that mail conforms to the standards expected by other network mail systems. Users therefore must ensure themselves that mail conforms to the rules observed by other systems.

If the following two rules are observed mail delivery should be considerably more reliable.

- 1) There must be at least one blank line FOLLOWING the mail header (that part of the MAIL which contains the SUBJECT, TO, DATE etc lines) and before the actual text of the message.
- 2) The 'FROM' line of the mail header must be a single line which specifies only the user sending the mail and the machine from which the mail is sent. In particular, UQVM users who wish to send network mail should not define a nickname for themselves. If the FROM line contains any information other than the account name of the sender and host name, then network mail systems may not be able to determine where error messages accounting for mail delivery failure are to be returned, and the receiver of the mail may not be able to determine where to send his reply.

Work is in progress to modify the VM NOTE facility so that it will conform to these standards and overcome this problem.

Arthur Hartwig
ext. 4079.

3.3 SAS Upgrade from Version 5.08 to Version 5.16 on UQVM

The default version of SAS on the UQVM system was upgraded from Version 5.08 to Version 5.16 on December 7, 1987. This upgrade will be transparent to most SAS users. Most of the differences between SAS Version 5.08 and SAS Version 5.16 are due to enhanced facilities, and will not demand a change in the way SAS is used. Users of SAS/GRAPH will find default scale settings have changed somewhat for the HP7585 plotter, this is discussed below.

As previously advised, SAS Version 82.3 which is accessed by the **SAS82** command is no longer supported by the SAS Institute. Although we have been able to provide some support for SAS 82.3 in the past, this is no longer possible. Therefore the old versions of SAS, that is Version 5.08 and Version 82.3 will be taken out of service on January 18, 1987. Any problems with this proposal or with SAS Version 5.16 should be reported to the Help Desk.

HIGHLIGHTS

- **A BETTER HELP FACILITY.** The interactive SAS help facility has been enhanced. Enter **HELP** on a **COMMAND** line while in interactive SAS to view the first help level.
- **FUNCTION KEYS NOW SUPPORTED.** The SAS Program Editor Screen, Log Screen, and Output Screen all now have default function key definitions similar to those of XEDIT. This enhancement makes interactive SAS much easier to use.

To check the PF key assignments use the **KEYS** command. See Chapter 14, 'SAS Display Manager' of the 'SAS User's Guide: Basics' for more details.

- **EXAMPLE SAS PROGRAMS.** On the SAS Version 5.16 Mini-disk, 'SAS16P', there are now some MACLIB libraries with examples demonstrating SAS usage. There is also an index to these libraries so that examples can be found quickly. For more information about this enter **INFO SAS516**.
- **THE SAS MACRO FACILITY HAS BEEN ENHANCED.** SAS Macros can make your SAS programs much more compact, easier to write, and easier to use. Enter **INFO SAS516** for more information and see the 'SAS Guide to Macro Processing, Version 5 Edition' for detailed information.
- **IMPROVED SAS/GRAPH SUPPORT.** Graphical output can be directed, as in the past, to Graphic Terminals using the **TPRINT** command, or to the HP7585 plotter via UQVAX. (ie. you need a UQVAX account to be able to plot on the HP7585 plotter.) The improvement is that plots on the HP7585 are no longer limited to A4 size paper as it has in the past. More information about this subject is available by entering the following: **SASGRAPH**. There are some sample plots produced by SAS/GRAPH on display near the HELP DESK, call in and have a look.
- **YOUR OWN SAS PROCS.** For advanced SAS users/programmers there is now the facility to design and write your own SAS PROCs, Functions, and CALL routines. The programs you write can be integrated with the SAS system and used like any other SAS PROC or Function. For more information see the 'SAS Programmer's Guide for PL/I, Version 5 Edition' or enter: **INFO SASPROCS**
- **SMALLER MEMORY AND LESS I/O.** An alternate way of invoking SAS which has the effect of reducing memory requirements and/or the amount of I/O is now available. For more information enter: **INFO SASOP**

REFERENCES available via the HELP DESK:

- *SAS Introductory Guide, Third Edition*
- *SAS User's Guide: Basics, Version 5 Edition*
- *SAS User's Guide: Statistics, Version 5 Edition*
- *SAS/OR User's Guide, Version 5 Edition*
- *SAS/ETS User's Guide, Version 5 Edition*
- *SAS/GRAPH User's Guide, Version 5 Edition*
- *SAS Guide to Macro Processing, Version 5 Edition*
- *SUGI Supplemental Library User's Guide, Version 5 Edition*

- *SAS Companion for the CMS Operating System, 1986 Edition*
- *SAS Programmer's Guide for PL/I, Version 5 Edition*

Additional details are available on the UQVM system by entering **INFO SAS +**.

Wilfred Brimblecombe
ext. 4281

3.4 Yale Terminal Types.

When users access the IBM 3083 mainframe at the Prentice Computer Centre with an ASCII terminal they are required to tell the Series/1 front ends what type of terminal they are using. This newsletter article attempts to explain away some of the confusion that has arisen.

Firstly it should be mentioned that each of the terminal types was aimed at a specific terminal. An example of this is the VT100 terminal type which was created for DEC VT100's. Of course many other companies will make compatible terminals that for the purposes of using the IBM are identical to the real thing. An example is the Visual 100 terminal which is compatible with real VT100's. Many terminals are capable of emulating several other types of terminals e.g. a Visual 220 can emulate a VT100 and a VT52 as well as being VT220 compatible. The user should be aware of what their terminal is emulating, if it has this capability as obviously this will effect their choice of a YALE terminal type.

Physical constraints make it impossible to add a terminal type to YALE for every new terminal that comes along. The Prentice Computer Centre will do so if the numbers are there and the terminal is sufficiently incompatible with all the existing terminal types. If a user has difficulty deciding what YALE terminal type to use there are two options:- trial and error or ring the HELP desk for advice.

A list of YALE terminal types follows and terminals that I know will work for that type.

YALE TYPE	TERMINALS
VT220, VT220N	T220, Visual 220, Thorn VG-920
VT100 class (incl.VT100 VT100T, VT100N, VT100D)	VT100, VT220, Visual 100, Visual 220, VT102, Thorn VG-920
VT52,VT52T	VT52, Visual 200, Visual 500
VI200 class	Visual 200
VI500 class	Visual 500
GIGI, GIGIT	GIGI
ADM3A	ADM3A
ADM5	ADM5
IBM3101	IBM3101
HARDCOPY TYPETERM	Works with any terminal (no full-screen mode means much degraded performance)

IBMPC

Works on IBM PC using Typeterm software. We recommend using kermi and the VT100 terminal type.

ESP6310

ESPRIT 6310

TSI class

TSI

FR100 class

Freedom 100

TVT6600L

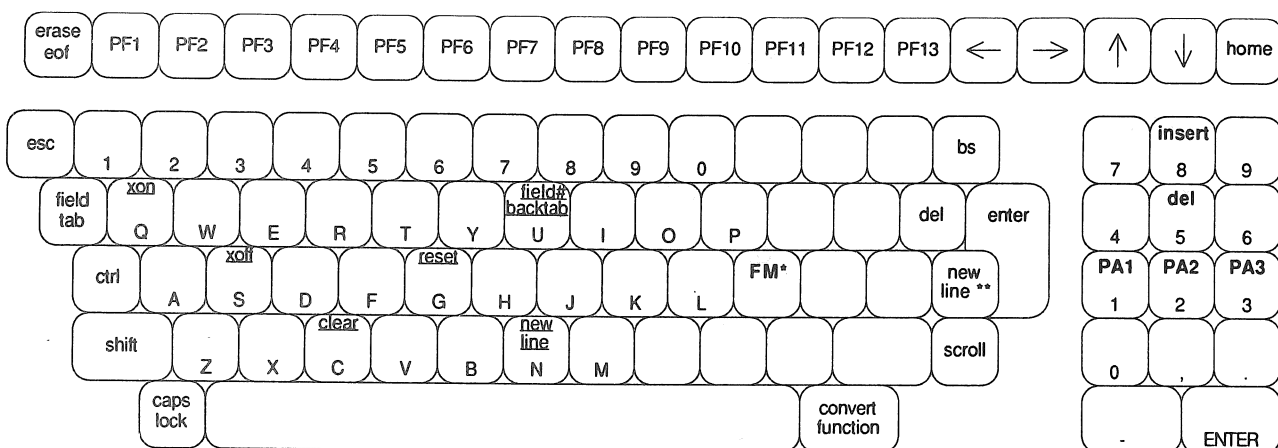
Tatung TVT660L terminals modified for APL

There are groups of terminal types defined which except for minor differences are identical. The best example of this is the VT100 class. The members in classes are differentiated by suffixes. There is the standard VT100 type which conforms to the YALE standard keyboard layout. No suffix at all means that all the basic functions of the Yale standard keyboard layout will be as in the first template of this article. Unfortunately there are exceptions. The TS1 and FR100 deviate slightly because they were added after the standard layout had been developed. This is not a problem in practice.

A suffix of 'T' for terrific denotes a type that deviates slightly from the standard. A terminal type with this suffix has the ability to use the line-feed key as the IBM new-line function. Not all terminals have a new line key or separate arrow keys so not all terminal types have a 'T' version. The 'N' suffix gives a layout identical to the 'T' suffix but the 'N' stands for No highlighting. The reason for this variation is that some terminals have badly adjusted brightness controls. There is also a 'D' suffix which stands for Data Entry and it varies from the standard in that the numeric keypad will operate as numbers and not function keys. Of course not all terminals have a numeric keypad.

Please look at and use the keyboard layout diagrams following. In general when designing a keyboard layout we have tried to use the labels on keys to match a corresponding IBM function. If you have function keys on your terminal then there is a good chance that F1 will perform the IBM PFK1 function. There are other constraints here so this is only a guide.

Greg Lehmann
ext. 3022



The functions in bold type on the numeric keypad are obtained by using the convert function key at the same time.

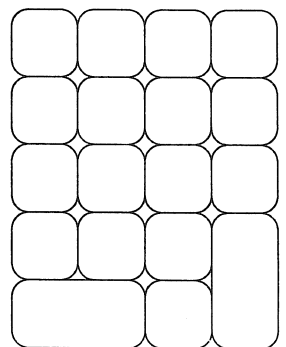
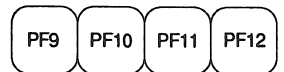
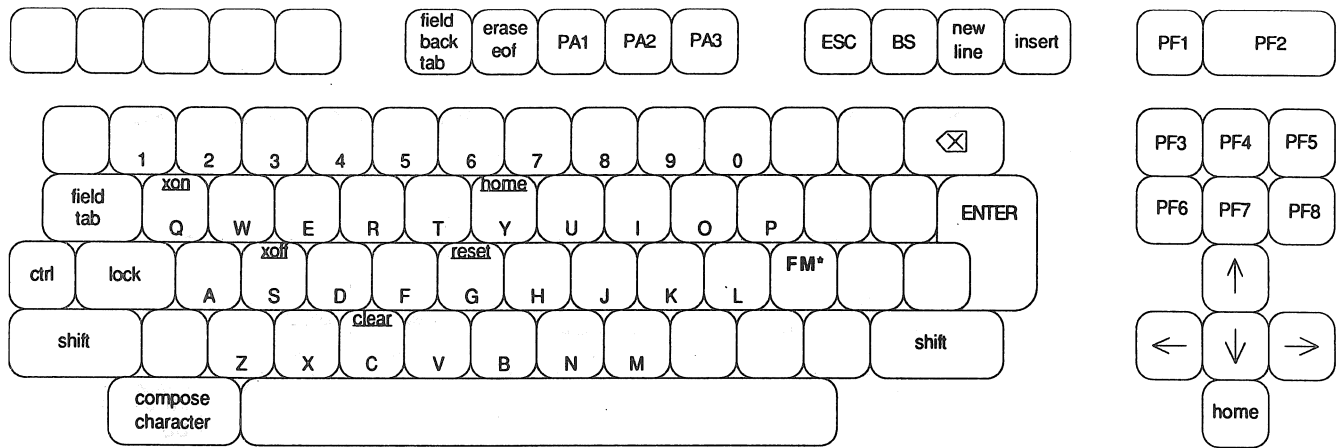
YALE VI200 TERMINAL TYPE ON A VISUAL 200 KEYBOARD

Underline means use Control key at the same time.

* ESC before this key gives field mark

** valid for VI200T and VI200N definitions only

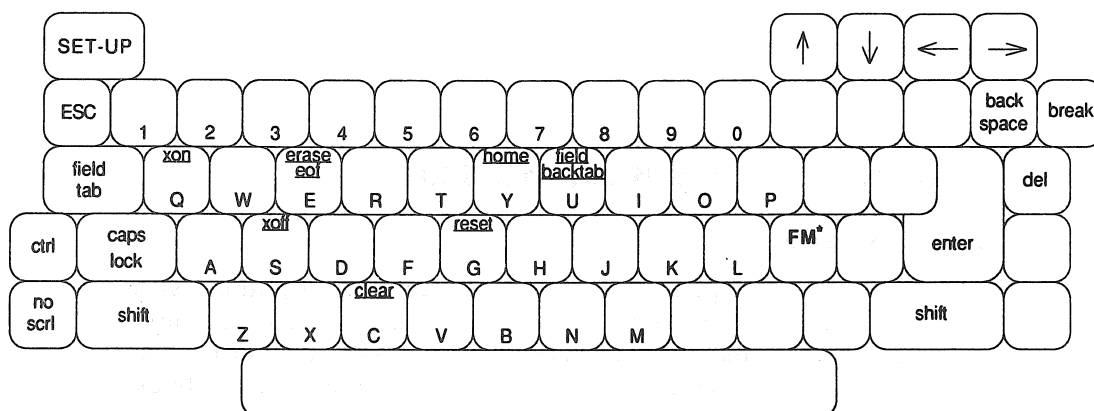
shift field tab also gives field backtab



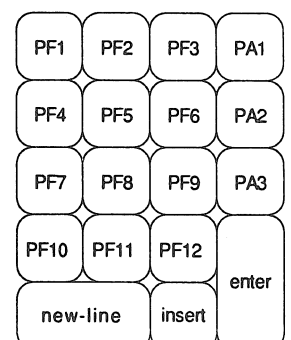
YALE VT220 TERMINAL TYPE ON A VT220 KEYBOARD

Underline means use Control key at the same time.

* ESC before this key gives field mark



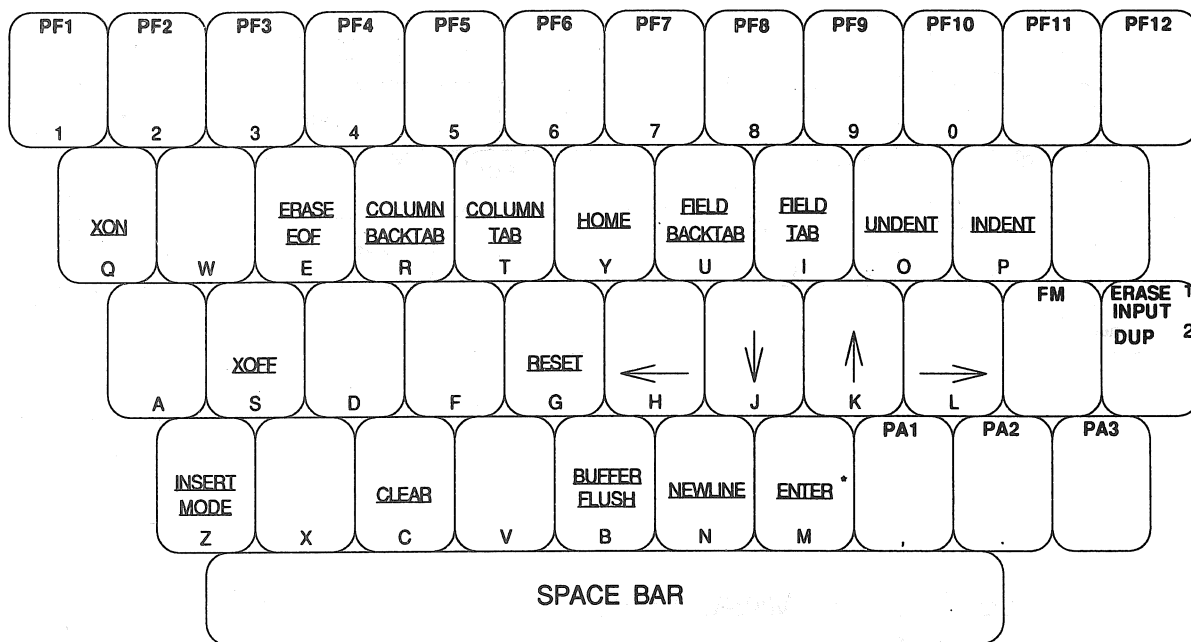
VT100 NUMERIC KEYPAD FUNCTION KEY LAYOUT



YALE VT100 TERMINAL TYPE ON A VT100 KEYBOARD

Underline means use control key at the same time.

* ESC before this key gives field mark



YALE STANDARD KEYBOARD LAYOUT

Underline means use control key at the same time.

Bold means use the escape key before the key with the function.

1 Unshifted key

2 Shifted key

* The RETURN or ENTER key will also perform the ENTER function.

4. Distributed Computing – Tony Bird, ext. 3391

4.1 PC Hard Disk Back Up Service

About this time last year users of floppy disk based Personal Computers were reminded of the need to make back-up copies of their files and a practical technique was explained. Since then, with the marked increase in hard disks on campus, the Support Group has received some (too few!) enquiries from users who want to back-up a 20/30mb disk. Unfortunately many enquirers then balk when the time, effort and cost of filling up to a hundred floppies is explained. Well salvation is at hand! The Support Group has purchased a streaming tape back-up unit and will back-up your hard disk, at your place or ours, for the price of a tape cartridge (currently \$56) plus the labour cost at \$36 per hour.

Alternatively, a really aware concerned user with a large investment in important files might like to contact us and discuss the possibility of regular back-ups on a scheduled basis.

A.J. Bird
ext. 3391

PRENTICE COMPUTER CENTRE

5. PRICE SCHEDULE FOR IBM 3083E KITS FROM 1.1.1988

5.1 Student Credit-Class Course Kits

Memory	Priority	CPU Limit (mins/sem)	I/O Limit ('000 ops/sem)	Disk Cylinders		Price (\$/sem)
1.5	Normal	40	200	†1	‡0	27.75
1.5	Normal	40	200	1	1	38.50
2.0	Normal	200	600	1	0	50.75
2.0	Normal	200	600	5	0	67.00

† Normal ‡ SQL

Notes:

1. These are semester kits for credit courses only.
2. Charges and limits are per semester.
3. Charges are for processing only. Printing, tape mounts etc are additional.

5.2 Student Cash Kits

Memory	Priority	CPU Limit (mins/sem)	I/O Limit ('000 ops/sem)	Disk Cylinders		Price (\$/sem)
1.5	Normal	40	200	1	0	45.00
1.5	Normal	40	200	1	1	49.75

Notes:

1. These are semester kits for cash sale to undergraduate and post-graduate students.
2. Charges are for processing but include printing to the value of \$5. Additional printing, plotting etc is charged at standard rates.
3. Charges and limits are per semester

5.3 Unrestricted Kits

Memory (M Bytes)	Priority	Price (\$/month)	% Change (from 1987)
1.5	Normal	187	-6.5%
1.5	Low	140	0.0
1.5	Very Low	56	new
2.0	Normal	265	+ 6.0%
2.0	Low	199	-0.5%
2.0	Very low	80	new
3.0	Normal	292	new
3.0	Low	219	new
3.0	Very low	88	new
4.0	Normal	321	+ 7.0%
4.0	Low	241	-3.6%
4.0	Very low	96	new
5.0	Normal	353	new
5.0	Low	265	new
5.0	Very low	106	new
6.0	Normal	388	+ 10.9
6.0	Low	291	-3.0%
6.0	Very low	116	new

Notes:

1. Low priority attracts a 25% discount off normal priority.
2. Very low priority attracts a 70% discount off normal priority.
3. Each additional MByte of memory in excess of 2MBytes represents a price increase of 10%.
4. Clients will now be able to purchase 3MB and 5MB kits.
5. Disk storage (mini-disks and SQL database space) is not included in the above prices.

5.4 Restricted Kits

Memory (MBytes)	Priority	CPU limit (mins/month)	I/O limit ('000 ops/month)	Price (\$/month)	% Change (from 1987)
1.5	Normal	10	50	43	+ 7.5
2.0	Normal	50	150	80	+ 6.7
3.0	Normal	75	200	120	new
4.0	Normal	100	250	159	+ 6.0
5.0	Normal	175	375	212	new
6.0	Normal	250	500	265	+ 6.0

Notes:

1. Clients will now be able to purchase 3MB and 5MB kits.

2. The I/O limit for the 2MB kit has been significantly increased from 100,000 to 150,000 I/O operations per month.
3. Clients who exceed limits will be denied access to the system for the remainder of the month. The clients can elect to upgrade to an unrestricted kit for the incremental cost of an unrestricted kit.
4. Disk storage (mini-disks and SQL database space) is not included in the above prices.

5. Charges for On-line Disk Storage

Disk storage is allocated in two ways:

Mini-disks (600 Kbytes per unit) and

SQL database space (512 Kbytes per unit).

Storage can be provided in increments of one storage unit. Examples of charges are as follows:

Units	\$ per month
1	4.77
2	9.17
3	13.27
4	17.15
5	20.84
10	37.38
25	78.08
50	135.10
100	234.89
250	495.80
500	884.15
1000	1593.37

PRENTICE COMPUTER CENTRE

CHANGE OF VAX USERNAME EXPIRY DATE TO 24-DEC-1988

DEPARTMENT:.....

USERNAME**EXPIRY DATE** (if other than above)[illegible]

SIGNATURE (Financial Delegate):

★ PLEASE RETURN AS SOON AS POSSIBLE — 24th DECEMBER IS TOO LATE! ★

PRENTICE COMPUTER CENTRE

CHANGE OF KL-10 PPN EXPIRY DATE TO 24-DEC-1988

DEPARTMENT:.....

PPN

EXPIRY DATE (if other than above)

[illegible]

SIGNATURE (Financial Delegate):

★ PLEASE RETURN AS SOON AS POSSIBLE — 24th DECEMBER IS TOO LATE! ★

