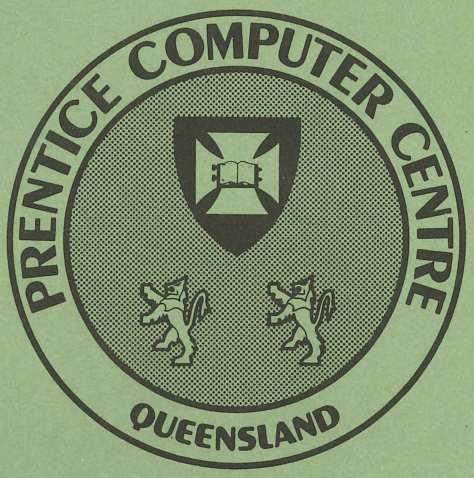
PRENTICE COMPUTER CENTRE



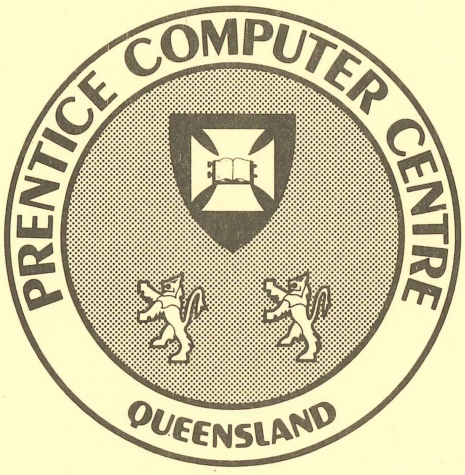
GENERAL INFORMATION

Technical Manual Number 1

MNT-1
March, 1983

This manual has been authorized by the Director of the Prentice Computer Centre.

PRENTICE COMPUTER CENTRE



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SYSTEM 1022 (TM) is a proprietary product of Software House, Cambridge, Massachusetts.

UNIX (TM) is a product of Bell Laboratories.

Information in this document may become out-of-date as it is subject to change without notice. Whenever possible, all changes are advised through the Newsletter and users should ensure that they have access to copies of it.

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Preface

Objectives

The purpose of this brochure is to provide an overview of the services and facilities offered by the Prentice Computer Centre and the administrative arrangements necessary to make use of the Centre.

Intended Audience

This manual is intended for users new to computing or unfamiliar with the systems and services available from the Prentice Computer Centre.

Format of this Document

The manual is divided into six parts:

Part 1 provides a general summary of services offered by the Centre, and deals with its management, the locations of facilities and hours of operation.

Part 2 covers general services offered by the Centre in greater detail and gives other information which is not specific to any one system.

Part 3 gives conditions of use and explains the general procedures which are required in order to establish and maintain an account.

Part 4 contains a section for each machine system and outlines such things as intended use, charging rates and hours of operation.

Part 5 gives information on the Student Low Overhead Timesharing Service (SLOTS) and Student Accounting.

Part 6 provides a brief history of the Prentice Computer Centre.

Associated Documents

Intending users should also consult the Introductory Technical Manual MNT–1 *Using the U.Q. PDP–10 System* or MNT–20 *VAX PRIMER* and other detailed reference manuals referred to in this publication.

PART 1

GENERAL INFORMATION

Introduction

The Prentice Computer Centre is a central support department for the University of Queensland and Griffith University. It provides timeshared interactive and batch computing services at prescribed rates. The Centre assists teaching, research and administrative work throughout the Universities by the provision of specialized programming and consulting services, the survey and development of general use programs, the development of specific programs on behalf of users (at prescribed charges), the provision within budget constraints of state-of-the-art hardware facilities, and the development of communications facilities. It also offers a data entry service as well as software and engineering support services for departmentally-owned computing equipment. The Centre also provides services to external clients, mainly the Queensland Tertiary Admissions Centre, other educational institutions, and State and Commonwealth Government departments who have special requirements which may be best met by the equipment and facilities available at the Prentice Computer Centre. There are currently more than 160 user departments/organizations and approximately 4500 individual user accounts on three computer systems. The computers are in operation on an operator-attended basis up to three shifts daily for five days of the week, and on an unattended basis early mornings and weekends.

The Prentice Computer Centre should not be confused with the Department of Computer Science which is the academic department responsible for teaching and research in computing at the University of Queensland. The Computer Science Department is located on the second floor of the Hawken Building. Enquiries regarding formal course offerings should be directed to that department.

Services Summary

COMPUTER SERVICES—Interactive and batch computing services based on Digital Equipment mainframes.

NETWORK FACILITIES—Remote batch stations, remote terminal concentration, inter-machine communication.

MINI- AND MICRO-COMPUTER SUPPORT—Hardware and software development, maintenance and support.

TYPESETTING AND LETTER QUALITY PRINTING—A typesetter and special printers together with associated software packages.

CONTRACT PROGRAMMING—Provision of pool of analysts and programmers to assist users with development of computer applications.

APPLICATIONS PACKAGES—Support for a wide range of applications packages.

TRAINING AND CONSULTING—Class and audio-visual courses, general and specialist consulting.

MANUALS AND NEWSLETTER—Reference manuals for languages, packages, etc., a regular newsletter to notify changes and developments.

ADVISORY SERVICES—Advice on planning and procurement of computing equipment.

DATA PREPARATION—Data entry and verification.

PROGRAM LIBRARY—A large range of programs covering most disiplines are available in the program library.

Policy, Management and Administration

The Director is the chief executive and technical officer of the Centre. He is responsible to the Computer Centre Management Committee for the effective functioning of the Centre within prescribed policy and acts under the general direction of the Deputy Vice-Chancellor, (Fabric and Finance) University of Queensland subject to control by the Senate of the University.

The Management Committee consists of the Deputy Vice-Chancellor (Fabric and Finance) University of Queensland, the Vice-Chancellor Griffith University (or nominee), the Chairman of the Research Committee University of Queensland (or nominee), the Head of the Department of Computer Science University of Queensland, the Chairman of the Computing Policy Committee University of Queensland, the Business Manager Griffith University and the Director of the Prentice Computer Centre.

The University of Queensland and Griffith University each have a Computing Policy Committee. These Committees represent the main interests of each University, teaching and research together with the needs of Administration. The Director of the Prentice Computer Centre is a member of both Committees. The Committees are concerned with the planning and coordination of computing resources, both central and departmental, throughout the Universities and with making recommendations on the annual allocation of equipment funds for computing.

Location

The main offices and central computing equipment of the Prentice Computer Centre are located at the eastern end of the Hawken Building (Building No. 42) on Staff House Road.

Various facilities and service areas are located at:

(a) The ground floor of the Hawken Building. This is the main service area.

(b) The Science 2 Building (Room 1.15) at Griffith University, Nathan.

(c) Level 2 of the Commerce Building, University of Queensland.

Opening Times

Operators are on duty in the Hawken Building area during the following times:

Monday	0800–2400
Tuesday to Friday	0000–0345
	0800–2400
Saturday	0000–0230

These times are referred to as *attended* hours or sessions. The systems are available for these attended hours and also for much of the remaining time on an unattended basis. During the unattended times no services requiring the attention of an operator may be performed. For example:

(a) No output can be printed

(b) No discs or tapes can be mounted

(c) If a non-recoverable machine failure (or 'crash') occurs the system will not be restarted until the next operator-attended session.

General enquiries and receipt and dispatch of work are handled as follows:

Hawken Building	0800–2400	Monday to Friday
Griffith University	0830–1630	Monday to Friday

In the Hawken Building self-service pigeon holes are provided for the distribution of output. These may be locked if desired.

PART 2

GENERAL SERVICES

User Information

The Prentice Computer Centre provides various information for users wishing to know about different aspects of the Centre, its resources and its development.

Computer System Status Service

The Computer System Status Service is a recorded telephone answering service giving users details of times for attended and unattended service and the state of the system in the event of a malfunction. The University of Queensland extension is 3101 and the direct number for other areas is 377 3101.

Login Message

This is automatically printed on the user's terminal when a job is initiated. It provides brief summaries of important announcements.

Newsletter

The Prentice Computer Centre Newsletter provides timely information about changes to machines, services and programs, and other information of general interest to the Centre's clients. It also contains a list of Centre phone extensions. It is mailed to the head of each University department or section, nominated liason staff and, on request, other active users. Please contact the Centre (extension 3018) if you do not have ready access to a copy and would like to be included on the mailing list. Copies are also available from the Hawken and Griffith Service Areas.

Manuals

The Centre provides a number of manuals detailing the various facilities offered. Although some of these are standard computer manufacturers' handbooks, the Centre also publishes its own manuals for those features peculiar to this organization, for elaboration and explanation in areas where a manufacturer's manual is felt to require amplification, and for locally developed software. A comprehensive range of manuals is kept, covering the many languages and utility packages available on the various machines. These can be purchased at the Hawken and Griffith Service Areas.

Program Library

The aim of the program library is to make available to users as many software packages and routines as possible. Material included in the library comes from a wide variety of sources. In addition to material from manufacturers, user groups and other Universities, users are invited to contribute programs of general use. To be accepted into the library, programs must meet certain installation standards. Requests for additional programs to be included should be made to the Systems Analyst—User Services providing full details

of the programs required, and where applicable, the name and address of the institution offering the programs, the charge (if any), and any known conditions or restrictions.

The Program Librarian will be pleased to assist users with any difficulties.

Facilities

Public Client Areas

Client Areas have been established at the Commerce and Griffith service areas for the benefit of users and it is hoped that all will cooperate to maintain them as pleasant work areas. These areas have terminals and table work space.

We ask users to observe the following points:

(a) NO SMOKING in the Client Areas.

(b) NO FOOD or DRINK to be taken into the areas.

(c) Please keep the level of noise to the minimum necessary to do your work.

(d) Report any terminal fault to the Centre (University of Queensland extension 3938).

(e) Cooperate with each other to ensure that all have a fair share of the terminals. Terminal use should be limited to approximately 15 minutes unless there is no one waiting.

(f) When you have finished your work, please place all your rubbish in the bins provided before leaving. Cleaners will remove all paper, notes, etc. from the room daily.

Opening times are:

Griffith University	0830–1630	Monday to Friday
Commerce Building	0000–2400	Monday to Sunday

Telephone Couplers and Dial-up Lines

Two couplers, as well as one terminal (with built-in coupler), are available for temporary connection to the computer systems via a normal telephone line.

There are two telephone numbers with three lines each via which a user with a coupled terminal can connect to the systems. They are:

371 2799
371 4177

The hire charges to University users for a coupler (terminal in parentheses) are:

per hour or part	$0.75 (1.50)
overnight	$2.50 (5.00)
per day (24 hours to 0830)	$5.00 (10.00)

The rates for other users are twice those for University users.

Booking of these devices can be made with the Accounting Supervisor on extension 2188 (8 a.m. to 4 p.m.). After 4 p.m. bookings can be arranged at the Hawken Building Service Area (extension 3024).

Letter Quality Printing

Special printers, capable of high quality output, are available for the production of theses, reports, manuals and other documents. These are situated in the Hawken Service Area and requests for bookings should be directed to that area. The charge for using either of these terminals is $2.00 per hour with a minimum charge of $2.00. A laser printer offering cheap, book-quality output is to be installed in 1983.

Typesetting

The University has a *Compugraphic MCS8400* phototypesetter which is situated at the Centre and connected to the KL10 computer system. Approximately 80 fonts are available in typesizes from 6 to 72 point (about 2 to 25mm). Maximum line length is 72 picas (about 300mm).

Work may be directed to either of two queues. Work in the normal queue will be processed when the total quantity reaches the equivalent of 30 A4 pages or each night, whichever occurs first. Urgent work directed to the high priority queue will be processed immediately and should be available after approximately 10–15 minutes depending on the volume. The charges for University users are:

Normal	0.5 cents per mm of set type
High priority	0.5 cents per mm of total paper used.

For other users the rates are twice those for University users.

Plotting

The Centre has two *Calcomp* plotters in the Hawken Building.

The Calcomp–565 is a 279mm (11") incremental drum plotter with a step size of 0.25mm. Black ink with a pen size of 0.3mm is standard.

The Calcomp–936 is a 914mm (36") incremental drum plotter with a step size of 0.05mm and three pens which are program selectable. Biros are available in black, blue, red and green. Three sizes of black ink pens are available—0.35, 0.5 and 0.7mm. The standard pen is a blue biro.

There is also a plotter at Griffith University. It is a Calcomp–1012 with a width of 275mm, step size of 0.05mm and four pens.

The Centre has been funded to install a new high precision plotter in 1983.

Graphics Equipment

In the Hawken Building Service Area graphics terminals are available which may be used by arrangement with the operators at the Hawken Service Area. The equipment includes a *Tektronix 4014* display terminal for which the charge to University users is $3.00 per hour.

Self-Service Lineprinter

A self-service lineprinter available to users is located in the Commerce Building Service Area. Output of 30 pages or less may be queued to it from either the KA or KL computer systems. To obtain the printout the user should log in to the appropriate machine on the terminal beside the self-service printer. Requests will be deleted if not printed within a certain time. Refer to the relevant machine section.

Courses and Consulting

Courses And Seminars

The Prentice Computer Centre regularly conducts short courses on the use of its computer systems and other services. While these courses are intended primarily for members of staff and post-graduate students (who are admitted free of charge), non-University users may enrol upon payment of the appropriate fee.

These courses currently include:

(a) introductory courses (for users unfamiliar with computing in general or with the particular machines operating at the Centre)

(b) courses on various computing "packages" available, e.g.
- statistical packages
- data base management systems
- text-processing packages
- graphics packages

(c) elementary programming courses in both the FORTRAN and BASIC languages.

Occasional seminars are held to discuss recent developments in items of hardware or software. In addition, where particular groups indicate a desire for a special course, seminar or demonstration, such meetings can normally be arranged.

Courses are normally held in Room G13A at the western end of the Hawken Building. Details of forthcoming courses are notified in the Newsletter. Course enquiries should be directed to the Computing Education Officer and enrolments made by phoning extension 3018.

Consulting

The Prentice Computer Centre endeavours to assist users in the effective use of computers and offers a consulting service covering all aspects of computer use. Users will appreciate that Computer Centre staff are involved in other support activities and a fair balance must be struck between scheduled work and consultation. For this reason, the following procedures have been established:

(a) Under-graduate students must take all problems to their academic supervisor.

(b) A list specifying problem areas, computer mail boxes, names and telephone extensions will be published in newsletters and is available by typing HELP CONSUL on either the KL or the VAX.

(c) If a user is unable to solve a problem, he should report it to the Centre by sending electronic mail to the appropriate mail box chosen from the list.

(d) If a user feels a personal visit is necessary he should have any relevant program and data listings available before seeking an appointment with the appropriate Centre staff member chosen from the list of consultants. Users are requested to check this list regularly as the assignment of staff members to problem areas may change from time to time. A problem specification form must be completed for all personal visits in connection with programming problems.

No charge is levied for short consultations but a charge of $20.00 per hour may be applied to very lengthy consultations carried out on a user's behalf. This charge is levied at the discretion of the Prentice Computer Centre. It is of benefit to the Centre and all users if suspected computer and system program faults are brought to attention as quickly as possible, and a charge would not of course be levied in this case.

Preliminary Assistance

A limited amount of free assistance is available to help people using or wishing to use computing for teaching, research, administration and support. This includes

- advice on choice of hardware and software
- preliminary system design work
- estimates of programming and machine costs for submissions to research funding bodies

Contract Programming

Subject to the availability of sufficient suitable programming staff, the Prentice Computer Centre will undertake programming work for users on a paid contract basis. Charges are made for contract programming at different rates depending on the size and type of project and whether the client is classed as a University or non-University client.

A variety of special systems have been developed in connection with projects undertaken at the Centre and a user with a special requirement may find it worthwhile contacting the Centre to discover whether existing software might satisify his needs. These developments include special file access techniques, data entry packages, word processing packages, data storage and retrieval system, form generation packages for data entry systems, a flexible mail list package, a package and procedures to read and translate a variety of magnetic tape formats, simulators and cross-assemblers for mini- and micro-computers, development of program library maintenance procedures, procedures for producing microfiche and so on.

Magnetic Tape Conversion

Provision has been made for the reading of magnetic tapes written at other installations. A user may request the Centre to complete the conversion. This request is handled in the same way as a small programming contract and the client is charged for machine time and staff time at contract programming rates. It is necessary to know the format of the written tape, e.g. density, blocking factor, record length. It is strongly recommended that all possible information regarding the tape, and if possible a dump of the first few records be supplied. This can be an invaluable aid to the Centre staff converting the tape.

Before transferring any data via magnetic tape to a foreign installation, it is advisable to contact that installation to obtain their particular magnetic tape requirements.

Contract Programming Rates

The current charge rates for contract programming for University users are:

(a) Programming and Systems work for projects involving 25 hours or less of continuous work, or for non-continuous projects ... $20.00 per hour. A Prentice Computer Centre *Small Job Requisition* form must be tendered for small contracts.

(b) Programming and Systems work for projects of a continuous nature, or greater than 25 hours ... the actual salary costs of the staff involved (based on a year of 220 working days) plus a 15% management fee.

For other than University users rates are by negotiation and will be comparable with current commercial rates.

Data Preparation

The Centre offers a data preparation service covering entry and verification of data at prescribed charges. Special expertise exists for entry of text for typesetting and survey data.

The Data Preparation service is available both on a first-come-first-served basis and by advance bookings (not for verification). The Centre cannot guarantee that work submitted under the first-come-first-served basis will be completed by a specified time.

Reservations for advance bookings will be accepted under the following conditions:

(a) The minimum time which can be booked is 15 minutes.

(b) Bookings should be made at the Hawken service area.

(c) Cancellations should be notified at least 24 hours in advance of an allocated booking, otherwise a charge may be levied for the period booked.

(d) If the work involved exceeds the time booked, then the work may be terminated. Arrangements can be made subsequently for the completion of the work.

The hourly rate for data entry or verification is $12.00 for University users and $24.00 for non-University users.

Departmental Computer Support

A large range of computing equipment and terminal support services are available to Departments and Schools through the Centre. These services include assistance with purchases of computing equipment, connection of equipment to the communications network, hardware maintenance, software support, library programs and development of special interfaces to instrumentation.

Hardware Support Services

Generally full preventative and remedial maintenance services are available for a range of 'supported' computing equipment and terminals. The Centre negotiates collective purchase contracts with suppliers for a wide range of computing equipment, peripherals, terminals and software. Orders for the purchase of such items should be placed through the Centre.

The Centre has extensive micro-processor development facilities and can program a large variety of fuseable link PROMs and EPROMs. Programs can be prepared and assembled on the PDP–10 for convenience and transmitted to a prototype system or the PROM programmer for testing or programming.

The Centre also offers a hardware design and development service for digital systems, particularly micro-processor based systems.

Software Support Services

The Centre currently supports more than 50 PDP–11 mini-computer systems in various departments within the universities. This support entails distribution and maintenance of RSX–11M, RT–11 and TSX–11 operating systems and associated languages, utilities and packages. The Centre, on behalf of the Universities, controls leasing arrangements for this software and other general use software such as UNIX and various applications packages.

The number of micro-computers being purchased by departments is increasing rapidly and the Centre will support a limited range of micro-computing hardware and software.

Charge Rates

The Centre offers a hardware maintenance service for supported departmental equipment as follows:

(a) Supply of spares only (as available) at the cost of the spares plus 15% to cover administrative costs; or

(b) A complete preventative and remedial maintenance service including the cost of spares used, charged at a rate depending on the equipment, but usually less than externally provided maintenance services; or

(c) An engineering consulting service to provide your technician with assistance on diagnosis, difficult problems, interfacing and other equipment, etc. Consulting rates—$20.00 per hour for small contracts or actual staff cost plus 15%.

(d) An engineering development service to design and develop specialized interfaces or other equipment for use with departmental computing equipment. Consulting rates—$20.00 per hour for small contracts or actual staff costs plus 15%.

The Centre will be responsible for software support to PDP–11s as follows:

(a) Distribute and maintain the standard software at no charge.

(b) Modify standard software or provide programming at contract programming rates.

PART 3

ACCOUNTING AND CONDITIONS OF USE

General

Computing services provided by the Prentice Computer Centre for the University of Queensland and Griffith University are charged for on a real money basis. The Centre must, from the charges levied, recover the full running cost of operation (including staff salaries) each year.

All accounting enquiries and control are handled at the Hawken Service Area from 8.00 a.m. to 4.00 p.m. Monday to Friday. The information given here is general. System specific information is given in the relevant machine sections in Part 4.

Registration as a User

A form, *Authority to Establish New User*, available from the Centre must be completed. Since the use of computing facilities costs money, it must be signed by a financial delegate in terms of the Conditions of Use and Liability Statement given below and on the back of *Computer Centre Order Forms*.

Intending external (that is other than University) users must also apply to the Director for approval to establish an account before proceeding further. The attention of prospective external users is also drawn to the minimum monthly charge which applies.

Funding and Orders

The user must commit funds from a University account to a Computer Centre charge code by completing a *Prentice Computer Centre Order* for computing services, which will establish an expenditure limit for subsequent use. All processing costs will be charged against the charge code. As funds are depleted the user must supply new orders to give the charge code a positive balance to enable work to continue. Information on expenditure on all accounts is sent to departments in the form of monthly statements.

Expenditure on all charge codes is posted to the controlling accounts on a monthly basis.

Pads of order forms are available from the University stationery store; for external users, forms are available from the Accounting Supervisor at the Hawken Service Area. The order form is in duplicate. The copy should be retained by the user department for their records and the original should be forwarded to the Centre for entry of details. The information on the order form includes the department name, the user name, the official account (for University users) from which funds are to be supplied, and the Computer Centre charge code to which the money is credited.

Conditions of Use

As a matter of formal procedure, the Prentice Computer Centre offers its services subject to a set of conditions of use and liability. These are detailed below and are also printed on the back of each order.

The services may only be used in the manner described in the various manuals and other documentation issued by the Prentice Computer Centre and at the charge rates which apply. The listing of systems software is not permitted except with the approval of the Director.

The Prentice Computer Centre recognizes that no operating system can be made proof against intelligent attack and monitoring programs are run periodically to ensure that the systems are being used correctly. Should cases be found where a system is not being used in an acceptable manner, this may result in the immediate withdrawal of service and, if appropriate, such further action as the University considers warranted.

These points on conditions of use are raised as a matter of formal administrative procedure. The Centre's attitude is to encourage cooperation between itself and users in order to maintain a first class computing service on campus.

CONDITIONS OF USE AND LIABILITY STATEMENT

The following conditions of use are the conditions of the contract constituted by the University's acceptance of the order on the face hereof.

1. In these conditions
   (i) "user" means a person who orders work.
   (ii) "financial delegate" means the person, whether a member of the staff of the University or not, who accepts responsibility for the payment for work.
   (iii) "work" means each job undertaken by the University in fulfilment of the order on the face hereof.
2. The University shall be under no liability for breach of contract or in part or as to any matter or thing of whatsoever nature arising out of or in connection with its undertaking work, save and except as provided in these conditions, and in particular and without limiting the generality of the foregoing, the University will not in any circumstances be liable for any incidental or consequential damages of any nature or kind whatsoever.
3. The user and financial delegate each acknowledges that no warranty, condition or representation on the part of the University has been given or is to be implied from anything said or written between the parties or their representatives or contained in any publication of the University or the Prentice Computer Centre, and any warranty, condition or representation, including but not limited to any warranty, condition or representation as to the liability of the University is hereby expressly excluded.
4. The University will instruct all personnel engaged in the Prentice Computer Centre that they must protect the confidentiality of information and material furnished by users but shall be under no liability whatsoever in the event of any improper disclosure by such personnel.
5. The University will be under no liability for any loss or damage resulting from or in connection with delay in proceeding with or completing work.
6. Work is undertaken by the University on the condition that the user warrants that the work can be performed without the infringement of any patent or breach of any copyright.
7. The user acknowledges in relation to software products supplied to the University under licence e.g., Calcomp, SPSS, IMSL) that the Prentice Computer Centre may disclose such external and interface details of such software as may be reasonably necessary to their proper use only on condition that the user agrees that the software products or any part thereof are the property of the supplier and are proprietary to the supplier and that the user shall hold the software products or any part thereof in confidence for the supplier. The user agrees accordingly.
8. The user shall within fourteen (14) days of the completion of the work notify the Director of the Prentice Computer Centre in writing of any error resulting or alleged to have resulted in incorrect or lost results. Except for any error so notified, the work shall be deemed to have been accurately and correctly performed.
9. Subject to paragraph 8, where notification of error has been received and it is established that a notified error has caused incorrect or lost results, the University will undertake a re-run of the work at no extra charge, provided that a re-run is reasonably practicable. In the event that a re-run is not reasonably practicable the University will refund to the user an amount not more than the amount paid by the user to the University as the cost of the run in which the error was detected but shall be under no other or greater liability.

10. If a notification is in respect of an error attributable to a fault which has been reported by the University in any of its Prentice Computer Centre publications or by written memorandum to the user, or is attributable to failure by the user to conform with the procedures set out in the appropriate supplier's software manuals with such additions as are notified from time to time by the University in Prentice Computer Centre publications, or by memoranda to the user, the University will be under no liability to re-run or make any refund in respect of that error.

11. The University shall be under no liability to re-run or allow credit where an error in results has resulted from an error of judgement or interpretation by Prentice Computer Centre personnel.

12. The University will be under no liability to re-run or allow credit for any loss resulting from the failure of the user adequately to safeguard himself against the possibility of loss of information within the Prentice Computer Centre systems.

13. Without limiting the effect of any of the above conditions, if any material furnished by the user is lost, destroyed or damaged as a result of neglect on the part of personnel employed in the Prentice Computer Centre or breakdown or fault in the machinery, and the user provides the University with all source information in machine readable form necessary to make restoration of that material reasonably practicable, the University will restore the material.

14. Nothing in the above conditions will require the University to accept any liability or undertake any re-run when incorrect results, loss of results or material, or destruction of or damage to material occur as a result of or in connection with the use by the user of other than the supported facilities notified from time to time in Prentice Computer Centre publications, or the use of supported facilities in other than the manner approved by the University.

15. The user and financial delegate jointly and severally hereby agree to indemnify and forever save harmless the University and each and every member of its staff against all actions, claims or demands for infringement of patent or breach of copyright which may be brought or made against the University or any such member of its staff arising out of or in connection with the performance of the work.

PART 4

MACHINE SYSTEMS

The available systems which are discussed separately below are:

(a) Digital Equipment PDP–1090 dual processor system (KL10)

(b) Digital Equipment VAX 11/780

(c) Digital Equipment PDP–1055 dual processor system (KA10)

The Centre is commissioning a *Computervision CAD/CAM* (Computer Aided Design/ Computer Aided Manufacture) system. More information on this system will be provided via the Newsletter and in future revisions of this manual.

KL10 System

The PDP–1090 system is a general purpose system with a diverse range of software. It is used for teaching, research and administrative applications by both Universities as well as by some approved users external to the universities. The operating system is Digital's TOPS–10 7-series with some Computer Centre modifications.

The most commonly used languages together with a cross reference to the detailed reference manual are listed below. Other languages e.g., SNOBOL) that are less frequently used are available and enquiries should be directed to the Program Librarian.

Language	*Reference*
ALGOL	ALGOL Programmer's Guide ALGOL Programmer's Reference Manual
BASIC	BASIC Manual BASIC User's Guide BASIC Reference Card
COBOL	COBOL 68 Language Reference Manual COBOL Utilities COBOL Pocket Reference
FORTRAN	FORTRAN–10 Programmer Reference
MACRO–10	MACRO Assembler Reference Manual MACRO–10 Assembley Language Printout

PASCAL	DOC:PASCAL.MAN
SIMULA	SIMULA Manual (Available for reference from the Centre) SIMULA Printout SIMULA Reference Card

General Packages which are available include:

Package	*Use*	*Reference*
SYSTEM 1022	Data base	1022 Printout
ITPS–10	Typesetting	MNT–7 TYPESETTING
QDATA	Data entry	MNT–4 QDATA
RUNOFF	Text formatting	MNT–14 RUNOFF
VG	Textual data storage and retrieval	MNT–5 VG USER GUIDE
CALCOMP ROUTINES	Plotting	MNT–11

The Centre supports a large range of scientific and statistical packages for the PDP–10 system. It is recommended that new users of the statistical packages refer to the manual MNT–3 STATISTICAL PACKAGES ON THE PDP–10. The major packages with references are:

Package	*Use*	*Reference*
GENSTAT	Data manipulation and statistics	DOC:GENST.DOC GENSTAT manual from Centre
IMSL SUBROUTINES	Maths and statistics	MNT–3 The IMSL Library (Available for reference from the Centre)
NAG	Numerical Analysis	from Centre
STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES	Statistics	SPSS Manual Nie Bent and Hull McGraw–Hill
STATPACK	Simple interactive statistics	DOC:STP.DOC

A number of packages are available to assist with the use of computers in teaching applications. This is an area of rapid growth demanding coordination across the Universities. Intending users of computer-based instruction techniques should in the first instance contact Dr. B. Carss, Dean, Faculty of Education, University of Queensland, or Dr. R.A. Ross, Director, Centre for the Advancement of Learning and Teaching, Griffith University as appropriate depending on institution.

Configuration

The PDP–1090 comprises two KL10B processors with:

- 1024 Kwords of primary memory
- 2800 million characters of on-line disc storage
- Two 9-track magnetic tape units
- High speed lineprinters
- Access to three digital plotters
- Access to *Compugraphics MCS8400* phototypesetter

Primary Memory Availability

The amount of primary memory available to individual user jobs varies with time of day:

Attended sessions:

0800–1800	70K
1800–0300	100K
After 0300	130K

Unattended sessions:

All times	130K

Users having need of memory beyond 130K should discuss requirements with the Operations Manager.

Disc File Allocation

The public file area must be shared by all users. For operational efficiency the public area is spread across several drives.

A user is allocated space on one of the public disc areas when an account is established. Disc space is specified in 'blocks'. On this system one block is equivalent to 640 ASCII characters. The normal limits are:

Logged in 10000 blocks
Logged out 1500 blocks.

This limited amount of on-line file storage is available to each user, as well as a virtually unlimited amount of off-line storage, accessible via the *File Migration System.* Users will help preserve this limited resource by keeping only a minimum working set of files on-line.

File Migration System

The File Migration System (FMS) facilitates the transfer of files between on-line and off-line (archive) disc areas. There is no limit set on the amount of off-line storage taken by a user but a file storage charge is levied. (See section on charging.)

For information on use of FMS, print the file DOC:FMSCOM.DOC or refer to Chapter 8 of *MNT–2 Using the UQ PDP–10 System.*

ARCHIVE commands are immediately effective. That is, archived files are moved from the users on-line directory immediately. RETRIEVE commands may take up to 2 hours to process and are processed only during operator-attended running.

Each January, off-line files not accessed since the beginning of the previous year are removed to tape by the Centre. This is necessary to avoid the off-line storage area becoming so large that the retrieval of files would take an unacceptable amount of time.

The TDIRECTORY command will list on the terminal the names of your files copied to tape since January 1980. To retrieve any of these files, users will need to complete a *File Retrieval Form* and submit it to the Operations Section. A list of files that have been sent to tape before January 1980 is kept at the Centre.

Private Secondary Storage

As well as the allocation on the public file storage area, users with special storage problems may hire private disc packs and magnetic tapes for their own use. Enquiries should be directed to the Operations Manager.

Private Disc Packs

Directories may be established for one or several users under control of the system. Packs may be hired on a monthly basis or, alternatively, on payment of a capital contribution a private disc pack will be made available to a user for a period of three years. Disc packs remain the property of the Prentice Computer Centre and cannot be taken from the computer room. The Centre accepts liability to replace faulty packs and will be responsible for storage. No pack from another installation will be processed at the Centre. As well as the hire charges for packs the usual charges for device usage and file input/output apply but there is no charge for file storage.

Use of disc drives for the mounting of private packs may be booked in advance at the computer room (ext. 3015). A one hour limit applies to bookings from 8 a.m.–6 p.m., while after 6 p.m. disc drives may be booked for a period of two hours. These limits are not enforced if no one else requires the drive. Discs may be booked for use on any operator unattended sessions including Sundays by ringing on ext. 3015. Requests should indicate the user and pack identification. A request for immediate mounting of a pack will be honoured if possible, although this will depend on the availability of the drives. Notice of cancellation of a booking is appreciated. In the case of the system not being available, the user will be charged only for the time during which the system was available. It will not be possible to extend the period of a booking which has been interrupted by a system crash if other users have booked the drive for use after the period in question.

Magnetic Tapes

The KL10 has two 9-track magnetic tape drives. The use of these tape drives may be booked in advance under the same conditions that apply to the booking of disc drives.

However, as operator intervention is necessary for their use, magnetic tapes cannot be used in any operator unattended session. Users are warned that although bookings can be made, scheduled system functions may inhibit availability of these drives. Further, hardware problems may at any time put a particular drive out of service and no application should be planned which assumes the availability of both drives. Magnetic tapes may be bought privately or hired through the Centre. If processing of tapes which have been stored away from the Centre is required, it should be noted that a two day acclimatization period within the Centre's air-conditioned environment is required before the tapes are used.

Arrangements must be made with the Centre for registration of tapes before use. An external label will be affixed to the tape and this label number is used for all future identification.

Limitation of Magnetic Tape Service

It must be appreciated that with such a large number of individual users, the widespread use of magnetic tape (e.g., as a means of extending storage allocation) is operationally impossible. Users are requested to restrict the use of magnetic tapes to essential needs that cannot be met by the Disc System e.g., communication with other machine systems.)

Backup

The Prentice Computer Centre is formally excluded from liability for the loss of information from data or program files. In practice, the Centre provides backup for the public areas and on request will arrange backup for private file storage. The Centre's backup system provides a high measure of reliability and is generally satisfactory for the normal processing which takes place. However, it is not absolutely foolproof and if very critical data is involved, users should make further arrangements for security of their files.

Public File Storage

Weekly: a total system backup is completed. These files are kept for three weeks.

Daily: a copy to tape of all files accessed in the previous day is taken. These tapes are kept for one week.

Private File Storage

It should be noted that magnetic tapes and private disc structures are *not* supported by the Centres backup procedures and users should make independent arrangements for backup if necessary. Of course backup of such data is always advisable and the Centre will undertake to back up users private disc structures at the users cost upon request. To arrange such backup procedures on your disc please contact the Operations Manager.

A minimum charge per file is levied for retrieval from these backup systems. Requests may be made by completing a *File Retrieval Request* form and submitting it to the Operations Section. Files should be restored to your area overnight.

Hours of Operation

A file, HLP:TIMES.HLP shows the hours of operation of all systems—both operator-attended and unattended.

The current times are as follows:

Monday	0000–0700	Unattended
	0815–2400	Attended
Tuesday to Friday	0000–0400	Attended
	0400–0700	Unattended
	0815–2400	Attended
Saturday	0000–0230	Attended
Sunday	0900–2400	Unattended

During the periods not covered in this table the KL10 is unavailable. These times are reserved for regular equipment maintenance and/or software development and testing. Subject to these needs the machine may be available for unattended use on some Saturdays.

Output will be distributed to users pigeon holes only during attended hours.

Charge Rates

System use is charged for using base rates which in most cases are modified by various factors. These are:

(i) User Category

Users fall into three groups classified as follows:

(a) Internal users are Departments of the University of Queensland and Divisions of Griffith University. They are charged at the base rate.

(b) High Schools and other approved institutions are charged at 1.7 times the base rate.

(c) External users are all other users not included in the above classes. They are charged at 3.6 times the base rate.

A minimum charge of $20.00 per month applies to charge codes for users other than those from the University of Queensland and Griffith University.

(ii) Time of day (Terminal use)

After certain hours, terminal users will be charged at less than the normal rate for terminal work.

Normal rate from start of day shift to 6 p.m.

40% of normal rate for jobs logged in after 6 p.m.

25% of normal rate for jobs logged in during unattended operation.

Spooling is always charged according to the priority the user allocates to that task. Device setup and assignment and consumable items are charged at normal rates at all times. An exception is the connect time fee for private disc packs which is 0.5 times the rate after 6 p.m.

(iii) Priorities (Batch jobs and Spooling functions)

Batch jobs and spooling functions can be assigned a priority code in the range 1–62. This code determines (with other factors) the order in which the system selects jobs to be executed, jobs with higher codes being given precedence over jobs with lower codes. If no code is specified, the value 10 is assumed as standard. The following table gives the factors by which the standard rates are multiplied, for the priorities used.

Priority Code	*Pricing Factor*	*Nominal Service*
1– 2	0.25	Weekly turnaround
3– 4	0.5	Overnight turnaround
5– 9	0.7	Better than overnight turn-around but processing does not commence until after 2100 hours.
10	1.0	One or two hours turn-around depending on load and size of job. The normal priority if a user omits the priority switch.
11–20	1.5	Super Priorities
21–40	2.0	
41–60	3.0	
61–62	4.0	

Notes:

1. For terminal users priorities are applied to spooling operations only.
2. The lowest priority rate does not apply to printing and plotting functions. If an attempt is made to use priorities 1 and 2 for these functions, the system will automatically change the pricing factor to that for priority 3 and 4.
3. Some spooling functions provide a deadline option which enables the user to specify the time by which a job must be completed. This is implemented simply by the system increasing the job priority as the deadline approaches, until the priority is so high that the job is executed. Hence no exact specification of the charge for a given deadline job can be given.

KL10 BASE RATES

Item	*$*	*per*	*Varies with:*		
			User Category	*Time of Day*	*Priority*
Processor Time	3.30	minute	Y	Y	Y
Memory Space	0.414	Kwords per minute	Y	Y	Y
File I/O	0.425	1000 blocks	Y	Y	Y
Line Printing	0.045	page	Y	N	Y
Self-service Line Printing	0.015	page	Y	N	N
Plotting (279mm plotter)	0.04	minute	Y	N	Y
Plotting (914mm plotter)	0.08	minute	Y	N	Y
Plotting (914mm paper)	1.00	metre	N	N	N
File storage (on-line)	0.20	1000 blocks per day	Y	N	N
File storage (off-line)	0.025	1000 blocks per day	Y	N	N
Setup Printer for non-standard stationery	1.50		Y	N	N
Setup plotter	1.00		Y	N	N
Mounting of Disc Pack	1.50		Y	Y	Y
Mounting of Magnetic Tape	0.60		Y	Y	Y

Connect time (Disc Drive)	4.00	hour	Y	Y	Y
Connect time (Mag Tape)	3.00	hour	Y	Y	Y
Private Disc Pack Hire	20.00	month	N	N	N
Capital contribution for 3 year availability	400.00		N	N	N
Magnetic Tape Hire (2400ft)	2.00	month	N	N	N
Magnetic Tape Hire (1200ft)	1.00	month	N	N	N
Magnetic Tape Storage	0.50	month	N	N	N
Magnetic Tape Purchase (when available)	price varies according to Centre's buying price				
Retrieval of File by Centre	5.00	file	N	N	N

Note: Small files spooled to the self-service printer are deleted if not printed within seven days.

Despite the relatively complicated schedule of charges, most users find that with a little experience they quickly get a 'feel' for the likely cost of their own work. The most important factors to consider are the time-of-day and priority rates which can give significant cost reductions if used intelligently.

Use of the KL System

Upon registration, a new user is allocated the following items.

1. *Project–Programmer Number* (PPN):
   This identifies the user to the system and is also used to differentiate between his and other users' disc files.
2. *Password:*
   The password must be given when logging onto the system as security against unauthorized use of the PPN. Although it is initially allocated by the Centre, it can (and should) be changed by the user immediately and at frequent intervals.
3. *User Name:*
   This is usually the user's surname. It is printed together with the PPN on computer output as a means of identification.
4. Box Number:
   The Box Number corresponds to the number of the pigeon hole from which the user may collect output.

Charge Code:
One Charge Code may have several PPNs. For example, users from a single department doing related work might have individual PPNs (to separate their files) all billed to the one charge code. The charges for resources utilized are posted by the system against a charge code.

Expenditure Control

The balance of account, which is printed each time the user logs in, reflects the status of the user's charge code following its last update.

A cost limit based on the user's estimate of the cost of the session about to be initiated, and which is less than the balance of the account, must be specified at each login.

Charges are accumulated incrementally during the session and when the cost limit is exceeded, the job stops. At this point the interactive user has the option of extending the cost limit (up to the balance of the account) and continuing. A batch job however, would normally terminate.

If a user does overspend his authorized amount, the charges are payable and the system will not permit the user to login again on subsequent days until the account is placed in credit by a further order.

Cancellation of Inactive Users

The presence of files and accounting entries for inactive users causes an increase in system overheads and may restrict access by other potential users. For this reason, the Prentice Computer Centre regularly monitors usage and may remove inactive users.

All PPNs are established with an expiry date which is normally close to Christmas of the current year. As the expiry date approaches the user is warned at every login and a continuing user must arrange for the extension of the expiry date. Periodically all expired PPNs will be removed from the system. When a PPN is removed, whether by request or because of expiry, all files associated with that PPN are deleted.

VAX 11/780 System

The VAX has been implemented as a low overhead system servicing teaching and research work for the University of Queensland and Griffith University. While use is primarily for students and teaching staff of the Universities, it is available to Administration, support services and non-university clients on application to the Director.

It is a multi-user system with a 32-bit architecture, memory management hardware and virtual memory operating system. The operating system is VAX/VMS (Virtual Address Extension/Virtual Memory System). UNIX-type facilities are available through EUNICE, a package distributed and maintained by The Wollongong Group, 1135A San Antonio Road, Palo Alto, CA 94303–4374.
Languages available on the VAX are:

BASIC
COBOL
FORTRAN
PASCAL

Packages include:

SPSS—Statistical Package for Social Sciences
EUNICE—provides a UNIX environment
RUNOFF—text-formatting
NAG—Numerical Analysis

Configuration

The VAX has:

- 4 Mbytes of primary memory
- 400 Mbytes of on-line disc storage
- a TE16 9-track magnetic tape unit
- a lineprinter

Disc File Allocation

The disc quota allocated to each user is as follows:

Logged In	10000 blocks
Logged Out	1500 blocks

On the VAX one block is equivalent to 512 characters.

If over quota, the user may delete files to be under quota or remain over quota but pay penalty charges. The user is informed at both LOGIN and LOGOUT if quota is exceeded.

Hours of Operation

The current times are as follows:

Monday	0000–0700	Unattended
	0900–2400	Attended
Tuesday to Friday	0000–0400	Attended
	0400–0700	Unattended
	0900–2400	Attended
Saturday	0000–0230	Attended
Sunday	0900–2400	Unattended

During the periods not covered in this table the VAX is unavailable. These times are reserved for regular equipment maintenance and/or software development and testing. Subject to these needs the machine may be available for unattended use on some Saturdays.

Output will be distributed to users pigeon holes only during attended hours.

Backup

Although the Prentice Computer Centre is formally excluded from liability for the loss of information from data or program files, it provides backup which ensures a high measure of reliability and is generally satisfactory for the normal processing which takes place. However, it is not absolutely foolproof and if very critical data is involved, users should make further arrangements for security of their files.

Weekly: a total system backup is completed. These files are kept for three weeks.

Daily: a copy to tape of all files accessed in the previous day is taken. These tapes are kept for one week.

A minimum charge per file is levied for retrieval from these backup systems. Requests may be made by completing a *File Retrieval Request* form and submitting it to the Operations Section. Files should be restored to the user's area overnight.

Charge Rates

Charges for teaching and research work processed on the VAX are:

	$	*per*
CPU Time	1.20	minute
File I/O	0.00055	transfer (one or more blocks)
Line Printing	0.045	page
File Storage	0.20	1000 blocks per day (up to quota)
	2.00	1000 blocks per day (over quota)
File Retrieval	5.00	file (minimum)

Note that overquota file storage charges are 10 times normal charges.

For work performed between 10 p.m. and 7 a.m. the CPU and File I/O rates are 50% of normal rates.

Use of the VAX 11/780

Upon registration, a new user is allocated the following items.

1. *Username:*
   This identifies the user to the system. It consists of a two character department code and up to ten characters for the name. For example, Smith in Agriculture would have the Username AGSMITH.

2. *Password:*
   The password must be given when logging onto the system as security against unauthorized use. Although it is initially allocated by the Centre, it can (and should) be changed by the user.
3. *User Identification Code* (UIC):
   This is a number pair which identifies a user as well as indicating file ownership.
4. *Box Number:*
   The Box Number corresponds to the number of the pigeon hole from which the user may collect output.
5. *Charge Code:*
   One Charge Code may have several UICs. For example, users from a single department doing related work might have individual UICs (to separate their files) all billed to the one charge code. The charges for resources utilized are posted by the system against a charge code.

Expenditure Control

The balance of account which is printed at LOGIN reflects the status of the charge code following its last update. The cost of the terminal session is printed on LOGOUT with information on CPU time. This amount does not include spooling costs.

Student Accounting (as on the KL and KA) is not available on the VAX.

Cancellation of Inactive Users

The presence of files and accounting entries for inactive users causes an increase in system overheads and may restrict access by other potential users. For this reason, the Prentice Computer Centre regularly monitors usage and may remove inactive users.

All UICs are established with an expiry date which is normally close to Christmas of the current year. A continuing user must arrange for the extension of the expiry date. Periodically all expired UICs will be removed from the system. When a UIC is removed, whether by request or because of expiry, all files associated with that UIC are deleted.

KA10 System

The KA10 system (installed 1968) is scheduled for replacement by the end of 1983. Until then it will be used solely for the Student Low Overhead Timesharing Service (SLOTS). See Part 5 for details of SLOTS and Student Accounting.

Configuration

The PDP–1055 is a dual processor configuration with:

- 192 Kwords (36 bit) of primary memory
- 230 million characters of on-line disc storage
- Two drum type digital plotters
- One lineprinter

Hours of Operation

A file, HLP:TIMES.HLP shows the hours of operation of all systems—both operator-attended and unattended.

The current times are as follows:

Monday	0000–0700	Unattended
	0815–2400	Attended

Tuesday to Friday	0000–0400	Attended
	0400–0700	Unattended
	0815–2400	Attended
Saturday	0000–0230	Attended
	0230–2400	Unattended
Sunday	0000–2400	Unattended

The times not covered in this table are reserved for preventive maintenance. Air-conditioning maintenance is scheduled for the first Saturday of every month. Consequently, on these days this system is not available from 4 a.m. Saturday until 9 a.m. Sunday.

Output will be distributed to users pigeon holes only during attended hours.

PART 5

STUDENT LOW OVERHEAD TIMESHARING SERVICE AND STUDENT ACCOUNTING

SLOTS (for Student Low Overhead Timesharing Service) provides a relatively low cost teaching service for students requiring computing in many departments. This is achieved largely by minimizing the range of services provided, especially those requiring operator intervention.

The SLOTS service is available on the KL and KA computers. The VAX is primarily for University teaching and research work and the standard charge rates for that machine are set to give approximate comparability with the SLOTS rates on the KL and KA. However, because of the difference in architecture and operating systems, costs for any individual job on the KL and VAX may be different. Differences in machine capacities and limits may give rise to some cost variations between the KL and KA. These variations however should be marginal.

Source of Funds—SLOTS processing may be funded only from Maintenance, URG and UC Special Research Grants as authorized by the Head of Department.

Size of Job—This will be measured by cost and the normal limit is $3 for undergraduate students and $6 for higher degree postgraduate students. Where particular undergraduate subjects can not be adequately handled on the basic $3 limit, the Director has authority to increase the limit to a maximum of $6 on application by the Head of Department. The same limits apply to batch jobs.

Restrictions— The lower charges are possible only by reducing operator overheads and this means that some services will not be available under the SLOTS system, viz.:

(a) No mounts by operators of magnetic tapes, discs or other media; no special stationery.

(b) Small files may be spooled to the self-service printer but they will be deleted if not printed within three days.

(c) No File Migration System.

(d) Terminals will be timed out and jobs automatically logged off after 5 minutes if there is no activity. The automatic logout will be K/B which will delete files off the user area to bring it within quota.

(e) At logout, temporary files will be deleted unless other jobs are logged in on a ppn.

(f) Systems software is restricted to the absolute minimum necessary to provide service. Requirements will be reviewed as necessary with departments.

(g) The special protections of FILE DAEMON are not available on SLOTS. Normal file protections apply.

(h) Restoral of files deleted by students is not normally done. Any request for such a service must come from the subject supervisor. The File Retrieval minimum charge is applicable.

Primary Memory Availability

The amount of primary memory available to individual user jobs depends on the time of year.

	KL	*KA*
During Semester	60K	40K
Between Semester	70K	70K

Disc File Allocation

	Logged in	*Logged out*
During Semester		
Higher-degree postgraduate students	5000 blocks	200 blocks
Undergraduate students	2000 blocks	100 blocks
Between Semesters		
All users	8000 blocks	400 blocks

The logged out quotas during semester may be increased by the Director to 600 blocks for higher degree postgraduate students and to 400 blocks for undergraduate students on application by Head of Department. Higher degree postgraduate students granted higher quotas would retain these between semesters.

During peak end-of-semester times the student discs fill up quickly. In an effort to keep the free disc space at a workable level it becomes necessary to delete student files not accessed for 21 days. This period may be reduced if necessary. File storage for undergraduate classes will expire one week after end of semester and, unless special arrangements are made by the subject supervisor, all student files will be deleted on that date.

SLOTS Charge Rates

Listed below are the charges and limits relevant to SLOTS users.

KL10

Item	*$*	*per*
Processor Time	1.10	minute
Memory Space	0.138	Kwords per minute
File I/O	0.142	1000 blocks
Line Printing	0.045	page
Self-service Line Printing	0.015	page
Plotting (279mm plotter)	0.04	minute
Plotting (914mm plotter)	0.08	minute
Plotting (914mm paper)	1.00	metre
File Storage	0.20	1000 blocks per day
Retrieval of file by Centre	5.00	file

KA10

Item	*$*	*per*
Processor Time	0.1833	minute
Memory Space	0.03	Kwords per minute
File I/O	0.142	1000 blocks
Line Printing	0.045	page
Self-service Line Printing	0.015	page
Plotting (279mm plotter)	0.04	minute

Plotting (914mm plotter)	0.08	minute
Plotting (914mm paper)	1.00	metre
File Storage	0.20	1000 blocks per day
Retrieval of file by Centre	5.00	file

Use of SLOTS

At the start of each semester the academic supervisor should register the subject with the Centre's Accounts Supervisor. An Order authorizing money from an appropriate fund is also necessary.

Supervisors from Griffith University must supply a list of student names to set up their accounts.

Student Accounting

The Student Accounting System provides a means by which the activities and expenditure of student groups may be administered and controlled. The supervisor is allocated the relevant [,100] area from which he controls the project accounts. A student file on the supervisor's area contains account details such as expenditure limits, exercises and number of runs allowed.

To gain access under SLOTS a student user must identify himself in the normal manner for the system concerned and also supply a valid exercise name or Ident. A student may change his password after logging in by running the program STUPAW.

Postgraduate students can be set up on SLOTS with a unique charge code which is funded from the Department. Special detailed accounting is then not usually necessary.

For more information on student accounting refer to the file DOC:STUPID.MAN.

Cancellation of Student Access

All access is established with an expiry date. The last day of semester is the default expiry date for undergraduate students unless other arrangements have been made by the academic supervisor. Access is cancelled and all files are deleted at the expiry date.

PART 6

HISTORICAL BACKGROUND

Historical Background

The need for a University to have digital computing facilities to support Research and Teaching as well as an adjunct to the various administrative functions was recognized in the late '50s and, due principally to the initiative of Professor S.A. Prentice of the Department of Electrical Engineering, a General Electric GE–225 computer was ordered. In August, 1962 the computer was delivered and installed in the present computer room under the direction of Mr. R.E. Kelly, the first Computing Officer of the University. This was the first large-scale computer to be installed in Queensland and its purchase by the University was only made possible by the support of a number of outside organizations who then recognized the value which computing would have to them and the University, and who were prepared to assist the University financially in purchasing the computer. It is of interest to note that this computer was in regular use until 1976; it was decommissioned on 16th March 1977 and presented to the Queensland Museum.

The newly-established Computer Centre continued under the control of the Department of Electrical Engineering and from this beginning it continued to grow; equipment was augmented and much was done through courses to expand the application of computers throughout the University and the technical community of the State at large. Formal teaching of Computer Science was initiated through the post-graduate Diploma of Automatic Computation.

Substantial growth was experienced in use of the GE–225 and in 1966, when saturation was approaching, planning was under way for its replacement. It might be noted here that almost since its inception, the Centre has experienced an annual growth rate of around 30% and this despite the vicissitudes that beset University financing! In 1968 the initial PDP–10 system was delivered by Digital Equipment Australia and was gradually phased into service. 1969 saw the formal recognition of the discipline of Computer Science by the establishment of a Department of Computer Science and Professor G.A. Rose was appointed to the inaugural chair of the new department. Control of the Computer Centre was transferred from the Department of Electrical Engineering to the new department.

In late 1969, recognizing the essentially service nature of the Computer Centre as opposed to the functioning of an academic department, the Centre was separated from the Department of Computer Science and established as an independent entity. In November 1972, Mr A.W. Coulter was appointed as Director of the Computer Centre. Funds made available in 1973 allowed expansion of the PDP–10 to realize its full potential. In 1974 the Centre extended the scope of its operations to provide computing facilities and services to the newly established Griffith University sited at Nathan. This year also saw the establishment of a User Service group, giving recognition to a long felt need, and enabling the Centre to do more detailed work for users than was formerly possible.

In recognition of the importance of the role played by Professor Prentice in establishing the Centre, the University Senate in 1975 granted to it the title PRENTICE COMPUTER CENTRE.

1976 saw expansion of the original PDP–10 system to its practicable limit and the installation of several remote batch stations. In the latter part of that year tenders were called for enhanced capacity resulting in the commissioning of a PDP–1090 KL10 machine in March 1978.

In January 1979 there was a network of 170 remote terminals connected to the Centre's PDP–10s.

The growth in demand for computing capacity continued and in 1981, a VAX 11/780 computer was installed specifically to support teaching and research applications. In December 1982, the PDP–1090 system was upgraded to a dual processor system.

One of the more significant features of computing development since 1978 has been the distribution of computing resources through the installation of mini- and micro-computers in Departments and Schools of the two Universities. The Centre established a Mini/Micro Group to support these developments through hardware and software assessment and procurement, software distribution and maintenance, communications facilities, and general assistance to users in the development of teaching and research applications.

The data communications network was enhanced by the installation of DECNET packet switching and MICOM circuit switching facilities servicing University of Queensland and Griffith University. By the end of 1982, there were 500 communications lines connected to the Centre servicing a variety of remote devices at transmission speeds from 300 bits per second to 9600 bits per second. Gateways to external networks were developed and users were then able, from their terminals, to access and use any of the Centre's central computers, the CSIRO computer, and through the Overseas Telecommunications Commission, services available on computer networks in North America.

During 1982, a start was made on the installation of ducting, cabling and transceivers on the St. Lucia campus to replace Telecom Australia facilities for data communications. This will enable the requirements for higher speed transmission to be met at lower cost.

An experimental Local Area Network (ETHERNET) operating at 10 million bits per second was installed in late 1982.

Committed developments for 1983 include the installation of a Computervision CAD/CAM system offering very advanced facilities for computer-aided design, improved plotting equipment and the extension of our printing services to include a laser printer and a Compugraphic MCS8400 Phototypesetter. Hardware and software services will be developed to support 16-bit micro-computer systems.

The KA10 system (installed 1968) is scheduled for replacement at the end of 1983 and tenders will be called at the end of first quarter of 1983 for a large mainframe system to meet growth over the next five years.