

VOLUME 3
NUMBER 2
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NOTICES

Changes to Faculty Passwords	3
Microcomputer Printer Supplies	3
More Micros in the Library	3
PC Software Request from the Library	3

HARDWARE CHANGES

Alarm System for Microcomputers	4
IBM System Upgrade Summary	3
New IBM 4248 Printer	3

SOFTWARE CHANGES

CMS Disk Links	4
Control of CMS CPU Usage	4
Important Changes to VSE Job Submission	4
Improvement in Printing Exams	4
Installation of Intergraph 8.7.1 Software	4

FEATURES

APPLE II+ and IBM PC to Mainframe Communications ..	8
The BCIT Intergraph Command Environment	7
Computer Projects by the Faculty Release Person ...	6
The Use of Computers in Survey Technology	5

DEPARTMENTS

Computer Resources Information	
Facilities	2
Hours of Operation	9
Lab Booking	9
Maintenance	9
Personnel	2
Supplies	10
Documentation Update	8
Duty Analyst's Corner	8
Editorial Message	3



 * PERSONNEL *

Computer Resources Department staff are located in Room 2N214 unless otherwise shown below.

New locals are listed below. To call from outside BCIT, you need to prefix these numbers by 432.

Director, Willy Kurz.....8245

Secretary, Debbie Stamnes8818

Academic Support Analysts

Lee Herberts.....8798
 Dan Low.....8268
 Murray Smith.....8563
 David Thomson.....8560
 Bill Tupper - Released Faculty.....8538
 ID requests, information, and assistance.8351

Managers

Academic Support, Neil McLagan.....8680

Administrative Support, Neil McLagan.....8680

Processing Services, Ron Sproule.....8708

Technical Support, Michael Marriott.....8683

COMPUTER ROOM.....8246

DATA CONTROL AND DATA ENTRY

Data Control, Rita Richardson.....8456

Data Entry, Carol Tkach(2N212)8618

DIAL-UP TO COMPUTERS

off campus....Please contact Academic Support
 on campus.....5448/5449

 * PUBLISHING INFORMATION *

The Computer Resources Newsletter is published by the Computer Resources Department of BCIT.

Contributions to the Newsletter and comments from our readers are welcome. Address correspondence to: Editor, BCIT Computer Resources Newsletter, BCIT Computer Resources Department, 3700 Willingdon Avenue, Burnaby, B.C. V5G 3H2.

Subscription changes to the Newsletter may be requested by completing the form on the last page. You are subscribed if your name appears on the label attached to the Newsletter. The next issue is planned for 85:03:04.

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 * FACILITIES *

IBM 3083-EX1

- 16 megabyte main memory
- fourteen 571 megabyte disk drives
- four 1600/6250 BPI tape drives
- 288 terminals and two CAD workstations
- VM/CMS and VSE operating systems
- batch and online processing
- academic and administrative processing

Hewlett-Packard (HP) 3000/64 minicomputer

- 2 megabyte main memory
- 64 terminals
- one 404 megabyte disk drive
- one 64 megabyte disk drive
- one 1600 BPI tape drive
- MPE operating system
- introductory programming and application package training

Microcomputers

- twenty Apple II+ and twenty IBM PC's
- student instructional use

Intergraph CAD/CAM System

- DEC VAX 11/751 Central Processing Unit
- 5 megabyte main memory
- two 300 megabyte removable-pack disk drives
- one 160 megabyte Winchester-type disk drive
- one 1600 BPI tape drive
- ten single-screen graphics workstations
- one dual-screen graphics workstation
- three desk-top electrostatic plotters
- one 24-inch electrostatic plotter

Further information:

- IBM, HP and microcomputer facilities:
 contact Ron Sproule (local 8708)
- INTERGRAPH system:
 contact Dan Low (local 8268) or
 Tony Adamo (local 5688)

Locations

IBM 3083:

Student Terminal Labs:

IBM 3278.....2N329
 Memorex 2078.....2N419
 Televideo 950.....2N420/421
 IBM 3178.....2N327
 IBM 3250 CAD stations2N319

Faculty Area (Computer Resources Foyer):

one HP125 microcomputer/terminal,
 one IBM 3178 terminal,
 one Televideo 950 terminal 2N210

HP3000:

Student Terminal Labs.....2N322/2N325

Microcomputers

*APPLE Cart.....Library
 Faculty Resource Lab.....Library Room 308A
 APPLE Student Lab.....2N321
 IBM PC Student Lab.....2N318

Intergraph CAD/CAM Lab.....1P102

*Access to the Apple Carts and the Faculty Resource Lab can be arranged at the Library Reference Desk.

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 * EDITORIAL MESSAGE *

Season greetings!

In this issue, the format of the Newsletter has changed. We hope that this new format will make the Newsletter easier to read. The most important information -- the Notices, the Hardware and Software Changes -- are at the beginning of the Newsletter; the Hours of Operation, Maintenance, and Supplies are moved to the back of the Newsletter.

The table of contents on the front page is sorted alphabetically within each category. In the body of the Newsletter, the articles are in the order of general topics, IBM system, HP system, microcomputers, Intergraph system and Library reports.

Please note the new telephone locals for Computer Resources personnel and facilities. These are listed on the opposite page (page 2).

We welcome any letters of comment regarding the Newsletter and its contents. Please address the letters to The Editor, Computer Resources Newsletter.

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 * NOTICES *

CHANGES TO FACULTY PASSWORDS

If you haven't used your faculty Intergraph, Hewlett-Packard, or IBM ID since 84:09:30 you may find a surprise. As discussed in the September issue, we have changed passwords for faculty IDs. If you haven't picked your password up already, please see the Receptionist in Computer Resources (2N214) to obtain your new password.

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MICROCOMPUTER PRINTER SUPPLIES

Printer supplies for microcomputer printers are available from Central Stores. Computer Resources does not supply ribbons and paper for microcomputer printers other than those in the student labs, Rooms 2N318 and 2N321.

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MORE MICROS IN THE LIBRARY

The Library has recently installed eight more microcomputers in the Listening and Viewing area (4 APPLE's and 4 IBM PC's) through the financial generosity of the Student Association. The principle aim is to provide access to the Library's large collection of APPLE and IBM software. Word Processing packages appear to be the most heavily used at this time for typing term assignments. Access to the equipment is on a first-come-first-served basis while student access to the software is on a library-use only basis upon presentation of a valid BCIT Library card.

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PC SOFTWARE REQUEST FROM THE LIBRARY

If you have software for the IBM PC (or APPLE II+) that you would like to put into circulation at BCIT, the Library could assist you if you donated the software to the Library software collection. This would allow users to go to one location, instead of several, to borrow software. For further information, please contact Rob Roy, Library Department Head, at local 5364.

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 * HARDWARE CHANGES *

NEW IBM 4248 PRINTER

A new IBM 4248 printer was installed in early November to replace one IBM 3203 Mod 6 printer. The IBM 4248 printer runs at a maximum of 3600 lines per minute making it three times as fast as the 3203 printer it replaced.

With this additional speed, the printer queue bottleneck should be reduced. These two high-speed printers are shared between the three operating systems-- VM/CMS, Administrative DOS (ADOS) and Student DOS (SDOS) -- running on the IBM 3083 computer system.

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IBM SYSTEM UPGRADE SUMMARY

As most of you know, BCIT upgraded its main processor in June of this year. The following gives a short description of the current CPU configuration, as well as a summary of other upgrades that have occurred in the last few months.

The new processing complex consists of four separate pieces; the processor, a peripheral controller, a coolant distribution unit, and a motor-generator. It replaced two IBM 4341s, which were advertised in the literature as superminicomputers.

The 3083 EX1 is definitely more than a mini-computer. The processor itself weighs over 6,000 pounds and is rated at approximately 4.4 MIPS (millions of instructions per second). This is more than double the processor capacity of the two machines it replaced. The majority of its logic is implemented in water-cooled TCMs (Thermal Conduction Modules), five inch cubes that contain up to 103 VLSI (Very Large Scale Integration) circuits. BCIT's configuration is the smallest 3083. By plugging in more TCMs, the current system can be expanded to a dyadic processor capable of operating at a rate of approximately 14 MIPS.

In July, a second IBM 3880 dual disk controller was added, providing two additional channel paths to the fourteen disk drives currently installed. Each of the four paths is capable of handling data at 3MB (megabytes) per second; the current disks limit the maximum transfer rate to 1.7MBPS. During peak periods each channel can average 30 - 50 transfers per second.

This month, as mentioned in the previous article, one of the two IBM 3203 1200 Lines Per Minute (LPM) printers was replaced by a newer technology IBM 4248 printer capable of operating at a maximum of 3600 LPM.

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ALARM SYSTEM FOR MICROS

An electronic alarm system has been installed inside each of the microcomputers in the student labs, Rooms 2N318 and 2N321. Hopefully, this system will be a successful deterrent to theft.

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* SOFTWARE CHANGES *

CMS DISK LINKS

To simplify profiles and reduce overhead, the PASCAL, WATFIV, WATBOL, WBASIC and SCRIPT software have been moved to the public "P" disk. This means that faculty and students no longer require links to these products in their CMS profiles. The corresponding User's Guides will be updated to reflect this change.

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CONTROL OF CMS CPU USAGE

A method for controlling excessive CPU usage will be implemented on the IBM VM/CMS system effective 85:01:02. This method is intended to avoid situations where a single CMS user "hogs" the computer to the detriment of others. Such situations are usually caused by infinite loops or poorly chosen parameters in student programs.

The method is as follows. If the system is loaded (70% or more processor utilization) and a single user dominates the system for an extended period, warnings will be issued to that administrative, faculty, or student user. If that user is a student and continues to consume excessive resources, he or she will be logged off. If that user is a faculty or staff member, warnings will continue to be issued and he or she will be contacted by Computer Resources to resolve the problem.

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IMPORTANT CHANGES TO VSE JOB SUBMISSION

To improve security and accountability, there will be a change in the way students and faculty submit batch jobs to VSE. Effective 85:01:02, students must type the following to submit a job:

```
BATCH fn ft fm
```

where "fn ft fm" is the filename of the file being submitted to VSE.

For example, if a student has a COBOL job in file ASSIGN1 COBOL A, he should type:

```
BATCH ASSIGN COBOL A
```

As part of this change, all BCIT CARD files must not contain the ID. If you've put the contents of your BCIT CARD file into any other file, it will not work: you must delete the ID from the BCIT card. The BCIT CARD file should look like this:

* BCIT course

Three final points of note. First, don't use special characters (like * & @) in your job name (JNM=) on your * \$\$ JOB card. Your output won't be returned. Second, you cannot submit jobs from a card reader. Third, don't SET MSG OFF or WNG OFF on your CMS ID. You will not know if your job has been submitted properly.

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IMPROVEMENT IN PRINTING EXAMS

CAMP is a BCIT software program that prints exams and, optionally, marks these exams from scanner answer sheets. When printing exams, CAMP can produce exams that are scrambled or unscrambled. A scrambled exam is where each student receives questions in a different order than other students. Unscrambled exams present the questions in the same order for all students.

CAMP has been modified to allow up to thirty (30) lines per question (the previous maximum was 6 lines). The maximum number of questions remains at fifty-five (55).

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INSTALLATION OF INTERGRAPH 8.7.1 SOFTWARE

The Intergraph software will be updated to the version 8.7.1 during the Christmas break. Version 8.7.1 will correct known bugs in version 8.7.0 which was installed in September 1984. The original version, installed with the Intergraph system in April 1984, was version 8.6.3.

For instructors who attended the Intergraph operator's course in June 1984, some changes should be noted between the version 8.7.0 and version 8.6.3.

The standard graphics menu was changed between version 8.6.3 and version 8.7.0.

The database management and retrieval system DMRS is a networked database at version level 8.7. Greater flexibility in database design is offered by the network design in comparison to the hierarchical database architecture of version 8.6.

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 * FEATURES *

THE USE OF COMPUTERS IN SURVEY TECHNOLOGY

W. A. Tupper

This article briefly outlines the use of digital computers by Survey Technology in the past, present and future. The use of computer systems has grown continuously over the years so that studies in the use of these systems now forms a major part of the surveying program at B.C.I.T. A definition which might be used for surveying is that it is simply "applied vector algebra". Of course such a definition is incomplete, but it indicates that there is considerable scope for the use of computers in the "number crunching" required for surveying and mapping computations.

Digital computers have been used at BCIT for the solution of survey problems since 1969. The first programs were coded in FORTRAN for the solution of trigonometric heighting over long lines and the transformation of latitude and longitude to Universal Transverse Mercator coordinates. At the same time, several FORTRAN programs for the adjustment of aerial triangulation by G.H. Schut of the National Research Council were catalogued on the IBM S/360 and have been used continuously to this day. In 1972, the provincial government FORTRAN package LSM139 which included COGO (program for coordinate geometry) and horizontal and vertical net adjustment was installed at BCIT.

The acquisition of a Hewlett-Packard 9810 desk top computer in 1973 caused a new interest in computer use. Many staff and students created programs for the solution of plane survey computational problems such as road alignment and legal survey layout.

About this time, a major re-thinking occurred concerning the form of formulae and algorithms for the solution of survey problems. The classical formulae were developed to utilize logarithms and tabulated values of non-linear functions. It became clear that digital computers were most efficient with the most primitive formulation of a problem rather than the traditional elaborate formulations which facilitated the use of tables of non-linear coefficients. Consequently, there occurred, over a short period, a major change in the content of survey computation courses.

In 1975, the Survey Department acquired a Wang 2200 microcomputer programmable in BASIC which was used by staff and students to code solutions to problems in geodesy, adjustments and map projections. In the same year, an Interdata 7/16 minicomputer was obtained for use in the photogrammetry lab. Students used this computer to write BASIC and FORTRAN programs to solve a variety of survey and photogrammetry problems. In 1977, a North Star Horizon micro computer was acquired and used extensively by staff and students to solve survey problems. Dave Martens and Kris Frankich

used this computer to conduct some original work in the optimization of map projections.

The most recent hardware acquired by the Survey department included several IBM PC's, a Calcomp 965 beltbed plotter and a Calcomp 9000 digitizer. The Calcomp plotter can be driven by either BASIC programs running on a PC or FORTRAN programs running on the IBM mainframe.

Instruction in computer programming to Survey students has expanded over the years so that it is now given in three of the four terms. The first term course covers some fundamentals of programming in the language BASIC using programmable pocket computers such as the Sharp 1500.

The course in second term involves the use of BASIC and FORTRAN in the solution of survey computations and the use of the IBM mainframe Conversational Monitor System (CMS) terminal operating system. In third term, there is yet another course in programming covering topics such as matrix operations and file manipulation. Several courses in second year require students to create original programmed solutions to problems. The subjects of Geodesy, Survey Adjustments and Mathematical Cartography (map projections) all require computer-generated solutions. Students can use any language and computer of their choice for these courses.

The newly introduced course in Computer Draughting in the third term requires the use of both BASIC and FORTRAN to generate maps and plans on the Calcomp plotter. Graduates with a sound grasp of the fundamentals of computer graphics should be able to make optimum use of interactive graphic systems such as Synercom or Intergraph. The AUTOCAD draughting package has been ordered and will be incorporated into the course.

In the near future, several packaged programs for surveying may be installed on the IBM mainframe. The program GEODOPV would compute the most refined position coordinates (± 1 meter in the geodetic system) from data received by the Survey Department JMR-4 Doppler Satellite Receiver. The program SURFACE II would produce topographic maps and perspective views on the Calcomp 965 plotter from digital coordinates generated by equipment in the photogrammetry laboratory.

The surveying instruments of the future are certain to rely even more on digital methods than they do at present. For example, the transit, the traditional survey instrument, is now available combined with an electronic distance measuring (EDM) device having both angles and distance digitized and stored in pocket sized, weatherproof random access memory. The use of such instruments will likely cause changes in the procedures that are currently used. It is certain that the surveyor of the future must be fully conversant with the techniques for transfer and manipulation of digital data sets.

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COMPUTER PROJECTS BY THE FACULTY RELEASE PERSON

This article presents a short description of computer-related projects which are in progress or planned by the current faculty release person -- W. A. Tupper.

1. PC Data Logger

This project involves coding a program in BASIC for the IBM PC to receive data from the serial communication port. The fundamental problem is to transfer data from a digital survey device to computational programs on the mainframe (IBM 3083). An example is the Cybernax D1600 digitizer, which generates x, y, z coordinates of the terrain surface from aerial photographs. The IBM PC is seen as a convenient means of transferring data between separate digital systems. The communication programs for transferring files from the PC to the mainframe already exist. It is now only necessary to capture the data from the source device and record it on a PC floppy disk file.

This project has potential application in other technologies. The work will be documented so that others may benefit.

2. Refinements to Program TERES

Program TERES computes terrain surface coordinates from measurements made on terrestrial photographs. Terrestrial photographs are made from a ground based camera as opposed to an aerial camera. The geometry of the terrestrial case differs from that of the aerial case in that the coordinates of the camera stations are known. A program with the solution to this particular problem has not been available at BCIT until program TERES was written in November 1983. It was written to generate the most correct results of velocity measurements of the Wedgemount Glacier.

The program has not yet achieved its final form. It should be modified to allow iteration of the problem and thereby convergence to a best solution even with rude first approximations for the initial photo orientation.

3. Evaluation of Digital Terrain Models (DTM) Packages

There are several package programs being used in industry to generate contour plans from sets of x,y,z coordinates. These coordinate sets are commonly called digital terrain models. One such package is currently operational at BCIT namely, the DTM package on the Intergraph Computer-Aided Design (CAD) system. This and other packages are being used by industry in B.C.

A test data set will be used to evaluate several of these packages with respect to cost, ease of use, complexity and quality of output.

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APPLE II+ AND IBM PC COMMUNICATIONS WITH A MAINFRAME

For microcomputer users who would like to access the IBM 3083 or HP 3000 computers to transfer programs or data files to or from their microcomputers, this article explains

some approaches to the task.

You could use a microcomputer as a simple terminal but you would be wasting most of its power. Modern communications software allows file transfers from a mainframe to a microcomputer diskette or printer. A file transfer from a smaller to a larger system is often called "uploading"; the reverse, "downloading".

While there are many microcomputers on the market, we will confine our discussions to the APPLE II+ and the IBM PC microcomputers since these are the most commonly used microcomputers at BCIT.

In general, communications with a microcomputer requires an interface board to provide parallel-to-serial conversion and a software package to handle the communications between the sending and receiving computers. In addition, a modem or acoustic coupler is required to translate digital signals to analog signals for transmission via telephone lines. There are products such as the HAYES MICROMODEM II for the APPLE II+ and the QUBIE for the IBM PC which provide both the parallel-to-serial and the digital-to-analog conversions on a single board.

The APPLE II+ microcomputer can operate as a terminal without a sophisticated communications package. All that is required is an APPLE COMMUNICATIONS card (or equivalent) and a modem. The communications control program in the read-only memory (ROM) chip of the communications card is sufficient for the simple terminal function. However, for file transfer, a communications software package, such as VISITERM or ASCII EXPRESS which are available from the Library, is required.

VISITERM is the easier package to use since it is menu-driven. To download a file from a host, VISITERM requires an APPLE DOS 3.3-formatted diskette. You select the download function from the appropriate menu and supply the name that the file is to be catalogued under. The upload function, the reverse operation, is another menu option. The details are given in the manual accompanying the software package.

ASCII EXPRESS works in a similar manner but requires an extensive initializing procedure to tailor the package to your particular system.

In contrast to the APPLE, the IBM PC requires a communications program for all terminal functions since the asynchronous communications adapter board does not contain any program to provide the communications control tasks. The MODE command of PC DOS only sets up the buffer size and the transmission rate, the number of start bits, the number of data bits, the number of stop bits and the parity checking required.

There are a variety of communications programs for the IBM PC, such as the simple BASIC program called COMM.BAS which is included free with PC DOS. While it can provide terminal communications at data rates of 9600 bps or less, it cannot transfer files.

The following procedure is a simple method of transferring files without special software on the host.

A. To upload to the host:

1. Call the text editor (such as XEDIT on the IBM system, or QEDIT on the HP 3000 system.)
2. Enter editor commands to add data.
3. Enter commands to make the microcomputer read the diskette file and write to the communications port.

In the above operation, to the host computer, your microcomputer mimics an ordinary user who types extraordinarily fast. The reverse operations is as follows:

B. To download a file:

1. Program the microcomputer to accept input from the communications port and write to the diskette drive.
2. Use "TYPE" in CMS, or "LIST" in QEDIT, to send the contents of the file to your terminal. This is called "logging". If your microcomputer has a printer, you can log a hard copy.

Only text files can be transferred in this manner. A binary file, such as an executable program, cannot be sent this way.

More reliable file transfers are possible when both the sending and receiving computers have software packages designed to work together. A good example is SIMPC on an IBM PC, communicating with SIM3278 on the IBM 3083. (These are products of Simware Inc. SIMPC costs about \$250 per copy, and SIM3278 is already running on the IBM). The advertised features of SIMPC (we haven't tested them all) are:

- error detection and retransmission
- binary file transmission
- full-screen emulation of 3270 terminals
- PC printer access from host computer
- diskette "command file" of host computer commands
- auto-dialling

Another example is LINK, which runs on a Hewlett-Packard 125 or 150 microcomputer, communicating with the HP 3000 minicomputer.

If a coaxial cable connection is available, file transfers between a standard IBM PC and CMS on the IBM 3083 are easily provided by the "IRMA" board and software (costing approximately \$1000) or the IBM 3270 PC (costing \$12,000). The IRMA board and the IBM 3270 PC provide "synchronous" communications with the IBM host computer rather than "asynchronous" communications.

The 3270 PC is an IBM PC with special hardware and software to make it function like an IBM 3270-type of terminal. In addition, the 3270 PC can handle multiple sessions (or tasks). In other words, with the 3270 PC, you can have one session running on the PC and one running on the mainframe at the same time. To transfer a file from the IBM 3083 to your 3270 PC, you need to logon on to CMS as one task and then enter a PC session to type the single PC DOS command SEND (or RECEIVE) to upload (or download) a CMS file. For example, to download

a CMS file called CORSDT LISTING A onto a diskette in the second disk drive of the PC, the PC DOS command is simply

RECEIVE B:CORSDT.DAT CORSDT LISTING A (ASCII

The ASCII parameter is required to specify conversion from EBCDIC to ASCII character format since characters are in EBCDIC format on the IBM 3083 and in ASCII on the PC.

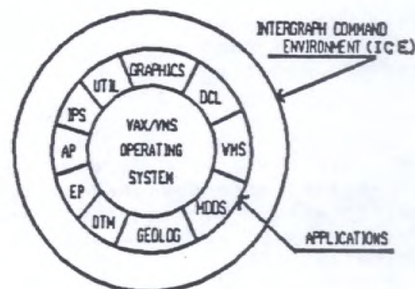
For further background information on microcomputer communications, please refer to the BCIT Data Communications Guide, 84:02:07 which is available from the Computer Resources Receptionist. For further discussion of topics in this article, please contact Dave Thomson or Dan Low in Computer Resources. Bill Tupper, who is on leave from Surveying Technology, also contributed to this article.

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THE BCIT INTERGRAPH COMMAND ENVIRONMENT (ICE)

If you are currently an Intergraph CAD/CAM system user or if you plan to be one, the following article will be of interest to you.

The Intergraph software, as structured at BCIT, can be conceptualized as shown in the figure below. Each layer presents certain capabilities. The outermost layer, the Intergraph Command Environment (ICE), controls the interaction between you, the user, and Intergraph system.



The Intergraph Software Structure

When you log on to the Intergraph system, you interact with ICE. After logging on, ICE puts you into the GRAPHICS environment by default. To enter other environments, type in the name of the environment (application) in response to the GRAPHICS: prompt. However, if the name is not a recognized environment, ICE assumes that it is the name of a drawing (or design) file and attempts to load the design file from disk into the user's virtual memory space. If the design file is not found, ICE will display an error message.

The names of environments (applications) are contained in configuration files associated with each user. You could have your own environment which could be different from that of any other user. A configuration file could be changed at any time by the system manager, but it is best to indicate on the ID application form which applications you require when you apply for an ID on the Intergraph system.

ICE has a limited HELP facility. If, after logging on, you are not sure of what facilities you have access to, enter HELP in response to the GRAPHICS: prompt. ICE will then display a list of your available facilities.

The defaults, the GRAPHICS, UTILITIES and PLOTTING environments, are briefly described in the following paragraph.

The GRAPHICS environment allows you to display and manipulate graphic elements on the CRT screen, to create database associations with specific graphic elements and to plot design files. The UTILITIES environment allows you to execute certain operating system functions such as creating and deleting files and listing directories without requiring you to know the operating system commands. The PLOTTING environment gives you a method to plot design files without entering the GRAPHICS environment.

To execute operating system functions not provided by UTILITIES, you require access to the Digital Command Language (DCL) environment. ICE provides the system manager with the ability to control the operating system commands available to each user. Theoretically, each user could have a different set of DCL commands. In practice, all students within a course access the same DCL table while most instructors have unique DCL tables.

The purpose of this control is to manage the use of system-intensive applications, such as the Data Management and Retrieval System (DMRS), so that good response time is given to the graphics functions.

While ICE is a powerful tool to control the usage of the Intergraph system, not all application packages were designed to run within the ICE environment. Hence, there are unforeseen bugs in bringing all the applications under the control of ICE.

For example, a problem that has occurred has been with the use of the procedures NCDDBS and NCRPT in the Numerical Control (NC) programming package. These procedures have been modified to function properly within ICE and have been catalogued into the library of PRO_DD_BCIT instead of PRO_DD_NC, the standard library for NC.

The library PRO_DD_BCIT contains all programs and procedures peculiar to BCIT. The procedures in the original product library are removed from public use. Keep this in mind when reading documentation prepared by Intergraph Systems Ltd. Procedures at BCIT will not necessarily be the same as those published by Intergraph.

If you run into problems in using an Intergraph application package, please inform Dan Low at local 8268.

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* DOCUMENTATION UPDATE *

Note the following documentation and dates of publication or revision. If your copies are not the most recent, please pick up a revised copy. With the exception of the QEDIT User's Guide, these User's Guides were written specifically for the BCIT computer systems. This documentation is available to faculty and staff users from the Computer Resources Receptionist in Room 2N214.

CMS User's Guide (84:09:01)
Data Communications Guide ... (84:12:01)
HP3000 User's Guide (84:09:01)
Introductory CMS Course Notes (84:12:01)
QEDIT User's Manual (84:07:01)
Questionnaires at BCIT (83:06:01)
SCRIPT User's Guide (84:03:01)
SIM3278 User's Guide (82:09:01)
SPSS User's Guide (82:11:01)
VAX/VMS User's Guide (84:09:17)
VSE User's Guide (84:09:01)
WATBOL User's Guide (83:09:01)
WATERLOO BASIC User's Guide (84:08:31)
WATFIV User's Guide (83:09:01)

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* DUTY ANALYST'S CORNER *

Q. I've got an A disk and I'm running out of space!

A. There are six ways to make space:

1. ERASE unnecessary files. By entering FLIST and hitting PF9, your files will be sorted by date last-altered. Use XEDIT to examine the oldest files to see if you really need them.
2. PACK large files. The command PACK will encode and remove excess blanks from your file. You can even XEDIT a PACKed file without harm. However, you must UNPACK the file before sending it to VSE for execution or compilation.
3. Convert files of fixed length records to files of variable length records. XEDIT the file, then enter SET RECFM V on the command line and file. However, you may have to SET RECFM F before attempting to compile the file if the compiler expects fixed length records.

4. If you have a relatively empty B disk, copy files from your A disk to it. By putting a special filemode on the file, anybody linked to the B disk cannot see the file. For example,

COPY QUIZ SCRIPT A = = B0

copies the file QUIZ SCRIPT from your A disk to your B disk with filemode B0. The B0 means that anybody linked to your B disk cannot see this file.

5. BACKUP some files on tape. Faculty members can obtain a tape from Computer Resources to backup their CMS files. These tapes are kept securely in Data Control for an indefinite period. Files stored on tape can easily be restored at a later date.
6. When you run out of space in the process of saving a file, erase the copy on your CMS disk. Type CMS FLIST on the command line and erase that particular file. Enter PF3 and then SAVE your current file again.

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* HOURS OF OPERATION *

The normal operating schedule to 85:03:01 is given in the following table. Changes to these hours of operation will be posted prominently and displayed on the terminal logon message as far in advance as possible.

System	Hours	Days
IBM 3083	0800 - 2300	Monday - Friday
	0900 - 1700 (starting 85:01:12)	Saturday, Sunday
HP 3000	0700 - 2400	Monday - Thursday, Saturday & Sunday
	0700 - 2130	Friday
Intergraph	0830 - 1730	Tuesday, Friday
	0830 - 2200	Monday, Wednesday Thursday

Computing Centre Closures:

84:12:24 through 84:12:26, 84:12:31
85:01:01, 85:01:05 and 85:01:06

In the weeks of 84:12:10 and 84:12:17, new Intergraph software will be installed. System downtimes will be announced at least two days in advance.

Intergraph System Closures:

84:12:24 through 84:12:26, 84:12:31,
85:01:01

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* LAB BOOKING *

The IBM terminal labs are for scramble use only. The HP terminal lab Room 2N322 is for scramble use only. Lab Room 2N325 can be booked through Timetabling. This policy is under review.

During some parts of the term, packages may be taught which require access to the HP125 CRT terminals. In that case, the instructor may reserve those terminals for students using those packages.

The Student Microcomputer Labs (Rooms 2N318 and 2N321) may be booked through the Timetabling Department (Room 107, Trailer 2V, local 5386). In non-booked times, Room 2N321 is open for scramble use.

The Intergraph CAD/CAM Lab may be booked through the office of Tony Adamo (local 5688). The CAD/CAM Lab is open for scramble use only when CAD/CAM staff members are present. The CAD/CAM Lab must be under faculty or staff supervision at all times.

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* MAINTENANCE *

The Computer Resources Department is responsible for maintenance of the equipment in the following table. Trouble calls may be made to Local 8246 between the times of 0830-1630 Monday - Friday. After 1630 and weekends, please call 432-8246.

Units	Locations
Microcomputers:	
APPLE II+	2N319
IBM PC	2N318
Terminal Labs:	
IBM system	2N419, 2N420, 2N421 2N329, 2N327, 2N319
HP3000 system	2N322, 2N325

Please report ALL Intergraph system hardware and software problems to Dan Low at local 8268 (0830 - 1630 Monday to Friday). For hardware problems only, in Dan Low's absence, contact Guy Johnson in Room 1P103.

Preventive Maintenance:

HP 3000 System:

84:12:05 - starting at 1000;
normally ending by 1430

Intergraph System:

85:01:16 |
85:02:13 | -- starting at 1130 and
85:03:13 | ending at 1330

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SUPPLIES

The Computer Resources Department stocks supplies for all terminals in the student labs. Ribbons, paper, etc. will be replaced during daily checks. Supply shortages should be reported to the Operations staff at local 8246 or, after 1630 and on weekends, at 432-8246.

Print Layout Sheets are supplied to students by Computer Resources and are available in Room 2N327. Coding forms are NOT supplied, and students may purchase these through one of the campus TNT (This 'n That) stores.

Microcomputer diskettes are available from the TNT stores, BCIT Central stores and Book-store. The IBM PC requires soft-sectored double-sided double density 5 1/4 inch diskettes. Single-sided diskettes can be used but you would be using only one half the capability of the disk drive. Single density diskettes can be used with the APPLE microcomputer but double density diskettes are required by the IBM PC and provide greater reliability in recording data.

Paper and ribbons for microcomputer printers, other than those in the student labs 2N318 and 2N321, are available from Central Stores, not Computer Resources.

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CMS VERSION OF NEWSLETTER

If you have a Faculty CMS ID, you can access a copy of the Newsletter through one of the terminals. This file will be updated with each issue of the Newsletter.

The procedure is as follows:

- 1) Logon to CMS
- 2) Type 'NEWS' and the current version will be displayed at your terminal through XEDIT.
- 3) Use the standard XEDIT commands to scroll through the Newsletter.
- 4) Type 'QUIT' when you have finished viewing the Newsletter.

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NEWSLETTER SUBSCRIPTIONS

CHECK the subscription change wanted:

- ```

---- ADD MY NAME TO YOUR MAILING LIST
---- CHANGE MY NAME/DEPARTMENT
 (Please attach current address label)
---- DELETE MY NAME

```

NAME/TITLE -----  
last first

DEPARTMENT / ADDRESS

RETURN TO: Editor  
Computer Resources Department  
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3700 Willingdon Avenue  
Burnaby, B.C. CANADA V5G 3H2

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