UNIVERSITY COMPUTER CENTER

NOTES AND COMMENTS

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UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA

6600 Users

Each 6600 problem sponsor receives a monthly report on the financial status of his account. This report includes a summary of computer use for that month and the costs assessed against each project. Any questions about these statements should be directed to Jim Foster, Room 217 Exp. Eng., extension 5757.

SCOPE 3.1 System

Beginning Monday, June 24, 1968 the 6600 will run SCOPE 3.1 from starting time until 6 PM. SCOPE 2.0 will then be run until Midnight. After July 8th, SCOPE 3.1 will be run for the full day with SCOPE 2.0 jobs run only with permission and on a low priority basis.

SCOPE 3.1 has a print out of the minimum field length needed to run the program. The appears on the third line of the core map. Field length requests should be adjusted accordingly to provide faster turn-around time. In the future, scheduling changes will be made to reward short field lengths and penalize long field length requests.

6600 Operating Schedule

Monday	8 AM - 12 Mn
Tuesday	9 AM - 12 Mn
Wednesday	11 AM - 12 Mn
Thursday	9 AM - 12 Mn
Friday	8 AM - 12 Mn
Saturday	Closed
Sunday	Closed

MICROFILM PRINTING

The University Computer Center will install a 3M Company Electron Beam Recording system at the 6600 Lauderdale site in August, 1968. The Electron Beam Recorder (EBR) encompasses four units; the Model 112 Tape Transport, the Model 210 EBR Controller, the Model 310 Electron Beam Recorder and the Model 410 Image Processor. Input to the EBR is computer generated binary coded data on seven or nine-track IBM compatible magnetic tape. Output is processed 16 millimeter non-sprocketed roll microfilm containing micro-images of alphanumerics and duplicates of forms.

Model 112 Tape Transport - this tape unit reads densities of 200, 556 and 800 bits per inch at 75 inches per second, giving transfer rates of 15,000, 41,700 and 60,000 characters per second. Either seven-track BCD or nine-track EBCDIC IBM compatible magnetic tapes may be read by operator selection. The digital information on the magnetic tape is then sent to the Model 210 EBR Controller.

Model 210 EBR Controller - this unit signals the operator for error conditions:

1) lateral parity errors (if three tape reads do not produce correct parity, a question mark is inserted for the character causing the parity error).

2) extra characters per line (the current limit is 132 normal sized characters or 66 large sized characters, but this will be extended to 136 and 68 characters within a year).

3) too many lines per frame (a frame or page is currently limited to 64 normal sized or 32 large sized lines per frame but this will be expanded to 66 and 33 lines within a year).

4) end of file.

The Controller converts the tape characters that are commands (such as film advance, form insertion from 35 millimeter film, small normal characters, small bold characters, large characters, shift case, line skip, end of line and vertical tabulation) into commands for the Model 310. Tape characters that are to be printed are converted to analog signals that use a stroke method of writing the latent image directly on a frame of dry-silver microfilm.

Model 310 Electron Beam Recorder - this unit signals the error condition FILM OUT and allows the operator to void a particular frame if desired on a lateral parity error. Take up and supply reels feed the 600-1400 foot (11,000-26,000 frame images) microfilm first through the electron gun column where the beam, under the control of the Model 210, forms the micro-characters and then feeds the film through the forms merging module where optional graphics may also be imposed from 35mm slides.

Model 410 EBR Image Processor - this unit thermally processes microfilm at a rate of 5 1/2 frames per second (20,000 lines/minute). The Model 410 has a low magnification viewer to allow the operator the option of stopping the processing to prevent film wastage in case of a processing error.

Special Features - The special features of this Electron Beam Recorder are:

1) high speed (20 times faster than a line printer)
2) both upper and lower case character sets are available (119 characters with bold intensity and large character options)
3) addition of graphics to text using 35mm microfilm slides
4) a fast, dry, on-line method of film processing

Goals - This Electron Beam Recorder achieves three of the five goals of the UCC for Graphic Film Output. These are:

1) High speed printer capability at less cost than several additional printers
2) Compact output storage for systematic retrieval of generated documents
3) Introduction of an ability to maintain, update, paragraph and edit documents with the computer

The other two goals of the UCC were:

4) Graphical output of plots at rates that approach computer speed
5) Production of computer generated movies

These last two goals will be achieved in an interim fashion through the cooperation of Professor Franz Halberg, who will allow us to use the Varian Data 620 computer which is coupled to a Calcomp 835 microfilm plotter to produce microfilm plots and 16mm movies. The initial approach to this system was to offer a modified 6600 program of the Physics department to produce identical tapes on the 6600 as were produced on the 1604 Calcomp package. Due to equipment problems we are not at this time sure of this systems introduction until at least August.

Future Additions - The Electron Beam Recorder was purchased with a committment by the 3M Company to provide a vector generation plotting and frame butting ability to the EBR within a year after its initial installation. This will mean that the EBR will then also satisfy our fourth goal listed above, with respect to microfilm output. The UCC is also committed to purchase several viewers and the necessary splicing equipment for the 16mm film. The UCC will also work in cooperation with the Audio-Visual department for film duplication and large scale reproduction of microfilm to hard copy.

Some Cost Considerations -

initial cost of microfilm	-1/7 cents/frame
film to hard copy (limited number of frames)	-10 cents/frame
film to hard copy (all frames on a roll)	-2-3 cents/frame
duplication of film	-$1.50/100 ft.

Viewers: $100, $200 & $1200 (motorized)
Viewer-Printer: $1200 & $1400 (motorized)

SUMMER SHORT COURSES

A series of short courses will be offered by the University Computer Center this summer for all interested persons. The classes and dates are listed below. All classes will be held in Room 193 Exp. Eng. The classes start at 1:00 PM and each class session is two or four hours long.

Monday, July 8	- Organization of the 6600 computer
Tues. , July 9	- Programming the 6600 with COMPASS
Wed. , July 10	- SCOPE 3.1, basics, record and file orientation, system routines
Thurs., July 11	- Use of ECS with COMPASS and FORTRAN FORTRAN EXTENDED features Random access I/O
Friday, July 12	- MIMIC simulation language and 1700 FORTRAN analog-digital statements
July 15 - 19	- 6600 FORTRAN from basic to advanced concepts

1604 Peripheral Equipment

The IBM 088 Card Reader, the IBM 523 Card Punch and the CDC 1610 Controller will be removed from the 1604 computer complex as of September 1, 1968. Since the CDC 405 card reader, and the CDC 415 card punch (attached to the 6600) provide faster, more error-free methods for reading and punching, these will be the only facilities available after September 1st. Any user who requires either of these two devices for their 1604 production programs should contact Bill Franta in Room 210 Exp. Eng.