9350
Pastel

Network Working Group
Request For Comments # 320
NIC # 9350

Raj Reddy
CMU
27 March 1972
Rcvd 4 APR 72

Workshop on Hard Copy Line Graphics

At CMU we have recently interfaced a Xerox Graphic Printer (ex-LDX) to the PDP-10 using a PDP-11 as in intelligent controller for the printer. Specially designed interface and data structures permit the PDP-11 to generate each scan line as needed without having to resort to the brute force generation of the bit image for the whole page. The attached pages were produced using this system with the help of a document generation program and a character set design program. This is something personal.

In response to several requests, we are conducting a one day workshop on the XCRIBL system. The workshop will be held in 3124 Science Hall at Carnegie-Mellon University on April 12. An agenda for the workshop is attached. If you are interested in coming or sending someone to this workshop, please contact Dr. D. R. Reddy (412-621-6200 ext. 149), Mr. Mack Hicks (412-687-5846) or Miss M. Kostkas (412-621-2600 ext. 141) for further information or local arrangements. Local reservations may be made at the Webster Hall Hotel (412-621-7700) or the Civic Center Motor Hotel (412-683-6700) which are within walking distance of Carnegie-Mellon University.

CARNEGIE -MELLON UNIVERSITY

WORKSHOP ON HARD COPY LINE GRAPHICS

April 12

Morning
Document Generating Languages and Systems

9:00-9:30	Raj Reddy	Overview of the XCRIBL system
9:30-10:20	Joe Newcomer	Languages for Document Generation
10:20-10:30	Coffee Break	
10:30-12:00	Examples of Document Gneration	
	Letter Producing Systems	
	Technical Report Production	
	A Graphics and Gray Scale Image System	

Afternoon
Systems Support

12:00-1:45	Lunch	
1:45-2:45	Lee Erman	Charter Sets (Generation and Modification)
2:45-3:00	Coffee Break	
3:00-4:00	George Robertson	The PDP-11 Support System
4:00-5:00	Bill Broadly and Jack Wright	The PDP-11 - XGP Interface (Hardware)

Evening
Session for the "Hackers"

7:30-10:30

Discussion session of as yet unsolved issues and possible hardware-software solutions.

XCRIBL SYSTEM
COMPUTER SCIENCE DEPARTMENT
CARNEGIE -MELLON UNIVERSITY

What you are now reading is a computer printout produced by the XCRIBL system. Computers printers do not have typefaces like this one *nor can they change typefaces.* Conventional computer printers cannot print character sets where the center to center distances are not all the same. The machine that printed this document is a facsimile copying machine built by Xerox a number of years ago. The computer science department of Carnegie -Mellon University has designed and constructed the interface to connect it to a minicomputer (PDP-11) which in turn is linked to a large computer, the PDP-10. The equipment has been working since January.

The Xerox Graphic Printer (XGP) works in a similar fashion to the Xerox office copiers. Instead of reflecting light off a printed page as in a copier the XGP uses a cathode ray tube similar to old television tubes as a source of light. The image is drawn as a series of dots on the CRT with a resolution of 12 dots per inch. The line of dots is reflected onto a selenium drum which electrostatically attracts a fine bleak powder to the exposed selenium areas. The powder is transfered to a moving sheet of paper. Finally a fuser melts the powder onto the paper.

To be able to print any character the pattern of dots which will be printed as that character must be entered into the computer along with an indicator of what the pattern represents. To facilitate this a program has been written to design character sets. This program draws a grid on a display termainal. Each box in the grid represents one dot in the final Xerox output. The dots may be set or unset and the character redrawn on the display as frequently as one might desire. Because of the ease with which this may be done it becomes an enjoyable task to design a character set and then be able to change any part of any character.

The XGP is also capable of drawing lines and gray scale images. The AI group is using the XGP to print pictures of faces and speech spectrograms. The range of possible uses is boundless.