KANDIDATS:
The Porting of an Image Processing System

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1. INTRODUCTION

1.1 KANDIDATS

KANDIDATS (KANsas Digital Image DAta System) is an interactive image processing package [1]. Through the use of KANDIDATS commands the user can create, manipulate, and display multiple digitized images. The package also allows the user to maintain information about an image in a standarized format. In general, KANDIDATS eases the interface between the user and the machine.

KANDIDATS was developed by the Image Processing Group of the Remote Sensing Laboratory, University of Kansas. It was developed in 1976 on a PDP-15 computer and is coded in FORTRAN. Images are obtained from and displayed on the IDECS, a versatile analogue display device, or they may be obtained from magnetic tape units on an IBM 7094 machine.

KANDIDATS was ported in part to the IBM-370 at Kansas State University. On the 370, KANDIDATS executes under the Conversational Monitoring System (CMS).

This report describes the KANDIDATS system as it exists at Kansas State University. Chapter 2 gives a general description of the system. Chapter 3 describes the changes made to the system in transporting it to the IBM-370. The KSU KANDIDATS User's Guide in Chapter 4 is a supplement to the KANDIDATS User's Guide at the University of Kansas. Chapter 5 is also a supplement to the User's Guide at the University of Kansas. Along with Chapter 3, it provides the information necessary for adding to or altering the KANDIDATS system. A brief example of the use of KANDIDATS at KSU is given in Chapter 6. Finally, Chapter 7 summarizes the report.

1.2 Extent of Project

The version of KANDIDATS developed on the PDP-15 consists of three major parts: KAND01 (image utility functions), spatial clustering, and pattern discrimination. Of these three parts, only KAND01 was ported to the IBM-370 and that only in part. The main driver, I/O routines, and command processing routines of KAND01 were altered to execute on the 370. The routines that interface with the operating system were written for the 370. The routines necessary to implement the commands listed below were ported to the 370. One new command was added to KANDIDATS. DISPLY was a command added to display images on the COMPUTEK (a visual display device).

KAND01 Commands	EXSIF Commands	
BRIEF	A	MID
EXPL	B	MOD
EXSIF	BLK	NEXT
DISPLY	BRIEF	OPEN
LONG	CIMG	OUT
MESG	CLOS	PROT
STOP	COL	REPL
SVDC	DONE	ROW
TID	FIND	SVDC
VOCA	FORM	TOP
DONE	IMG	VOCA
DLETE	INFO	

In general, four types of changes had to be made to KANDIDATS to transport KANDIDATS from the PDP-15 to the IBM-370. First, any syntactical differences between the versions of FORTRAN on the two machines had to be dealt with. Secondly, the routines that interfaced between KANDIDATS and the operating system had to be written for the 370. Because some functional capabilities are available on the PDP-15 that are not available