

A VDI DRIVER FOR SOLTEC PLOTTERS

by

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## CHAPTER ONE

### INTRODUCTION

The growing importance of computer graphics in the past decade has led to several proposals for graphics standards. Two main proposals are close to acceptance as international and national standards: the Graphical Kernel System (GKS) [ISO], which was developed originally by DIN (Deutsches Institut für Normung), the official standard body of West Germany; and the Core System [Bailey], a de facto standard created by the SIGGRAPH Graphics Standards Planning Committee (GSPC) of the Association for Computing Machinery.

The definition, and basic differences between GKS and Core are given in Chapter Two. Another standard, the Virtual Device Interface (VDI) [ANSI, Aug. 27, 1982], is being developed in U.S. by ANSI Subcommittee -X3H33 of the X3H3 Computer Graphics Committee. The VDI, which functionally complements GKS, is defined in Chapter Two.

#### Overview

Together, GKS and VDI provide functional specifications for a device-independent graphics software package. A device-independent graphics system is one that

works with any graphics output devices such as a raster display, a directed beam display, an electrostatic plotter, or a pen plotter without any changes to its requests for graphics output services. A basic subset of a device-independent graphics software system, shown in Figure 1, on page 12, has been implemented at KSU during the Spring term of 1983.

In a typical device-independent system, an application program calls on GKS a standardized set of device-independent graphics functions (GKS) which in turn call on device drivers ("virtual" graphics input and output devices) through VDI which is an interface internal to the graphics support package.

Each device driver is dedicated to a particular graphics input/output device. A device driver accepts virtual commands from the device-independent software through VDI and translates them into a language the device understands.

The Spring term implementation of GKS at KSU supported only one device driver, namely the Chromatics driver. During the five week of the 1983 summer term, additional device drivers and enhancements have been developed. One of these was the development of a VDI driver for SOLTEC plotter, which is presented in this report. The

SOLTEC driver software compiled successfully, however, testing was only partially completed due to the limited time frame, as explained in chapter five.

### Paper Organization

This paper is organized in five chapters. The first chapter has summarized this project. In Chapter Two, the history of the graphics standards, is briefly reviewed, and the main differences between GKS and Core are discussed. The current status of the related events are then presented, and the future outlook of the state-of-the-art is evaluated. Chapter Three begins by first defining and then introducing the main features of GKS. Next, it continues by focusing on VDI, and it concludes with a short discussion on two related graphics models. Chapter Four, presents the SOLTEC plotter's hardware characteristics and its firmware capabilities. In Chapter Five, the Driver structure is presented and the design decisions made during the implementation of the SOLTEC driver are evaluated. This last chapter concludes by reporting the results of this project.