Software Product Description

PRODUCT NAME: **DEC GKS for VMS, Version 4.1** **SPD 26.20.09**

DESCRIPTION

DEC GKS for VMS (Graphical Kernal System) provides the application programmer with a single interface to a variety of graphic devices. DEC GKS for VMS is a solid base for portable, device-independent two-dimensional graphics application development. DEC GKS for VMS is a development tool that application programmers can use to produce computer generated pictures.

DEC GKS for VMS is a subroutine library packaged as a set of VMS shareable images, which implements the ISO (IS 7942) and ANSI (ANS X3.124- 1985) GKS standard for two-dimensional (2D) device-independent graphics. DEC GKS for VMS conforms to level 2c of the GKS standard which provides full output capabilities, including workstation independent segment storage (level 2), and full input capabilities (synchronous and asynchronous input (level c)). DEC GKS for VMSsupports DECwindows.

Features

Viewing Operations

DEC GKS for VMS allows the user to define the working coordinate system (world coordinates). World coordinates can have any scale. For example, one application might have a maximum range from 0 to 1000.0 while another application might limit the range from 0.01 to 0.1.

The user can also control multiple simultaneous views of the same picture on separate display surfaces, as well as the position of the picture on the surface. For example, one application program can display a map of the United States on a VT340 and at the same an enlarged section of the map on a LVP16 Pen Plotter. (e.g., New England states).

GKS Metafile

DEC GKS for VMS provides an interface to sequential files, the ISO and ANSI suggested GKS Metafile (GKSM) for filing graphical information. The metafiles can be used for the following purposes:

- Storing graphical information in a device independent format
- Transporting graphical information between systems with compatible versions of GKS
- Transporting graphical information from one DEC GKS for VMS application to another
- Storing accompanying nongraphical information

Computer Graphics Metafile (CGM) Output

DEC GKS for VMS provides support for storing information using the Computer Graphics Metafile (CGM). CGM is an approved ANSI standard format (ANS X3.122-1986). DEC GKS for VMS supports CGM output for both of the following formats:

Clear Text Encoding - Graphical output data stored in the clear text format is easily created, viewed and modified using a common text editor. It is also a suitable format for transferring graphical output data through networks that only support the transfer of a text file.

Character Encoding - Graphical output data is typically stored in the character format to attain minimal file size. Data stored in this format is particularly suitable for transfer through networks which cannot support binary transfers.

Escape Feature

DEC GKS for VMS provides an escape mechanism which allows the application programmer to access device capabilities not defined in the GKS standard. For example, an ESCAPE function is defined that activates the hardcopy feature of a VT125 raster graphics terminal.

Character Sets

DEC GKS for VMS provides a series of stroke precision character fonts. These character fonts were digitized by Dr. Allen V. Hershey of the Naval Surface Weapons Laboratory, and supplied to Digital by the National Bureau of Standards.

® Tektronix is a registered trademark of Tektronix Incorporated.
® PostScript is a registered trademark of Adobe Systems, Inc.
™ LaserWriter is a trademark of Apple Computer, Inc.
™ HPGL is a trademark of Hewlett=Packard Company.
™ MPS-2000 is a trademark of Lasergraphics.

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DEC GKS for VMS also provides text support for the native character set(s) of the supported graphical devices.

Language Binding

DEC GKS for VMS functions can be accessed by three sets of subroutine calls. DEC GKS for VMS provides an interface which conforms to the ANSI standard (ANS X3.124.1-1985) and ISO (DIS 8651/1) FORTRAN binding to GKS, a C binding interface which conforms to the proposed C language binding standard, as well as a VMS specific interface which follows the standard VMS calling conventions and is callable by many different languages.

The FORTRAN and C binding interfaces allow users to transport GKS applications which are written in FORTRAN or C across heterogeneous operating systems with conforming implementations of the FORTRAN or C bindings and GKS. Calls to the C language binding cannot be mixed with calls to the other language bindings in the same application.

Graphic Handlers

DEC GKS for VMS provides support for a wide variety of Digital and non-Digital graphics devices. In addition, DEC GKS for VMS provides the information necessary for users to develop their own graphic device handlers for devices that DEC GKS for VMS does not support. Device handlers can be developed in VAX FORTRAN, VAX C, and VAX PASCAL.

Output Functions

Segments - DEC GKS for VMS provides a set of functions for the creation, manipulation, and deletion of stored groups of output primitives called segments.

Polyline - Draws one or more connected line segments.

Polymarker - Draws one or more symbols which can mark significant points in a picture.

Text - Draws any character string. Characters can be displayed in a variety of fonts and orientations.

Fill area - Draws a polygonal area, which can be hollow or filled with a uniform color, a pattern, or a hatch style.

Cell array - Draws a rectangular image, specified by a two-dimensional array of picture elements.

Generalized Drawing Primitive (GDP) - Allows access to drawing capabilities of graphics devices which are not used by the functions listed above. For example, two GDPs commonly used are circles and arcs.

Attributes

Each output function has an associated set of attributes which control the appearance of the output. Attributes can be defined in groups, called bundles, or individually. For example, the following are attributes for polyline:

Line Type - Controls the style of a line, for example, lines can be dotted or dashed.

Line Width - Controls the width of the line.

Line Color - Color selection is performed by selecting an index into a table containing the red, green, and blue intensities required to define a particular color on color devices.

Input Functions

DEC GKS for VMS supports synchronous and asynchronous input. The following six classes of input data are supported.

- Locator - Returns a point within the user's world coordinate system
- Stroke - Returns a series of points within the user's world coordinate system
- Valuator - Returns a single real value within a specified range
- Choice - Returns a single non-negative integer within a specified range
- String - Returns a string of characters
- Pick - Returns a segment name and pick identifier

Control Functions

DEC GKS for VMS provides special functions for management of the picture process, including GKS initialization and termination, the opening and closing of logical graphical devices, and the control of the display surface.

Inquiry Functions

In addition, DEC GKS for VMS provides a complete set of inquiry functions which aid in developing modular, device-independent programs.

DEC GKS for VMS *Run-Time Only License*

Since DEC GKS for VMS is a graphics application development tool, Digital provides a Run-Time Only License for running graphics applications that were developed utilizing DEC GKS for VMS graphics. This license is offered at a substantially reduced cost per CPU. The DEC GKS for VMS Run-Time License does not allow the user to create new applications, but rather allows execution of applications that were previously developed on a CPU where the full GKS product had been installed under a Single-Use License Option.

HARDWARE REQUIREMENTS

VAX, MicroVAX, or VAXstation configuration as specified in the System Support Addendum (SSA 26.20.09-x).

SOFTWARE REQUIREMENTS *

For Systems Using Terminals (No DECwindows Interface):

VMS Operating System

For Workstations Running VWS:

VMS Operating System

VMS Workstation Software

For Workstations Running DECwindows:

VMS Operating System (and necessary components of VMS DECwindows)

* Refer to the System Support Addendum for availability and required versions of prerequisite/optional software and for information regarding components of VMS DECwindows (SSA 26.20.09-x).

ORDERING INFORMATION

Development System

Software Licenses: QL-810A*-**
Software Media: QA-810A*-**
Software Documentation: QA-810AA-GZ
Software Product Services: QT-810A*-**

Run-Time Option

Software Licenses: QL-811A*-**
Software Media: QA-811A*-**
Software Product Services: QT-811A*-**

* Denotes variant fields. For additional information on available licenses, services and media, refer to the appropriate price book.

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This layered product supports the VMS License Management Facility.

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For more information on the License Management Facility, refer to the VMS Operating System Software Product Description (SPD 25.01.xx) or the License Management Facility manual of the VMS Operating System documentation set.

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