IBM

Licensed Program
Specifications

AIX Personal graPHIGS™ Programming Interface/6000
(AIX graPHIGS™ API/6000)
Version 2, Release 1, Modification 0
Program number 5601-230

AIX™ Personal graPHIGS™ Programming Interface/6000 Version 2 is a state-of-the-art graphical application interface based on the approved ANSI and ISO standard for the Programmer's Hierarchical Interactive Graphics System (PHIGS) and proposed standard extensions called PHIGS PLUS.

It is designed to simplify the programming of graphics applications, particularly with computer aided design/computer aided manufacturing (CAD/CAM). With more than 400 graphics functions, the AIX Personal graPHIGS Programming Interface/6000 Version 2 may be used with programs written in FORTRAN, Pascal, and C to create graphics applications for the IBM RISC System/6000.

Highlights

The AIX graPHIGS API/6000:

- Is an API for advanced graphics programming
- Is based on ANSI and ISO PHIGS
- Provides PHIGS PLUS extended graphics primitives
- Has advanced rendering capabilities
- Supports direct color specification
- Has a Graphical Kernel System (GKS) Compatibility option
- Supports RISC System/6000 family
  - Support for RISC System/6000 POWERstations/POWERservers
  - Complemented by IBM AIXwindows Environment/6000

Description

The AIX graPHIGS API/6000 is an advanced graphics programming interface based on the approved ANSI and ISO standard for the Programmer's Hierarchical Interactive Graphics System (PHIGS) and based on PHIGS PLUS, the proposed extensions to the PHIGS standard.

AIX graPHIGS API/6000 adds advanced interactive graphics rendering capability and true three-dimensional capabilities to the design and visualization process. This version features a design which maximizes application control while fully utilizing the capabilities of the RISC System/6000 family.

Capabilities:

- Improves productivity and responsiveness for application developers, both for new applications and for existing applications when converted.

- Facilitates consistent interfaces for applications in the mainframe and the workstation environments.

- Permits easy migration of applications to new hardware and across platforms.

- Provides three-dimensional and two-dimensional interactive graphics.

- Hierarchically structures the graphics model which minimizes data replication and facilitates interactive modifications and transformations.

- Is a systems enabler of the IBM Computer Integrated Manufacturing (CIM) Architecture which is IBM's direction for integrating CIM solutions in a manner to assist customer's integration efforts.

- Is compatible with the GDDM/graPHIGS API and AIX PS/2 Personal graPHIGS API.

- Allows applications written to the GKS International Standard (ISO 7942) to run on the AIX graPHIGS API/6000.

- Offers synchronous and asynchronous input operations.

- Has simultaneous input and output.

- Features geometric articulation - the application program can coordinate the movements of separate parts of related objects.

- Has the ability to pick (select) and edit parts of graphic structures.

- Aids interactive modification - binding of graphics is done at traversal time.

- Offers a wide selection of graphics primitives and functions. All operate in both two- and three-dimensions.

  - Multiple levels of transformations — of the model component, of the total model, or the model as viewed by an observer, and of the result to a window or viewport of a display device.

  - Polyline, polymarker, polygon and pixel operations.

  - Ability to fill polygons with solid colors, pre-defined hatch styles.

  - Multiple line styles.

  - Multiple markers.

  - Multiple text fonts:

    - Text may be done with vector font, which can be transformed and scaled as part of the graphics model or separately.

    - Ability to justify text in several ways, including right, left, center, top and bottom.

    - Optionally, text can be one hardware generated size which are not scaled or rotated, but which remain anchored to a point in the model.

  - Advanced primitives such as Non-Uniform, Rational B-Spline (NURBS) curves and surfaces and polyspheres.

  - Advanced rendering functions such as Hidden Line/Hidden Surface Removal, Light Source Simulation and Depth Cueing.

  - Color selection for all primitives. Colors can be specified either directly or by using a color table.

- Provides functions for setting user defined hatch patterns.

- Provides functions for setting line and marker patterns.

Specified Operating Environment

Machine Requirements

AIX graPHIGS API/6000 is designed to be installed on the RISC System/6000 family of POWERstations with the desired graphics adapter or processors and at least one supported display and keyboard.

AIX graPHIGS API/6000 gives applications access to a wide variety of input devices and to the RISC System/6000 POWERstation graphics adapters and processors. Displays, both locally and remotely attached, are supported via X Windows. In addition, the AIX graPHIGS API/6000 is integrated with Enhanced X Windows to maximize performance on local, high-performance adapters.

Performance of the AIX graPHIGS API/6000 depends on many factors, such as processor and memory size and the RISC System/6000 family System Units. Consult your local IBM representative for configuration guidance.

- Displays

  The AIX graPHIGS API/6000 provides support for the following displays:

  - 8508 19-inch monochrome
  - 6091 23-inch color
  - 6091 19-inch color
  - 5081 19-inch color
  - 5081 16-inch color

- Adapters

  The AIX graPHIGS API/6000 provides support for the adapters listed below:

  - Grayscale Graphics Display Adapter (#2760)
  - Color Graphics Adapter (#2770)
  - High Performance 8-bit 3D Color Graphics Processor (#2780)
  - High Performance 24-bit 3D Color Graphics Processor (#2781)

- Systems

  - RISC System/6000 POWERstation or POWERserver 320

- RISC System/6000 POWERstation or
  POWERserver 520
- RISC System/6000 POWERstation or
  POWERserver 530
- RISC System/6000 POWERstation or
  POWERserver 540
- RISC System/6000 POWERstation 730
- RISC System/6000 POWERserver 930

- Terminals

  - IBM Xstation 120

- Tablets

  - IBM 5083   Model 021
  - IBM 5083   Model 022

- Mouse

  - IBM RISC System/6000™ family Mouse - 3
    button (#6041)

- Lighted Program Function Keyboard

  - IBM 6094   020 Lighted Program Function
    Keyboard

- Dials

  - IBM 6094   010 Dials

- Plotters

  - IBM 6180 M1 Color
  - IBM 6182 Color
  - IBM 6184 Color
  - IBM 6186 Color
  - IBM 7372

See *The graPHIGS™ Programming Interface:
Technical Reference* (SC33-8193) for details on any
restrictions associated with operating the AIX
graPHIGS API/6000 on these devices.

Programming Requirements
The AIX Personal graPHIGS Programming
Interface/6000 Version 2.1.0 requires that the fol-
lowing software is installed:

- IBM AIX Version 3 for RISC System/6000™
  (5756-030)
- IBM AIXwindows Environment/6000™
  (5601-257)

Licensed Program Materials Availability

Restricted materials - No. This licensed program
is available without source licensed program
materials. It is available in object code.

Supplemental Terms

Testing Period

Basic License: Two months

Installation/Location License

Not applicable. A separate license is required for
each machine on which the licensed program will
be used.

Usage License

Not applicable.

Type/Duration of Program Service

Central service for the basic license will be avail-
able until discontinued by IBM with a minimum six
months written notice.

Warranty

The program is warranted as specified in the
Program License Agreement.

Program: Yes   Media: 2 Months

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