



Licensed Program Specifications

AIX Personal graPHIGS™ Programming Interface/6000 (AIX graPHIGS™ API) Version 2, Release 2 Program Number 5601-230 PN/64F6933

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 compatible with the ISO PHIGS standard
- Is compliant with the ISO PHIGS FORTRAN binding
- Provides Japanese Language support.
- Provides PHIGS PLUS extended graphics primitives
- Has advanced rendering capabilities
- Supports direct color specification
- Has a Graphical Kernel System (GKS) Compatible option
- Supports RISC System/6000 family
 - Support for RISC System/6000 family 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. It is compatible with the ISO PHIGS standard, and is compliant with the ISO PHIGS FORTRAN binding.

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

AIX Personal graPHIGS Programming Interface/6000, AIX, and graPHIGS are trademarks of International Business Machines Corporation.

X Window System is a trademark of Massachusetts Institute of Technology.

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, predefined 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 is not scaled or rotated, but which remains 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 to enable applications to display and manipulate image data.
 - Supports storing graphical information in the Computer Graphics Metafile (CGM) or Graphics Data Format (GDF). This information can then be processed by other programs.
 - Provides functions for setting user defined hatch patterns.
 - Provides functions for setting line and marker patterns.

Specified Operating Environment

Hardware 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

Additional Hardware Requirement for Japanese Language Support

- IBM Japanese Keyboard

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

Software Requirements

AIX graPHIGS API/6000 Version 2.2.0 requires that the following software is installed:

- IBM AIX Version 3.1, Update 3003 for RISC System/6000™ (5756-030)
- IBM AIXwindows Environment/6000™, Update 3003 (5601-257)

Software Requirements for Japanese Language Support

AIX graPHIGS API/6000 Version 2.2.0 requires that the following software is installed for Japanese Language Support:

- IBM AIX Version 3.1, Update 3003KJ for RISC System/6000 Japanese Kanji Support (5621-012)
- Either of the following:
 - IBM AIXwindows Environment/6000, Update 3003KJ Japanese Kanji Support (5621-029)
 - IBM AIXwindows Environment/6000, Update 3003 (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: One month.

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 available 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



References in this publication to IBM products, programs or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent program that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program, or service.

Any other documentation with respect to this licensed program, including any documentation referenced herein, is provided for reference purposes only and does not extend or modify these specifications.

November 1990

Printed in U.S.A.

Gh23-0006-01

