Release Notice:
DG/UX™ AView for AViiON® Systems

Release 1.20 Revision 0.00

February 1992

Part number 085-600314-00

This release notice applies to the following model:

P001A

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Contents

1 Introduction

1.1 Overview

This Release Notice describes the DG/UX™ AView Graphics Library product and its installation. It also includes information not currently available in the product manual, such as the product directory tree.

Between releases, Data General may issue updates to the product. An update is essentially a partial release. This mechanism reduces the time needed to fix problems by providing a level of correction short of releasing the complete product. Each update of a product supercedes the previous update.

Additional copies of this release notice can be printed. Use the file **/usr/opt/aview/release/aview_1.20.rn** on the release tape.

1.2 Phasing Out of AView Library

Data General has made a strategic decision to move the basis of its 3-dimensional graphics support to the X 3-dimensional graphics extension (PEX) in the next major DG/UX™ release. Beginning with that release the AView library will no longer be distributed. The standard support window for the AView library will apply. Data General encourages customers using AView to make plans for moving to PEX.

2 Product Description

AView is a full function 2-D and 3-D graphics library. Its routines provide high-speed, direct access to the AViiON® graphics workstation hardware. It includes basic graphics primitives (line, circle, polygon), input control, color table control, double buffering, and Z-buffering.

3 Environment

3.1 Hardware

The AView Graphics Library runs on all AViiON ® workstations. It supports monochrome, 8-bit color, 24-bit color, and hardware Z-buffer options.

On all AV/400 and AV/4000 series 24-bit color workstations, prom revision 5.09 or greater is required.

Note: If you intend to use software Z-buffering in your applications, we recommend a minimum of 16MB of memory be installed on your system. This will reduce performance degradation due to swapping.

3.2 Software

3.2.1 Operating Environment

Revision 5.4.1 or later of the DG/UX™ operating system is a prerequisite. Consult the DG/UX™ 5.4 release notice (085-600265-01) and the DG/UX™ 5.4.1 update notice (078-600076-00) to determine its environmental requirements. Due to object file format changes, applications built with this release of the AView Graphics Library can only be run on DG/UX™ 5.4.1 or later.

3.2.2 Compiling Environment

DG/UX™ 5.4.1 is a multiple software development environment platform. The only DG/UX™ software development environment supported by the AView Graphics Library is m88kdguxelf (the default environment). For more information on software development environments, see the *Programmer's Guide: ANSI C and Programmers Support Tools* (093-701104). When compiling applications that use the AView Graphics Library, the SDE_TARGET_ENVIRONMENT must be m88kdguxelf. Also, when using gcc, strict ansi and traditional mode are not supported. Use "gcc -DDGUX_SRC -ansi" or "gcc" without the -ansi or -traditional switches to compile your applications.

4 Enhancements and Changes

4.1 Enhancements

1. A lighting model has been added to this release.

2. Improved support for multi-bound polygons has been provided in this release in the **gxComplexPolygon** routine.

3. Two new tutorial and three new demo programs have been added in this release.

4.2 Changes

1. On a 24-bit system, lookup table color values are returned in the lower byte of the word, instead of being duplicated in the three lower bytes.

2. Filled primitives now draw with the default fill pattern even if a user-defined line pattern is set and no fill pattern is set.

4.3 Software Trouble Reports Resolved

Following is a list of Software Trouble Reports that have been resolved in AView Release 1.20. The problem descriptions given here are listed exactly as described in the original report filed by customers. Please refer to the DG/UX™ Monthly Newsletter for additional details.

1. JAPN-000000518-0: When we draw a triangle on the gouraud shading mode, a side line is drawn as a dotted line.

2. JAPN-000000603-0: Shaded polygon (rectangle) is not drawn correctly.

3. JAPN-000000606-0: GxArc doesn't draw when in gxRenderModeSet(gxcPie) mode.

5 Notes and Warnings

5.1 Notes

1. You do not have to start the graphics daemon manually. The library first checks to see if it is already running, and if not, looks for the **grfxd** executable in **/usr/bin** and **/usr/opt/aview/bin**. If the executable is found, the graphics daemon is started automatically.

2. The library uses single precision floating point. The Makefile in the **/usr/opt/aview/demo** directory uses the gnu c compiler (gcc) and illustrates the proper way to build applications. When using the greenhills c compiler (ghcc), the -X167 option must be used to insure single precision floating point numbers are passed into the subroutines.

3. Resetting window parameters (by calling **gxWindowSet** with a non-null window pointer) will reset the color map, cursor, cursor display status (on or off), and display mask to the defaults.

4. Concave polygons are a special case for polygons. Use **gxComplexPolygon** to render concave polygons.

5. The aspect ratio parameter for windows is not enforced.

6. The only devices currently supported by the **gxInputAccelerationSet** routine are:
   gxcMouse
   gxcMouseX
   gxcMouseY
   Using any of these three devices will result in the acceleration value being set for both **gxcMouseX** and **gxcMouseY** for all graphics processes currently running.

7. To produce correctly shaded polygons, triangular tesselation is recommended. For polygons with more that 3 vertices, color gradients must be uniform across the entire polygon to ensure consistent shading, as non-uniform color gradients cannot be uniquely rendered with Gouraud shading. Note that even the library's internal lighting model may produce non-uniform color gradients when operating on high vertex count polygons, and shading artifacts (including color overflow) may result. Using triangles will avoid any such problems.

8. The routine **gxInputAccelerationGet** always returns **gxcMouse** as the value for the Device parameter.

9. The routine **gxCursorDef** does not support cross-hair cursors.

10. Software Z-buffering uses a large amount of memory and will be very slow on systems with less than 16MB of memory.

11. Error messages are directed to stderr.

12. Overlapping windows are not supported. If windows overlap, drawing from both windows will occur in the overlapped area.

13. A maximum of 10 active graphics processes and 200 AView windows are allowed on each AViiON® system.

14. The minimum window size is 20x20.

15. The maximum window size is 1280x1024.

16. On an 8-bit machine, **gxcTri** color mode can not utilize the hardware Z-buffer. The software Z-buffer will be used even if hardware Z-buffer is requested.

17. **gxArc**, **gxEllipse**, and **gxCircle** will all immediately return with no action taken if the radius parameter is less than or equal to 0. Also, 360 degree filled versions should be drawn with the Arc Mode set to **gxcArc**.

18. The only boolean that works with Z-buffering is **gxcCopy**.

19. User defined line patterns are displayed with the most significant bit used first.

20. The function **gxAreaWrite**, when used on a monochrome machine in stencil mode, ignores source pixels which have a value of zero. On the 8 and 24 bit hardware, source pixels with a value of zero are written even in stencil mode.

21. If your application exits with an AView fatal error "Unable to create synchronization semaphore", then the graphics daemon must be started manually. Start the **grfxd** executable found in either **/usr/bin** or **/usr/opt/aview/bin**, then restart your application.

5.2 Warnings

1. You can not use applications built with this release of the library with earlier releases of the graphics daemon (**grfxd** executable).

2. AView does not run with X. Be sure to kill the X server before running any AView applications.

3. Calling **gxViewSet** to create a view other than the default view corrupts the text drawing position and requires the use of explicit calls to **gxTextPositionSet**, rather than relying on the default text drawing position.

4. Keyboard input may be lost while the bell is ringing.

5. If you observe unexpected behavior from running an AView application compiled with gcc optimization turned on, try recompiling the application with optimization turned off.

6. When creating a window that has portions of the window located offscreen, the viewport for that window is resized to the onscreen region.

7. The **grfxd** and AView library create files in **/tmp** that are used in the transfer of information between the **grfxd** and an AView application. If these files (**/tmp/.gxinptd** and **/tmp/.gx[process pid #]**) are deleted while the **grfxd** and the

AView application are running, then input device service will hang.

6 Documentation

6.1 Manuals

The following manuals are available for the AView Graphics Library product:

Publication	Part Number
AView Graphics Library Release Notice	085-600314-00
Programmer's Reference for the AView Graphics Library	093-000717-00

The man pages from the Programmer's Reference for the AView Graphics Library are available in the **/usr/opt/aview/catman/A_man/man3** directory and consist of approximately 150 man pages.

6.2 Documentation-change files

There are documentation-change pages associated with this release in the AView Documentation Update file, located in **/usr/opt/aview/catman/A_man/man3/update.ps**. Print this file on a postscript printer and follow the directions to update your hardcopy documentation.

7 Software Distribution

7.1 Media

AView is included with model number P001A. See the media notice for this model for a description of the media.

7.2 Files

This table briefly describes the organization of the product release tree for the AView Graphics Library. For a complete list of files present in the AView Graphics Library, see **/usr/opt/aview/release/aview_5.4.1.fl** after the system is loaded.

AView Graphics Library Directory Structure	
/usr/opt/aview	top level directory
/usr/opt/aview/bin	AView executable files
/grfxd	graphics daemon

/usr/opt/aview/include	A View include directory
/aview.h	A View include file
/usr/opt/aview/release	A View release directory
/aview_5.4.1.fl	A View file list
/aview_1.20.rn	A View release notice
/usr/opt/aview/sbin	A View sysadm setup scripts
/usr/opt/aview/lib	A View library directory
/libaview.a	A View library
/usr/opt/aview/catman/A_man	A View on-line documentation
/man3	graphics library docs
/man3/update.ps	A View Documentation Update file
/usr/opt/aview/tutorial	tutorial code
/usr/opt/aview/demo	demos and example makefile directory

8   Installation Instructions

8.1   Installing The AView Graphics Library

AView currently requires 10000 blocks of file space to load. Make sure you have adequate space available prior to installing this package. There are a large number of demo programs provided in source form only. Enough space is available to compile a few of these at a time. However, if you wish to compile all of the demos at once, you will need an additional 40000 blocks of space. Since there is little need to have all the executables at one time, we do not recommend that you allocate this extra space.

This package will load into **/usr/opt**. We recommend that a separate logical disk be created so that the release does not load directly into **/usr**. If **/usr/opt/aview** has not been created on your system, refer to *Installing the DG/UX™ System* (093-701087-01) and *Managing the DG/UX™ System* (093-701088-01) for creating a logical disk and adding the file system. Once the file system has been set up and mounted, load the AView Graphics Library with **sysadm**. Once the package has finished loading, use **sysadm** *software->packages->setup* to set up AView. Following this step, the installation of the AView Graphics Library is complete.

8.2   Testing the Software Installation

AView does not run within X. If you are running X, kill the X Server and get back to the (white on blue if on color, white on black if on mono) terminal emulation window that was present before X was started.

To test the installation of the AView Graphics Library, go to the **/usr/opt/aview/demo** directory, build any of the demos that are there, and run it.

If the software does not function correctly, first review the installation to make sure you have not overlooked any steps. In particular, make sure the graphics daemon (**grfxd** in **/usr/opt/aview/bin**) is running. If you feel you have followed the instructions correctly, call your local Customer Service Representative.

9 Preparing a Software Trouble Report (STR)

If you believe you have found an error in the DG/UX™ AView Graphics Library or its documentation, or if you have a suggestion for enhancing or improving the product, use a Data General Software Trouble Report (STR) to communicate this to DG.

STR forms are available from the nearest DG office or DG representative, the Software Support Center, or can be found on your system in the file STR_form in **/usr/release**. If your contract permits, you may report the information called for in this section to your Data General representative. To help us process STRs quickly, **please include only one problem or suggestion on each STR form.** Please follow these guidelines when filling out your Software Trouble Report:

1. List the product name (AView), model number (P001A), and revision number as shown on the title page of this release notice. Also, include the revision of the DG/UX™ System that you are running. If you are running an update or patch, include its number as well.

2. Decide what kind of STR you are writing:

    • Enhancement: describe the proposed enhancement clearly and tell why you want it. The better we understand your desire, the easier it is for us to evaluate your request.

    • Documentation Error: list the title and part number of the document or man page and list the page and paragraph (or section) containing the error. Please state exactly why you think there is an error.

    • Software Problem: clearly and specifically state the problem so that support personnel can try to reproduce it. See the section **Software Problems** below for more details.

3. On the STR form provide all of the following information:

    • Date

    • Name and revision of the product

    • DG/UX™ revision being used

    • CPU type

    • Hardware configuration (if relevant)

    • Names and revisions of other software running on the system

    • The command line or scenario that caused the problem

    • The action(s) necessary to reproduce the problem

- How often the problem occurs and how serious it is

4. If the problem occurred soon after installing a new revision of software or new hardware, please note this.

5. If you received an error message, please write down the exact text (and number, if present) of the message.

9.1   Software Problems

Report any particular activity or program running on the system that seems to cause the problem. If the program is supplied by DG, report in detail the exact steps used to reproduce the problem. If the program is supplied by another vendor or written by an installation, include a copy of the program and its source code, if possible.

Again, report in detail the exact steps used to reproduce the problem.

If your system panics, hangs or halts, see the DG/UX™ release notice for instructions on system dumps and DG/UX™ Software Trouble Reports.

End of AView Release Notice