

System Requirements

The SAS® System Release 6.11 (TS051) ABI+ for Intel® Architecture

This document provides requirements for installing and running the SAS System on ABI+ for Intel Architecture system. You must update your system to meet the minimum requirements before running the SAS System. The major requirements listed in the document are:

- Software Requirements
- Hardware Requirements
- Space Requirements
- Specific Product Requirements
- Graphics Hardware and Software Compatibility

For additional information and to view the latest system requirements for your system, access the SAS Institute Web site at:

http://www.sas.com/software/enclosures/system_req.html

or contact SAS Institute Technical Support (refer to Contacting SAS Institute Technical Support in the installation instructions included in your package).

For information about Year 2000 compliance, see <http://www.sas.com/techsup/download/technote/y2kcomp.html>.

Software Requirements

Operating System

The SAS System should run on any Intel ABI+ compliant system that conforms to the *ABI+ for the Intel Architecture, Edition 3.0* guide. Should you find that the SAS System will not run on an Intel ABI+ compliant system, contact the operating system vendor and SAS Technical Support.

The SAS System has been tested on the following systems. Please check the **Alert Notes** for any known problems.

Company	Operating System Release
NCR	UNIX MP-RAS Release 2.0.3, 2.2
SCO (UnixWare was formerly a Novell product)	UnixWare 2.0, 2.1, 2.2; UnixWare 7.0.1
Sequent	DYNIX/ptx Version 4.0, 4.4.1, 4.4.2
Unisys	Unisys SVR4 1.3 UnixWare 2.0, 2.1, 2.2; UnixWare 7.0.1 DYNIX/ptx Version 4.0, 4.4.1, 4.4.2
Sun	Solaris 2.4 for X86, 2.5, 2.6; Solaris 7 for Intel (2.7)
Data General	DG/UX Release 4.20 MU01, MU02

Hardware Requirements

Distribution Media

For installing the SAS System:

- CD-ROM
- 4mm
- 8mm (8 mm is not supported for Unisys)

For creating files using the SAS System (tape types):

- Q150
- 8mm

Math Coprocessor

A math coprocessor is required. Be sure to install a math coprocessor that is compatible with your specific hardware platforms.

Memory Requirements

- 16 MB minimum
- 24 MB recommended
- 8 MB additional recommended for each concurrent user

Hard Disk Requirements

The entire SAS Applications System and all optional files require about 355 MB for ABI+ for Intel Architecture. Refer to the **Space Requirements** section for details.

The SAS System installation requires that 2 MB of hard disk space be available on the partition where the SAS System is installed. This disk space is needed when running the install's SAS Manager application.

Devices Supported

- A mouse is required for X Windows

Space Requirements

The media you received is customized for your site and contains all of the SAS software products for which you are licensed.

The following list contains space requirements in MB for all of the products available with this release of the SAS System for ABI+ for Intel Architecture. Use this information to help you determine how much free disk space you must have available before you can install the SAS System.

Software Product	Required Disk Space	Additional Space for Samples and Optional Files
Base SAS Software	90.4	15.1
SAS/ACCESS Interface to ODBC Software	0.1	0.0
SAS/ACCESS Interface to PC File Formats Software	0.1	0.0
SAS/ACCESS Interface to UNIX Databases Software	0.1	0.0
SAS/AF Software	0.6	0.9
SAS/ASSIST Software	11.5	0.0
SAS/CALC Software	4.6	0.0
SAS/CONNECT Software	1.5	0.1
SAS/EIS Software	12.3	0.0
SAS/ENGLISH Software	5.3	0.3
SAS/ETS Software	11.8	0.3
SAS/FSP Software	0.8	0.3
SAS/GIS Software	37.5	0.3
SAS/GRAFH Software	18.9	4.9
SAS/GRAFH Map Data Sets	42.5/11.7*	0.0
SAS/IML Software	5.2	0.5
SAS/INSIGHT Software	4.6	0.4
SAS/LAB Software	5.6	0.0
SAS/OR Software	18.0	2.3
SAS/QC Software	14.0	3.5
SASSHARE Software	0.5	0.0
SAS/SPECTRAVIEW Software	1.5	11.4
SAS/STAT Software	17.8	1.8
SAS/TOOLKIT Software	4.1	0.0
SAS/TUTOR Software: Fundamentals of the SAS System (CBT101)	4.2	0.0
SAS/TUTOR Software: Reading Raw Data and Formatting Values with the DATA Step (CBT102)	2.2	0.0
SAS/TUTOR Software: Creating, Modifying and Processing Variables with the DATA Step (CBT103)	2.2	0.0
SAS/TUTOR Software: Developing Custom Data Entry Applications (CBT104)	2.4	0.0
SAS/TUTOR Software: Creating and Enhancing SAS/GRAFH Output (CBT105)	3.8	0.0
SAS/TUTOR Software: Creating Tables with PROC TABULATE (CBT106)	2.2	0.0
SAS Notes	46.0	0.0

*Compressed.

Specific Product Requirements

SAS/ACCESS Interface to ODBC Software

Products Required:

- Base SAS software
- SAS/ACCESS Interface to ODBC software

DBMS Products Required:

An ODBC driver for the data source from which you want to access data is required. ODBC drivers are often available from the DBMS vendor and other third party ODBC driver developers. The ODBC driver you choose may require additional DBMS software in order to access the data.

You may have to edit the `.odbc.ini` file in your home directory with a text editor to configure data sources. Some ODBC driver vendors may allow a system administrator to maintain a centralized copy by setting the environment variable.

The ODBC drivers are ODBC API-compliant dynamic link libraries, referred to in UNIX as shared objects. You must include the full path to the dynamic link libraries in the `LD_LIBRARY_PATH` so that the ODBC drivers can be loaded dynamically at run time.

For more information, please consult your ODBC driver vendor.

SAS/AF Software

Products Required for Build Mode:

- Base SAS software
- SAS/AF software
- SAS/GRAF software (to create and display graphics objects)
- Other products may be required depending on the application

Terminals:

- Any X Windows-based terminal or server

Products Required for Run Mode:

- Base SAS software
- SAS/GRAF software (to create and display graphics objects)
- Other products may be required depending on the application

Terminals:

- Any X Windows-based terminal or server

Printers:

For printing graphics-based objects, a color or gray scale printer is required.

Certain non-graphic objects may require SAS/GRAFH software to print depending on the object.

The quality of printed output may be less than desirable on true pen plotter type devices.

SAS/CALC Software**Products Required:**

- Base SAS software
- SAS/CALC software

Terminals:

- Any X Windows-based terminal or server

SAS/EIS Software**Products Required for Build Mode:**

- Base SAS software
- SAS/AF software
- SAS/FSP software
- SAS/GRAFH software
- SAS/EIS software
- Other products may be required depending on the application

Terminals:

- Any X Windows-based terminal or server

Products Required for Run Mode:

- Base SAS software
- SAS/GRAFH software
- SAS/EIS software
- Other products may be required depending on the application

Terminals:

- Any X Windows-based terminal or server

Printers:

For printing graphics-based objects, a color or gray scale printer is required.

The quality of printed output may be less than desirable on true pen plotter type devices.

SAS/ENGLISH Software

Products Required:

- Base SAS software
- SAS/ASSIST software
- SAS/ENGLISH software

Terminals Required:

- Any X Windows-based terminal or server

SAS/GIS Software

Products Required:

- Base SAS software
- SAS/GRAPH software
- SAS/FSP software
- SAS/GIS software
- Other products may be required depending on the application

Printers:

A color gray scale printer is required. The list of possible printers can be found in the **Graphics Hardware and Software Compatibility** section.

The quality of printed output may be less than desirable on true pen plotter type devices.

Display:

- 16 color X Windows-based terminal or server required
- 256 colors recommended

SAS/LAB Software

Products Required:

- Base SAS software
- SAS/GRAPH software
- SAS/LAB software
- SAS/FSP software is recommended but not required

Terminals:

- Any X Windows-based terminal or server

SAS/TRADER Software

SAS/TRADER is a client/server application. The client memory and hardware requirements are the same as the requirements for SAS/EIS software.

Client Products Required:

- Base SAS software
- SAS/FSP software
- SAS/GRAFH software
- SAS/TRADER software
- SAS/AF software is required for the application development feature of the product.

Both SAS/TRADER servers and clients require a network supporting the TCP/IP protocol.

Note: Only the SAS/TRADER client runs on this platform.

Terminals:

- The SAS/TRADER client requires a color X Windows-based terminal or server.

Printers:

For printing graphics, a color or gray scale printer is required.

The quality of printed output may be less than desirable on true pen plotter type devices.

SAS/TUTOR Software

Terminals:

- Any X Windows-based terminal or server

Graphics Hardware and Software Compatibility

Printers

SAS/GRAF software provides device drivers for all Hewlett-Packard printers (and compatibles), and printers that support PostScript, HP-GL, HP PCL, and other printer languages.

Here is a partial list of printers that SAS/GRAF software supports:

CalComp ColorMaster, ColorMaster Plus, PlotMaster
Canon Bubble Jet, Laser Shot
Digital printers that support either SIXEL, HP PCL, Tektronix, or PostScript emulation modes
Epson FX and LQ series printers (and all printers running in Epson emulation mode)
Hewlett-Packard LaserJet, DeskJet, PaintJet, and DesignJet printers (and compatibles)
IBM Graphics, Proprinter, and ColorJet printers
PostScript printers (including color and gray-scale PostScript printers)
QMS Colorgrafix with CGM interpreter
QMS 800, 1200, 1500, 2200, and 2400 using QUIC or Tektronix emulation modes
Talaris 800, 802, 1200, 1500, and 2400 using QUIC or Tektronix emulation modes
Talaris printers using the EXCL language
Tektronix Phaser printers (all models)
Tektronix 4693 printers with Tektronix 4510 rasterizer
Xerox 2700 and 4045 printers with a GRAPHX cartridge
Xerox 3700 (with imaging board and at least 1 MB of memory)
Xerox 4030 (contact Technical Support), 4213, 4235, and 4700
Xerox 4700 printer
Xerox 5775 color copier with an EFI Fiery attachment

SAS/GRAF device drivers may also be available for additional printers not listed above and that do not support PostScript, HP-GL, or HP PCL. For additional information on these drivers, contact SAS Institute Technical Support.

Terminals and Displays

SAS/GRAF software supports graphics display on graphics terminals from DEC, Tektronix, HP, and on X Windows terminals. SAS/GRAF software also supports graphics emulators that emulate any of the above terminals. Note the use of the SAS/GRAF graphics editor requires an X Windows display or X Windows emulation software.

Plotters

SAS/GRAF software provides device drivers for all HP plotters supporting HP-GL or HP-GL/2, and plotters from other manufacturers that support the HP-GL or HP-GL/2 language. SAS/GRAF software also supports Houston Instruments plotters using the DMPL language and ZETA plotters that support the GML language.

Film Recorders

SAS/GRAPH software provides device drivers that support the following film recorders:

Genigraphics Masterpiece Camera System with SCODL interface
Lasergraphics MPS 2000 film recorder with a Lasergraphics UI-100 or RASCOL rasterizer
Matrix QCR and PCR cameras with Matrix QVP, MVP, or Lasergraphics rasterizers
Polaroid Palette CI-3000 and CI-5000
Presentation Technologies Montage film recorder

Support may be available for other film recorders not listed here. For details, contact SAS Institute Technical Support.

Interfaces to Other Graphics Software

Included with SAS/GRAPH software is a series of drivers that can produce Computer Graphics Metafiles (CGM) in binary, character, and clear-text formats. These drivers can be used to transfer SAS/GRAPH output to other products that support CGM input, such as Word for Windows, WordPerfect for Windows, Harvard Graphics, and Lotus Freelance, or to devices that can process CGM input.

SAS/GRAPH software can also generate encapsulated PostScript vector files, which can be exported to word processing packages such as Microsoft Word, WordPerfect, and several others. Many other graphics and word processing applications can process files in Hewlett-Packard (HP-GL) format. The HPGL driver can be used to produce files that can be transferred to most applications that can process HP-GL files.

SAS/GRAPH software can also export graphics in the following formats:

BMP - Microsoft Windows Bitmap
EPS - Encapsulated PostScript
GIF - Graphics Interchange Format
PNG - Portable Network Graphics
PPM - Portable Pixmap
PS - PostScript Bitmap
TIF - Tagged Image File Format
XPM - X11 Pixmap
JPG - JPEG Files
XBM - X11 Bitmap

In addition, SAS/GRAPH software can import graphics in the following formats:

BMP - Microsoft Windows Bitmap
EPS - Encapsulated PostScript
GIF - Graphics Interchange Format
PBM - Portable Bitmap
PCD - Kodak Photo-CD
PCX - PC PaintBrush
PGM - Portable Graymap
PNG - Portable Network Graphics
PNM - Portable Anymap
PPM - Portable Pixmap
TGA - Targa format
TIF - Tagged Image File Format
XBM - X11 Bitmap
XPM - X11 Pixmap
XWD - X Window Dump
JPG - JPEG Files

Writing Your Own Device Driver

SAS Institute's Metographics driver facility can be used to develop driver support for virtually any device you choose. The Metographics driver facility is device-intelligent and supports most hardware features. A user-written program is required to translate the metafile into the appropriate graphics language recognized by the hardware. SAS/GRAFH software will, optionally, perform device I/O. For details, contact SAS Institute Technical Support.

The Macintosh Meta Application

The Macintosh Meta Application is a free program that can be installed on your Macintosh. A metafile produced by the SAS/GRAFH Metographics driver can be transferred to the Macintosh from your host system and viewed on the screen. Images can then be stored in PICT or clipboard format to be used by other applications or printed on an attached Apple LaserWriter (or compatible) printer. Images can be saved into the Macintosh clipboard and used by MacDraw and other Macintosh packages. For details, contact SAS Institute Technical Support.

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