cadence®

Allegro® Platform System Requirements

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Contents

Allegro® Platform System Requirements

This document contains the recommended system requirements for Cadence Silicon-Package-Board (SPB) tools, Release 16.5.

Important

If you use a physical design product (Allegro PCB, APD, Allegro SI or Cadence SiP), be sure to read Graphics Requirements for Physical Design Products on page 13.

Note: All UNIX/Linux platforms: To ensure that your system is configured with the correct operating system patches, run the `checksysConf` program. You can download `checksysConf` from Cadence Online Support.

Microsoft Windows System Requirements

This section describes the system requirements for Windows.

Because Cadence Silicon-Package-Board (SPB) products are integrated directly with Windows, hardware and peripherals supported by Windows are also supported by the Cadence SPB products. A list of hardware and peripherals officially supported by Windows can be obtained from the Microsoft web page.

SPB products require updating certain Microsoft libraries in the Windows directory. You must install the Cadence software either using the desktop mode or client install. You may no longer be able to point to the Cadence software without installing.

Once you install 16.5, you should only use the 16.5 version of the switchversion program to change releases.

Platform ID	wint
Operating System	Windows 2008 R2 Server; Windows XP Professional SP3; Windows Vista (32 and 64 bit) except Starter and Home Basic; Windows 7 (32 and 64 bit) (Home Premium, Professional, Enterprise, and Ultimate). **Note:** 64 Bit Vista requires 64-bit Flex software dongle drivers (if using dongle licensing). It is recommended, if migrating from XP, that you plan on using Windows 7 64-bit. While Cadence software does not currently utilize 64-bit addressing, this will position you for future releases. We do not recommend that you migrate to Vista.
Hardware	Intel IA-32 compatible (includes Intel P4 EMT and AMD Opteron™); 1.2 GHz minimum; 2.4 GHz or more is recommended. **Note:** Cadence SPB products do not support the IPF chip. CD-ROM drive Ethernet card (for network communications and security hostID) Three-button Microsoft-compatible mouse For information about graphics cards, see Graphics Requirements for Physical Design Products on page 13.

Minimum	**Recommended**

4 GB physical memory	4 GB physical memory
50 GB disk space	500 GB disk space
virtual memory should be at least double the available physical memory	virtual memory should be at least double the available physical memory
1024x768 resolution with 64,000 colors	1280x1024 color quality 32-bit graphics
	A dedicated graphics card is recommended.

Note: Support for the Windows server does not include the Windows Remote Desktop (which is part of the terminal services package). No support for XP 64-bit.

Using Spaces in File and Directory Names

Support for spaces in file and directory names applies only to Windows. Spaces in file or directory names are not supported on UNIX platforms. Leading and trailing spaces in directory components are not supported.

Spaces in directory names are supported in the following areas:

- Program installation location (`C:\Program Files`)
- Default user home directory (`C:\Document and Settings\<`*user*`>`). If you set the `HOME` environment variable, you override the default.
- Default temporary directory (`C:\Document and Settings\<`*user*`>`). If you set the `TEMP` or `TMP` environment variable, you override the default.
- Your desktop directory (`C:\Document and Settings\<`*user*`>\Desktop`)
- Project location
- Library locations

Spaces in filenames are not supported when a filename is stored in the design. For example, symbols and padstack names are stored in the Allegro database where a space is not legal. Ancillary space support is based upon each SPB application. Allegro PCB Editor supports spaces in filenames for non-design files. Files that fall into this category are reports and text files.

Sun Solaris System Requirements

This section describes the system requirements for Solaris.

Platform ID	sun4v
Operating System	Solaris 10
Hardware	Sun UltraSparc or better.
	4 GB (or greater) system memory
	1 GB swap space
	10 GB (or greater) available disk space
	TrueColor required
	For information about graphics cards, see Graphics Requirements for Physical Design Products on page 13.
Window Manager	Common Desktop Environment (CDE) or Gnome

This section describes the system requirements for Solaris 86, supported June 2008.

Platform ID	sol86
Operating System	Solaris 10
Hardware	Sun Ultra 24 or better workstations x86_64 (32 bit mode) CPU (x86_64 denotes 64 bit processors whose instruction sets are compatible with the X86 standard, such as Intel Xeon-EM64T, AMD Opteron, etc.) 4 GB (or greater) system memory 1 GB swap space 10 GB (or greater) available disk space TrueColor required For information about graphics cards, see Graphics Requirements for Physical Design Products on page 13. **Note:** Allegro PCB Editor will not be able to open 14.x and older databases. Use your original design platform to uprev older designs. Valor does not support sol86. PDF publisher is unavailable on this platform as Adobe does not provide the programming libraries for sol86 platform. Mentor translators are excluded as they require libraries from Mentor that are unavailable on sol86. Design Workbench is not part of 16.5.
Window Manager	Common Desktop Environment (CDE) or Gnome

Linux System Requirements

This section describes the system requirements for Linux.

Platform ID	lnx86
Operating System	RHEL 4.7 (32/64-bit) SP7; RHEL 5.2 (64-bit) SP2, and SLES 10 (64-bit) SP2
Hardware	Intel P4 compatibles (includes AMD Opteron™), Intel P4 EMT and AMD Athlon™
	4 GB (or greater) system memory
	2 GB swap space
	10 GB (or greater) available disk space
	TrueColor required
	For information about graphics cards, see Graphics Requirements for Physical Design Products on page 13.
Window Manager	Gnome

Note: If you are running SPB back-end tools, you must source

```
<cdsroot>/tools/pcb/bin/cshrc (tcsh/csh)
```

or

```
<cdsroot>/tools/pcb/bin/profile (sh/bash)
```

or intergrate the equivalent Linux settings into your own environment files. It is not sufficient just to add SPB tools to the `PATH` variable.

IBM AIX System Requirements

This section describes the system requirements for IBM AIX.

Platform ID	ibmrs
Operating System	AIX 5.3; AIX 6.3
Hardware	POWER3 and PC_604 **Note:** Cadence SPB no longer supports Power2 and older machines. Run the `lsattr -El proc0` command to check the CPU type; it should return a value containing the processor types listed above. 4 GB (or greater) system memory 2 GB swap space 10 GB (or greater) available disk space TrueColor required For information about graphics cards, see Graphics Requirements for Physical Design Products on page 13.
Window Manager	Common Desktop Environment (CDE) Backingstore needs to be enabled in the following manner: 1. Login as root. 2. Edit /usr/lpp/X11/defaults/xserverrc 3. Change the following line: EXTENSIONS = “” to read EXTENSIONS = “-bs” 4. Reboot your machine.

Improving Performance on UNIX Systems

You may be able to greatly enhance your graphics performance on certain machines if you run both X and Cadence SPB products on the same machine.

To run X and Cadence SPB products on the same machine, set the display variable to its local mode (type `setenv DISPLAY :0` at the command prompt). This lets the X protocol use shared memory instead of expensive TCP/IP transport.

Displaying UI Dialog Boxes Correctly

If the secondary (child) dialog boxes disappear behind the main UI of Allegro PCB Editor, you need to modify the window manager to keep child windows on top.

- For Solaris

  The typical window manager default configuration is

  ```
  secondariesOnTop:False
  ```

  - If you run CDE, add the following to your `~/.Xdefaults` file

    ```
    DTwm*secondariesOnTop:True
    ```

  - If you want to restrict this behavior to certain programs, add the following to your `~/.Xdefaults` file

    ```
    DTwm*<program>*secondariesOnTop:True
    ```

    For example:

    ```
    DTwm*Allegro*secondariesOnTop:True
    ```

Add an entry to the file for each program. When finished, restart the window manager.

Non-Native X Emulators

Cadence tools only support the XServer provided by the OS platform vendors (Sun, Linux, and AIX). Non-native X solutions such as Hummingbird, Exceed, etc., are not supported. VNC to non-native X solutions is also not supported.

Graphics Requirements for Physical Design Products

Most physical design products (such as Allegro PCB Editor, APD, SiP, and SI, but not Allegro PCB Router or SigXplorer) offer enhanced graphics via OpenGL. Some Front-end programs require OpenGL for library viewing.

To use OpenGL as a graphics drawing option, your system must meet the following requirements:

- A modern computer purchased within the last couple of years.
- A dedicated graphics card (motherboard-based) with hardware OpenGL support or an Intel 945 class graphics card. A minimum of 128 MB dedicated (not shared) video RAM and a 128-bit bus interface (256 MB or more is recommended). We also recommend that the card be workstation certified. A high-end motherboard based graphics solution delivers acceptable performance for most designs. This is one area where spending a bit for quality improves productivity.
- A minimum of 1 GB system memory.
- Installation of the latest graphics patches from the graphics card vendor.

Important

As with most graphics support, you must ensure that the appropriate drivers are installed and properly configured on your system. If you use older versions, you may see glitches with the display of objects, poor performance, and other problems. In the case of Windows Vista, only DirectX is available from the initial installation, so you must obtain new drivers before you attempt to run SPB tools. Make sure that video cards for Linux have Linux drivers available.

Remote graphics are not supported. Examples include:

- Windows terminal services such as Citrix
- VNC based programs
- Remote X programs (for example: Hummingbird)
- Thin client solutions (for example: SunRays)
- Remote X clients (for example: Sun to Sun)

As of Release 16.0, all SPB tools require at least 65000 colors. We no longer support 256-color mode (also known as 8-plane mode in the X window world). Unix/Linux Xservers must be configured to use the TrueColor model.

Only the 2D mode is supported. OpenGL requires higher level graphics cards for best performance. On Solaris and AIX platforms, OpenGL requires TrueColor 24 bit graphic settings, and will not display all colors if the system defaults are 8 bit color.

OpenGL is enabled by default. You can disable it using the environment variable `disable_opengl` in the OpenGL category of the User Preferences Editor dialog box.

Planning Hardware Purchases for Physical Design Products

The SPB product family includes products such as schematic capture and library design. These place higher demands on disk access and do not tend to need the fastest CPU available. However, most Allegro back-end products are CPU and memory-bound—especially true of the back-end products: Allegro PCB Editor, PCB Router, APD, and PCB SI. Therefore, Cadence recommends a faster CPU for these products.

Allegro products use both integer and floating point, so select a configuration that provides ample processing power in both areas. When choosing a machine, purchase one with the highest CPU rating. Because vendors are de-emphasizing their CPU clocking, use the vendors' chip-naming convention. Alternatively, use a performance benchmark measurement. For example, the SPEC site (`http://www.spec.org`) lists the hardware results from multiple vendors.

If two systems have comparable ratings, purchase the system with the larger Level 2 cache, even if its ratings are slightly slower. Buying a top-end CPU usually also brings a system with the latest motherboard, bus architecture, and RAM hardware.

In the Windows environment, if the machine is recommended for gamers, it meets the needs of high-end physical implementation design. The exception to this rule is that for Allegro products, you do not need dedicated sound cards. A dedicated graphics card is recommended over a motherboard-based graphics card because motherboard cards share memory and bus access with the CPU.

Buy enough memory so you are not paging during your work. One gigabyte is a good starting point for average PCB designs but you may need to raise the total if you plan on auto-routing, signal integrity work, or multi-board simulation. A rule of thumb is to take a recently completed board, and your memory requirement would be:

```
Memory requirements = 1000 Megs + (Design_Size_on_disk * 10)
```

then round up to the next half gigabyte.

Example: If you have a 50 MB board, then you would need 2 Gbyte of memory.

If you plan on using centralized Cadence software, design, or library storage, a 100 Mbs network connection is recommended.

While SPB products do not require 64-bit CPUs, our tools perform better on the 64-bit architectures. Note that all modern CPUs are now 64-bit capable. The exception is that we do not support the Intel Itanium chip.

Some SPB products take advantage of multi-processors; we recommend at least 4 processors (this can be either seperate cores, multi-cores or hyperthreading).

- On Windows, the second chip can remove the performance penalty that is imposed by Virus checkers, inventory management, and other overhead software that can be found installed on modern Windows systems. In this area, the Intel HT technology can help with Windows “overhead” processing.
- On UNIX systems, graphics programs will achieve better performance due to the nature of the X-windows architecture. The additional CPUs also will allow you to run background processes, such as auto-routers and simulators.

In the Intel CPU world, Intel, Xeons and AMD chips typically leapfrog each other on which is the top performer. You will have better performance using a 64-bit-capable chip over a 32-bit-only CPU (excluding the Intel IPF chip).

If you are considering a laptop computer, look at the “workstation replacement” laptops, even though they are heavier and have less battery life than more conventional laptops.

Finally, when purchasing a new system, look at your future needs and not your current requirements.

Additional Recommendations for Allegro Package Designer and SiP Products

The Cadence 3D Design Viewer (standard in SiP, optional add-on for APD) requires an OpenGL-compliant video card (128 MB recommended minimum video memory).

As of Release 16.0, IC-Package co-design capability (available in Package Designer XL and SiP) is available only on the Solaris and Linux platforms. Likewise, since this capability works with the Encounter-based IC floor-planning technology, you should plan that systems running this capability have sufficient disk and memory space for the Encounter-based and Allegro portions of the applications, as well as sufficient disk space for the IC portions of your system designs.

Compiler Requirements

Microsoft Windows

Compiler:	Visual Studio.Net 2005
Required Compiler Options:	32 bit compiler
	8 byte structure alignment (`-Zp8`)
	multi-thread dll (`-MD`)
	cdecl calling convention (`-Gd`)

Sun Solaris

Compiler:	Studio 12
Required Compiler Options:	32 bit compiler
	8 byte structure alignment (`-dalign`)
	multi-threaded (`-D_REENTRANT`)
	Position independent code (`-KPIC`)
Required DLL Linker Options:	multi-threaded (`-mt`)

Sun Sol86

Compiler:	Sun Studio 12
Required Compiler Options:	32 bit compiler
	8 byte structure alignment (`-dalign`)
	multi-threaded (`-D_REENTRANT`)
	Position independent code (`-KPIC`)
Required DLL Linker Options:	multi-threaded (`-mt`)

Linux

Compiler:	gcc/g++ 4.1.2

Required Compiler Options:	32 bit compiler position independent code (-m32 `-fPIC`)
Required DLL Linker Options:	`-fPIC -shared`

IBM AIX

Compiler:	VA 7.0
Required Compiler Options:	32 bit compiler language level support (`-qlanglvl=extended:redefmac`) C++ name mangling (`-qnamemangling=v5`)
Required DLL Linker Options:	`-brtl -G`

Managing Licenses

All SPB tools support the use of an `options` file, which you can use to restrict user access and manage licensing beyond the limits of the license file. To have products return their licenses to the license pool when they are idle, SPB tools let you add a TIMEOUT line, which sets a maximum amount of time (in seconds) that a license can remain inactive, to the `options` file. The queing argument of the NOLOG line in the options file, however, is not supported.

For more information about licensing and the `options` file, refer to the Cadence License Manager document.