

Using the SunPC Coprocessor



Using the SunPC Coprocessor is as easy as starting the SunPC application—the Coprocessor automatically connects to the first SunPC window you open.

Most MS-DOS applications you use in an accelerated SunPC window will benefit from the added power that the Coprocessor provides. Moreover, Microsoft Windows can run in 386 Enhanced Mode under SunPC software *only* when a SunPC Coprocessor is installed. Without a SunPC Coprocessor, Microsoft Windows can only run under SunPC software in Standard Mode.

How can you tell if the Coprocessor is attached? Look at the status message at the bottom right of the SunPC window. The message, *Accelerator*, indicates that the Coprocessor is attached to this window. If the message includes an asterisk, *Accelerator **, you are not getting the full performance advantage of the SunPC Coprocessor. (See “If Accelerator * Is Displayed” on page 12 for more information about why this might occur and how to correct this.)

Note - The Coprocessor works with only one SunPC window at a time.

What the Coprocessor Does

The SunPC Coprocessor is an SBus card with an Intel or Intel-compatible microprocessor and a Sun™ Application Specific Integrated Circuit (ASIC) that provides compatibility with most DOS and Microsoft Windows-based software running in 386/486 protected mode. In addition, on most systems, the SunPC Coprocessor boosts the performance of SunPC software. If you think of SunPC software as putting an IBM-compatible personal computer into your SPARC™ workstation, then installing a Coprocessor is analogous to upgrading from a 286 to a 486 PC.

The performance advantages provided by the SunPC Coprocessor will vary depending on the architecture and processor speed of your SPARCstation. In most cases, the performance boost is significant, but on faster machines you may notice a relatively smaller increase in performance.

Perhaps the most important feature provided by the SunPC Coprocessor is the ability to run applications in 386/486 protected mode, such as Microsoft Windows in 386 Enhanced Mode. This makes available to you many applications that will not run under SunPC without a Coprocessor.

The SunPC Coprocessor also provides an onboard VGA graphics Coprocessor, which provides noticeably faster display performance on color monitors in VGA mode. Note, however, that graphics performance in Hercules monochrome mode is not affected.

Once you install the Coprocessor, its functions are completely automatic. The Coprocessor provides the following features:

- Intel or Intel-compatible processor
- Support for applications that run in 386/486 protected mode, such as AutoCAD and Microsoft Windows in 386 Enhanced Mode
- Faster overall performance, in most cases, for DOS and Windows applications
- Accelerated VGA graphics performance for color monitors in VGA mode
- Integrated floating point unit (FPU) (math co-processor)
- 32 K of write-back static RAM cache

Running SunPC With the Coprocessor

As mentioned earlier, using the SunPC Coprocessor in a SunPC window is simply a matter of starting the SunPC program.

▼ To use the SunPC Coprocessor

◆ **Start SunPC normally.**

For example:

```
sunpc
```

The Coprocessor automatically attaches to the first SunPC window you start. If another SunPC window is already using the Coprocessor, the SunPC window you open here will not be able to use the Coprocessor—only one SunPC window at a time can use it.

Using the Coprocessor In Another SunPC Window

If the SunPC Coprocessor is already in use by one SunPC window, but you want to use it in another SunPC window, you must shut down that first SunPC window.

▼ To use the Coprocessor in another SunPC window

1. **Shut down the SunPC window in which the Coprocessor is currently being used.**

Use the Quit command from the SunPC Window menu.

2. **Start a new SunPC window.**

The new window automatically uses the SunPC Coprocessor.

Running Without the Coprocessor

There may be times when you do not want to use the SunPC Coprocessor. For example, some older games are written for slower systems, such as an 8088-based system, and they may not run as you expect or they may run “too fast.”

▼ **To start SunPC without the Coprocessor**

◆ **Start SunPC with the `-n` switch.**

For example:

```
sunpc -n
```

The SunPC window opens with no accelerated capabilities. Notice that the message `Accelerator` is not displayed in the bottom right of the window.

Note – The SunPC Coprocessor automatically attaches to the first SunPC window you start, unless you use the `-n` switch.

Running Multiple SunPC Windows

Another reason for not wanting to use the Coprocessor in a SunPC Window is if you want to run more than one SunPC window, but you want to use the Coprocessor in a window other than the first.

For example, if you want to run a simple DOS application in the first SunPC window, but want to run a Windows 386 Enhanced Mode application later in a second SunPC window.

In this case, you can start the first SunPC window with the `-n` switch (see “Running Without the Coprocessor,” above), and then start the second SunPC window normally.

▼ To use the Coprocessor in a SunPC window other than the first

1. Start the first SunPC window the `-n` switch.

For example:

```
sunpc -n
```

The SunPC window opens, but does not use the Coprocessor. Note that `Accelerator` is *not* displayed in the status bar in the lower right corner of this SunPC window.

2. Start normally the SunPC window in which you want to use the Coprocessor.

For example:

```
sunpc
```

The Coprocessor automatically attaches to the SunPC window. Note that `Accelerator` is displayed in the status bar in the lower right corner of this SunPC window.

Forcing a SunPC Window to Use the Coprocessor

There may be times when you want to start a SunPC window *only* if the Coprocessor is available (installed and not in use by another SunPC window). For example, if you have a shell script that initiates an application requiring Windows 386 Enhance Mode.

▼ To force a SunPC Window to use the Coprocessor

◆ Start SunPC with the `-a` switch.

For example:

```
sunpc -a
```

The SunPC window will not start if the Coprocessor is not available.

*If Accelerator * Is Displayed*

If the `Accelerator` message in the status bar in the lower right corner of a SunPC window includes an asterisk—that is, `Accelerator *`—it means that the SunPC window is not using the Direct Graphics Access feature provided by the Coprocessor to increase video performance.

Another indication of this same problem is the following message, displayed in your console or commands window:

```
loadmodule: program must be installed setuid root
```

This problem may occur due to one or more of the following reasons:

- You are using the SunPC Coprocessor across a network (with the `DISPLAY` switch or environment variable). This is not a recommended way to use the Coprocessor, because you will not get the increased video performance.
- You are not using a Sun SBus frame buffer. The OpenWindows™ environment can use the Direct Graphics Access only with the Sun SBus frame buffers, such as the A24, BW2, CG3, FFB, GX, TGX, SX, and ZX series of frame buffers.
- The `winlock` module, necessary for Direct Graphics Access functions, is not loaded on your system, or has somehow become corrupted. To correct this problem, run the `sunpc_install` script again. Complete instructions for running the `sunpc_install` script are provided in the *SunPC User's Guide*.