SunPCi™ 1.2.2
Read Me First

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SunPCi™ 1.2.2 Read Me First

The SunPCi™ 1.2.2 software is an upgrade to SunPCi version 1.2. or 1.2.1. It runs on the Solaris™ 2.6, Solaris 7, and Solaris 8 operating environments, and it supports Windows NT 4.0 with Service Pack 5 or 6a, and Windows 98 SE (Second Edition).

Note – For Windows NT installations, you should use Service Pack 5. Do not install Service Pack 6a unless you need to fix a specific problem in Windows NT.

This document discusses the following topics:

- What Is In This Package?
- How Do I Install the SunPCi Package?
- How Do I Update the BIOS?
- Using Large Emulated Disk Drives

You install the SunPCi 1.2.2 software in two steps:

1. Download the SunPCi 1.2.2 package or use your SunPCi 1.2.2 CD. If you are downloading the software from the Web, the complete SunPCi 1.2.2 package is stored at http://www.sun.com/desktop/products/sunpci.

2. If you have a previous version of the SunPCi software installed, remove the existing package and install a complete new package. If you are installing the SunPCi software for the first time, simply install the package.

Caution – If your workstation has a Sun Creator3D™ or Sun Elite3D™ graphics accelerator card (also called the AFB or FFB card) installed, you need to install certain software patches to ensure compatibility with the SunPCi software. Refer to "Hardware Issues" on page 15 for more information.

What Is In This Package?

The SunPCi 1.2.2 installation package contains the following files:

- SunPCi 1.2.2 software package
- SunPCi 1.2.2 Release Notes (this document)

The SunPCi documentation files, as well as the SunPCi 1.2.2 full installation package, are located at http://www.sun.com/desktop/products/sunpci.

Uncompressing the SunPCi Software Files

Note – If you are installing SunPCi 1.2.2 from a CD, skip this section and proceed to "Installing the SunPCi 1.2.2 Package" on page 6.

The SunPCi 1.2.2 files that you download from the SunPCi Web site come in a compressed format. After you download the files to a directory on your Solaris system (for example, $HOME/temp), perform the following steps to uncompress the files:

1. **At the system prompt, use the** cd **command to go to the directory where you placed the downloaded files. For example:**

```
% cd /home/joeuser/temp
```

2. **Type the following command to uncompress all of the compressed files in the directory:**

```
% zcat *Z | tar xf -
```

This command extracts all of the SunPCi 1.2.2 files into a subdirectory called SUNWspci within the current directory (for example, /home/joeuser/temp/ SUNWspci). This is the source directory path you use when you install the SunPCi 1.2.2 package, as described later in this document.

How Do I Install the SunPCi Package?

This section describes how to install the full package of the SunPCi 1.2.2 software. This version does not contain an upgrade patch for previous versions of SunPCi.

If you are upgrading from a previously installed version of the SunPCi software, you need to remove the previous version and install the SunPCi 1.2.2 package. To remove the old package and install the new package, follow the procedures in this section.

If you are installing SunPCi software for the first time, skip the following section and proceed to "Installing the SunPCi 1.2.2 Package" on page 6.

Removing the Previous SunPCi Package

Note – You only need to perform this procedure if you have a previously installed version of SunPCi (1.2.1 or earlier).

The `pkgrm` program removes the old SunPCi program files. To run `pkgrm`, perform the following procedure.

1. **Become superuser on your system.**

   Enter the following command:

   ```
   % su
   ```

   Enter the root password. The superuser prompt (for example, #) appears. If you do not know the password, see your system administrator.

2. **Enter the following command:**

   ```
   # /usr/sbin/pkgrm SUNWspci
   ```

   You are prompted to confirm the removal process.

3. **Enter** `y` **to continue with the removal, and then type** `y` **again to confirm.**

   The SunPC package is removed from your system. You are notified when the removal is complete. The system responds with the following message:

   ```
   Removal of <SUNWspci> was successful.
   ```

   You can now proceed to the next section.

Installing the SunPCi 1.2.2 Package

Follow this procedure if you are installing SunPCi software for the first time, or if you have removed the previous version of the software in the previous section. If you do not already have the SunPCi card installed in your system, refer to the *SunPCi Installation Guide* for instructions on how to install the hardware.

To install the SunPCi 1.2.2 package, perform the following procedure.

1. **Open a command (terminal) window on the Solaris desktop.**

2. **Become superuser on the system on which you want to install the SunPCi package. Enter the following command:**

   ```
   % su
   ```

   Enter the root password. The superuser prompt (for example, #) appears. If you do not know the password, see your system administrator.

3. **Start the** `pkgadd` **program. Type the following command:**

   ```
   # /usr/sbin/pkgadd -d pathname
   ```

   where *pathname* is the path to the SunPCi package; for example, `/home/joeuser/temp`.

   The `pkgadd` program copies the SunPCi files to the `/opt` directory on your system. The files are listed on your screen as they are copied. When all the SunPCi files have been copied, `pkgadd` displays the following message:

   ```
   Installation of SUNWspci was successful.
   ```

4. **Enter** `q` **to exit the** `pkgadd` **program.**

> **Note –** If the `pkgadd` program issues a `BIOS Mismatch` message, you will need to flash (update) the BIOS on your SunPCi card. Refer to the following section for information on how to use the `sunpciflash` utility.

5. **Type the `exit` command to end your superuser session.**

   You are returned to your normal user session.

How Do I Update the BIOS?

The SunPCi software contains a utility for updating (also called *flashing*) the BIOS on your SunPCi card. This utility is located at `/opt/SUNWspci/bin` and is called `sunpciflash`.

> **Note –** Your BIOS version should be .059 in order to run SunPCi 1.2.2 software.

Make sure you exit the SunPCi software before running the `sunpciflash` utility. You run `sunpciflash` at the UNIX superuser prompt.

To update your BIOS, refer to "Updating the BIOS" in the *SunPCi Installation Guide*.

Updating the CMOS

After you update the BIOS, perform the following steps to update the CMOS:

1. **Exit superuser and start SunPCi.**

2. **During the BIOS memory test, press the DEL key to enter BIOS setup.**

3. **Select Load Setup Defaults, and then choose Save and Exit to update the CMOS**

> **Note –** If you have changed any other BIOS settings before you updated the BIOS, you should apply those changes before you choose Save and Exit.

After you finish updating the BIOS and CMOS, you are ready to install Windows 98 or Windows NT. Refer to the *SunPCi User's Guide* AnswerBook for information on how to set up the SunPCi software and install your version of Windows onto your C: drive.

Using Large Emulated Disk Drives

A SunPCi emulated disk drive (C: or D:) is actually a file that resides in your workstation's filesystem.

Comparing Sparsely Populated Emulated Drives to Fully Populated Drives

In versions of SunPCi earlier than 1.2.1, the software allowed you to create an emulated disk drive file that could "grow" to its specified size in the filesystem. For example, if you created a 2 Gbyte drive and installed Windows 98 on it, the drive's specified file size would be 2 Gbytes, but its actual size in the filesystem would typically be around 260 Mbytes. As you install Windows programs and add data files, the size of your emulated drive in the filesystem will increase until it reaches the maximum size of 2 Gbytes. These types of emulated drives are called *sparsely populated* drives. (Although this term is new, all emulated drives created with SunPCi version 1.2 and earlier were sparsely populated drives.)

Note – The *SunPCi User's Guide* describes how to use sparsely populated drives. The information in these Release Notes supersedes that in the *User's Guide*. You may still create and use sparsely populated drives in SunPCi 1.2.2, but their use is not recommended.

Sparsely populated drives can cause problems. For example, if an emulated disk needs to "grow", but there is insufficient free disk space on the Solaris filesystem, then your version of Windows could behave in erratic and unpredictable ways. Some of these erratic behaviors include fatal Windows errors, application failures, and so on.

Caution – If you are running SunPCi with a sparsely populated drive when the filesystem becomes full, writing data to the drive can corrupt your emulated drive file. If you cannot repair the emulated disk file using Scandisk, you may have to delete the disk and create a new emulated disk drive, and then reinstall Windows and all of your applications and data.

For example, if you have a 2 Gbyte drive on a filesystem that does not have the available space and you start SunPCi 1.2.2, SunPCi checks the available space and returns the following warning (where */path* is the path to the emulated disk drive and *xxx* and *yyy* are numbers in Kbytes):

```
SunPCi: Disk space is low on the filesystem containing /path.
Kbytes required: xxx Kbytes available: yyy
You may run out of space if you copy data on to this emulated drive.
```

Disk space size checking occurs only when you start the SunPCi application. If the filesystem containing your emulated drive is out of space when the application starts, SunPCi will not use the larger emulated disk drive. You can either create a new, smaller emulated drive on the current filesystem, or exit SunPCi without corrupting your existing emulated drive. This allows you to delete any extraneous files in your filesystem to free disk space, or to move your emulated drive to another filesystem with more available space and then reattach it to SunPCi.

If the Solaris filesystem runs out of space after you start SunPCi, you may see error messages and erratic behavior in Windows, as well as error messages in the Solaris console window from which you started SunPCi. In addition, your version of Windows may stop running entirely and show a "blue screen" for a fatal Windows error.

If a fatal Windows error occurs while data is being written to or read from your disk, that data may be corrupted. The fatal error may also corrupt the disk.

Note – Fatal errors in Windows can cause data corruption during any write operation or on any disk drive, whether the drive is physical or emulated. This behavior is peculiar to Windows, not to Solaris.

In this version of SunPCi (1.2.2), when you create a 2 Gbyte emulated drive, the emulated drive's actual size in the Solaris filesystem is 2 Gbytes. These types of emulated drives are referred to as *fully populated drives*. Fully populated drives take up more space on the filesystem when they are created, but they are not affected by the available space in the host filesystem.

Creating Large Emulated Disks

SunPCi 1.2.2 allows you to create emulated disks of up to 8 Gbytes in size. Note that you must have 8 Gbytes of space available on your Solaris filesystem in order to create the disk. Refer to the following two sections and to "Filesystem Limitations" on page 11 for more information on partitioning an emulated drive file and installing Windows 98 and Windows NT on large drives.

Creating Disk Partitions

SunPCi 1.2.2 software supports disk partitions on emulated disk files. This feature was introduced in SunPCi 1.2.1; earlier versions of SunPCi did not support partitioning.

To partition an emulated disk, use your favorite disk utility after you install Windows. Windows NT Disk Administrator and Partition Magic by PowerQuest Corporation have all been tested with SunPCi and are recommended disk utilities. `fdisk` has also been tested, but is not recommended, as it is difficult to use and prone to user error.

Creating Bootable Partitions

A *bootable partition* is a disk partition on which you have installed an operating system (such as Windows NT 4.0 or Windows 98 SE). Each version of Windows has its own requirements for bootable partitions. The *Partition Magic 5.0 User Guide* contains detailed information on the requirements of each operating system. If you are using Partition Magic for your disk utility, consult the User Guide and the Help function in the application for more information on bootable partitions.

Using Older Emulated Drives With SunPCi 1.2.2

You may use emulated drives that you created with SunPCi versions earlier than 1.2.1, but these drives have certain limitations.

Caution – If you created a drive with a version of SunPci earlier than 1.2.1, *do not* resize or partition the drive file or try to resize a partition, or SunPCi 1.2.2 will return a `Cannot attach drive` error message and you will not be able to use the emulated disk.

To determine whether you can use an emulated drive file with SunPCi 1.2.2, perform the following steps. For example, assume you have two emulated drive files in your home filesystem. `C.old` was created with an earlier version of SunPCi, and `C.new` was created with SunPCi 1.2.1 or later.

● **At the Solaris prompt, type the following command, substituting the name of the emulated disk file for** *name***:**

```
% file name
```

The system returns a message indicating whether the file can be partitioned.

For example, to find out whether you can use `C.old` with SunPCi 1.2.2, you would type **file C.old** at the prompt.

For `C.old`, the system returns the following message:

```
data
```

For `C.new`, the system returns this message:

```
SunPCi disk partitionable
```

Using New Emulated Drives With Older Versions of SunPCi

Emulated drives that you create in SunPCi 1.2.2 do not work with versions of the SunPCi software earlier than 1.2.1. If you try to attach the emulated drive, the software will not recognize your emulated drive as a valid disk image and will not attach it.

Filesystem Limitations

SunPCi 1.2.2 allows you to create drives as large as 8 Gbytes, but DOS only allows filesystems up to 2 Gbytes in size. This is a problem inherent in DOS; you also see it when first installing Windows 98 or Windows NT. For this reason, if you create an emulated drive that is greater than 2 Gbytes in size, you will need to create partitions on the drive, or convert the filesystem to FAT32 or NTFS.

To partition the emulated drive, use your favorite disk utility. Refer to "Creating Disk Partitions" on page 10 for more information.

The most flexible way to use multiple versions of Windows with SunPCi is to install each operating system on a separate emulated drive file. Whenever you want to change operating systems, use the Attach a Hard Drive command in the Options menu to change emulated drives.

Note – In order to use the multiple versions of Windows installed to separate partitions, you will need to have a partition boot utility installed. Boot Magic, which is packaged with Partition Magic, has been tested on SunPCi.

For more information on partitions, bootable partitions, and filesystem limitations, refer to the *Partition Magic 5.0 User Guide* and Help function.

Troubleshooting Emulated Disk Problems

The following table describes some common questions about large emulated disks and the answers to those questions.

TABLE 1   Questions About Emulated Disks

Problem Description	Reason	Solution
How do I tell if my emulated drive file is capable of being partitioned?	Whether you can partition your emulated drive depends on when it was created (that is, with which version of the SunPCi software).	Refer to "Using Older Emulated Drives With SunPCi 1.2.2" on page 10. Use the `file` command to find out if your disk can be partitioned.
What happens if I resize or partition an old emulated drive file?	SunPCi will not recognize that drive file as a valid disk. When you start the SunPCi software, it returns a `Cannot attach hard drive` error message.	Refer to "Using Older Emulated Drives With SunPCi 1.2.2" on page 10. You will have to create a new emulated drive.
What happens if I use a new emulated disk file with a version of SunPCi that is earlier than 1.2.1?	SunPCi will not recognize the drive file as a valid disk. When you start the SunPCi software, it returns a `Cannot attach hard drive` error message.	Refer to "Using New Emulated Drives With Older Versions of SunPCi" on page 11. You will have to create a new emulated drive.
I just created a new 8 Gbyte emulated disk, but I can only see 2 Gbytes. Why?	DOS can only recognize file sizes of up to 2 Gbytes.	Refer to "Filesystem Limitations" on page 11. You will need to partition your emulated disk. The remaining 6 Gbytes in your emulated disk file is available to create additional partitions.

TABLE 1   Questions About Emulated Disks

Problem Description	Reason	Solution
I just created a new 8 Gbyte emulated disk and installed Windows. Now my OS partition won't boot. Why?	When you create the new emulated disk file, SunPCi automatically creates a 2 Gbyte partition, using the first 2 Gbytes of the new disk. If you installed Windows to the other partition (the remaining 6 Gbyte portion), DOS will not recognize it, and SunPCi will not boot from that partition.	You will need to create a new 2 Gbyte partition for your version of Windows. Refer to "Filesystem Limitations" on page 11.
Why are my new emulated disk files so much bigger than my old ones?	New emulated disk files are fully populated disks, which means that their actual file size on your workstation's filesystem is the same as the size you specified when you created the disk. Older emulated disk files are not fully populated, so they "grow" as you add programs and data files.	Refer to "Comparing Sparsely Populated Emulated Drives to Fully Populated Drives" on page 8.
I created a partition and installed Windows NT on it. Why won't it boot?	If the partition you created is located at greater than 4 Gbytes after the start of your emulated disk, that partition will not boot. Refer to "Filesystem Limitations" on page 11.	You must install Windows NT on the first partition on your emulated drive.
Is there a limit to the number of partitions on a single emulated drive?	No, there is no limit to the number of partitions, but there are other limitations.	If you want to create multiple partitions on an emulated drive, you need to use Partition Magic. Remember that Windows and DOS only recognize the 26 drive letters, and that some are already mapped by default (such as F:). Refer to the *Partition Magic 5.0 User's Guide* for more information.

What Are the Known Problems With This Release?

This section describes known problems with this release of SunPCi 1.2.2 software. These problems will be fixed in subsequent releases. The section includes the following topics:

- Filesystem Drive Issues
- CD-ROM Drive Issues
- Application Issues
- Hardware Issues

Filesystem Drive Issues

You may observe the following problems when using filesystem drives:

- Windows 98/NT: If you create a desktop shortcut to a file on a filesystem drive, that shortcut does not update automatically if you change the file's location on the drive. You will need to delete the existing shortcut and create a new one.
- Windows NT: If you insert an object (such as a clip art file) into a Microsoft Office 2000 application, and the original clip art is stored on a filesystem drive or a drive mapped using \\localhost*path*, the insertion will not work correctly. You will need to move or copy the object to your C: or D: drive, and then insert it into your document.
- Windows NT: Using UNC (Universal Naming Convention) pathnames to locate Office 97 or Office 2000 files, such as \\localhost\export\home\myfiles.doc, does not work in this version of the software.

For more information on filesystem drives, refer to the *SunPCi User's Guide*.

CD-ROM Drive Issues

The following is a known problem with the CD-ROM drives:

- Windows 98/NT: Occasionally, you may not be able to access your CD-ROM drive from SunPCi when Solaris Volume Manager (`vold`) is turned off. If this occurs, turn `vold` back on. Refer to the *SunPCi User's Guide AnswerBook* for information on how to turn `vold` on and off.

Application Issues

- Windows 98/NT: This version of the software does not support dual-boot emulated drives. If you want to run multiple versions of Windows on SunPCi, create an emulated drive for each operating system and install the operating system and applications to it. Use the Attach Drive command under the SunPCi Options menu to switch among the different operating systems.
- Windows NT: Adaptec Easy CD Creator 4 Deluxe CD-ROM Writer causes a Windows general fault ("blue screen") after installation. This is a known problem and is being investigated.

Hardware Issues

Windows 98/NT: If you have a Sun Creator3D™ or Sun Elite3D™ Graphics Accelerator card (also called the AFB or FFB) installed in your workstation, you need to download and install certain software patches so the frame buffer will be compatible witht he SunPCi software. Without the patches installed, SunPCi may hang during installation and regular operation.

If you have a service contract with Sun, you may download these patches from `http://sunsolve.sun.com`. If you do not have a service contract, you may search for the patches on the main Sun Web site at `http://www.sun.com`.

TABLE 2 lists the patches required with each version ofthe Solaris operating environment and card typeIf more than one patch is listed for a particular card type, download and install all of the recommended patches.

TABLE 2   Graphics Accelerator Card Patches

Solaris Version	Graphics Card Type	Patch Number
2.6	Creator 3D/FFB	105361-11 105360-34
	Elite3D/FFB	105361-11 or newer 105360-34
	Creator3D/AFB	105361-11 105360-34 106022-09 (or newer)
	Elite 3D/AFB	105361-11 105363-30 106022-09 (or newer)
Solaris 7	Creator3D/FFB	106145-17 106148-12 106147-06
	Elite3D/FFB	106144-19 106148-12 106147-06
	Creator 3D/AFB	106145-17 106148-12
	Elite3D/AFB	106144-19 106148-12 106147-06
Solaris 8	Creator3D/FFB	108605-04
	Elite3D/AFB	108604-05

Troubleshooting

This section lists some possible problems, their causes, and recommended solutions.

TABLE 3   Troubleshooting SunPCi Problems

Problem	Cause	Solution
Inserting a file into Microsoft Office 2000 doesn't work.	The object file (such as clip art or an Excel spreadsheet) is located on a filesystem drive or on a drive mapped using \\localhost*path*.	Copy or move the object file to your C: or D: drive and then insert it again.
Certain characters in some fonts or languages are incorrect, or using them causes SunPCi to hang.	The font server needs to be turned off.	1. Exit SunPCi, if it is running. 2. Use a text editor to edit the ~/pc/SunPC.ini file. 3. Add the following lines to the end of the file: [Display] OldText 4. Save the file and exit the editor. 5. Restart SunPCi.