

# *SunPCiä System Configuration Files Explained*

---

*By SunPCi Product Development Team*

<http://www.sun.com/desktop/products/sunpci/>

Copyright 2001 Sun Microsystems, Inc. 901 San Antonio Road, Palo Alto, California 94303 U.S.A. All rights reserved.

This product or document is protected by copyright and distributed under licenses restricting its use, copying, distribution, and decompilation. No part of this product or document may be reproduced in any form by any means without prior written authorization of Sun and its licensors, if any. Third-party software, including font technology, is copyrighted and licensed from Sun suppliers.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and other countries, exclusively licensed through X/Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, SunPCi and Solaris are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

**RESTRICTED RIGHTS:** Use, duplication, or disclosure by the U.S. Government is subject to restrictions of FAR 52.227-14(g)(2)(6/87) and FAR 52.227-19(6/87), or DFAR 252.227-7015(b)(6/95) and DFAR 227.7202-3(a).

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright 2001 Sun Microsystems, Inc., 901 San Antonio Road, Palo Alto, Californie 94303 Etats-Unis. Tous droits réservés.

Ce produit ou document est protégé par un copyright et distribué avec des licences qui en restreignent l'utilisation, la copie, la distribution, et la décompilation. Aucune partie de ce produit ou document ne peut être reproduite sous aucune forme, par quelque moyen que ce soit, sans l'autorisation préalable et écrite de Sun et de ses bailleurs de licence, s'il y en a. Le logiciel détenu par des tiers, et qui comprend la technologie relative aux polices de caractères, est protégé par un copyright et licencié par des fournisseurs de Sun.

Des parties de ce produit pourront être dérivées des systèmes Berkeley BSD licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays et licenciée exclusivement par X/Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, SunPCi et Solaris sont des marques de fabrique, ou des marques déposées de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays.

L'interface d'utilisation graphique OPEN LOOK et Sun™ a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciés de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui en outre se conforment aux licences écrites de Sun.

CETTE PUBLICATION EST FOURNIE "EN L'ETAT" ET AUCUNE GARANTIE, EXPRESSE OU IMPLICITE, N'EST ACCORDEE, Y COMPRIS DES GARANTIES CONCERNANT LA VALEUR MARCHANDE, L'APTITUDE DE LA PUBLICATION A REpondre A UNE UTILISATION PARTICULIERE, OU LE FAIT QU'ELLE NE SOIT PAS CONTREFAISANTE DE PRODUIT DE TIERS. CE DENI DE GARANTIE NE S'APPLIQUERAIT PAS, DANS LA MESURE OU IL SERAIT TENU JURIDIQUEMENT NUL ET NON AVENU.

# Introduction

The SunPCi™ software has many options that are configurable via various .ini and .conf files. The SunPCi system configuration file format is based on the old Microsoft Windows operating system .ini file format that was utilized for many different things. This file format has long since been replaced by the infamous Windows operating system registry, but it meets the requirements of the SunPCi system and it is very simple, easily parsed and extensible.

The format of the SunPCi system configuration file is straightforward. There are multiple, uniquely named, sections which are delimited by text strings enclosed in square brackets. Within each section is contained any number of lines of text, each containing a variable name, followed by an optional value (delimited by an equal sign). Additionally, any text preceded by a semicolon on the same line is treated as a comment field.

Variable names must be unique within a section, but not across sections, so there may be a variable in more than one section with the same name. Identically named variables in multiple sections are not guaranteed to mean the same thing, although by convention they generally will. If a variable name is duplicated within a section the results are indeterminate.

## A Sample .ini file

A simple .ini file might look like this:

```
[Some Section]
Variable1
Variable2=Some Value
Variable3=Some Other Value ; with a comment field
; Just a comment
```

The legal section and variable names in a .ini file are not predefined (although the specific entries which are recognized by the SunPCi software are), so virtually any ASCII text can be added to a .ini file. Any entry that is not directly processed by the SunPCi software, or other SunPCi system utilities, will be preserved when a file is modified by the software (although formatting is not guaranteed). Note that any entries that are modified by the SunPCi software are done so by first deleting them from the internal database, then by adding the new entry back with the updated value. This means that any comments that might have been manually added to the modified line will be removed when an entry is updated. This also means that any updated entries will be moved to the end of the section to which it is written. For example, if the SunPCi software were to modify Variable3 in the example above, and change the value from “Some Other Value” to “Some New Value” the file contents after being written out would look like this:

```
[Some Section]
Variable1
Variable2=Some Value
; Just a comment
Variable3=Some New Value
```

# SunPCi System .ini files

The SunPCi II product, as of version 2.3, ships with four configuration files:

- The SunPC.ini file(s)
- The /etc/Master.ini file
- The /etc/opt/SUNWspci2/log.conf file
- The /opt/SUNWspci2/defaults/OSInstalls.ini file

(Note: The locations of these files may change in the future)

The first, the SunPC.ini<sup>1</sup> file, has been the main configuration file of the SunPCi software since the 1.0 release. In it is contained the information needed by the SunPCi software to configure itself to run. This particular file, whose default path is ~/pc/SunPC.ini, is the only file described here which may have multiple instances. For example, a user may create multiple SunPC.ini files, each with a unique filename, one for each of several emulated C drives. Each of the C drives might have installed on it a different Windows operating system, or a different set of applications. Another example where it is necessary to have multiple SunPC.ini files is in a server configuration where multiple cards are running simultaneously. In this case each card would have a unique configuration file, by convention named cardN.ini, where N is the numeric index of the SunPCi card, each containing the configuration information necessary for its respective card. To select a SunPC.ini file other than the default, a user would utilize the -p command line option when invoking the SunPCi software, and provide the path to the file.

## Contents of the SunPC.ini File

[Drives] Section			
Variable	Value	Default	Description
<b>A drive</b>	DevicePath	/dev/rdiskette	A path to the raw diskette device to use for floppy access
<b>CD</b>	DevicePath	/vol/dev/aliases/cdrom0	A path to the cdrom drive to use for cdrom access
<b>C drive</b>	Filename	~/pc/C.diskimage	A path to the file containing the emulated C drive
<b>D drive</b>	Filename	~/pc/D.diskimage	A path to the file containing the emulated D drive
[Network] Section			
Variable	Value	Default	Description
<b>NdisIsa</b>	Enabled or Disabled	Disabled	Enables the routing of the NDIS interrupt through the onboard PIC micro controller. By default, the NDIS interrupt is routed through the PCI to PCI bridge, which allows much better network throughput.
[Server] Section			
Variable	Value	Default	Description
<b>Card</b>	Cardname	Card1	Specifies the name of the SunPCi card on which any SunPCi system session that uses this SunPC.ini file will run. May be overridden by using the -c cardname command line option.

<sup>1</sup> Each instance of this file, regardless of the actual filename, is generically referred to as a SunPC.ini file, based on the contents and usage.

			Useful only in a multi-card installation.
--	--	--	---

### [Disk32] Section

Variable	Value	Default	Description
<b>StreamingWrite</b>	Enabled or Disabled	Enabled	Used to disable the Streaming Write functionality for the emulated C and D drives. If you are not using fully populated C or D drive you should disable this functionality to avoid SunPCi system emulated drive corruption if your Solaris™ file system fills to capacity.
<b>Enabled</b>	Yes or No	Yes	No longer used. In previous versions this variable determined whether the 32 bit disk driver was to be used for Windows 9X. This entry may be deleted manually from the file.

### [Display] Section

Variable	Value	Default	Description
<b>OldText</b>	None	None	In SunPCi software releases prior to 2.2.2, this variable, if found in the Display section, disabled the SunPCi system X11
<b>FontServer</b>	Enabled or Disabled or Force	Disabled	Enabled will enable the use of the SunPCi system X11 font server on a single card configuration.
<b>DDrawOn</b>	Enabled or Disabled	Disabled	Enables Direct Draw support in NT based operating systems. By default Direct Draw is DISABLED.

			default Direct Draw is DISABLED. This variable has no effect on Windows9X based operating systems.
<b>VesaModes</b>	Enabled or Disabled	Enabled	Enabled allows the BIOS to return VESA information to the caller on int10 interrupts. Disabled disallows the BIOS returning VESA information. Used during XP install because the XP installer detects VESA support and enters an unsupported 32Bit video mode.
<b>SoftwareCursor</b>	Enabled or Disabled	Disabled	Enables Windows NT based operating systems (i.e. NT, 2K, XP) to use a software drawn cursor, rather than the X11 based cursor. The X11 2 color cursor definition is slightly different than the Windows operating system AND/XOR mask definition, and in some cases the X11 based cursor can disappear, where the Windows operating system cursor would remain visible. To enable full Windows operating system cursor compatibility (at the possible expense of a minor performance degradation) set this variable to Enabled.

### [CopyAndPaste] Section

Variable	Value	Default	Description
<b>CodeSet</b>	CodeSet identifier	None	The value of this variable tells the SunPCi software which codeset to use when converting non-ASCII clipboard contents between Windows operating system and Solaris OE formats. For example, if EUC Japanese were being used in the Solaris OE this value would be set to "eucJP".

### [BiosFiles] Section

This section, and all of its variables, is no longer used, as of the 2.2.2 release. This section, and all of its entries may be manually removed.

### [UI] section

This section, and all of its variables, is no longer used, as of the 1.2 release. This section, and all of its entries may be manually removed.

As of the SunPCi software 2.2 release, which included support for multiple cards, a new configuration file, called /etc/Master.ini was introduced. This configuration file, which is automatically generated by a utility called "makemaster", contains information needed by the SunPCi software to identify individual instances of SunPCi cards installed in a system. The makemaster utility, which is run when the SunPCi system device drivers are installed into the Solaris operating system, probes the system to see what cards are installed, collects information

used to identify the cards and writes the information into the /etc/Master.ini file. When the SunPCi system process runs, it reads the card configuration information and if there are multiple cards in the system it chooses the appropriate card to use, based either on the argument to the -c command line option, an entry in the SunPC.ini file, or on a first-come-first-served basis. Once a card is selected the information gathered from the /etc/Master.ini file is compared against what is actually returned from the SunPCi card to validate that the system configuration has not been modified since the /etc/Master.ini file was created. If the results do not match, for example the number of cards actually in the system doesn't match the number of cards listed in the /etc/Master.ini file, then a warning message is issued to the user.

## Contents of the /etc/Master.ini File

[ServerCards] Section			
Variable	Value	Default	Description
<b>CardN</b>	None	None	For each SunPCi card installed in the machine there is an entry of the type <b>CardN</b> , where N is a number unique to each card. For each such entry there will be a corresponding section described below. To effectively disable the usage of a card the value can be commented out.
[CardN] Section			
Variable	Value	Default	Description
<b>Description</b>	TextString	SunPCi II card	A description of the card that is installed. This field can be modified by the system administrator to contain any information desired, such as amount of memory installed, etc.
<b>Type</b>	TextString	SunPCi II	A text field giving the type of card installed. This value should not be changed.
<b>ID</b>	TextString	None	The card ID is a unique identifier for each card. It is used to validate the configuration of the cards in the machine when the SunPCi system process is executed. For the SunPCi II card this value is equivalent to the MAC address that is stored on the board. This value must not be changed manually.
<b>Device</b>	DevicePath	/dev/sunpci2drv <b>N</b>	The value of this device path string is the name of the Solaris device that will be opened when the SunPCi system process is executed and attaches to the card. The value of <b>N</b> is unique for each card.
The following entries are automatically added and used by the SunPCi system daemon program as part of the SunPCi system Boot@Boot support. Most entries are common to both the Card <b>N</b> and the VNC sections.			
<b>CmdLineArgs</b>	TextString	Varies	Specifies the command line arguments that will be used when the SunPCi system or Xvnc server

			process is executed. The system administrator can modify these entries, or add new entries as desired. Virtually any SunPCi system or Xvnc server command line argument can be included here.
<b>UID</b>	User ID	Root	Specifies the User ID that will be used by the SunPCi system or Xvnc server process when it is forked by the SunPCi system daemon. This value may be either a text or numeric UID.
<b>GID</b>	Group ID	Root	Specifies the Group ID that will be used by the SunPCi system or Xvnc server process when it is forked by the SunPCi system daemon. This value may be either a text or numeric UID
<b>HomeDir</b>	Directory Path	/	Specifies the path to the directory to which the HOME environment variable will be set when the SunPCi system or Xvnc server process is forked by the SunPCi system daemon.
<b>AutoStart</b>	Enabled or Disabled	Disabled	Specifies whether the AutoStart capabilities of the SunPCi system daemon are enabled or disabled. If this value is set to Disabled then the SunPCi system daemon will not automatically start the process at boot time, or when it exits for any reason.
The following entries are <b>not</b> automatically added by the SunPCi system daemon program as part of the SunPCi system Boot@Boot support, but they may be added by the system administrator to change the default behavior of the SunPCi system daemon. Most entries are common to both the Card <i>N</i> and the VNC sections.			
<b>DisplayName</b>	X11 display name	None	This entry, which is only used for the SunPCi system process, specifies the name of the X11 display to which to connect, i.e. hostname:0. This entry can be added to a Card <i>N</i> section to instruct the SunPCi system process to connect to a specific X11 server, rather than trying to connect to the Xvnc server.
<b>DisplayNum</b>	Integer	10	This entry specifies a different X11 server display number to use, rather than the one that would be used by default (i.e. the Xvnc server which is display number 10). If this value is only specified in the VNC section then the Xvnc server will be configured to use that display number, rather than the default 10, and assuming no other options are provided, all SunPCi system sessions will also

			automatically use this value. The usual situation where this value would need to be changed is if the machine in which the SunPCi cards are installed is also used as a SunRay server, and there are more than 10 X servers already running on the machine. For example, on a SunRay server machine which services 50 SunRay appliances, which have X display designations of host:0 through host:49, this value could be set to 50 (or anything above 50) to avoid a conflict.
<b>RespawnInterval</b>	Integral time in seconds	0 seconds	Specifies the amount of time that is waited between the time the SunPCi system or Xvnc server process exits, and when it is restarted.
<b>RunawayTime</b>	Integral time in seconds	60 seconds	This value, along with the MaxRetries value, controls the maximum amount of time that will be spent trying to execute the SunPCi system or Xvnc server processes before giving up. If a SunPCi system or Xvnc server process fails MaxRetries times within RunawayTime seconds the SunPCi system daemon software will internally disable the AutoRestart feature for that process until it is told to reread its configuration. This is to keep the daemon from continually retrying to start the SunPCi system or Xvnc server executables if, for example, the command line arguments are specified incorrectly.
<b>MaxRetries</b>	Integer	5	Specifies the number of times the SunPCi system daemon will try to start the SunPCi system or Xvnc server software in RunawayTime seconds. This value, times the RespawnInterval must be less than the RunawayTime for the runaway detection software to operate properly.

## [VNC] Section

Variable	Value	Default	Description
<b>StartupScript</b>	Filename	/opt/SUNWspci2/bin/VNC Startup	This entry specifies the name of a script that will be executed immediately after starting the Xvnc software. This script should be used to start a window manager and any other X11 clients (for example a terminal emulator) which are desired.

In the 2.3 release of the SunPCi software, the mechanism used to handle error logging was changed. In previous releases errors were simply written to the window of the terminal emulator where the SunPCi system process was started. In situations where copious amounts of error information was written, which might be useful in debugging problems, it was not uncommon for the information to be lost, or missed entirely, perhaps written to an iconified window. In SunPCi 2.3 product these messages are now written to log files, so that debug information may be preserved. At this time the log files from two invocations of each application are maintained so that restarting the SunPCi software will not destroy the previous logfile.

## Contents of the Log.conf File

[LogConfig] Section			
Variable	Value	Default	Description
<b>Status</b>	Enabled or Disabled	Enabled	Specifies whether system logging is enabled or disabled. By default, if this entry is absent (or commented out, which is the default case) then logging is enabled. Set this value to Disabled to turn logging off.
<b>Directory</b>	Directory Path	/var/preserve/sunpci ilogs	Specifies the directory into which logfiles will be written. The names of the logfiles will be CardN.log and sunpcid.log for SunPCi card N and the SunPCi system daemon process respectively. A file with a .log.old file extension is the logfile from the previous invocation of the associated software.
<b>TimeStamp</b>	Enabled or Disabled	Enabled	Specifies whether the logging code is to add a timestamp to each entry that is written to the logfile. Disabling timestamps will save 17 bytes for each line that is written to the logfile.

In the 2.3 release of the SunPCi software a new feature was added that allows the software to configure your emulated hard drive to automatically install one of the several supported operating systems at the time the hard drive is created. The installation automatically starts the first time the hard drive is booted by the SunPCi software. The mechanism that implements this is based around the DOS autoexec.bat file. Each operating system version that is supported has a directory tree which lives in the /opt/SUNWspci2/defaults directory, containing all the files necessary to boot the DRDOS operating system, as well as a customized autoexec.bat file. When an emulated hard drive is created the contents of the corresponding directory tree is copied onto the hard drive and is used when the emulated drive is booted. The customized autoexec.bat file instructs DRDOS how to find and install the appropriate operating system.

To add a new operating system to the auto-install list, for example to roll your own custom installation, one need only create a new directory tree containing links to the DRDOS files (see an existing directory as an example), and modify the OSInstalls.ini file appropriately.

## Contents of the OSInstalls.ini File

## [OSes] Section

Variable	Default	Description
<b>Operating system section name</b>	Text String	None
		The values in the Oses section list the operating systems that may be automatically installed when you create an emulated hard drive. Each of the names in this section must <b>EXACTLY</b> match the name of another section, which contains the specifics of how to configure an emulated hard drive to automatically install the operating system in question. Only the names that appear in this section will be displayed in the Create New Emulated Drive dialog box.

## [Names] Section(s)

Each entry in the OSes section above must have a corresponding section and its name must match exactly the text string in the OSes section (although there may be sections which do not have corresponding entries in the OSes section).

Variable	Value	Default	Description
<b>Label</b>	Text String	Section Name	The text string given will be displayed in the list of operating systems to be auto-installed, in the Create New Emulated Drive dialog box. If no label is given then the section name will be used.
<b>DosDir</b>	Directory Path	None	The value of this variable specifies the directory (based from the /opt/SUNWspci2/defaults directory) that is to be copied onto the newly created emulated hard drive. If there is no value for this variable then no files are copied onto the drive, and the drive is not partitioned or formatted in any way.
<b>MinSize</b>	Integer	512	Specifies the minimum legal size in megabytes that will be displayed and allowed in the Create New Emulated Drive dialog box. New emulated drives may not be created smaller than this value.
<b>MaxSize</b>	Integer	40000	Specifies the maximum legal size in megabytes that will be displayed and allowed in the Create New Emulated Drive dialog box. New emulated drives may not be created larger than this value.
<b>SuggestedSize</b>	Integer	2 * MinSize	If present specifies the value to which the size selection slider will be set by default when the particular OS is selected. This value is must be

			between MinSize and MaxSize inclusive.
<b>DefaultDriveName</b>	Filename	None	Specifies the default name for a newly created emulated hard drive.
<b>PartitionMsg</b>	Enabled or Disabled	Enabled	Specifies whether the dialog box that instructs the user to repartition his emulated hard drive is displayed or not. By default, if an emulated hard drive is created that is more than 2 gigs in size the emulated drive must be repartitioned to take advantage of the entire disk. In some cases the operating system installation software can do the partitioning automatically prior to installing the OS. In these cases this message need not be displayed and can be disabled with this variable.
<b>VesaModes</b>	Enabled or Disabled	Enabled	Specifies whether the BIOS will disclose the availability of some VGA VESA modes when queried. Some operating systems (specifically the Windows XP operating system at this time) may attempt to use VESA modes to display during the installation process. While this works, it is extremely slow. This is due to the way we perform screen-scraping operations to update the screen contents. For this reason VESA modes should be avoided during the installation process.
<b>Default</b>	None	None	If this value is present in one of the OS sections then that entry is pre-selected, and highlighted in the Create Emulated Hard Drive dialog box when it is first displayed. If this entry is present in more than one section the entry that will be pre-selected is indeterminate.