

HP Performance Tuning Framework Overview



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Introduction

The HP Performance Tuning Framework (hereafter abbreviated as *The Framework*) has been developed to assist workstation system administrators and technical users who would like to configure and tune their machines for optimal performance with certain third-party applications. HP has a long history of close cooperation with engineering teams at the major independent software vendors in the technical markets. This utility is the framework through which the years of technical experience and knowledge can be shared with users of HP workstations.

Overview

When a new workstation gets delivered to an engineer's desk, the process of configuring the software for productive work begins. The administrator must install the applications the engineer will need, and establish connection to shared data repositories. It is easy for the administrator to move on to the next challenge once the engineer has the applications and data needed to start working. However, the engineer's productivity may suffer if some configuration steps are skipped. For example, 3D graphics rendering performance and image quality could be decreased by use of an unsupported graphics driver, or the engineer may not have full access to the capabilities of the new machine due to reduced default system settings.

The HP Performance Tuning Framework assists workstation system administrators by quickly guiding their configuration of workstations used to run certain technical applications. Several key features of the Framework that provide this assistance are:

- A thorough configuration inventory displayed on the Configuration Page along with easy access to the HP Quick Specs document for the particular workstation model
- An OS Tuning Page for Microsoft® Windows® XP Professional customization
- A listing of available drivers for the machine's graphics card along with the application names that were certified using each one; this information is presented on the Graphics Driver Page, which also includes a button to easily download and install the desired driver
- A report of the plug-in and add-in application software, USB Plug-and-play device information and driver for the 3Dconnexion motion controller connected on the workstation; this information is presented on the 3Dconnexion Page, which also includes a button to start/stop the driver
- A collection of application-specific tuning pages that deliver knowledge and experience derived from HP's long history of intimate involvement with the application development teams

System requirements

The following sections describe the specific network, software, and hardware requirements of the HP Performance Tuning Framework.

Network requirements

An internet connection is crucial to the proper and successful operation of the Framework. Each time it runs, the Framework server is queried for an updated certification database. If one is found, it is immediately downloaded for use by the Framework. Similarly, the Framework utility itself may require an update, either to fix a defect or add support for a new third-party application; these updates are delivered over the internet. Finally, a major feature of the Framework is its ability to download and install graphics drivers. This operation clearly requires access to the internet.

Both direct connection to the internet and connection through a firewall via an HTTP proxy server are supported by the Framework. Upon the first attempted network connection, a direct request is made to the remote server using the system's Internet Options proxy settings. If that request times out (after approximately ten seconds), the user is prompted to enter the address and port number of an HTTP proxy server, and, optionally, the user account information if it is required for the server. If a

connection is made using the proxy server, the proxy's address, port, and account information are saved for use with all future network requests.

System Internet Options that utilize an Automatic Configuration Script are not supported by the Framework. Running on such a configuration will time out when connecting to the Framework's server, and will then prompt the user for an explicit HTTP proxy server.

Software requirements

The Framework has been developed for both the Windows 2000 Professional and the Windows XP Professional operating systems using version 1.1 of Microsoft's .NET Framework. The .NET Framework is loaded automatically during the initial installation of the HP Performance Tuning Framework if it is not found on the workstation, so no previous .NET installation is necessary.

Due to the installation of drivers and modification of system settings, the user running the Framework must have Administrator privileges.

Third-party applications are not required to run the Framework. Their presence does modify the Framework's appearance and behavior however. For example, when supported applications are found on a machine, the Framework can report graphics driver certification information relative to only the installed applications, and individual tabbed pages are added that enable application-specific tuning, if appropriate.

Supported Applications lists the applications supported by the Framework, and describes the available application-specific support in greater detail.

Hardware requirements

The Framework extracts its computer and graphics card certification information from a database that is updated frequently by the HP engineering team working with the software vendors. As HP and the graphics card vendors release new hardware, the database will reflect up-to-date certification results to provide accurate configuration recommendations.

These workstation models are currently supported:

- HP xw3100 Workstation
- HP xw4000 Workstation
- HP xw4100 Workstation
- HP xw4200 Workstation
- HP xw5000 Workstation
- HP xw6000 Workstation
- HP xw6200 Workstation
- HP xw8000 Workstation
- HP xw8200 Workstation
- HP xw9300 Workstation
- HP nw8000 Mobile Workstation
- HP nw8240 Mobile Workstation

Attempting to run the Framework on a non-HP workstation will fail.

The Framework's graphics driver library contains drivers for these graphics cards:

- ATI Fire GL 8700
- ATI Fire GL 8800
- ATI Fire GL X1
- ATI Fire GL Z1

- ATI Fire GL T2-64s
- ATI Fire GL T2-128
- ATI Fire GL V3100
- ATI Fire GL V5100
- ATI Mobility Fire GL T2
- NVIDIA Quadro2 MXR
- NVIDIA Quadro2 EX
- NVIDIA Quadro2 Pro
- NVIDIA Quadro4 NVS
- NVIDIA Quadro4 380 XGL
- NVIDIA Quadro4 550 XGL
- NVIDIA Quadro4 580 XGL
- NVIDIA Quadro4 750 XGL
- NVIDIA Quadro4 900 XGL
- NVIDIA Quadro4 980 XGL
- NVIDIA Quadro FX 330
- NVIDIA Quadro FX 500
- NVIDIA Quadro FX 540
- NVIDIA Quadro FX 1000
- NVIDIA Quadro FX 1100
- NVIDIA Quadro FX 1300
- NVIDIA Quadro FX 1400
- NVIDIA Quadro FX 2000
- NVIDIA Quadro FX 3000
- NVIDIA Quadro FX 3400
- 3DLabs Wildcat III 6110
- 3DLabs Wildcat III 6210

These 3Dconnexion motion controllers are currently supported:

- USB SpaceTraveler
- USB Spaceball 5000

User Interface

The HP Performance Tuning Framework employs a simple Windows Forms-based interface (Figure 1). The main window contains only four different controls: a *Help* button, which displays this file; an *About* button, which displays the current Framework version number, database timestamp, and other support information; an *Exit* button, which terminates the program; and a collection of tabbed pages, which contain the user-interface controls that perform the tuning operations of the Framework. The individual tabs are labeled to indicate the area of configuration contained on the page. Click each tab to display its corresponding page.

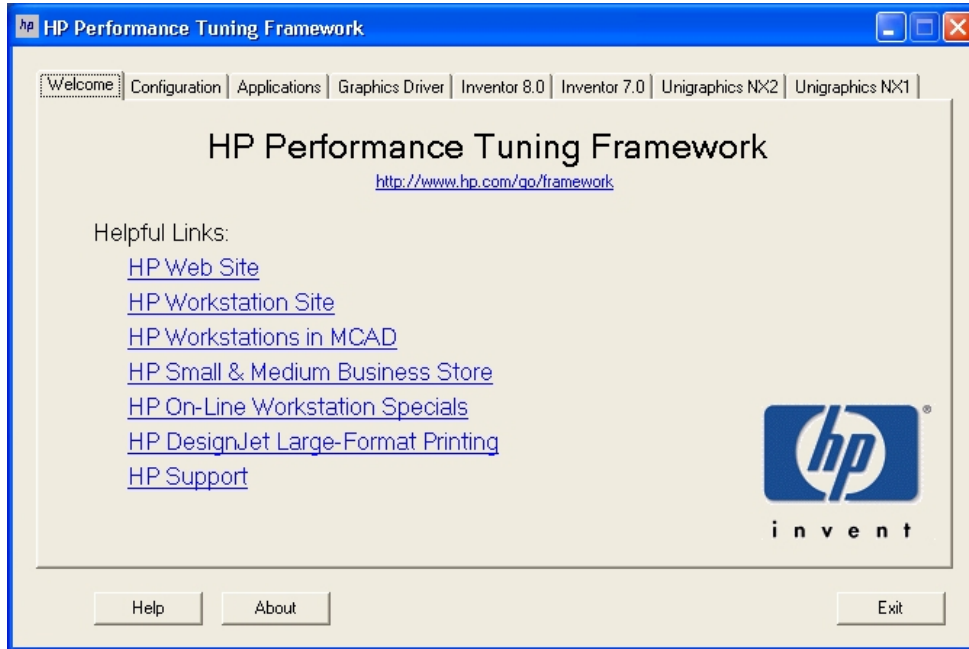
Occasionally before the main window is displayed, the Framework will find an updated version of either its database, or the Framework program itself that it will download and install on the workstation. Minimal interaction is required to complete these updates; simply follow any prompts to complete the download and allow the Framework to start. *Dynamic Updates* discusses these situations in greater detail.

The Welcome Page

Figure 1 shows what the Framework's window may look like upon startup. The actual contents of the window can vary over time, depending on what applications are installed, and which hyperlinks are currently active. The machine where this image was taken has several supported applications installed, as shown by the tabs for Inventor 7.0 and 8.0, and Unigraphics NX1 and NX2.

The Welcome Page contains convenient hyperlinks that, when clicked, bring up relevant HP web sites in the system's default browser. When the Framework is run on a workstation with no active network connections, these links will be disabled (grayed-out) to indicate that their destinations are currently unreachable.

Figure 1. The Welcome Page



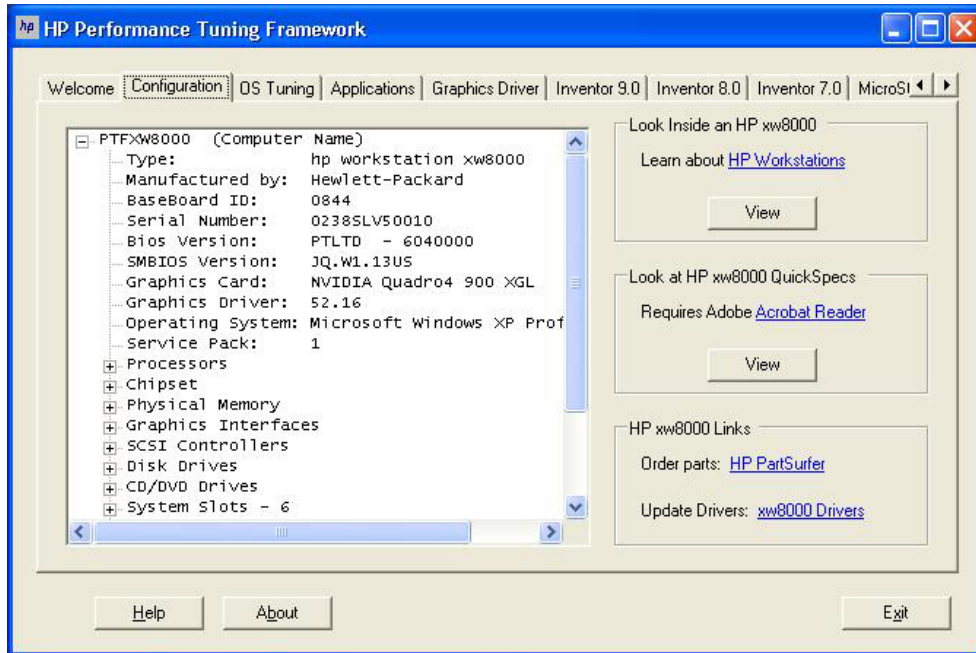
The Configuration Page

The workstation's configuration is reported on the Configuration Page. The types of information reported include:

- the hardware inventory
- the current settings of values on the Windows XP OS Tuning Page
- the list of applications the Framework supports that it found installed on the workstation
- the list of graphics drivers available, and which applications have certified them

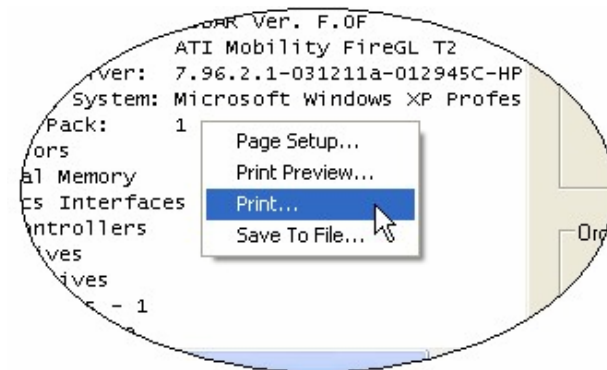
Many of the top-level categories can be expanded to disclose the lower levels of detail. Figure 2 shows an example of the Configuration Page.

Figure 2. The Configuration Page



The information displayed on the Configuration Page can be printed or saved to a file using the print options context menu. To display this menu, simply click the right mouse button or depress the context menu key on the keyboard when the mouse cursor is over the configuration data, and the print options menu will be displayed, as shown in Figure 3.

Figure 3. The Configuration Page's print options context menu



Beyond the configuration data collected from the system and displayed on this page, access to other types of information may also be presented along the right-hand side of the screen (Figure 2). If an internal chassis image is available for this model workstation, it can be displayed by clicking the View button in the *Look Inside* box to the right of the configuration data. More in-depth information about this workstation model is contained in the Quick Specs, which is also viewable from this Framework page. These two documents are available without a network connection to the HP web site.

The box in the lower-right corner of the Configuration Page contains machine-specific links to the HP support web site. First, there is a link to the HP PartSurfer web site to help locate additional or replacement parts for the workstation. This is followed by a link which will display the available

drivers and software for the current workstation model and operating system combination. This second link is helpful when the workstation's system BIOS or component drivers need to be updated. Before downloading a new graphics driver from the HP site however, the application certification assistance provided on the Framework's Graphics Driver Page should be consulted; often the latest driver on the HP site is not the same version that was certified by the application providers.

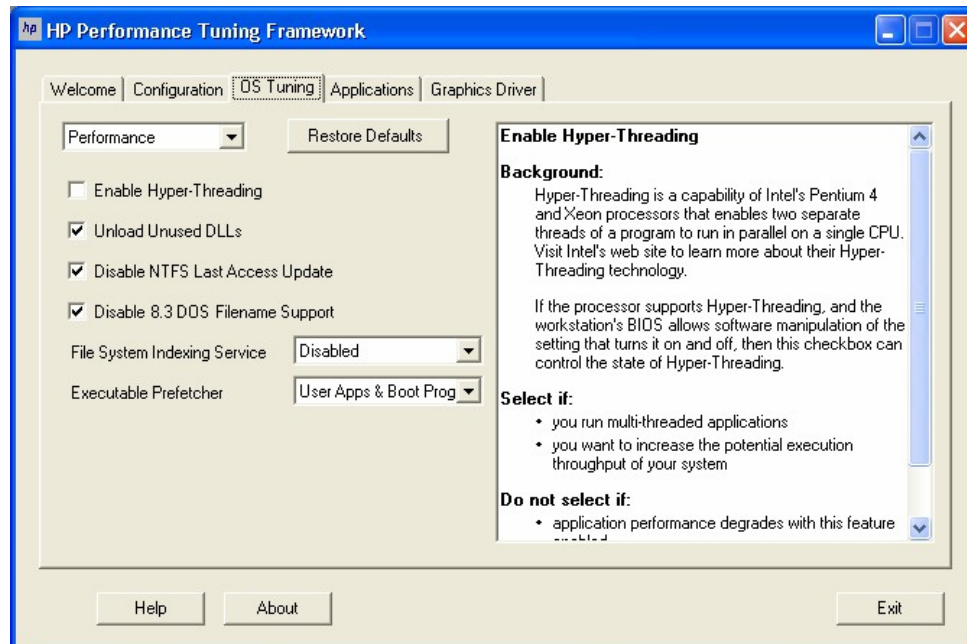
The OS Tuning Page

A complex, feature-rich operating system such as Windows XP offers many options for customizing its behavior and features. Not all relevant configuration parameters can be manipulated via the Control Panel however. Many print and on-line articles have been published describing little-documented system parameters and registry settings that can be modified to augment the performance, security, or user-interface features of the operating system.

The HP Performance Tuning Framework contains an OS Tuning Page that enables the system administrator to modify several of these configuration parameters. This page is only available on systems running Windows XP. An instance of this page is shown in Figure 4. There are checkboxes and other controls on the left-hand side of the screen, and a large description box on the right. To view the description of a parameter, simply position the mouse over the desired control on the left, and the description of the corresponding parameter will be displayed. The descriptions include:

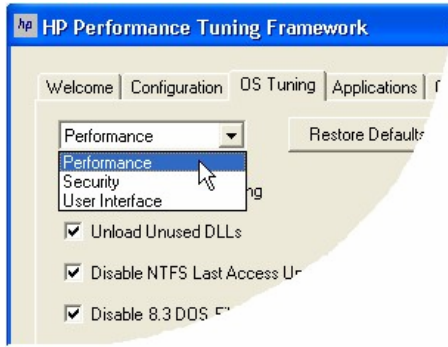
- Some background information about the tuning parameter
- Several circumstances that may indicate when each possible setting of the parameter would be desired
- An indication of when the parameter change will take effect (for example, immediately, or after Windows Restart)

Figure 4. The OS Tuning Page



The currently visible set of tuning parameters is selected with the control in the top-left corner of the page (see Figure 5 below). The *Restore Defaults* button will return all settings in the currently visible set to their Windows XP default values.

Figure 5. The tuning parameter Set selection



As HP investigates and tests other tuning parameters, and determines that they are both operationally safe and potentially beneficial, new options may be added in future releases.

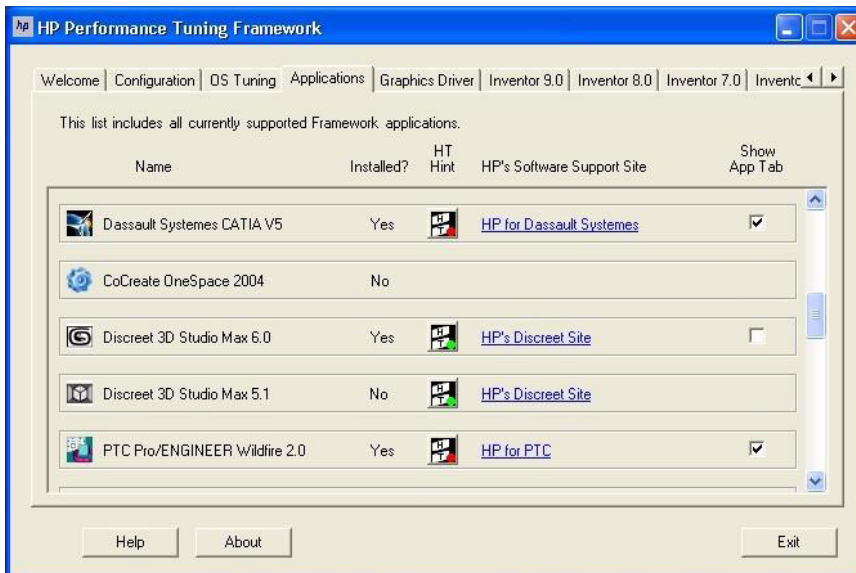
The Applications Page

The installation status of the Framework applications is reported on the Applications Page (Figure 6), along with other helpful application-specific information. If HP has a web site devoted to the support of a software vendor or a specific application, a link to that site will be listed on this page.

You can display HP's advice about the effects of Intel® Hyper-Threading technology on each application by clicking a button in the *HT Hint* column. A button with a green dot indicates that HP recommends using Hyper-Threading with that specific application. A red dot indicates that Hyper-Threading may not help an application's performance. A yellow dot means that the performance of certain operations improves with Hyper-Threading, and others operations slow down. If possible, the hint will explain the situations where Hyper-Threading should be turned on or off.

Finally, if an installed application has tunable features, it will have its own tabbed page within the Framework. Tab display can be controlled through the check box in the *Show App Tab* column next to the application name. For example, Figure 6 shows Hyper-Threading hints and HP web pages for several applications. Also, the user has turned off the display of the 3D Studio Max 6.0 tab. The tabs of all installed tunable applications are displayed by default each time the Framework is run.

Figure 6. The Applications Page



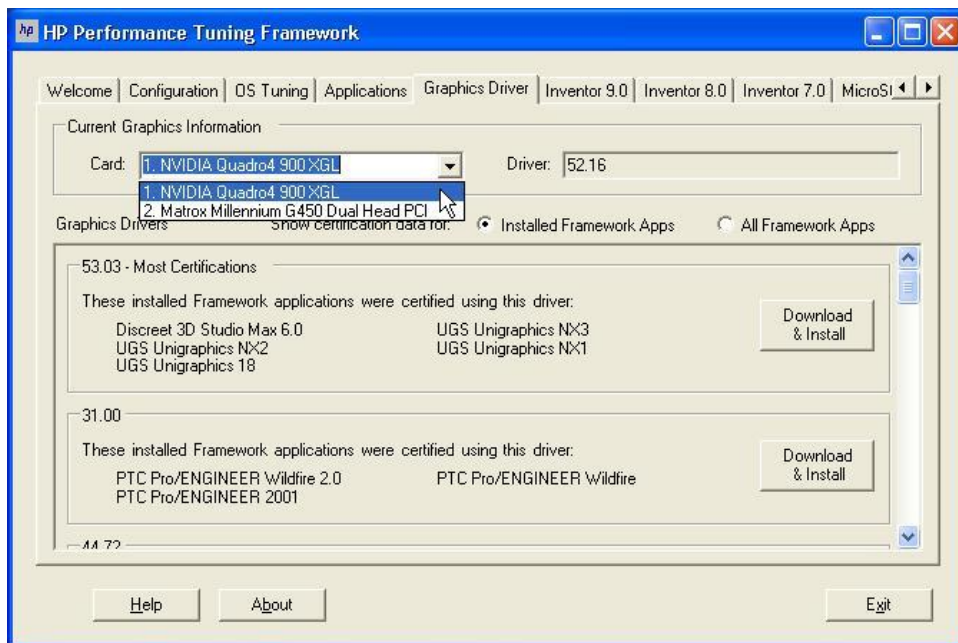
The Graphics Driver Page

One of the primary features of the HP Performance Tuning Framework is its ability to organize graphics driver certification information. This organization allows a system administrator to compare potentially conflicting application requirements and make an informed decision about which driver to load. All graphics drivers listed on this page are maintained on the Framework server, and can be downloaded over the network as needed.

Figure 7 shows the Graphics Driver Page for a machine with many applications installed. By default, the certification data for only the installed applications are reported in the list on this page. By selecting the *All Framework Apps* radio button, the certification information for all Framework applications will be displayed, giving the user a more complete view of the certification status of the individual drivers.

Another feature of the Framework shown in Figure 7 is the recognition of more than one installed graphics card. When there are multiple cards present in the system, the appropriate driver selection data can be displayed for the desired card by selecting it from the card list.

Figure 7. The Graphics Driver Page



To determine the order in which the drivers should be presented, the Framework counts how many applications have been certified with each driver version. The versions with the most certifications are listed first, and they are designated as such by the addition of the tag "Most Certifications" to their title. There may be more than one driver with the same number of certifications, which means there will be more than one driver that claims to have the most. When confronted with this situation, administrators should compare the application lists of the drivers to decide which one to load based on the anticipated workload for the system.

The remaining drivers are then listed in decreasing order of the number of applications that have certified them. In addition to the "Most Certifications" designation, two other labels may appear in the driver list. "Latest Release" indicates that this driver is the latest one recognized by HP. If the driver already in use on the machine appears in the list, it will be tagged as "Currently Installed."

By scrolling through the list, a system administrator can select the driver that satisfies the most application certification requirements, or a different driver altogether. All drivers in the list can be downloaded and installed with the click of its corresponding button.

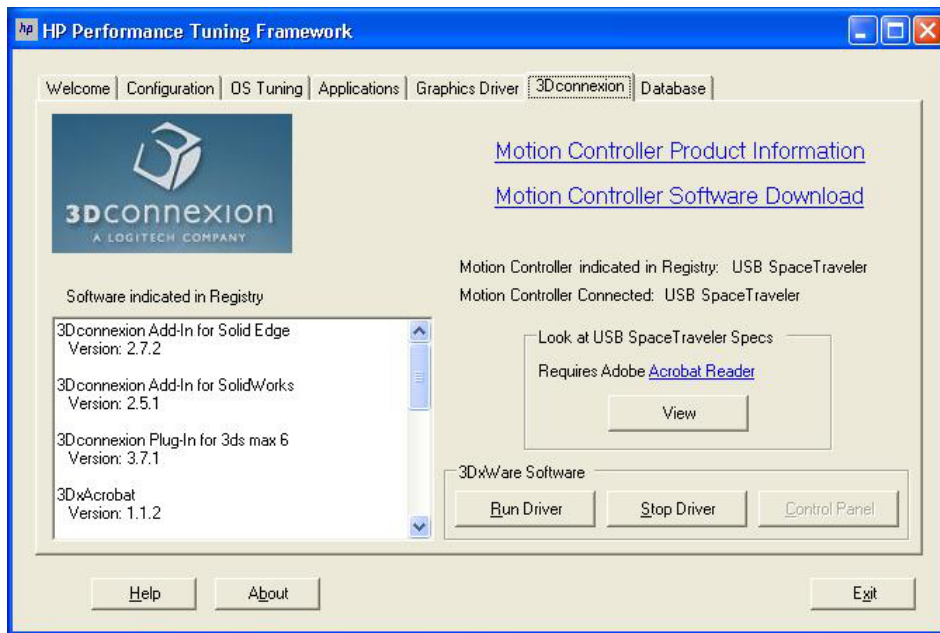
The 3Dconnexion Motion Controller Page

The 3Dconnexion motion controller configuration is reported on the 3Dconnexion page. The types of information reported include:

- The motion controller installation detected in the Windows's Registry
- The USB Plug-and-Play motion controller currently connected on workstation
- The 3Dxware software driver version installed on the workstation
- The list of 3Dconnexion Add-in and Plug-in application software installed on the workstation
- Hyperlinks to the motion controller product information
- Hyperlinks to the motion controller software download site

There are buttons to Run/Stop the motion controller driver on this page. There is a View button to display the motion controller product specifications. Figure 8 shows the 3Dconnexion Page for a machine with the USB SpaceTraveler installed.

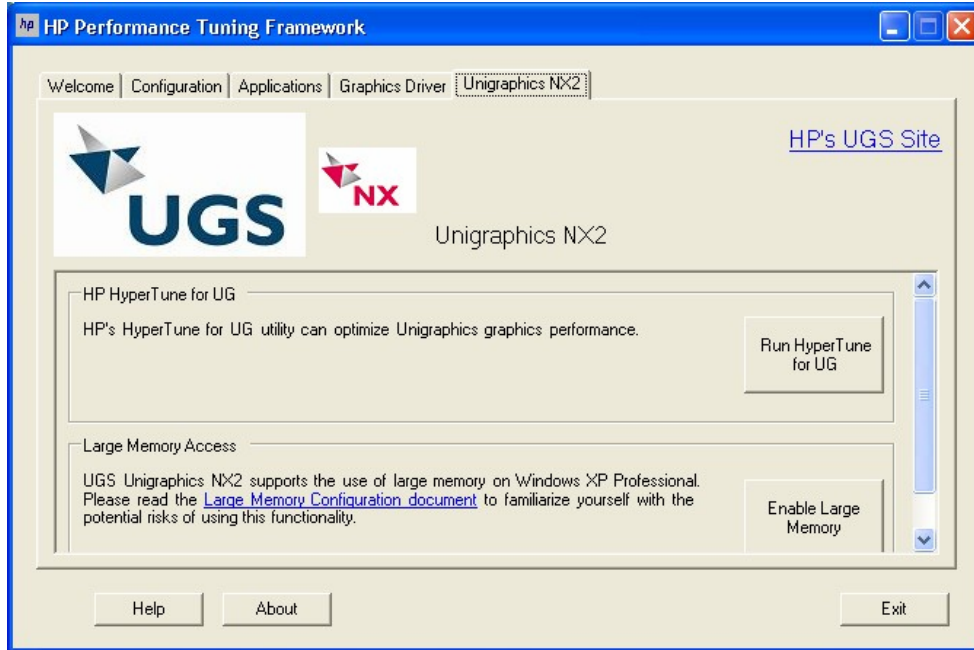
Figure 8. The 3Dconnexion Motion Controller Page



The tunable application pages

The tunable application pages provide access to application-specific tuning functionality. Figure 9 shows the Unigraphics NX2 Application Page, where two application-specific tuning opportunities are presented: *Run HyperTune* and *Enable Large Memory*. As new tuning techniques arise for the supported applications, HP will add new buttons to the Framework to expose them. For specific information about the tuning features associated with each supported application, refer to the appropriate section below Supported Applications.

Figure 9. The Unigraphics NX2 Application Page



Supported applications

The foundational support the Framework provides for an application is the recognition of a valid installation (shown on the Applications Page), and the presentation of graphics driver certification information for the current platform configuration (shown on the Graphics Driver Page). Beyond that, the HP consultants working with the application providers may have implemented tuning utilities unique to the supported application versions. These tuning opportunities are presented to the user on tabbed pages created for each installed application.

A common additional feature the Framework provides is the enablement of large memory usage, which is supported by several applications. However, the most exciting feature is the graphics performance enhancement capability of HP HyperTune technology for certain applications.

With HP HyperTune, users can really benefit from the deep technical knowledge HP has gained through long, cooperative relationships with the application providers. HP engineers have discovered ways to improve the graphics performance of UGS Unigraphics and Dassault Systèmes CATIA V5, and have written HyperTune modules to expose this capability to the workstation user. These applications are obviously very different from one another, and therefore the ability to tune them requires very different approaches. The HyperTune for Unigraphics module employs a rich user interface that allows fine control over the types of graphics operations it measures (see Figure 18), while the HyperTune for CATIA V5 module is controlled through a single checkbox on the Framework's CATIA V5 tabbed page (see Figure 13).

Table 1 lists the currently supported Framework applications for which installation recognition and graphics driver certification information are provided, and also identifies the applications for which additional tuning features are available:

Table 1. Supported Framework applications

Application	Versions	Large Memory	HyperTune Module	Other
Alias Maya	5.x, 6.x			
Alias Studiotools	11.x, 12.x			
Autodesk AutoCAD	2005			
Autodesk Inventor	6, 7, 8, 9	X		X
Bentley MicroStation	V8	X		
CoCreate OneSpace Designer	2004, 2005	X		
Dassault Systèmes CATIA V5	Releases 10, 11, 12	X	X	
Discreet 3D Studio Max	5, 6, 7			X
PTC Pro/ENGINEER	2001, Wildfire, Wildfire 2	X		
Solidworks	2003, 2004, 2005	X		
UGS I-DEAS	9, 10, 11			
UGS Solid Edge	14, 15, 16	X		
UGS Unigraphics	18, NX1, NX2, NX3	X	X	

Alias Maya and Studiotools

Maya and Studiotools do not have application-specific tuning pages because they currently do not have any advanced tuning opportunities which can be exposed through the Framework. However, as with the other Framework applications, graphics driver certification data for these applications is reported on the *Graphics Driver* tabbed page.

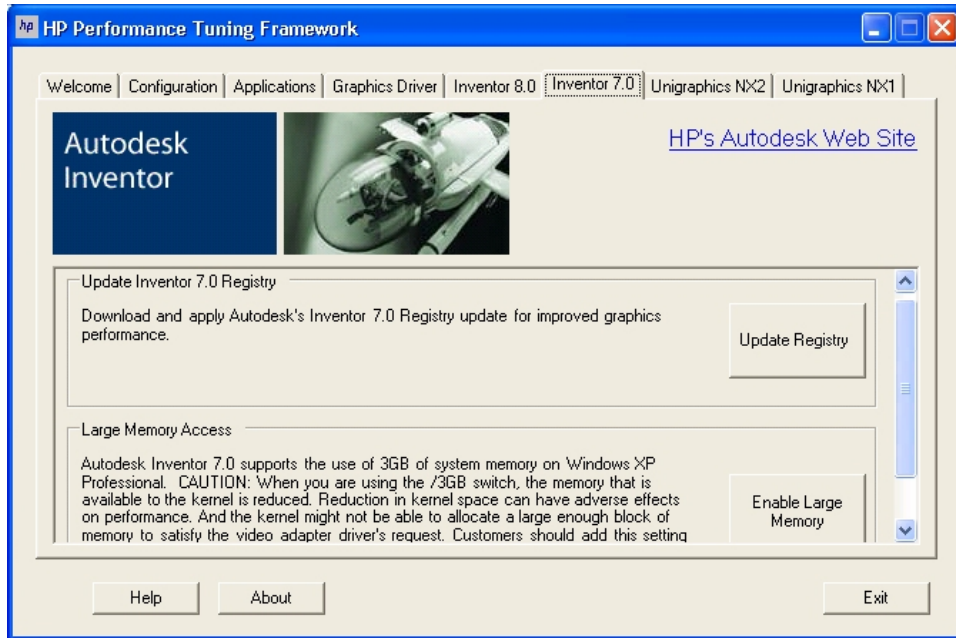
Autodesk AutoCAD

AutoCAD does not have an application-specific tuning page because it too does not have any available tuning opportunities. Graphics driver recommendations are listed on the *Graphics Driver* tabbed page for AutoCAD.

Autodesk Inventor

Autodesk Inventor maintains data about supported graphics cards and drivers in the Windows registry. The Framework offers the ability to download and install the latest support data from the Autodesk web site to keep workstations current. The button to initiate the download and installation of the updated registry contents is shown in Figure 10.

Figure 10. The Inventor 7.0 Application Page

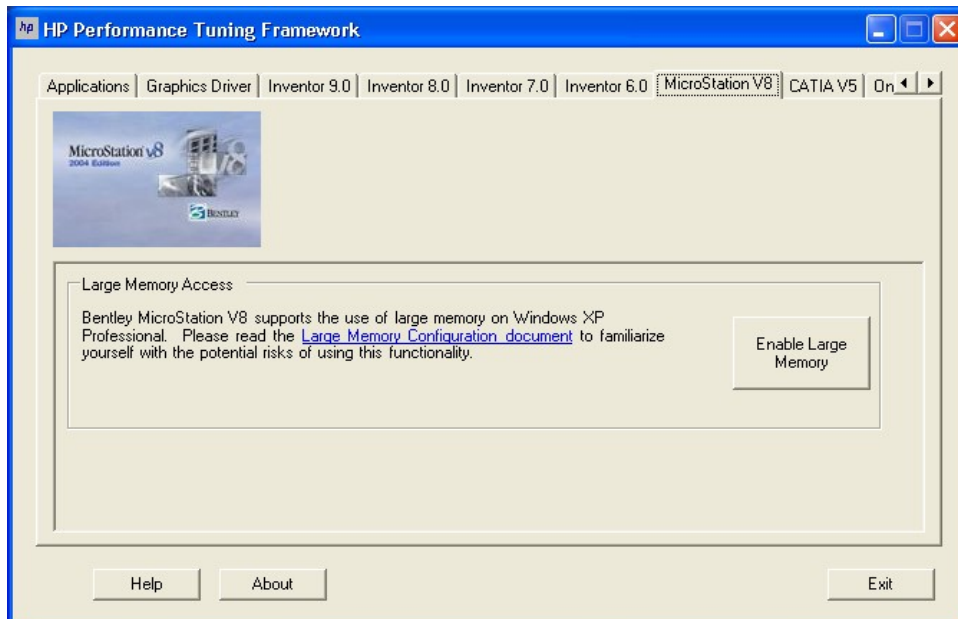


Also, Inventor 7.0, 8.0, and 9.0 support the use of over 2GB of memory with Windows XP. The framework can check a Windows XP installation for the proper components, and then make the necessary edits to the system's boot entries to enable large memory usage.

Bentley MicroStation

MicroStation does support the use of more than 2GB of memory, so in addition to reporting graphics driver certification information, the Framework will present a MicroStation tuning page that contains a button to enable large memory usage.

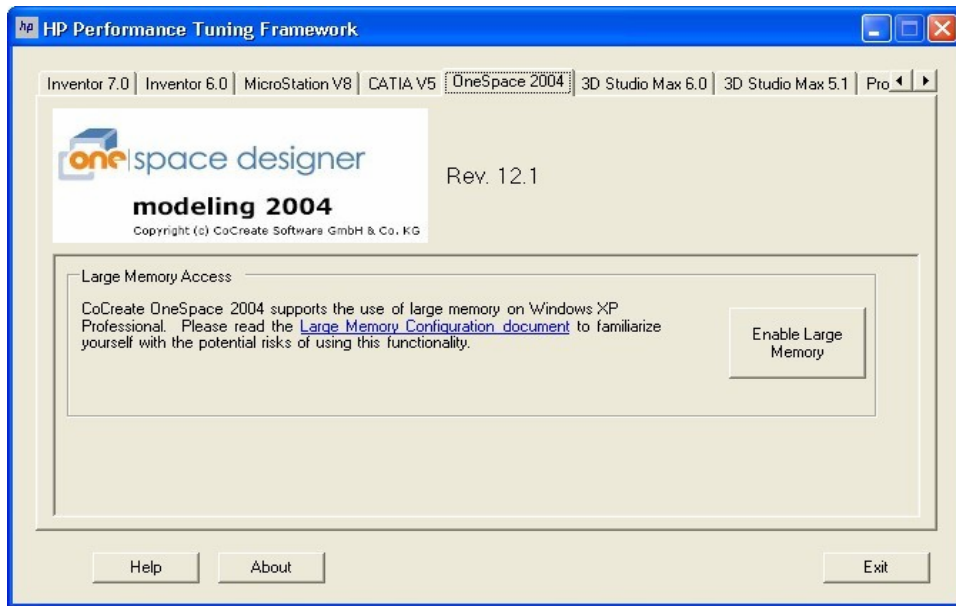
Figure 11. The MicroStation 8 Application Page



CoCreate OneSpace Designer Modeling

OneSpace Designer Modeling does support the use of more than 2 GB of memory, so its tuning page will contain a button to enable large memory usage.

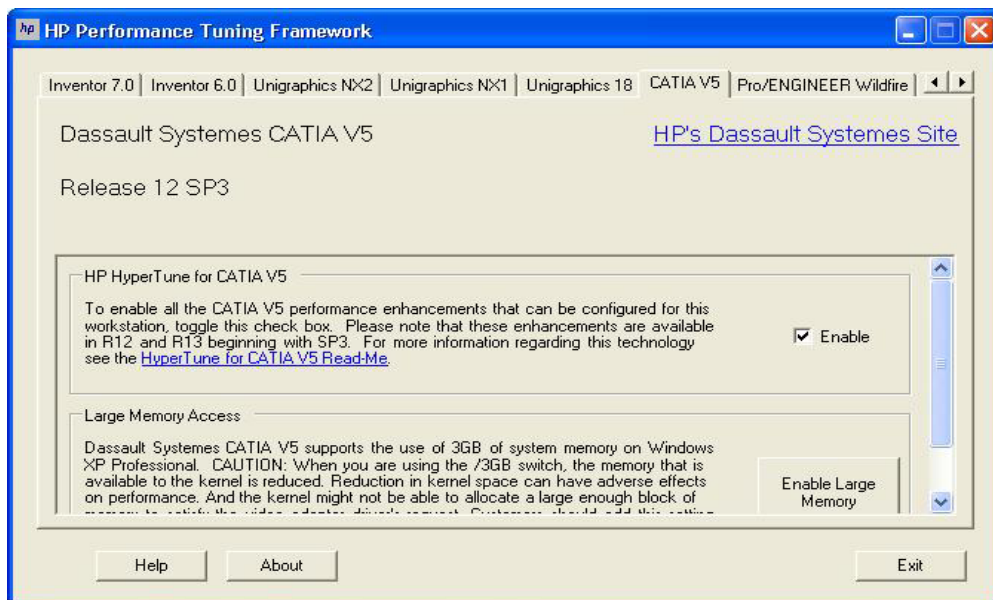
Figure 12. The OneSpace Designer Modeling Application Page



Dassault Systèmes CATIA V5

In addition to CATIA V5's support for large memory access (beginning with R10), the Framework allows the enabling of performance enhancements for CATIA V5 that have been developed together with the Dassault Systèmes Engineering Team specifically for HP. For more information on this technology, such as which platforms it supports, see the HyperTune for CATIA V5 Read-Me document.

Figure 13. The CATIA V5 Application Page



Discreet 3D Studio Max

3D Studio Max can utilize several different graphics technologies, including a custom display driver delivered by the graphics hardware vendors. To facilitate selection of a graphics driver, the 3D Studio Max application page contains a button to launch the application's Graphics Driver Setup dialog.

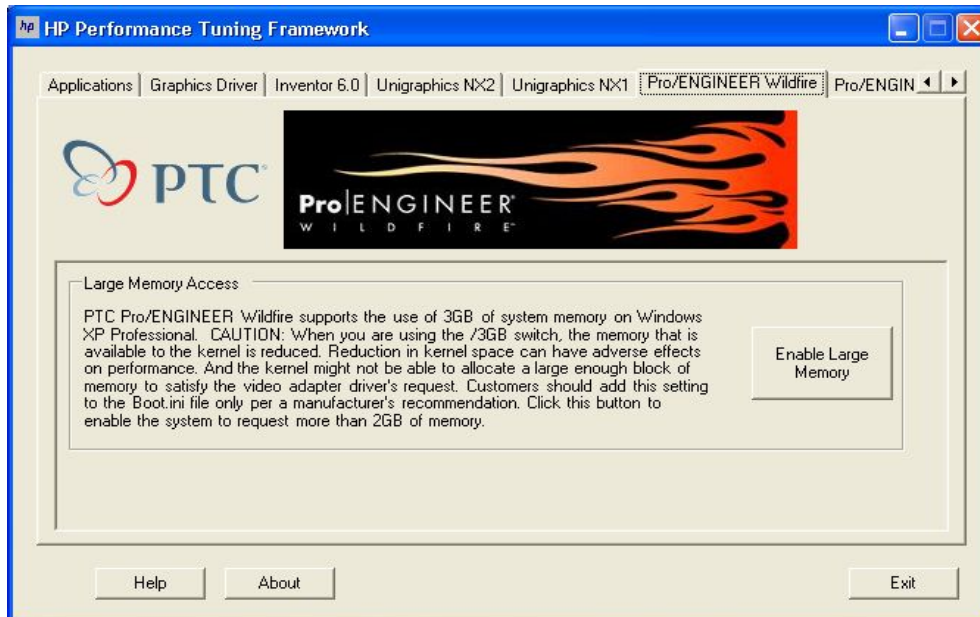
Figure 14. The 3D Studio Max Application Page



PTC Pro/ENGINEER

Pro/ENGINEER does support the use of more than 2 GB of memory, so in addition to reporting graphics driver certification information, the Framework will present a Pro/ENGINEER tuning page that contains a button to enable large memory usage.

Figure 15. The Pro/ENGINEER Application Page



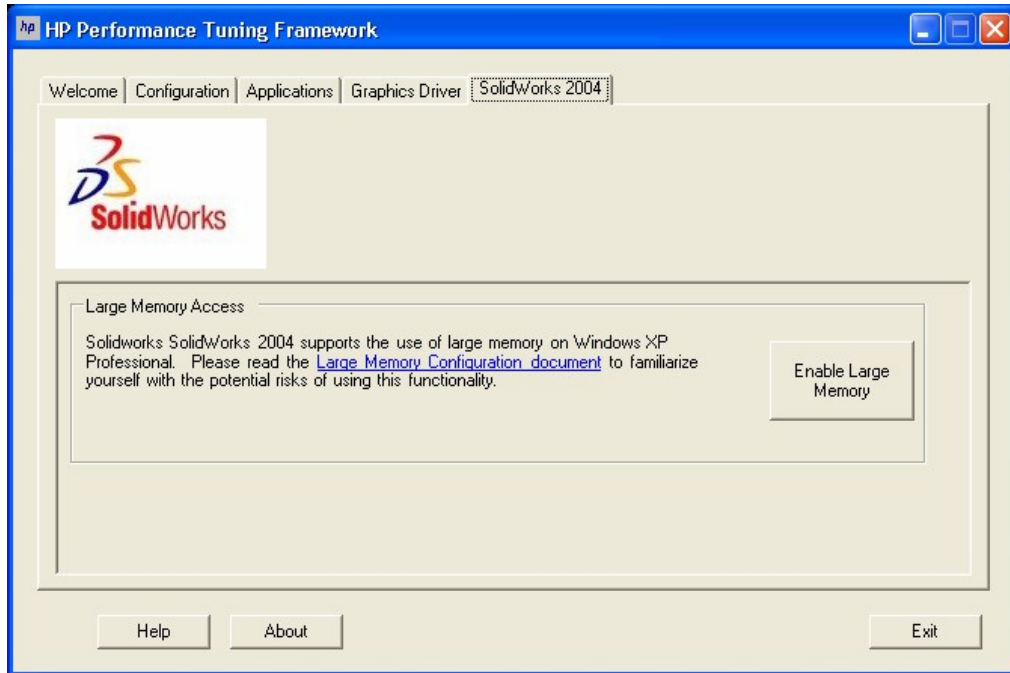
Soft Image XSI

Softimage XSI does not have an application-specific tuning page because it too does not have any available tuning opportunities. Graphics driver recommendations are listed on the *Graphics Driver* tabbed page for Softimage XSI.

SolidWorks

SolidWorks also supports the use of more than 2 GB of memory, so its tuning page will contain a button to enable large memory usage.

Figure 16. The SolidWorks Application Page



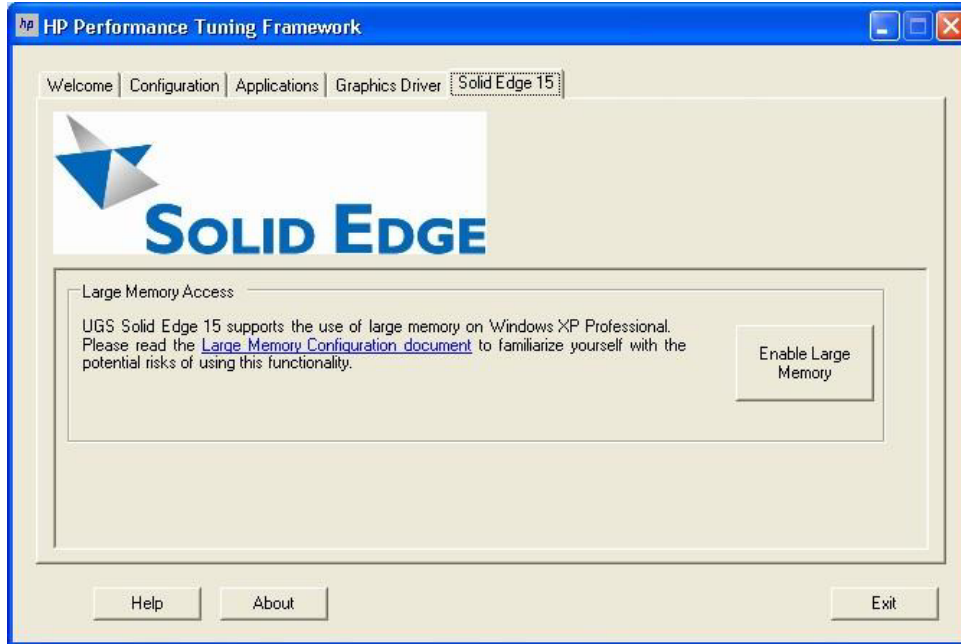
UGS I-DEAS

I-DEAS does not have an application-specific tuning page because it currently does not have any advanced tuning opportunities which can be exposed through the Framework. However, as with the other Framework applications, I-DEAS graphics driver certification information is used and reported on the Graphics Driver tabbed page.

UGS Solid Edge

Solid Edge supports the use of more than 2 GB of memory, so its tuning page will contain a button to enable large memory usage.

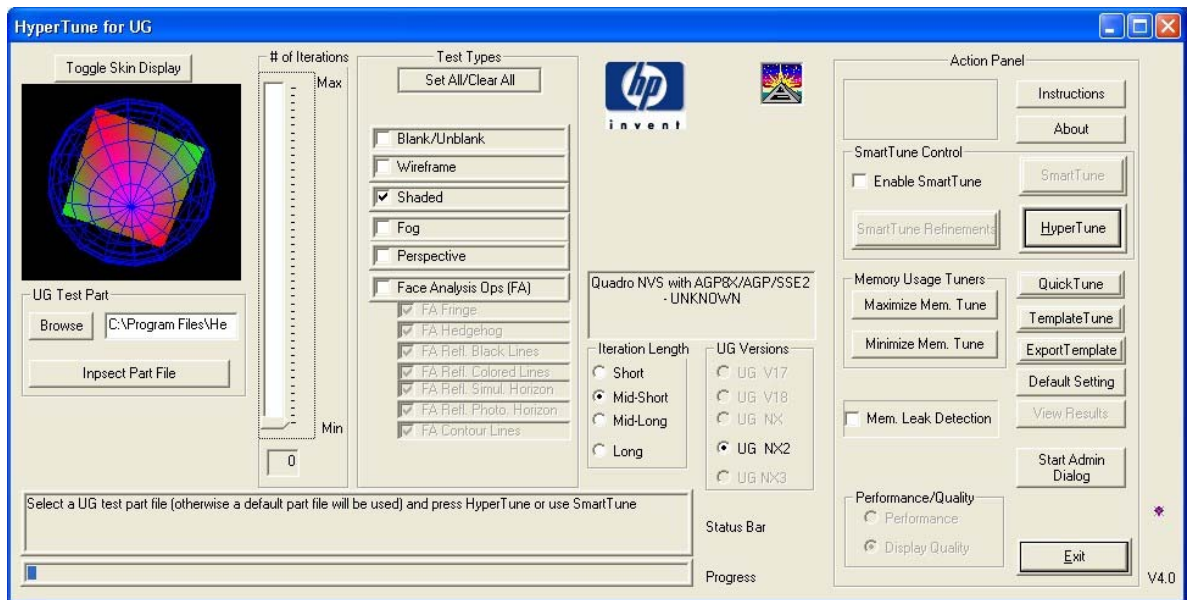
Figure 17. The Solid Edge Application Page



UGS Unigraphics

In addition to Unigraphics' support of large memory, the Framework delivers the HyperTune utility for Unigraphics. This utility has the ability to measure the graphics performance of Unigraphics and configure the graphics card and application settings for optimal performance. Figure 18 shows the user interface of this utility. For more detailed information on HyperTune, read its Users Guide.

Figure 18. The HyperTune for Unigraphics User Interface (click to see actual size)



Large memory configuration

Microsoft Windows XP Professional includes the ability to give applications access to a larger virtual address space than was previously available. For example, if a CAD designer using UGS Unigraphics NX2 was running out of memory while loading a large assembly, this operating system feature could be enabled to give her the extra storage necessary to bring the entire assembly up on the screen. This document provides some background information about this new feature, and describes what the HP Performance Tuning Framework can do to help enable it.

The following Microsoft documents discuss various aspects of this feature, which Microsoft refers to as 4 Gigabyte Memory Tuning or 4GT:

- [Memory Support and Windows Operating Systems](#)
- [Windows NT Server Enterprise Edition FAQ - 4 Gigabyte Memory Tuning](#)
- [Information on Application Use of 4GT RAM Tuning](#)
- [Reviewing and Correcting Boot.ini Settings on x86-based Systems](#)
- [Windows XP SP1 May Not Start with the /3 GB or /USERVA Switch](#)

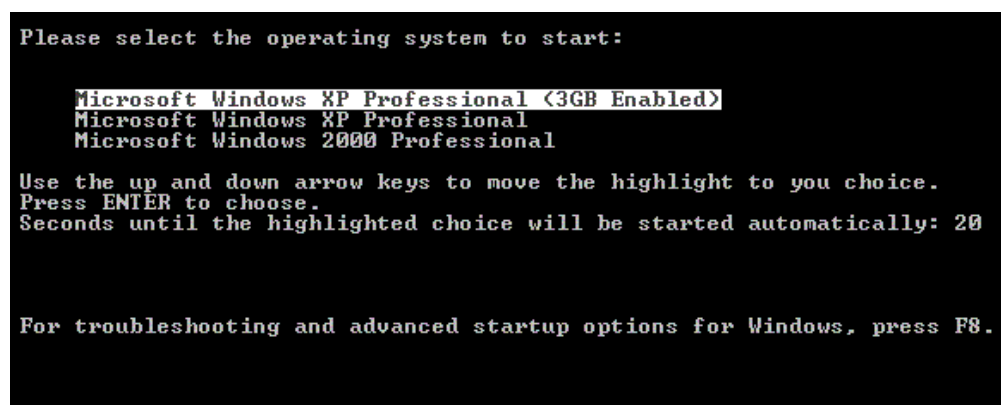
Overview

The default configuration of the Windows XP Professional operating system reserves the upper 2 gigabytes (GB) of the 32-bit virtual address space for itself, and allows applications to use the remaining 2GB at the low end of the address range. This is far more space than most applications need. For the few technical workstation users who require more than 2GB, Windows XP can be set to reserve only 1GB for itself, thereby opening up an additional 1GB for applications to use. To enable an application to access this additional memory, both the operating system and the application must be configured appropriately.

Configuring the operating system

Windows must be started with a boot option that restricts its memory use to only the top 1GB of the 32-bit address range. Boot options are stored in the boot initialization (boot.ini) file, which is a hidden system file containing the boot entries that get presented when a system is turned on, as shown here:

Figure 19. Boot options from the boot.ini file



This screen shot was taken on a machine that has three boot entries in its boot.ini file: two for a disk that contains Windows XP, and one for another disk with Windows 2000. Each selectable boot entry can pass different boot options to Windows. So, aside from the different labels for the Windows XP

entries, what really differentiates them are the options they pass to the Windows boot loader. Here, "(3GB Enabled)" indicates that the first boot entry includes the options necessary to enable large memory usage.

Configuring the application

The application's executable file must be set to notify Windows that it may request more than the typical maximum of 2GB. This can be done by the software vendor while the application is being developed, or it can be accomplished after release with a tool that knows how to modify the program's header.

Enabling large memory with the Performance Tuning Framework

The HP Performance Tuning Framework simplifies the process of enabling large memory usage for several technical applications. Currently the list includes:

- CATIA V5
- Inventor 7
- Inventor 8
- Inventor 9
- MicroStation V8
- OneSpace Designer Modeling 2004
- OneSpace Designer Modeling 2005
- Pro/ENGINEER 2001
- Pro/ENGINEER Wildfire
- Pro/ENGINEER Wildfire 2.0
- Solid Edge 14
- Solid Edge 15
- Solid Edge 16
- SolidWorks 2004
- SolidWorks 2005
- Unigraphics 18
- Unigraphics NX1
- Unigraphics NX2
- Unigraphics NX3

When the Enable Large Memory button is clicked on one of the tunable application pages in the Framework, several checks are made of the workstation to decide if it is safe to continue. The most important thing examined is the presence of a specific Microsoft Hotfix on systems running Service Pack 1 or 1a. Microsoft has granted HP permission to redistribute Hotfix, and the Framework will download and install it if necessary. The process for requesting this Hotfix from Microsoft is outlined in their Knowledge Base Article 328269.

The next thing the Framework does is make a back-up copy of the system boot.ini file before making any edits. If there is only one boot entry in the file, it is duplicated and the large memory options are added to the new copy. If there is more than one boot entry that applies to the current OS image, then the user is given the chance to select which one should be used as the basis for the large memory entry. In either case, the new entry is made the default for the next time the system is rebooted.

Finally, the Framework will make sure the application executable files are set to utilize the additional memory. The next time the system is rebooted, and the large memory boot entry is selected, the

application will have access to the increased address space. Operating in large memory mode will have no effect on applications that are not enabled for large memory usage.

Additional notes

The benefits of large memory mode come with some potential risk. The following bullets describe the issues that should be understood before enabling large memory mode.

- Reducing the amount of memory Windows retains for itself could have adverse effects on system or application performance. See the answer to the question "Can 4GT hurt an application?" in [Microsoft's FAQ](#). All the applications for which the Framework will enable large memory mode have been proven to run correctly in this configuration by their respective companies.
- With diminished memory available, the Windows kernel might not be able to allocate a large enough block of memory to satisfy requests from the software drivers of system components, such as high-end graphics cards. The /USERVA option can be used in boot entries for greater control over the amounts of memory partitioned between applications and the Windows kernel.

Dynamic updates

To get the most out of the HP Performance Tuning Framework, a network connection is required. The Framework will be updated to add tuning support for new applications, and the certification data must be updated as new workstations, graphics cards, and drivers are released. These updates can only occur via the internet.

Certification Database

Each time the Framework is started, it compares its local version of the database with the one on the Framework server. If it finds the local copy is not up to date, it will replace it with the latest.

Framework

The database contains information about the latest available version of the Framework, which is also checked each time the Framework is run. If the Framework finds that its version is not the latest, it will prompt for permission to update itself. If accepted, the newer version will be downloaded, installed, and launched.

As new features are added to the Framework, or if critical issues have been found and corrected, it may become necessary to force an update. In these situations, a prompt will be displayed notifying that an update is required before the Framework can run. If the update is declined, the Framework will terminate, and will not run again until the update is accepted.

For more information, including installation instructions, go to www.hp.com/workstations/software/framework/support.html