



Report of Independent Accountants

To the Board of Directors of Advanced Micro Devices, Inc:

We have examined management's assertions included in the Advanced Micro Devices Report of Management on Processor Performance Benchmarks for the AMD Athlon™ XP Processor 3200+ for the period from April 21, 2003 to April 28, 2003. Advanced Micro Devices, Inc.'s management is responsible for the assertions. Our responsibility is to express an opinion on management's assertions based on our examination.

Our examination was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants and, accordingly, included examining, on a test basis, evidence supporting management's assertions and performing such other procedures as we considered necessary in the circumstances. We believe that our examination provides a reasonable basis for our opinion.

It is not PricewaterhouseCoopers LLP's policy or intent to endorse the product or services of any organization.

In our opinion, management's assertions referenced above are fairly stated, in all material respects.

A handwritten signature in cursive script that reads "PricewaterhouseCoopers LLP".

May 2, 2003

Advanced Micro Devices
Report of Management on Processor Performance Benchmarks
AMD Athlon™ XP 3200+ Processor

I. Benchmark Results

The management of Advanced Micro Devices, Inc. ("AMD") asserts that the following results were generated with the AMD Athlon™ XP 3200+ processor using the benchmark tests below (a higher score indicates better performance):

Benchmark	Version	AMD Athlon™ XP Processor 3200+ results	Units
AquaMark (1024x768x32)	2.2	92.63	FPS
BAPCO SYSmark™ 2001 Internet Content Creation*	1.0	327.67	N/A
BAPCO SYSmark™ 2001 Office Productivity*	1.0	280.00	N/A
Comanche 4 Demo (1024x768x32)	1.0.1.18	55.57	FPS
eTesting Labs Inc. Business Winstone™ 2001	1.0.2	91.87	N/A
eTesting Labs Inc. Business Winstone™ 2002	1.0	40.80	N/A
eTesting Labs Inc. Content Creation Winstone™ 2001	1.0.2	124.80	N/A
eTesting Labs Inc. Content Creation Winstone™ 2002*	1.0.1	56.53	N/A
eTesting Labs Inc. Content Creation Winstone™ 2003*	1.0	50.00	N/A
Futuremark Corporation 3DMark™ 2001 - Second Edition (Software)	1	7708.00	N/A
Futuremark Corporation 3DMark™ 2001 - Second Edition (Hardware)	1	15628.33	N/A
Futuremark Corporation 3DMark™ 2003 - (Software)	1	2222.00	N/A
Futuremark Corporation 3DMark™ 2003 - (Hardware)	1	4476.00	N/A
Half-Life Smokin' (1024x768x32)	1.009	115.79	FPS
MDK2 Demo (1024x768x32)	2.1.13.0	263.74	FPS
Quake III Demo2 (1024x768x32)	Arena demo2	328.13	FPS
Return to Castle Wolfenstein 3D (1024x768x32)	1.1	127.67	FPS

Serious Sam (1024x768x32)	1.02	182.80	FPS
Serious Sam: Second Encounter - Demo Version (1024x768x32)	Demo	212.67	FPS
Star Wars - Jedi Knight II: Jedi Outcast (1024x768x32)	1.02a	119.27	FPS
Unreal Tournament 2003 Demo – Botmatch	1142	88.15	FPS
Unreal Tournament 2003 Demo – Flyby	1142	224.07	FPS
Unreal Tournament (1024x768x32)	4.36	115.83	FPS

N/A - Indicates the benchmark score is an absolute number without units.

FPS - Frames per second

* - Test results reflect the use of a software patch which allows the Microsoft® Windows® Media Encoder 7 codec to utilize SIMD processor instructions on the AMD Athlon™ XP Processor 3200+. This software patch is not publicly available.

AMD installed the benchmarks using the manufacturer's CDs or downloads available from the Internet. The benchmarks were installed using the default locations and settings. Specific installation instructions, execution instructions, or changes to the default settings can be viewed by selecting the name of the benchmark above.

II. Hardware And Software Configuration

AMD Management asserts that the components listed below were used to generate the benchmarks reported. AMD Performance Marketing in Sunnyvale, California, assembled these components for benchmarking purposes.

Component	Manufacturer	Model	Description
Processor	AMD	AMD Athlon™ XP Processor 3200+	QuantiSpeed™ architecture operates at 2.200 GHz
Operating System	Microsoft©	Windows® XP Professional	Version 2002 (Service Pack 1)
Motherboard	ASUS	A7N8X Deluxe (Rev. 2)	nForce2 Chipset
Hard drive	Western Digital	WD1200JB (8MB)	Special Edition Caviar 120 GB, UDMA 100
RAM Memory	Corsair	CRX256A-3500C2	2 x 256MB XMS3500 DIMM Module
Network Card	nForce Integrated	NVIDIA nForce MCP	10/100 Fast Ethernet
Sound Card	nForce Integrated	MCP Audio Processing Unit (Dolby Digital)	Integrated sound card
Video Card	ATI	Radeon 9700 128M	128MB Onboard DDR RAM, Video Driver 6.14.1.6307 2.28.2003
DVD-ROM	Toshiba	SD-M1212	IDE 6X DVD, 32X CD-ROM

The operating system was installed on the platform using an NTFS partition. The default settings were used during the installation. Select the operating system above to display changes made to the configuration after the completion of the default installation of the operating system.

III. Testing Procedure

AMD Management asserts that the following procedures were used by Performance Marketing to test and record the benchmark results for each benchmark in Section I:

Testing Methodology

1. Ensure the configurations for a specific benchmark are configured as stated in the configuration and testing section for each benchmark. Execute the benchmark three times.
2. Perform the coefficient of variation ("CV") calculation using the three results. The CV is calculated by dividing the standard deviation of the three test results by the mean of the three test results.
3. If the result of the CV calculation is less than one percent ("1%"), then the results are within tolerance. If the result of the CV calculation is more than 1%, perform another run of the benchmark and record the results. Calculate the mean of all test results and use the three results closest to the mean and recalculate the CV. (Note: This step is performed until the result of the CV calculation is equal to or less than 1%.)
4. Take the three test results that were used to successfully pass the CV calculation requirements and calculate the average of the three. This average is documented as the reported benchmark score.

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Operating System Setup

- During bootup, hit "Enter" to boot from CD-ROM
- Hit "F8" to agree to license
- Hit "C" to create partition
- Create a 57232 MB partition
- Hit "Enter" on new 57232 MB partition
- Select "Format the partition using the NTFS (Quick) file system" and hit "Enter"
- Click "Next" to continue on "Regional and Language Options"
- Type in name and organization

- Type in valid Windows XP product key and click “Next”
- Type administrator password twice and click “Next”
- Click “Next” on “Date and Time Settings”
- Click “Next” on “Networking Settings” to confirm “Typical Settings”
- Click “Next” on “Workgroup and Computer Domain”
- Click “OK” to confirm display settings
- Click “OK” to confirm new monitor settings
- Click “Next” to continue on “Welcome Microsoft Windows”
- Click “Skip” to skip “Networking Settings”
- Select “No” to not “Activate Windows” and click “Next”
- Type in user name and click “Next”
- Click “Finish”
- Open Computer Management (under Administrative Tools)
- Click “Disk Management” and click on “Unallocated drive space”
- Right click and open “New Partition” and click “Next”
- Select “Extended partition” and click “Next”
- Type in “57239” MB for “Partition size” and click “Next”
- Click “Finish” to complete partition
- Click on “Unallocated drive” space
- Right click and open “New Logical Drive”
- Select “Logical drive” click “Next”
- Type in “57239” MB for “Partition size” and click “Next”
- Select “Assign the following drive letter”
- Type “E” and click “Next”
- Select “Perform a quick format” click “Next”
- Click “Finish” to complete format
- Change CD-Rom drive letter to drive “E” and new volume to drive “D”
- On desktop right click “My Computer”
- Select “Properties” and click the “Advanced” tab
- Click “Performance Options”
- Click “Settings” and click “Advanced”
- Click “Change for Virtual Memory”
- Select drive “C” and select “No paging file” under “Change virtual memory (paging file)”
- Click “Set”
- Select drive “D” select “Custom size”
- Type “768” MB for “Initial Size”
- Type “1536” MB for “Maximum Size”
- Click “Set”
- Click “Ok” and restart computer
- On desktop right click “My Computer”
- Select “Properties” and click “Automatic Updates”
- Select “Turn off Automatic Updating. I want to update my computer manually”
- Click “Apply”
- Click “System Restore” and select “Turn off System Restore on all drives”
- Click “Apply”
- Click “Yes” to verify Turn Off System Restore
- On desktop right click “My Computer”
- Select “Properties” and click the “Advanced” tab

- Click “Settings” under “Performance”
- Select “Adjust for best performance”
- Click “Apply”
- Right click on task bar and select “Properties”
- Deselect “Keep the taskbar on top of other windows”
- Click “Apply”
- Open “Control Panel” and double click “Power Options”
- Select “Always On” from “Power Schemes” and select “Never” to “Turn off monitor”
- Click “Apply”
- Double click “Display”
- Click “Screen Saver” and select “None”
- Click “Apply”

Install XP Service Pack 1

- Install XP Windows Service Pack 1a Network Installation: xpsp1_en_x86.exe self-extracting cabinet (version 1.16.121.0)
- Click “Next”
- Select “I agree” and click “Next”
- Select “Do not archive files” and click “Next”
- Click “Finish” to restart computer

Install Drivers for Motherboard

- Install nForce Chipset Drivers: nForce_2.03_WinXP_English.exe (version 2.11.15.0)
- Click “Yes” to continue when asked to disable antivirus software
- Select “I accept the terms in the license agreement” and click “Next”
- Click “Next” to install “Save Files” to default location
- Click “Next” to install NVIDIA Windows 2000/XP nForce Drivers
- Click “Yes” to accept “License Agreement”
- Click “Next” to install NVIDIA IDE SW driver
- Click “Yes” to confirm NVIDIA IDE SW driver
- Click “Continue Anyway” for NVIDIA IDE SW driver
- Click “Finish” to restart computer
- Open Device Manager and right click on “RAID controller”
- Click “Update Driver”
- Select “Install from specific location (Advanced)” and click “Next”
- Select directory containing driver “Silicon Image SiI 3112 SATAR Controller: si3112r.inf” and click “Ok” then click “Next”
- Click “Continue Anyway” and click “Finish”
- Open Device Manager and right click on “Universal Serial Bus (USB) Controller” then select “Uninstall” and click “Ok”
- In the tool bar click “Action” and select “Scan for hardware changes” to detect USB devices

Video Card Setup

- Install ATO Catalyst 3.2 Display Driver: wxp-w2k-radeon-7-84-030228a1-008040c-efg.exe (version 4.0.100.1190)

- Click “Next” to install
- Click “Next” to “Save Files” to default location
- Click “Next” to install ATI drivers
- Click “Yes” to accept “License Agreement”
- Click “Ok” to restart system after install
- Click “Finish” to restart computer
- Repeat installation of Display Driver
- Install ATI Catalyst 3.2 ATI Control Panel: control-panel-7-84-030228a1-008040c-efg.exe (Version 4.0.100.1190)
- Click “Next” to install
- Click “Next” to “Save Files” to default location
- Click “Next” to install ATI Control Panel
- Click “Yes” to accept “License Agreement”
- Click “Next” to save to default “Destination Location”
- Click “Finish” to restart computer
- Deselect “Show this screen next time you start Windows” and close window
- Open Control Panel and double click on “Display tab”
- Click “Settings” and drag “Screen Resolution” to “1024 by 768” pixels and click “Apply”
- Click “Yes” to accept changes
- Click “Advanced” tab
- Click “Displays” then click “Monitor” select “1024x768” for “Maximum Resolution” and “100Hz” for “Maximum Refresh”
- Click “Apply” and click “Yes” to accept changes
- Click “Monitor” tab and select “100 Hertz” for “Screen refresh rate”
- Click “Apply” and “Yes” to accept changes
- Click “OpenGL” tab and drag “Wait for Vertical Sync” to “always off” and click “Apply”
- Click “Direct3D” tab and drag “Wait for Vertical Sync” to “always off” and click “Apply”

DirectX 9.0

- Install DirectX 9.0: dx90_redist.exe (version 6.0.2600.0)
- Click “Yes” to accept “License Agreement”
- Click “Unzip” to specified location, for example c:\directx, and click “Ok”
- Install DirectX: c:\directx\Directx9\dxsetup.exe
- Click “Next” to accept “License Agreement”
- Click “Next” to install DirectX 9.0
- Click “Finish” to restart computer

AMD SSE setup for Windows Media Encoder

- During bootup, hit “F8” to go into Safe Mode
- Replace “wmvdmoe.dll” in c:\WINDOWS\system32
- Click “Yes” to “replace existing file”

DXDIAG

- Run “DXDIAG” from the command line
- Click “Yes” to run DirectX Diagnostic Tool

- Select the “More Help” tab
- Click “Override” and select “Override Value” type “100”
- Click “Ok”
- Click “Exit” and restart computer
- Deselect “Show this screen next time you start Windows” when “Desktop Help for ATI” window appears

WCPUID v3.1 Setup

- Download wcpuid v3.1 from <http://www.tecchannel.de/freesoftware/tools/diagnose/848/>
- Install wcpuid310 to c:\wcpuid
- Run “c:\wcpuid\wcpuid.exe”
- Ensure that “AGP Data Rate” is set to “8x”

BIOS Configuration

ASUS A7N8X2.0 Bios Version 1004.A (pre-production version)

Main Processor: AMD Athlon™ XP Processor 3200+

Memory Testing: 524288 OK

Memory Frequency is at 200 MHz, Dual Channel Mode

Date 04/17/2003 nVidia-nForce-A7N8X2.0

(Text in bold represents a menu which is selected, text in italics represents an action which can be performed within a menu).

- **Exit:**
 - **Load Setup Default**
 - *Load Optimized Defaults (Y/N): Y*
- **Main:**
 - *Date: Jan 01, 2002*
- **Advanced:**
 - **Advanced BIOS Features**
 - *First Boot Device: Floppy*
 - *Second Boot Device: CDROM*
 - *Third Boot Device: HDD*
 - *APIC Mode: Disabled*
 - *Full Screen LOGO Show: Disabled*
 - *Speech POST Reporter: Disabled*
 - **Advanced Chipset Features**
 - *CPU External Freq. (MHz): 200 MHz*
 - *System Performance: User Defined*
 - *CPU Interface: Aggressive*
 - *Memory Frequency: 100%*
 - *Memory Timing: User Defined*
 - *SDRAM Active Precharge Delay: 6*
 - *SDRAM CAS Latency: 2T*
 - *Graphics Aperture Size (MB): 256MB*
 - **Integrated Peripherals**
 - *Onboard AC97 Modem Controller: Disabled*
 - *Onboard Lan (3COM): Disabled*

- *Parallel Port Mode: SPP*
 - *Game Port Address: Disabled*
 - *Onboard MIDI I/Os: Disabled*
- **Exit:**
 - **Exit & Save Changes**
 - *Save to CMOS and Exit (Y/N): Y*

Benchmark Configuration and Testing

AquaMark (1024x768x32)

- Install AquaMark: AquaMark_22.exe
- Click “Next” install AquaMark
- Click “Next” for “Read Me File”
- Click “Next” to install to default “Destination Location”
- Click “Next” to install to default “Program Manager Group”
- Click “Next” to “Start Installation”
- Click “Finish” to complete installation

To run the benchmark:

- Execute “AquaMark” from desktop
- Hit “Enter” to launch test

BAPCO SYSmark™ 2001 Internet Content Creation and Office Productivity

(Results for both Internet Content Creation and Office Productivity are generated during each run of the benchmark)

- Install SM2001CD1.exe, unzip to default directory and unzip
- Install SM2001CD2.exe, unzip to default directory, unzip, and select “Finish”
- Run setup to install SYSmark 2001: “c:\sm2001src\setup.exe”
- Click “Next” to install SYSmark 2001
- Click “Yes” to accept “License Agreement”
- Click “Next” to confirm “Customer Information”
- Click “Next” to install to default “Destination Location”
- Click “Next” to install to default “Program Folder”
- Click “Yes” to move the program files to the alternate key
- Click “Finish” to complete installation
- Install SYSmark 2001 patch: “SYSmark2001Patch3.exe”
- Click “Yes” to install SYSmark 2001Patch 3
- Click “Finish” to complete patch installation
- Execute “Netscape” from desktop
- Click “Ok” to acknowledge “Alert”
- Click “Ok” to acknowledge “Alert”
- Click “View” and deselect “My Sidebar”
- Click “Edit” and select “Preferences”
- Click “Blank Page” under “When Navigator starts up, display” and click “Ok”

- Close Netscape
- Execute Windows Media Encoder: "c:\sm2001src\MediaEnc.exe"
- Click "Yes" to accept "License Agreement"
- Click "Next" to install Windows Media Encoder 7
- Click "Finish" to install default "Installation Directory"
- Click "Yes" to create "Program Folder"
- Select "Exit Setup" and click "Ok"

To run the benchmark:

- Execute SYSmark 2001
- Click "run"
- Click "Official Run"
- Type project name and click "Ok"

Comanche 4 Demo (1024x768x32)

- Install Comanche 4: C4DEMOX.exe
- Click "Next" to install Comanche 4
- Click "Yes" to accept "License Agreement"
- Click "Next" to install to default "Destination Location"
- Click "Finish" to complete installation

To run the benchmark:

- Execute Comanche 4 Demo Benchmark Test
- Select "1024x768" for "Screen Resolution"
- Select "Disable Audio"
- Click "Run Benchmark"
- Click "Ok" to select "Video Card"
- Click "Ok" for "Resolution Test"
- Click "Ok" for "Resolution Test Complete"

eTesting Labs Inc. Business Winstone™ 2001

- Click "Business Winstone™ 2001" and click "Next" to install
- Click "Next" to install in default "Destination Location"
- Click "Yes" to create directory
- Select "Copy Business support files" and click "Next"
- Click "Next" to install in default "Program Folder"
- Click "Next" to "Start Copying Files"
- Click "Finish" to complete setup

To run the benchmark:

- Execute Ziff Davis Media Business Winstone 2001
- Click "Proceed" to accept "License Agreement"
- Click "Yes" to accept "Business Winstone Registration License Agreement"

- Click “Run” Business Winstone 2001
- Click “Next” to run “System Configuration Problem analysis”
- Click “Next” for “Minimum Resource Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Business Winstone Requirements”
- Click “Finish” for “System Configuration Problem”
- Click “Ok” for “Automated Defrag”

eTesting Labs Inc. Business Winstone™ 2002

- Click “Business Winstone™ 2002” and click “Next” to install
- Click “Next” to install in default “Destination Location”
- Click “Yes” to create directory
- Select “Copy Business support files” and click “Next”
- Click “Next” to install in default “Program Folder”
- Click “Next” to “Start Copying Files”
- Click “Finish” to complete setup.

To run the benchmark:

- Execute Ziff Davis Media Business Winstone 2002
- Click “Proceed” to accept “License Agreement”
- Click “Yes” to accept “Business Winstone Registration License Agreement”
- Click “Run” Business Winstone 2002
- Click “Next” to run “System Configuration Problem analysis”
- Click “Next” for “Minimum Resource Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Business Winstone Requirements”
- Click “Finish” for “System Configuration Problem”
- Click “Ok” for “Automated Defrag”

eTesting Labs Inc. Content Creation Winstone™ 2001

- Click “Content Creation Winstone 2001” and click “Next” to install
- Click “Next” to install in default “Destination Location”
- Click “Yes” to create directory
- Select “Copy Content Creation support files” and click “Next”
- Click “Next” to install in default “Program Folder”
- Click “Next” to “Start Copying Files”
- Click “Finish” to complete setup
- Install update patch: cc0102up.exe
- Click “Yes” to install “Content Creation 2001 1.0.2 update”
- Click “Next” to install “Content Creation 2001”
- Click “Yes” for “Update Information”

- Click “Next” to “Start Copying Files”
- Click “Finish” to complete setup

To run the benchmark:

- Execute Davis Media Content Creation Winstone 2001
- Click “Proceed” to accept “License Agreement”
- Click “Yes” to accept “Content Creation Registration License Agreement”
- In the bar menu click “Edit” select “Test Settings,” “Content Creation Winstone 2001,” click “Browse” to directory: c:\zdbench\ccws2001\Tests\ccws2001 and click “Ok”
- Click “Run” Content Creation Winstone 2001
- Click “Next” to run “System Configuration Problem analysis”
- Click “Next” for “Minimum Resource Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Content Creation Winstone Requirements”
- Click “Finish” for “System Configuration Problem”
- Click “Ok” for “Automated Defrag”

eTesting Labs Inc. Content Creation Winstone™ 2002

- Click “Content Creation Winstone 2002” and click “Next” to install
- Click “Next” to install in default “Destination Location”
- Click “Yes” to create directory
- Select “Copy Content Creation support files” and click “Next”
- Click “Next” to install in default “Program Folder”
- Click “Next” to “Start Copying Files”
- Click “Finish” to complete setup

To run the benchmark:

- Execute Ziff Davis Media Content Creation Winstone 2002
- Click “Proceed” to accept “License Agreement”
- Click “Yes” to accept “Content Creation Winstone 2002 Registration License Agreement”
- Click “Run” Content Creation Winstone 2002
- Click “Next” to run “System Configuration Problem analysis”
- Click “Next” for “Minimum Resource Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Content Creation Winstone Requirements”
- Click “Finish” for “System Configuration Problem”
- Click “Ok” for “Automated Defrag”

eTesting Labs Inc. Content Creation Winstone™ 2003

- Click “Content Creation Winstone 2003” and click “Next” to install

- Click “Next” to install in default “Destination Location”
- Click “Yes” to create directory
- Select “Copy Content Creation support files” and click “Next”
- Click “Next” to install in default “Program Folder”
- Click “Next” to “Start Copying Files”
- Click “Yes” to install Windows Media Encoder 7.1
- Click “Yes” to accept “License Agreement”
- Click “Next” to install Windows Media Encoder 7.1
- Click “Finish” complete installation
- Click “Yes” to create “Windows Media Encoder directory”
- Select “Exit Setup” and click “Ok”
- Click “Ok” to complete setup
- Click “Finish” to complete setup
- Install patch for Windows Media Encoder: WM312125.exe
- Click “Yes” to accept “License Agreement”

To run the benchmark:

- Execute PC Magazine Media Content Creation Winstone 2003
- Click “Proceed” to accept “License Agreement”
- Click “Run” Multimedia Content Creation Winstone 2003
- Click “Next” to run “System Configuration Problem analysis”
- Click “Next” for “Minimum Resource Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Other Requirements”
- Click “Next” for “Content Creation Winstone Requirements”
- Click “Finish” for “System Configuration Problem”
- Click “Ok” for “Automated Defrag”

Futuremark Corporation 3DMark™ 2001 - Second Edition

- Click “Next” to install 3Dmark2001 SE Pro
- Enter Registration code and click “Next”
- Click “Ok” registration code confirmation
- Click “Yes” to accept “License Agreement”
- Click “Next” to install to default “Destination Location”
- Click “Next” to start “Coping Files”
- Click “Finish” to complete installation
- Install patch: 3Dmark2001SE-patch.exe (Version 2.11.15.0)
- Click “Next” to install 3Dmark2001 SE patch
- Click “Ok” to confirm installation

To run the software benchmark:

- Execute “3Dmark2001 SE Pro”
- Ensure that “Triple buffering” is set to “Enabled”
- Click “Change” in “Display and CPU Settings”

- Select “Triple” for “Frame Buffer” under “Display Settings”
- Select “D3D Software T&L” under “Rendering Pipeline”
- Click “Ok”
- Click “Change” under “Selected Test”
- Select only the first four game tests under “Game Performance”
- Deselect the remaining test
- Click “Ok”
- Click “Benchmark” to launch test
- (After each run, exit and restart the program)

To run the hardware benchmark:

- Execute “3Dmark2001 SE Pro”
- Click “Change” in “Display and CPU Settings”
- Ensure that “Triple buffering” is set to “Enabled”
- Select “D3D Hardware T&L” under “Rendering Pipeline”
- Click “Ok”
- Click “Change” under “Selected Test”
- Select only the first four game tests under “Game Performance”
- Deselect the remaining test
- Click “Ok”
- Click “Benchmark” to launch test
- (After each run, exit and restart the program)

Futuremark Corporation 3DMark™ 2003

- Execute 3DMark 2003: mg-3dmark03.exe (version 7.1.100.1248)
- Click “Next” to install 3Dmark03
- Select “I accept the terms of the license agreement” and click “Next”
- Click “Next” to install to default “Destination Location”
- Click “Install” to “Install the Program”
- Enter registration code and click “Next”
- Click “Ok” registration code confirmation
- Click “Finish” to complete installation

To run the software benchmark:

- Execute “3DMark03”
- Select “Do not show this dialog again” and click “Close”
- Click “Select” under “Tests”
- Select first four games under “Game Test” and deselect the other test
- Click “Ok”
- Click “Change” under “Settings”
- Select “Trilinear” under “Texture Filtering”
- Select “Force software” under “Vertex Shaders”
- Click “Ok”
- Click “Run 3Dmark”

To run the hardware benchmark:

- Execute “3DMark03”
- Click “Select” under “Tests”
- Select first four games under “Game Test” and deselect the other test
- Click “Ok”
- Click “Change” under “Settings”
- Select “Trilinear” under “Texture Filtering”
- Click “Ok”
- Click “Run 3Dmark”

Half-Life Smokin' (1024x768x32)

- Click “Install Half-Life” and click “Yes” if you heard a sound
- Click “Next” to install Half-Life
- Click “Yes” to accept “License Agreement”
- Click “Next” to install to default “Destination Location”
- Click “Ok” to complete setup
- Click “No” to not check for available updates
- Click “Ok” to register now and click “Register Later”
- Click “Next” “Select Components”
- Click “Finish” to complete setup
- Click “Continue” to acknowledge compatibility issue
- Type in registration code and click “Finish”
- Move “smoking.dem” to “c:\SIERRA\Half-Life\valve\”
- Move the maps folder to “c:\SIERRA\Half-Life\valve\”
- Install Half-Life patch: “10051009.exe”
- Click “Next” to install Half-Life Update 1.0.0.9
- Click “I Agree” to accept “License Agreement”
- Click “Next” for “Read Me File”
- Click “Next” to install to default “Destination Location”
- Click “Next” to “Start Installation”
- Click “Next” to place shortcut on desktop
- Click “Finish” to complete installation
- Execute “Half-Life Console”
- Click “Configuration,” “Video,” and “Video Modes”
- Select “Open GL” and click “Ok”
- Click “Cancel” for “New Connection Wizard”
- Select “1024x768” and click “Ok”
- Click “Done” to exit video menu
- Click “Done” to exit menu
- Click “Quit” to exit game
- Click “Ok” to confirm exit

To run the benchmark:

- Insert CD in CD-Rom
- Execute “Half-Life Console”

- Click “Console”
- Eject CD from CD-Rom so that music does not play
- Type “timedemo smoking”
- Hit “Enter” to launch demo

MDK2 Demo (1024x768x32)

- Install MDK2: MDK2Demo.exe (Version 2.1.13.0)
- Click “Ok” for “Setup Language”
- Click “Next” to install MDK2 Demo
- Click “Yes” to accept “License Agreement”
- Click “Next” to install to default “Destination Location”
- Click “Next” to install default “Setup Type”
- Click “Next” to install to default “Program Folder”
- Click “Yes” to create shortcut to desktop
- Click “Finish” to complete setup
- Execute “MDK2 Demo” from desktop
- Select “1024x768” for “Resolution” and “32” “Color Depth”
- Click the “Get Info” button before running the benchmark
- Click “Test Settings”

To run the benchmark:

- Execute “MDK2 Demo” from desktop
- Click “Test Settings” to launch benchmark

Quake III Demo2 (1024x768x32)

- Install Quake III: Q3Ademo.exe
- Click “Next” to install Quake 3 Arena Demo
- Click “Yes” to accept “License Agreement”
- Click “Next” to install to default “Destination Location”
- Click “Next” to install
- Click “Close” to complete setup

To run the benchmark:

- Execute “Quake3” from desktop
- Click “Setup”
- Click “System”
- Click “Video Mode” to select “1024x768”
- Click “Color Depth” to select “32 Bit”
- Click “Accept”
- Hit “~”
- Type the following commands to configure and run the demo:
 - “s_initsound 0”
 - “snd_restart”
 - “com_maxfps 0”

- “vid_restart”
 - “timedemo 1”
 - “demo demo002”
- Hit “Enter” to launch demo
- Hit “~” to view results

Return to Castle Wolfenstein 3D (1024x768x32)

- Click “Install” and click “Next” to install Return to Castle Wolfenstein
- Click “Yes” to accept “License Agreement”
- Click “Next” for “Minimum System Requirements”
- Enter registration key and click “Ok”
- Click “Ok” to confirm registration key
- Click “Next” to install to default “Destination Location”
- Click “Next” to install to default “Program Folder”
- Click “Install” to “Start Installation”
- Click “Ok” for “Hardware Detected”
- Click “Yes” to create shortcut on desktop
- Select “Register Later” and click “Next”
- Click “Finish” to complete setup
- Install patch: wolf_1_1.exe
- Click “Next” to install Return to Castle Wolfenstein Patch
- Click “Yes” to accept “License Agreement”
- Click “Next” to install to default “Destination Location”
- Click “Next” to “Start Installation”
- Click “Ok” to continue installation
- Click “Finish” to complete installation
- Create a directory called “demos” in the “c:\Program Files\Return to Castle Wolfenstein\Main” and extract “checkpoint.dem_57” to that directory
- Execute “Wolfenstein (Multiplayer)” from desktop
- Click “Options,” “System,” and “Graphics”:
 - Select “Video mode” to “1024x768”
 - Select “Texture detail” to “High”
 - Select “Texture Filter” to “Trilinear”
- Click “Apply”
- Click “Yes” to apply video settings
- Under “Options,” “Game Options,” and “Performance”:
 - Select “Wall Mark Lifetime” to “Long”
 - Select “Ejecting Brass” to “High”
 - Select “Dynamic Lights” to “Yes”
 - Select “Corona Dist” to “Extreme”
- Under “Options/Game Options/View”:
 - Select “Cursor Hints” to “Off”
 - Select “Show Compass” to “Off”
 - Select “Team Overlay” to “Off”
- Hit “Esc” to return to main menu
- Click “Quit” to exit game

To run the benchmark:

- Execute “Wolfenstein (Multiplayer)” from desktop
- Go into “Options,” “Game Options,” “Performance,” and set “Corona Dist” to “Extreme”
- Hit "~" to open console
- Type “Timedemo 1”
- Type “Demo checkpoint”
- Type "~" to view demo results

Serious Sam (1024x768x32)

- Click “Install” and click “Next” to install Serious Sam: First Encounter
- Click “Yes” to accept “License Agreement”
- Click “Next” for “Information text”
- Click “Next” to install to default “Destination Location”
- Click “Next” to install to default “Setup Type”
- Click “Next” to install to default “Program Folder”
- Click “Next” to install default name for “Enter Text”
- Click “Finish” to complete installation
- Install patch for Serious Sam: Seriouspatch102_USA.exe
- Click “Ok” to choose language setup
- Click “Next” to install Update to version 1.02 for Serious Sam: The First Encounter
- Click “Finish” to complete setup
- Insert Serious Sam CD into CD-Rom
- Execute Serious Sam
- Click “Ok” to start Serious Sam for the first time
- Hit “Esc” to enter main menu
- Click “Options,” and “Video Options”:
 - Select “Resolution” to “1024x768”
 - Select “Bits per pixel” to “32”
 - Select “Preferences” to “Speed”
- Click “Apply”
- Click “Yes” to keep settings
- Click “Esc” to return to main menu

To run the benchmark:

- Hit "~" to launch console
- Type “dem_bprofile=1”
- Press "~" to return to main menu
- Click “Demo”
- Select “Karnak Peaceful Night Coop” demo and hit “Enter”
- Type "~" and scroll up to view demo results (use the score that is labelled “average without excessive peaks”)

Serious Sam: Second Encounter - Demo Version (1024x768x32)

- Install Serious Sam: serioussamsdemo.exe
- Click “Next” to install Serious Sam: The Second Encounter Demo

- Click “Yes” to accept “License Agreement”
- Click “Next” for “Information text”
- Click “Next” to install to default “Destination Location”
- Click “Next” to install to default “Program Folder”
- Click “Next” to install default name for “Enter text”
- Click “Finish” to complete installation
- Execute Serious Sam
- Click “Ok” to start Serious Sam for the first time
- Hit “Esc” to enter main menu
- Click “Options,” and “Video Options”:
 - Select “Resolution” to “1024x768”
 - Select “Bits per pixel” to “32”
 - Select “Preferences” to “Speed”
- Click “Apply”
- Click “Yes” to keep settings
- Click “Esc” to return to main menu

To run the benchmark:

- Hit "~" to enter console
- Type “dem_bprofile=1”
- Hit "~" to return to main menu
- Click “Demo”
- Select “Little Trouble” demo and hit “Enter”
- Following the demo, hit "~"

Star Wars - Jedi Knight II: Jedi Outcast (1024x768x32)

- Click “Install” to install Jedi Knight II
- Click “Next” to install Jedi Knight II: Jedi Outcast
- Click “Yes” to accept “License Agreement”
- Click “Automatic” installation
- Click “Yes” to confirm automatic installation
- Click “Exit” installation
- Create shortcut to desktop for Jedi Knight II Multi Player: c:\Program Files\LucasArts\Star Wars JK II Jedi Outcast\GameData\jk2mp.exe
- Right click “Shortcut to jk2mp” from desktop and select “Properties”
- Type “+set sv_cheats 1” at the end of the “Target Location” for example (“c:\Program Files\LucasArts\Star Wars JK II Jedi Outcast\GameData\jk2mp.exe” “+set sv_cheats 1)
- Click “Ok” to close shortcut

To run the benchmark:

- Execute Shortcut to jk2mp from desktop
- Select “Never Register” and click “Ok”
- Click “Setup”
- Click “Video”
- Select “1024x768” “Video Mode” and “32-bit” “Color Depth”

- Click “Apply Changes”
- Click “Yes” to continue to Main Menu
- Hit “Shift ~”
- Type “timedemo 1”
- Hit “Enter”
- Hit “~” to escape to Main Menu
- Click “Play”
- Click “Play Demo”
- Click “Play Demo”
- Hit “Shift ~” and scroll up to see score

Unreal Tournament 2003 (1024x768x32)

- Install Unreal Tournament 3: ut2003demo2206.exe
- Click “Next” to install Unreal Tournament 3
- Click “I Agree” to accept “License Agreement”
- Click “Next” to install to default “Destination Location”
- Click “Next” to install default components
- Click “Install” to install Unreal Tournament 3
- Click “Finish” to complete installation

To run the benchmark:

- To launch benchmark: “c:\UT2003Demo\System\Benchmark.exe”
- Select “1024x768” and click “Start” to launch demo

Unreal Tournament (1024x768x32)

- Click “Next” to install Unreal Tournament
- Click “I Agree” to accept “License Agreement”
- Click “Next” to install to default “Destination Location”
- Click “Next” to install default components
- Click “Install” to install Unreal Tournament
- Click “Finish” to complete installation
- Install Unreal Tournament patch: UTPatch436.exe
- Click “Next” to install Unreal Tournament patch
- Click “Next” to install to default “Destination Location”
- Click “Next” default CD-Rom location
- Click “Install” to install “Unreal Tournament patch”
- Click “Finish” to complete installation
- Copy “wicked405.dem” into “c:\unrealtournament\system”
- Execute “Play Unreal Tournament”
- Click “Next” for “First-Time Configurations”
- Click “Next” for “First-Time Configurations”
- Click “Next” for “First-Time Configurations”
- Click “Run” for “First-Time Configurations”
- Click “Options” and select “Preferences”:
 - Select “1024x768” “Resolution” and click “Yes” to accept change

- Select “32 bit” “Color Depth” and click “Yes” to accept change
 - Select “Min Desired Frame rate” type “0” and click “Close”
- Click “Game” and select “Quit”

To run the benchmark:

- Execute “Play Unreal Tournament”
- Hit “Esc” to enter main menu
- Click “Tools” in tool bar and select “Timedemo Statistics”
- Hit “Esc” to get to a black screen that only states "Unreal Tournament"
- Hit "~" to go into console mode
- Type “demoplay wicked405”
- Hit “Enter” followed by "~" to start benchmark
- Type "~" to view demo results