

<http://www.3dmark.com>

## CONGRATULATIONS!

**You have successfully installed 3DMark™ 99 MAX.**

We hope that 3DMark™ will help you in testing Your cutting edge hardware.

**This file contains important information about using 3DMark™ 99 MAX. Please read it through carefully before running 3DMark.**

## INTRODUCTION

3DMark(tm) is a benchmark that focuses on testing 3D performance of modern 3D accelerators in a "real world" environment. As most users will use their 3D accelerator for playing games, so 3DMark focuses on this type of application of the majority of it's results.

The 3DMark product line is a the most comprehensive benchmark platform available for testing *future game performance*. The input from our BETA program, game developers and users allows us to predict what is going to be important for future game playing. We are delighted to introduce **3DMark 99 MAX** as the next stage of benchmarking. 3DMark 99 MAX pushes the performance barrier again, and delivers on our promise to update the benchmark every six months.

3DMark 99 MAX is also a powerful tool for improving your 3D performance and it helps you in choosing new hardware.

## GENERAL INFORMATION

### IMPORTANT NOTE:

Benchmark Results are incompatible with the previous version of 3DMark 99. You should not compare the results of different versions.

### Terminology

- 3DMark 99 MAX is an update for 3DMark 99 Lite
- 3DMark 99 MAX Pro is a commercial version of the software, and an update for 3DMark 99 PRO.

### DirectX 6.1

3DMark 99 MAX Requires DirectX 6.1. You can download it from <http://www.microsoft.com/directx/download.asp> or through "Windows Update" function in Windows 98.

### CPU Optimization Status and Usage

This version includes three different 3D engine optimizations.

3DMark automatically selects the best optimization for your processor by default, but you can override the setting from Display and CPU Settings menu. Only settings that are compatible with your processor are available for selection.

3DMark has been optimized for the following platforms:

- AMD 3DNow!™ (runs on any 3DNow!™-capable CPU such as the K6-2 and K6-III)
- Intel® Pentium® III
- Intel® Processors  
(Optimized for Intel Celeron and Pentium II, but runs on any generic or older x87 compatible processors such as AMD K6).

**Minimum Requirements to use 3DMark:**

- Intel® Pentium® processor or compatible. Minimum 166MHz
- 32MB Memory
- Microsoft Windows 95 or 98.
- Microsoft DirectX 6.1
- A DirectX 6 compatible 3D accelerator

**Additional Recommendations for Testing:**

- 128MB of system memory
- Free hard disk space for Image Quality pictures
- Windows 95 OSR 2 or newer.

## TESTING GUIDELINES

In order to get accurate and repeatable results please make sure you note the following points when testing with 3DMark 99 MAX:

- **You must use same refresh rate, VSync setting and frame buffer mode for all tested 3D accelerators.**
- **You must use the same CPU Optimization on all 3D accelerators.**
- We recommend that you do not disable Vsync when benchmarking since not all accelerators support this feature. In any case, please remember to use the same Vsync setting (on/off) and refresh rate on all accelerators, otherwise the results will not be comparable.
- Stop all other programs. Under the 32-bit Windows operating systems, other tasks can preemptively run during the tests, thus affecting the results. You will want to eliminate as many of these types of tasks as possible. This action also maximizes your available memory.
- Disable any network connections and file sharing. Background network activity may affect results.
- Restart the computer before running the benchmark.
- Run the tests at least three times to verify that the results are reproducible.
- Follow a standard testing procedure each time you run the tests.
- We recommend that you test 3D accelerators on a "clean" system only. You should use a program like "Norton Ghost" (<http://www.ghost.com>) to restore a clean system for every 3d accelerator.

These measures help to ensure that your results are consistent.

Please also note that the testing guidelines have changed from previous version of 3DMark 99 because of changes in test methodology.

## **Important Changes Affecting Overall Score from 3DMark 99 to 3DMark99 MAX**

### **Frame Buffer Locking Behaviour Removed**

After the feedback we got from our BETA program participants, we decided to remove the locking behaviour from the game tests. This change, while making benchmarking a task requiring a bit more attention and care, brings us closer to the real world gaming performance measurement. This change increases performance most on highly parallel & pipelined 3D accelerators.

### **3D Engine Changes and CPU Optimizations**

Our investigations to CPU architectures and new SIMD-FP processors have led us to changing the internals of our 3D engine. This change was required to get the maximum performance out of every processor architecture. We have been co-operating heavily with Intel and AMD to provide the world with a realistic benchmark on current and soon-to-be released CPUs. These 3D engine changes have improved the performance radically (depending on platform).

### **Changed content in Game Tests**

All of the above changes affect the graphics performance of the system. As we aim to be a future-looking 3D benchmark, we have changed the content to utilize the added power and to better reflect future games.

### **Higher Scores**

To reflect the heavier content in this 3DMark version, we have increased the multiplier when calculating 3DMark overall score and Synthetic CPU 3D Speed score. The change does not have an effect on anything else.

## **Features in 3DMark**

### **3DMark 99 MAX continues to feature**

- **One Click Benchmarking - Get a single 3DMark score in less than 5 minutes**
- **Awesome Demo- A stunning Demo that is guaranteed to push your system setup to the ultimate limits. Featuring original sound track.**
- **Intuitive User Interface – 3DMark is fully tailored for the end users.**
- **Online Delivery – Download 3DMark™ 99 MAX from [www.3dmark.com](http://www.3dmark.com) and visit the resource centre for latest drivers and utilities.**
- **Powerful Result Browser - Slide, dice and compare**

with clinically accurate Result Browser that will make statistic easier than ever.

- **Extensive Quality Testing with Reference Pictures -** Use the comprehensive Quality Tests to unveil the true capacities of the card. Never before has comparing image quality been this easy.
- **System Diagnostics and information - System Info** will analyze and display everything in your system starting from the driver installation dates and ending to memory.
- **Flexible Benchmarking Tools - Use Templates** to save your settings for later references, **Projects** to keep up to date with individual cards and **Databases** to store projects.
- **Global Testing Environment - Compare Your results** over the Internet to see how you fare against the fastest computers on the Planet!

In addition to all of the highlights above 3DMark 99 MAX adds:

- **Bump Mapping Tests -** For the first time, you can see what emboss bump mapping is all about, and what works on which cards.
- **New in-between-test screens** to provide you with more detailed status information.
- **Hardware Upgrade Wizard –** An Internet tool that estimates the performance of the best five graphics cards as if they had been installed in YOUR PC.
- **3DMark now measures the refresh rate** used during testing.

Highlights in the Demo Mode

- "Armageddon" demo part with truly realistic sun generated with particle effects.
- **Real time animated morphing** with environment mapping
- **True multi-pass Radiosity Lighting** using Max-FX Technology(tm)
- **Real time shadows** with all 3D accelerators.
- **Texture rendering feedback effects.**
- **Photorealistic jungle** with a reflecting particle waterfall.
- **Original sound track** synchronized to the visuals

## **3DMark 99 MAX Pro Features**

- **All the basic functionality** of 3DMark 99 MAX
- **Additional Tests -** Choose from ten different additional tests to further analyze the nuances of your hardware.
- **Test Selection and Templates -** Save your portfolio of tests to be run into useful templates.
- **Batch Run –** Run all resolutions, color depths with a few clicks and go grab a coffee. When 3DMark finishes, change the display adapter and just let the

program work for you again.

- All available High Resolutions Modes - Blast away with all available resolutions up to 1600x1200.
- Increased Color Options - Don't settle for less, see the difference between 16-bit and True 32-bit colors.
- Advanced Display Settings - Free yourself to run on all advanced display setting including z-buffer and frame buffers.
- Dazzling High Resolution Demo - Devastate Your friends by running the demo in all available high resolutions up to 1600 x 1200.

3DMark Pro can be purchased on-line from <http://www.3dmark.com>

## PUBLISHING YOUR BENCHMARK RESULTS

When publishing results make sure that you do the following:

- Include the official 3DMark™99 MAX logo with the results. The logo can be found in the Press Info area at [www.3dmark.com](http://www.3dmark.com).
- Link to [www.3dmark.com](http://www.3dmark.com)
- Identify the systems setup that was used for benchmarking

Please refer to the [license agreement](#) and Press info in the 3DMark web for more detail on publishing results. The default setting should be used for generic references (i.e. 1780 3DMarks running on 800x600 resolution, 16 bit color, 16 bit z-buffer and triple buffering). The details required by the license agreement can be easily exported from Result Browser.

You may also present 3DMark score of your hardware or 3DMark requirements of your software if you follow the guidelines at Press info in the 3DMark web. Please contact [info@3dmark.com](mailto:info@3dmark.com) for more information.

## TAKING SCREEN SHOTS

You can easily take screen shots for publishing or comparison by pressing F12 at any time when running the program. All screenshots are automatically captured and stored into your installation directory as sequentially numbered .bmp files.

For example:

C:\Program Files\3DMark 99\shot0001.bmp

## DISTRIBUTION GUIDELINES

You are allowed to distribute the unregistered copy of 3DMark™ 99 MAX under following conditions:

- You will keep count on the number of distributed copies
- You will notify Futuremark Corporation that you are distributing the unregistered copies of 3DMark™ 99 MAX (distribution@futuremarkcorp.com) prior to the start of distribution
- You will inform Futuremark Corporation about the number of distributed copies upon request
- You will include the official 3DMark™ logo and web site (www.3dmark.com) in the media used for distribution
- You make reasonable effort to verify that you are distributing the latest version.

The software may not be distributed with commercial products without permission from Futuremark Corporation, with the only below mentioned exception of magazine cover-CD distribution. You may not charge from distributing the program under any conditions.

You may distribute the unregistered version of 3DMark™ 99 MAX on a magazine cover CD's with the following conditions:

- You will inform Futuremark Corporation how many copies you want to distribute prior to distribution (distribution@futuremarkcorp.com)
- You will include the official 3DMark™ logo and web site (www.3dmark.com) in the media used for distribution
- You make reasonable effort to verify that you are distributing the latest version.

Please make sure that you have carefully read and agreed with the [license agreement](#) from the 3DMark™ 99 MAX software package for detailed information about distributing the software prior to distribution.

## USING THE GLOBAL DATABASE

3DMark is a global testing environment. You can use the databaseto compare your setup with setups around the World and to choose best hardware for your setup. More information about global analysis can be found at [www.3dmark.com](http://www.3dmark.com).

Use the database to:

- See how FAST your system setup is compared to the rest of the world!
- Find out which 3D accelerator would be most beneficial to your system setup
- See who is the leading 3D accelerator manufacturer

- and who has the fastest hardware
- See the real time situation of fastest 3D accelerators around the globe
  - Find out who has the fastest processors

The database is available through the Result Browser or directly at [www.3dmark.com](http://www.3dmark.com)!

## UPDATES VIA INTERNET

If your machine is set up for Internet access, you can download updates to 3DMark, when they are available through the 3DMark web site at <http://www.3dmark.com>

## TROUBLESHOOTING Q&A

Please go to <http://www.3dmark.com/support> for up to date support and FAQ information plus current list of problems or compatibility issues with the program.

## 3DMark™ 99 Support

If you have problems running 3DMark or have any related questions, please take the following steps:

1. Read the [3DMark™ Frequently Asked Questions](http://www.3dmark.com) on [www.3dmark.com](http://www.3dmark.com). We have answered the most common questions and it is likely you will find an answer from there.
2. Make sure you have Microsoft DirectX 6.1 installed and working. If you don't have it yet, download [DirectX6.1](#) now.
3. If 3DMark doesn't run correctly with your 3D accelerator card, install the most recent display drivers. 3DMark requires DirectX 6.1 compatible display drivers.
4. If you have still problems with the display drivers, please contact your 3D accelerator card manufacturer's support department.
5. If the problem persists, feel free to contact us at [support@3dmark.com](mailto:support@3dmark.com). Please include at least the following information to the problem description if possible:
  - 3DMark project file (.3dp) as a file attachment. Create a project file doing the following: 1. Start 3DMark 2. Choose New benchmark 3. Save a project file (Save As... in the File menu)
  - Where in 3DMark the problem occurs
  - Detailed description of how the problem or bug can be reproduced

## WINDOWS 2000 AND NT

3DMark was written to operate under Windows 95 and Windows 98 and does not specifically support Windows 2000 and Windows NT 4.0. You may get it to run under

some version of Windows NT, but we do not provide any support for Windows NT users.

## **LEGAL**

**Intel, Pentium, Pentium II, Pentium III and Celeron are registered trademarks of Intel Corporation. K6, K6-2, K6-III and 3DNow! are registered trademarks of Advanced Micro Devices, Inc. DirectX, Windows 95/98 and Windows NT and Windows 2000 are registered trademarks of Microsoft Corporation.**

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