



## Process to Enforce 3DMark<sup>®</sup> Optimization Guidelines

Date: October 31<sup>st</sup>, 2003

### General

This document describes the process with which Futuremark<sup>®</sup> enforce the Optimization Guidelines published on September 23rd, 2003.

Only those 3DMark scores, which have been obtained with drivers that have passed Futuremark's review, are valid scores, which can be published according to the rules and requirements found in the software's end user license agreement. For instance, the exact driver version, with which the scores have been obtained, must be clearly presented in conjunction with the score.

The Optimization Guidelines for 3DMark are:

- 1. It is prohibited to change the rendering quality level that is requested by 3DMark.**
- 2. It is prohibited to detect 3DMark directly or indirectly. In its sole discretion, Futuremark may approve detection in order to fix a specified hardware error.**
- 3. Optimizations that utilize the empirical data of 3DMark are prohibited.**
- 4. Generic optimizations that do not violate the above rules and benefit applications in general are acceptable only if the rendering is mathematically consistent with that of Microsoft<sup>®</sup> DirectX<sup>®</sup> reference rasterizer.**

As a summary, all 3DMark specific optimizations are prohibited. Additionally, all generic optimizations that change the rendering quality requested by 3DMark, are prohibited.

### Enforcement

We enforce the rules with the help of:

- A process to inspect graphics card drivers and publishing results of the inspection
- Internal version of 3DMark, which is used for cross check review purposes

### Process to Inspect Graphics Card Drivers

The objective is to reach a state within the industry, where all new drivers fulfil the guidelines for 3DMark. It is in everyone's interest that hardware reviewers, end-users of Futuremark's products and OEMs know that they can trust the benchmark results they obtain with new drivers.

In general, Futuremark only accepts drivers for review if they have passed Microsoft<sup>®</sup> WHQL certification. In special cases, e.g. for an important new product launch, Futuremark can exceptionally review non WHQL certified drivers. This will be done only on a specific request.

If Futuremark suspects that a driver breaches the guidelines, it will contact the manufacturer immediately and demand an explanation or corrective action within one week.

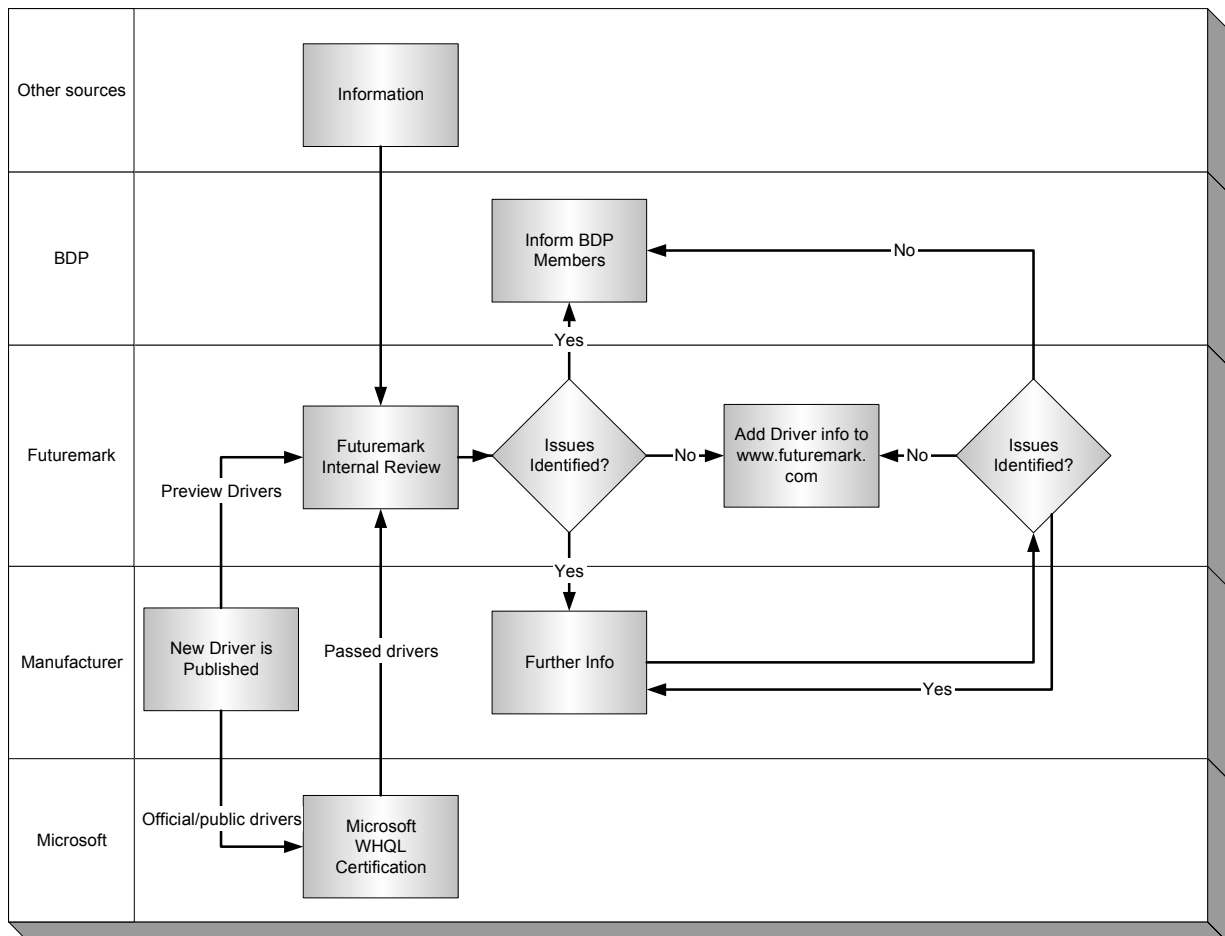


There are two possible outcomes of the above:

- 1) Futuremark's suspicion was proved to be wrong and in fact the driver met the Optimization Guidelines. In this case, Futuremark informs its BDP members of the results and publishes information of the driver in its web pages with status: 'Reviewed'; or
- 2) The driver did not fulfill the Optimization Guidelines. In this case, Futuremark informs its BDP members of the results and does not publish information of the driver on its web site

If reasonable evidence is provided, a driver can still be reviewed again at a later time. Futuremark gathers feedback from users of its products, and will make further inspections if needed.

Below is a block diagram of the driver inspection process.



### **New Driver Is Published**

This is the stage when manufacturer ships a driver to Microsoft for WHQL certification. In special cases, a manufacturer can ship a driver for Futuremark's review that is not WHQL certified yet.



### **Futuremark Internal Review**

- WHQL passed drivers: In general, Futuremark only reviews drivers that have passed Microsoft's WHQL certification.
- Preview Drivers: On manufacturer's request, Futuremark can inspect a driver that has not been WHQL certified.

Futuremark reviews the driver with internal version of 3DMark and other tools.

### **Further Information**

If Futuremark's internal review leads to suspect any potential issues with 3DMark, Futuremark will contact the driver developer to request further information.

### **Inform BDP Members**

Futuremark informs BDP members about potential issues found in driver it has reviewed. Futuremark also informs BDP members if the suspected issues did not exist and the driver was found to be fulfilling the guidelines.

### **Add Driver Info To The Web Site**

Futuremark adds information to its web site of those drivers, which have passed the review with no known issues. Driver's status is 'Reviewed'. This is the driver for obtaining valid 3DMark03 scores.

### **Internal Version of 3DMark03**

Futuremark has internal builds of 3DMark for testing purposes, which will not be distributed to the BDP members or to the public. These versions are otherwise the same as the public version, but amended so that any potential 3DMark specific detection mechanisms in drivers will be revealed. Futuremark will use the internal version to check that a chip's performance is similar to the public version.

Futuremark will also use the internal builds to compile a list of the top performing graphics chips. This list will be the new 'Hall of Fame' list (TBA).

### **Next Phase**

The next step in enforcing the guidelines will be a release of a new build of 3DMark03. There will be both full version, and a patch. The patched version with drivers that are listed on Futuremark's web site as 'Reviewed', will produce a valid 3DMark result.

Futuremark has tested the most popular hardware of most IHVs with default benchmark runs. Use of Anti Aliasing, Anisotropic Filtering or any other feature which is not a default setting, has not been tested or verified. Futuremark will continue to test and investigate the latest drivers with such features turned on, and report its findings to the public as soon as possible.

### **Questions?**

If you have any questions about the described enforcing process, need more information about of anything of the above, please contact us at:

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## Additional Resources

Optimization Guidelines:

<http://www.futuremark.com/pressroom/pressreleases/?092303>

Optimization Guidelines QA:

[http://www.futuremark.com/companyinfo/Optimization\\_Guidelines\\_QA.pdf](http://www.futuremark.com/companyinfo/Optimization_Guidelines_QA.pdf)