



BAPCo[®] SYSmark[®] 2012 User Guide

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Introduction

SYSmark® 2012 is an application based, system performance benchmark designed to assist users in making PC purchasing decisions.

Setup

Before attempting to install or run SYSmark 2012, verify that the test system meets the recommended minimum system configuration for running the benchmark.

- **CPU:** 1.8 GHz dual core processor
- **RAM:** 2 GB
- **HDD/SSD:** 50 GB of free space on the primary drive
- **Operating System:** Microsoft® Windows® 8 64bit (with .NET Framework 3.5 enabled), Microsoft® Windows® 7 64-bit, and Microsoft® Windows® Vista 64-bit
- **Resolution:** 1024x768
- **Graphics:** DirectX 9 compatible

Image configuration

For best results, SYSmark 2012 should be installed to a clean instance of a supported operating system, with updated hardware drivers. See the [Applications](#) section for a list of application software installed by the benchmark. A list of general image configuration guidelines is provided below. Note that SYSmark 2012 now includes an integrated configuration tool that will automate the configuration of many of these items. See the [Usage](#) section for more details.

- **Administrative rights:** An account with administrative privileges is required. Use the same account to install and run SYSmark 2012.
- **User Account Control:** Disable UAC on the test system.
- **Uninstall known conflicting software:** Pre-existing software installations may conflict with the software installed by SYSmark 2012.
- **Require password on wake up:** Disable this option under the advanced power management properties for the profile being used for the test.
- **Screen saver:** Disable screen saver.
- **Windows Defender:** Disable Windows Defender.
- **Firewalls:** Disable any firewall software.
- **Windows Update:** Disable Windows update.
- **Anti-virus software:** Uninstall AV software.

SYSmark® 2012 installation

Note: Microsoft .NET Framework 3.5 must be enabled or installed prior attempting to install SYSmark 2012 on Windows 8 systems. Follow the steps below to enable or install .NET Framework 3.5.

- Install/Enable .NET Framework 3.5 on Windows 8 systems
 - Prior to installing SYSmark 2012, connect the system to the Internet
 - Locate the file “dotnetfx35.exe” on the root of the SYSmark 2012 installation DVD 1
 - Double click “dotnetfx35.exe” to launch the .NET Framework 3.5 installer
 - After installation completes
 - Disconnect the system from the Internet
 - Re-attempt installation of SYSmark 2012.
 - Additional installation methods are listed at the link below
 - <http://msdn.microsoft.com/en-us/library/hh506443.aspx>

To install SYSmark 2012, insert DVD 1 from the installation media set into the test system's optical drive. Launch SYSmark2012_Setup.exe and follow the prompts to install the benchmark software. If User Account control has not been turned off please right click the SYSmark2012_Setup.exe file and choose 'Run as Administrator' from the context menu.



Figure 1: SYSmark 2012 installer window.

A serial number is provided with the benchmark purchase. Record the serial number for safe keeping, as it will be required for installation.

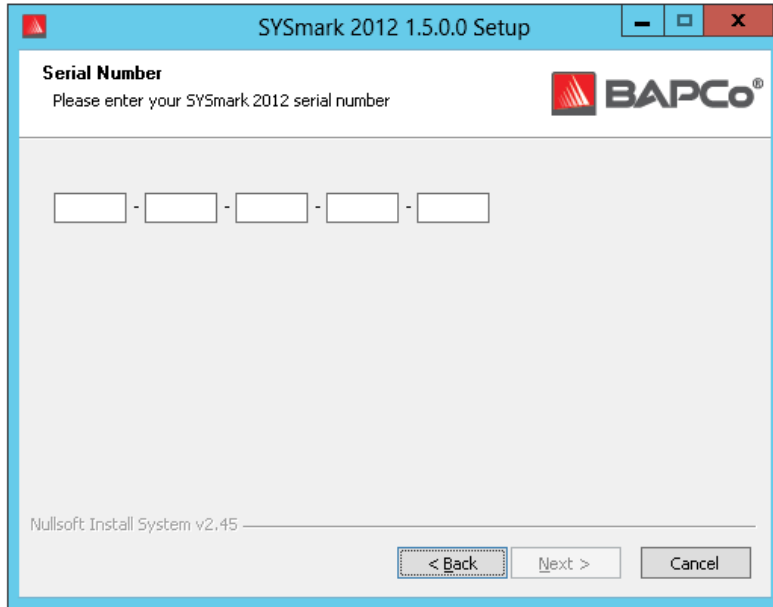


Figure 2: Enter your provided SYSmark 2012 serial number to proceed with installation.

Figure 3 shows the default full installation of the benchmark. All core components, all scenarios and the results browser will be installed.

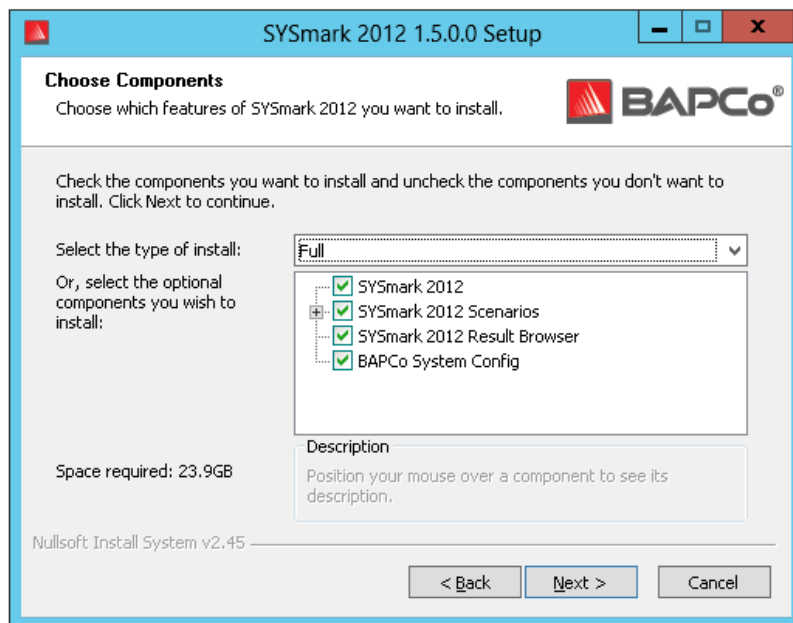


Figure 3: Default full install of SYSmark 2012

The installer also supports custom installation options as shown in Figure 4. Uncheck the components you do not wish to install. The SYSmark® 2012 component is required when installing any benchmark scenario. Scenarios not installed will not be available for selection when running the benchmark. Note:

To obtain an overall system performance score and FDR valid for publication at www.bapco.com/support/fdrs all scenarios must be completed.

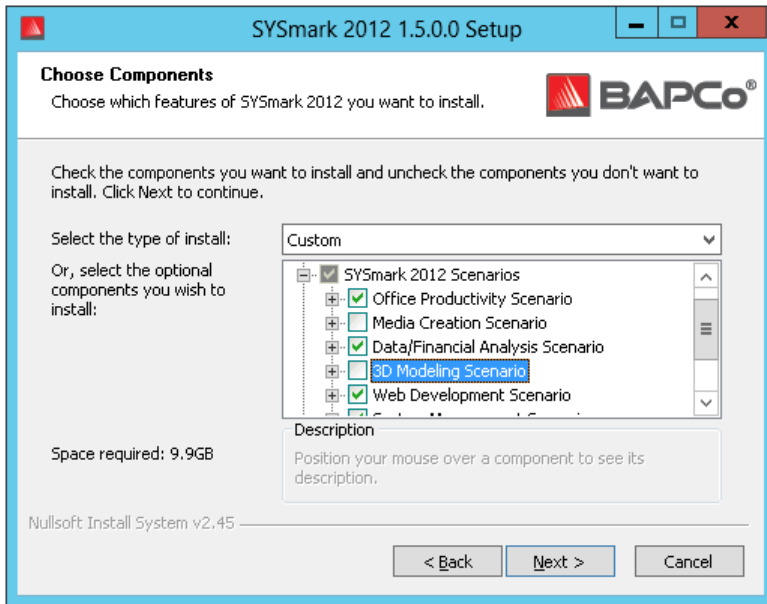


Figure 4: Uncheck the components for custom installation.

Upon successful completion of installation, SYSmark 2012 will display a window as shown in Figure 5 below



Figure 5: Installation of SYSmark 2012 has completed successfully.

SYSmark 2012 may also be installed through the command line. Replace xxxxx-xxxxx-xxxxx-xxxxx-xxxxx with your provided serial number. The following command line switches are available:

- /S - silent install, no GUI
- /SN=<serial number> - install with supplied serial number
- /SerialNumber=<serial number> - install with supplied serial number
 - Both /SN and /SerialNumber are case insensitive

Command line installation example

To install SYSmark 2012 from the command line, open a command prompt, change to the directory where the SYSmark2012_Setup.exe file is located and issue the following command.

```
C:\>start /wait SYSmark2012_Setup.exe /S /SN=xxxxx-xxxxx-xxxxx-xxxxx-xxxxx
```

Installer exit codes

When complete, the installer will return an exit code (stored in %ERRORLEVEL%). See below for the exit codes and their meanings:

- 0 - Success
- 3010 - Success, reboot required
- 1 - Installation abort by user
- 2 - General installation problem
- 3 - Missing or invalid serial number
- 4 - The following applications must be uninstalled before installing SYSmark 2012
- 5 - SYSmark 2012 (64-bit) can only be installed on 64 bit machines
- 6 - SYSmark 2012 installer is already running
- 7 - Installer must be run from the top level installer: SYSmark2012_Setup.exe
- 8 - Disc 2 version does not match the version in Disc 1
- 9 - Application installation missing. Invalid installation. Please uninstall and reinstall SYSmark 2012
- 10 - Installation directory must be less than 145 characters.
- 11 - Installer cannot find Disc2 media

Usage

The SYSmark 2012 interface may be launched by

- Double clicking the SYSmark 2012 desktop icon
- Navigating to C:\Program Files (x86)\BAPCo\Sysmark2012\bin\ directory in Windows Explorer and double clicking the SYSmark 2012.exe file
- From the Start menu: Start>All Programs>BAPCo and clicking the SYSmark 2012 menu icon

Important: If User Account Control has not been previously disabled, right click the icon and choose 'Run as administrator'. UAC can then be disabled using the integrated configuration tool. More information on the integrated configuration tool is available in the Automated Configuration section below

The benchmark interface window will open as illustrated in Figure 6:

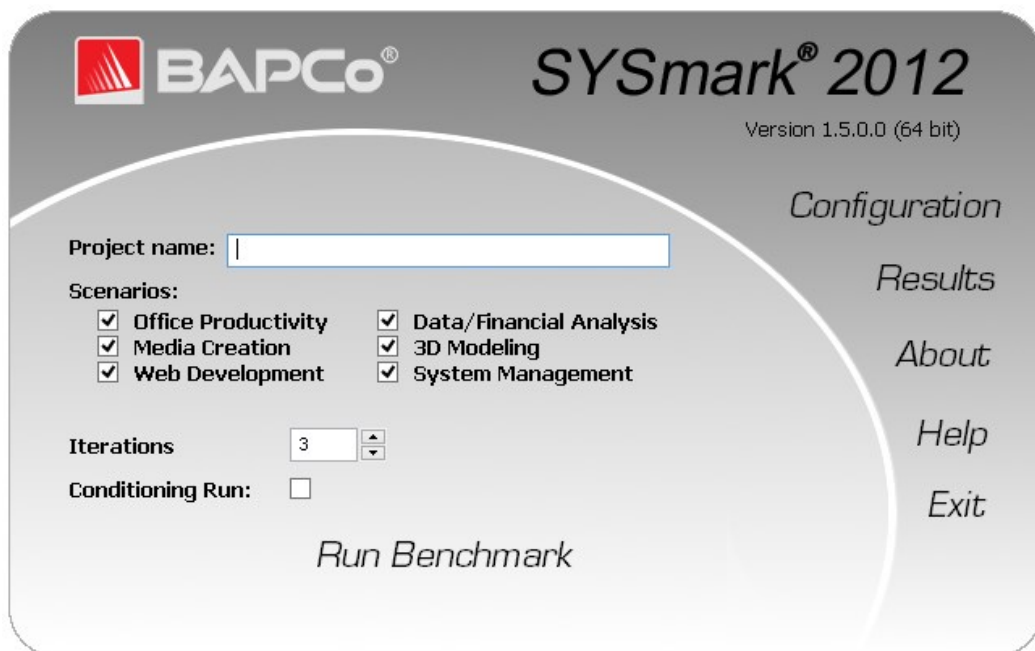


Figure 6: SYSmark 2012 interface shown with default scenario and iteration selections. Notice that the conditioning run is not selected by default.

Launch benchmark project from GUI

- Project name: Type the desired project name in the 'Project name' field. Spaces and underscores are permitted. Special characters such as (*,\$,@,) are not supported in project names
- Scenarios: Default value: selected if installed. Scenarios not installed at install time are not available for selection in the GUI. Note: All six scenarios must be installed and selected for execution at project run time to produce an overall score and FDR valid for publication
- Iterations: Default value: 3. The user may adjust this value as required
- Conditioning run: Default value: not selected. Selecting the conditioning executes one iteration of the selected scenarios prior to executing the rest of the project to aid in stabilizing the system for repeatable results. The project FDR will indicate whether the conditioning run was executed. However, if executed, the conditioning run will not be included in the final scores for the project.
- Click the 'Run Benchmark' button to kick off the project

Automated Configuration

New for SYSmark 2012 , BAPCo has integrated a system configuration tool into the benchmark GUI to better assist users with configuring the system prior to executing the benchmark. This new integrated function is accessed by clicking on the 'Configuration' button, as indicated by the red arrow in the Figure 7 below.

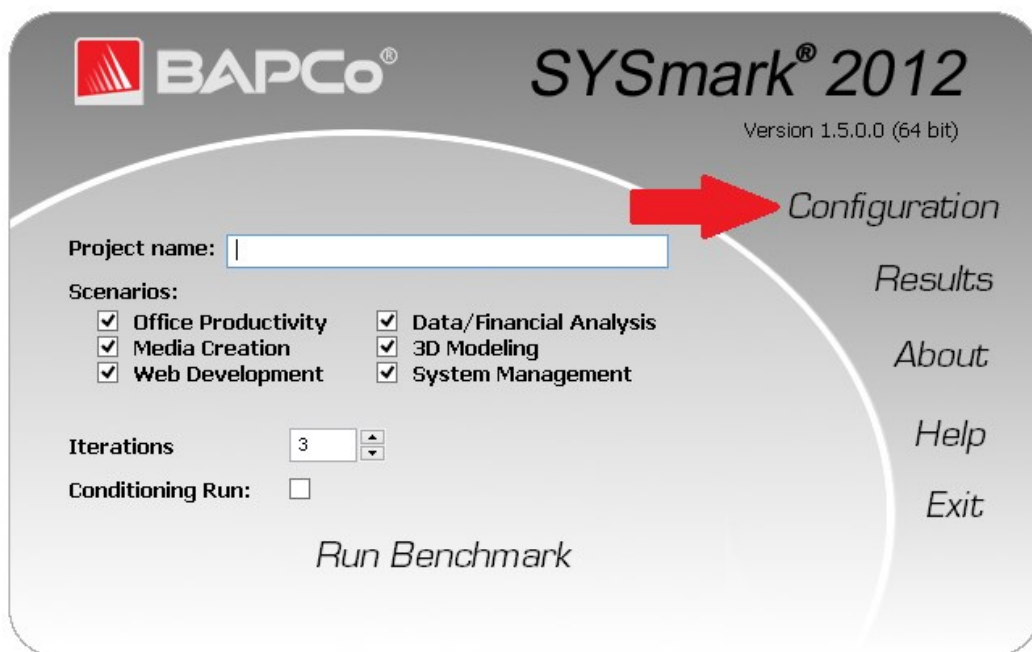


Figure 7: SYSmark 2012 configuration button

The configuration tool window will display the options available for configuring the test system, as pictured in Figure 8 below. Note that Figure 8 displays the options that appear under Windows 7. Windows Vista supports a different set of options. Additional details are provided below.

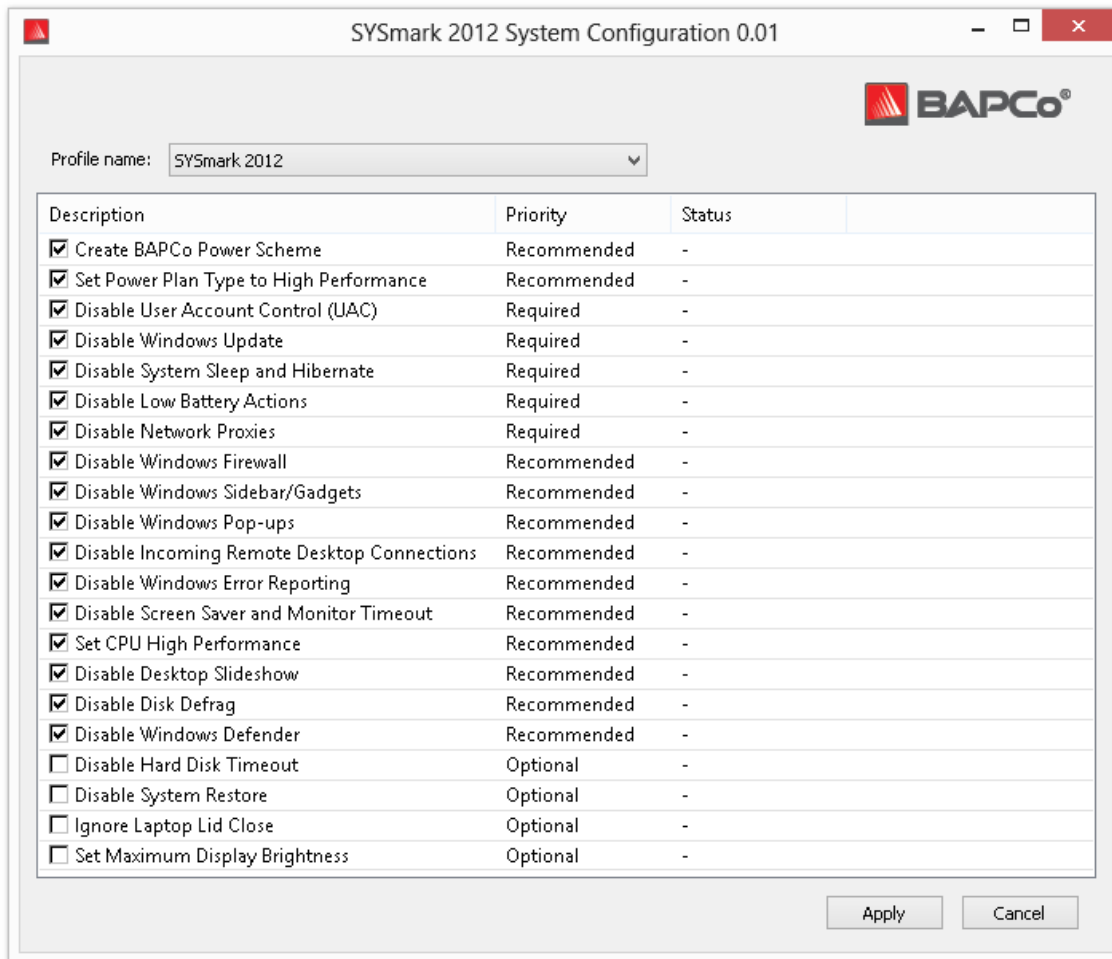


Figure 8: SYSmark 2012 configuration options

System Configuration Tool Items List

The following is a list of configuration options with their priorities that can be applied using the System Configuration tool. The settings below apply to both Windows 7 and Windows Vista, unless otherwise noted.

Required

Make configuration changes that are required for the benchmark to run. These items are checked by default.

Recommended

Make configuration changes that are recommended in order to obtain repeatable scores. Recommended items are checked by default. Recommended items may be disabled by unchecking the corresponding box.

Optional

Make configuration changes that are typically not needed to obtain repeatable scores, but which may be needed in some rare cases. Optional items are not checked by default.

Create BAPCo Power Scheme – Recommended

Creates a new power scheme named "BAPCo SYSmark 2012" based on the system's currently active power scheme. If applied, all subsequent power profile configuration changes will be applied to the newly created power scheme. If this option is not checked, all power profile configuration changes will be applied to the currently active power scheme.

Set Power Plan Type To "High Performance" – Recommended

Sets the "Power Plan Type" option (sometimes referred to as "Power Plan Personality") of the active power scheme to "High Performance". This setting tags the active power plan with an overall personality that favors performance over energy savings. Drivers and applications may query this setting to determine their respective performance vs energy savings behavior. This option may be used whether or not the "Create BAPCo Power Scheme" option is checked. If "Create BAPCo Power Scheme" is unchecked, "Set Power Plan Type" will be applied to the currently active power scheme.

Disable User Account Control (UAC) – Required

Disables User Account Control to prevent Administrator elevation prompts from appearing during benchmark runs. The system must be rebooted to apply this change.

Disable Windows Update – Required

Stops and disables the Windows Update service. Prevents the Windows Update service from starting and/or checking for updates during benchmark runs.

Disable Sleep and Hibernate – Required

Prevents the system from going to sleep or hibernate and disables the "Require password on wake" setting.

Disable Low Battery Action – Required

Prevents the system from shutting down or posting a warning when the battery reaches the low level.

Disable Network Proxies – Required

Disables proxy server configuration for Internet connection settings.

Set DPI Scaling to 100% - Required

Sets DPI scaling to 100%. Prevents automation errors that may be encountered on higher resolution displays.

Disable Windows Firewall – Recommended

Stops and disables the Windows Firewall service. Prevents blocking of application functions during the benchmark run.

Disable Windows Sidebar/Gadgets – Recommended

Windows 7: Turns off Gadgets. *Windows Vista:* Turns off the Vista Sidebar, and prevents Sidebar from starting at log in.

Disable Windows Pop-ups – Recommended

Disables all pop up notifications (Balloon tips) in the systray

Disable Incoming Remote Desktop Connections – Recommended

Denies remote desktop connection requests from remote systems.

Disable Windows Error reporting – Recommended

Prevents Windows Error reporting tool from presenting error reporting windows.

Disable Screen Saver and Monitor Timeout – Recommended

Turns off the screen saver. Disables display timeout in the power profile for both AC and DC options.

Set CPU High Performance – Recommended

Windows 7: Sets the minimum and maximum value for CPU performance state to 100% to prevent CPU throttling on both AC and DC power.

Set CPU High Performance (Vista) – Recommended

Windows Vista: Sets CPU power C-state to High Performance for AC and DC power. Sets CPU power P-state to High Performance for AC and DC power. Sets the minimum and maximum value for CPU state to 100% to prevent CPU throttling on both AC and DC power.

Disable Desktop Slide Show – Recommended

*Windows 7 :*Prevents the desktop background from changing.

Disable Disk Defrag – Recommended

Disables the Defrag scheduled task.

Disable Hard Disk Timeout – Optional

Prevents the hard disk from going to sleep

Disable Windows Defender – Optional

Windows 7 and Vista: Stops and disables the Windows Defender Service.

Windows Vista: Disables starting of Windows Defender application at log in.

Disable System Restore – Optional

Prevents System Restore from attempting to create restore points.

Ignore Laptop Lid Close – Optional

Prevent closing of Laptop lid from suspending the system.

Set Maximum Display Brightness – Optional

Windows 7: Sets display brightness to 100%. Sets dimmed display brightness to 100%. Sets "Dim Display After" value to "Never".

Windows Vista: Sets display brightness to 100%.

Set High Performance Indexing – Optional

Windows Vista: Sets Vista search and indexing power saving mode to high performance.

Launch System Configuration Tool from command line

The System Configuration Tool may be launched from the command line. Using the paramters below.

-p or -- profile="ProfileName"	Specifies the configuration profile to apply. Profile names are case sensitive, and must be listed in the SystemConfig.xml file. The default profile is: SYSmark 2012
-----------------------------------	---

-h or --help	Displays the help dialog
--------------	--------------------------

Example command line

```
"C:\Program Files (x86)\BAPCo\Sysmark2012\bin\System Configuration.exe" -p="SYSmark 2012"
```

Launching a benchmark project from command line

SYSmark 2012 also supports execution from the command line. Supported command line parameters are provided in the list below. The SYSmark 2012 GUI will launch if there are syntax errors in the command line text.

-p or --project	Specifies the name of the project. This option determines if the GUI is presented to the user, or if the benchmark runs silently. If this option is supplied, it is assumed that the GUI should not appear.
-i or --iterations	Specifies the number of iterations to run. This must be greater than 0. The default is 3.
-r or --retries	Specifies the number of retries when a script error occurs. The default is 5.
-w or --retrywait	Specifies the amount of time in seconds to wait before a retry. The default is 120 seconds.
-s or --scenarios	Specifies a comma separated list of scenario (groups) that should be run. The default is to run all scenarios that are selected in the aggregation template. This will normally be: OP, MC, WD, FA, 3D and SM.
-c or --conditioning	Turns on system conditioning run. The default is off.
-h or --help	Displays the help screen.
-v or --verbose	Turns on verbose mode. The default is off.

Example command line

```
"C:\Program Files (x86)\BAPCo\Sysmark2012\bin\SYSmark 2012.exe" -p test_project -i 4 -s OP,MC,FA
```


Tips For Usage

This subsection describes the behavior SYSmark 2012 during the execution of a benchmark run.

Heads Up Display (HUD)

The Heads Up Display appears in the upper right corner of the desktop and provides information about the currently running project



Figure 9: BAPCo Heads Up Display.

Process idle tasks

Prior to executing benchmark workloads, the SYSmark 2012 workload manager will pause for 120 seconds to allow the system to stabilize. When the 120 seconds has elapsed, the workload manager will issue the process idle tasks command. When the idle tasks queue is cleared, the benchmark workload will begin. Note: Process idle tasks completion time can vary from system to system.

Keyboard/mouse input blocking

Once workload execution begins, the workload manager will the lock system to prevent accidental input from the mouse or keyboard from disrupting the workload automation. The workload manager will continue to execute the selected scenarios for the current project, and will display the results at the successful conclusion of the run. Refer to the Stopping a run in progress section below for additional information on keyboard and mouse input blocking.

Error handling

By default, when SYSmark 2012 encounters an error during the execution of a project, the workload manager will log the error and then present the user with the retry dialog, as pictured in Figure 10 below.

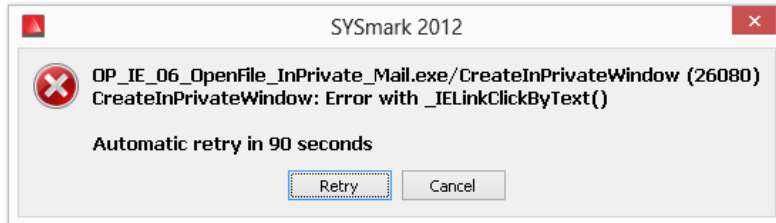


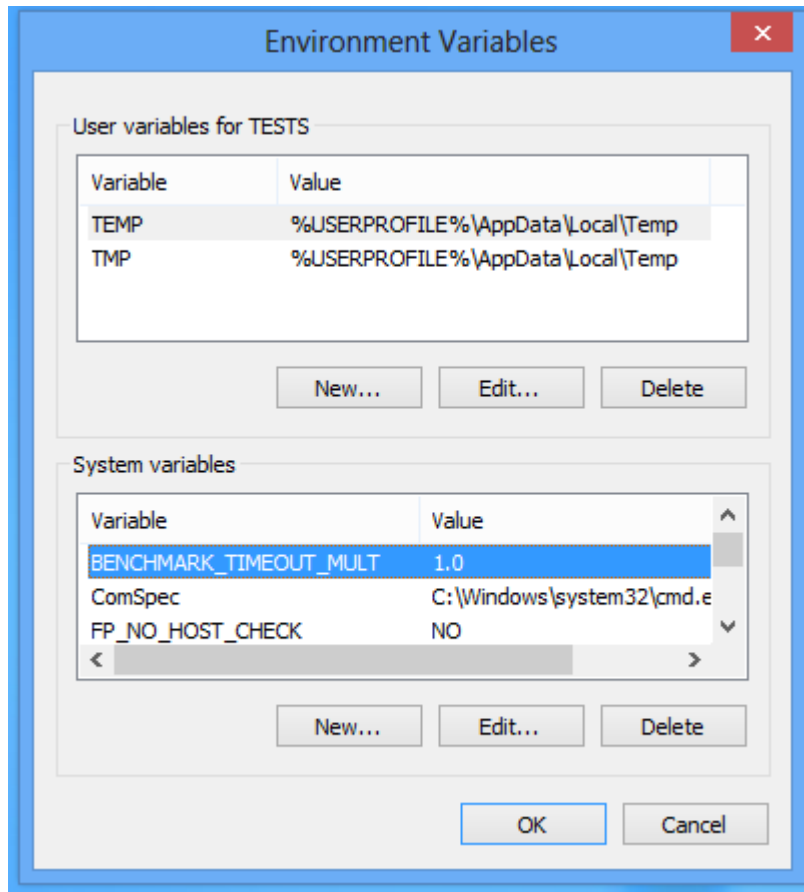
Figure 10: SYSmark 2012 retry dialog

Unless otherwise configured on the command line with `-r` or `--retries`, SYSmark 2012 will attempt to retry a scenario up to five times. The default timeout between an error and scenario retry is 120 seconds. This value can be changed on the command line using `-r` or `--retrywait`. If the scenario cannot be successfully completed before the retry threshold is reached, the workload manager will halt execution and display the error message in the results browser.

Increasing timeout tolerance

SYSmark 2012 allows further control of error handling timeouts through the `BENCHMARK_TIMEOUT_MULT` environment variable. This variable can be configured to increase the amount of time a benchmark script waits before throwing an error and either attempting a retry or halting the run. The default value for `BENCHMARK_TIMEOUT_MULT` is 1.0. Increasing the value to 2.0 doubles the error handling timeout, 3.0 triples the timeout, and so on. Note that this environment variable is created during benchmark installation, and is not available until the installation has completed. Access the `BENCHMARK_TIMEOUT_MULT` variable by following the steps below:

- Navigate to: Control Panel>System and Security>System> Advanced system settings
- Click 'Environment Variables' and scroll down until "BENCHMARK_TIMEOUT_MULT" is visible
- Highlight the variable and click the Edit button to change the value
- When finished, close all dialog boxes and execute the benchmark run as usual



Stopping a run in progress

If it becomes necessary to stop a benchmark run in progress, follow these steps:

- Depress the CTRL-ALT-DEL keys at the same time, bringing up the Windows change password screen
- Click 'Cancel' to return to the desktop
- Keyboard and mouse input should now be enabled
- Navigate to the systray in the lower right corner of the screen and find the BAPCo icon, as shown in Figure 11 below
- Right click the icon and choose 'Stop'



Figure 11: BAPCo icon. The green triangle indicates that SYSmark 2012 is running

Results browser

The SYSmark 2012 results browser adds new functionality to the results browser from SYSmark 2007. New features include:

Double click support for viewing single FDR

Double clicking on an FDR file will launch the results browser, load and display that FDR. Double clicking another FDR file will display the FDR in the browser window. Previously loaded FDRs will be available from the results browser drop down menu.

Drag and drop support for viewing multiple FDRs

Drag and drop an FDR file on the open results browser window, and the FDR will be displayed. Multiple FDRs may also be selected, dragged and dropped onto the results browser window. The results browser will display one FDR, the other selected FDRs will be available from the drop down menu.

Save FDR to PDF for distribution

Generated FDRs may be exported to PDF for easier distribution. Save to PDF by first loading the desired FDR into the results browser. Once the FDR is displayed, click the 'Save Results' button in the lower right corner of the results browser window. The Windows save file dialog will appear. The default file path is C:\Program Files (x86)\BAPCo\SYSmark2012\Results\. Select the path and choose a file name. Finally, choose 'PDF (*.pdf)' from the 'Save as type' drop down and click 'Save'.

Standalone installation support

The SYSmark 2012 results browser supports standalone installation, allowing the user to view FDRs quickly and easily on almost any system. To install the results browser, follow the steps below.

- Launch the SYSmark 2012 installer from DVD 1
- Enter a valid serial number and click 'Next'
- Accept the license agreement and click 'Next'
- Under the 'Select type of install' option, choose 'Custom'
- Uncheck the 'SYSmark 2012' and the 'SYSmark 2012 Scenarios' component
- Be sure the 'SYSmark 2012 Results Browser' component remains checked and click 'Next'
- Click 'Next' to accept the default location
- Click the 'Install' button
- Click the 'Finish' button to close the installer window

Launch the Results browser by

- Double clicking the desktop icon
- Double clicking any FDR file
- Navigating to the Start menu>All Programs>BAPCo and clicking the SYSmark 2012 Results Browser icon

Viewing results

Upon successful completion of a project, SYSmark 2012 launches the results browser and loads the Full Disclosure Report (FDR) for the project as shown in Figure 12. The first portion of the results browser window displays the test summary for the project.

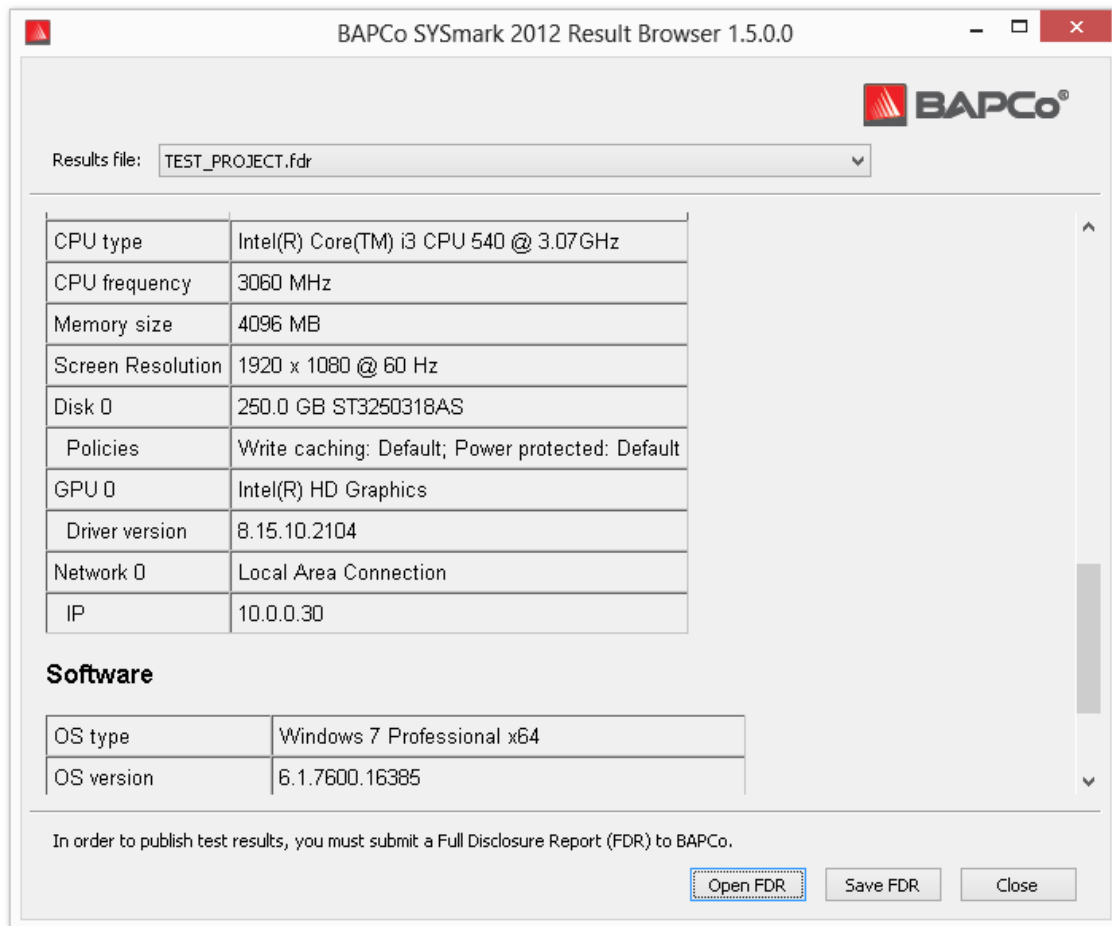


Figure 12: Project Test Summary

Scroll down in the window to view the table of scores, as shown in Figure 13.

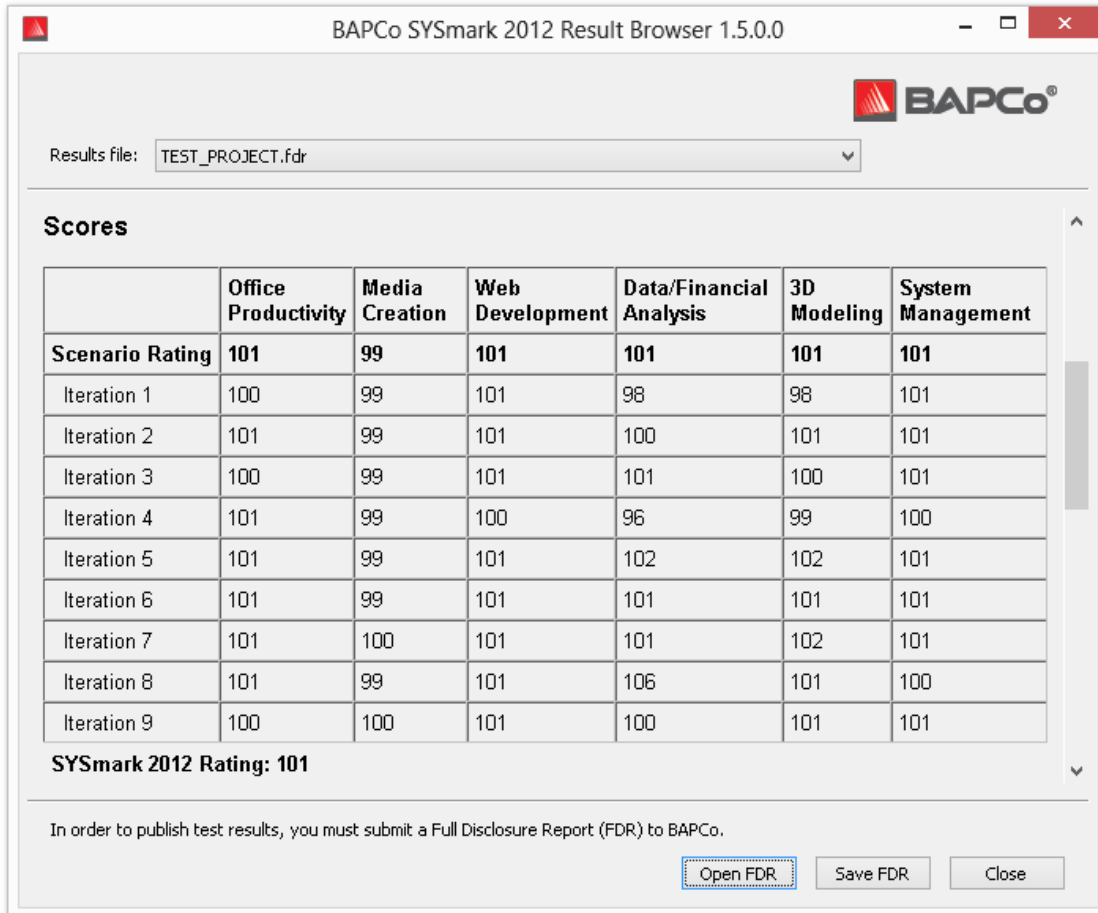


Figure 13: Project scoring information. In this example, an overall score is not displayed because only three of the six available scenarios were executed for the example project.

Reference system

SYSmark 2012 scores are normalized using a reference system. The reference system scores '100' on each of the six scenarios, and on the overall SYSmark 2012 rating. The reference system configuration is listed below.

Lenovo M90 Series Tower

- Processor: Intel Core i3-540 Processor (3.06 GHz,4 MB Cache)
- Operating System: Windows 7 Professional 64-bit
- RAM: 4 GB PC3-1333 MHz SDRAM (2 DIMMs)
- Graphics: Integrated Video
- Audio: Integrated High Definition Audio

- HDD: 250 GB capacity, 8 MB Cache, 7200 RPM SATA II
- Optical Drive: DVD Recordable
- Networking: Integrated Gigabit Ethernet

Publishing results

BAPCo encourages users to submit FDRs (Full Disclosure Reports) generated from Official Runs of SYSmark® 2012 for publication at www.bapco.com. An Official run of the benchmark requires that all available scenarios be completed and scored. Conditioning runs may be executed as part of an Official Run submitted for publication. To submit the FDR to BAPCo, follow these steps:

- Load the desired FDR into the results browser, or, if the Official Run has just completed, the corresponding scores will already be displayed in the results browser window
- Click the 'Save Results' button in the lower right corner of the results browser window
- The Windows save file dialog will appear. The default file path for saving FDRs is C:\Program Files (x86)\BAPCo\SYSmark2012\Results\
C:\Program Files (x86)\BAPCo\SYSmark2012\Results\
C:\Program Files (x86)\BAPCo\SYSmark2012\Results\
C:\Program Files (x86)\BAPCo\SYSmark2012\Results\
- Select the desired path and choose a file name
- Choose 'PDF (*.pdf)' from the 'Save as type' drop down and click 'Save'
- Email the PDF to report@bapco.com

Applications

The following applications (grouped by scenario) are installed and/or used by SYSmark 2012. Some applications appear in multiple scenarios, but only one instance of the application is installed.

3D Modeling

- Adobe® Photoshop® CS5 Extended
- Autodesk® 3ds Max® 2011
- Autodesk® AutoCAD® 2011
- Google SketchUp™ Pro 8

Data/Financial Analysis

- Microsoft® Excel® 2010

Media Creation

- Adobe® Photoshop® CS5 Extended
- Adobe® Premiere® Pro CS5
- Adobe® After Effects® CS5

Office Productivity

- ABBYY® FineReader Pro 10.0
- Adobe® Acrobat® Pro 9
- Adobe® Flash® Player 10.1
- Microsoft® Excel® 2010
- Microsoft® Internet Explorer® 8 (or newer version, if already installed)
- Microsoft® Outlook® 2010
- Microsoft® PowerPoint® 2010
- Microsoft® Word 2010
- WinZip® Pro 14.5
- Mozilla® Firefox® 20.0.1

System Management

- Mozilla® Firefox® Installer (several versions)
- WinZip® Pro 14.5
- WinZip® Command Line 3.2

Web Development

- Adobe® Photoshop® CS5 Extended
- Adobe® Premiere® Pro CS5
- Adobe® Dreamweaver® CS5
- Mozilla® Firefox® 20.0.1
- Microsoft® Internet Explorer® 8 (or newer version, if already installed)

Scenarios

SYSmark 2012 scenarios and workload descriptions are provided below.

3D Modeling

This scenario focuses on creating, rendering, and previewing 3D objects and/or environments suitable for use in still imagery. The creation of 3D architectural models/landscapes and rendering of 2D images and video of models are also included.

Data/Financial Analysis

The Data/Financial Analysis scenario creates financial models to review, evaluate and forecast business expenses. In addition, the performance and viability of financial investments is analyzed using past and projected performance data.

Media Creation

The Media Creation scenario models using digital photos and digital video to create, preview, and render a video advertisement for a fictional business.

Office Productivity

The Office Productivity scenario models productivity usage including word processing, spreadsheet data manipulation, and email creation/management. Web browsing is also included.

System Management

The System Management scenario models the creation of data backup sets and the compression, and decompression of various file types. Updates to installed software are performed.

Web Development

The Web Development scenario models creating a website for a fictional company

Support

Technical support for SYSmark 2012 is provided through support@bapco.com. When contacting support please include the following information.

- SYSmark 2012 version, eg, 1.0.0.123
- System configuration information
- Step by step instructions for reproducing the problem
- Rate of error, eg, 100%, 50%
- Archive of the benchmark error logs from the failing run
 - Locate the error folder: C:\Program Files (x86)\BAPCo\Sysmark2012\Results*Project_name*\Errors\
 - Locate the benchmark installation logs:
 - %TEMP%\Sysmark2012_Disc1.log
 - %TEMP%\Sysmark2012_Disc2.log
 - Locate the System Config Tool log (note: this file exists only if the System Config Tool was used to configure the system)
 - C:\Program Files (x86)\BAPCo\Sysmark2012\bin\Results\systemconfig.txt
 - Archive the error folder and the logs listed above using WinZip, WinRAR, etc
 - Attach the archive file to the support request email sent to BAPCo support
 - When reporting multiple errors, please include an error archive for each problem being reported

SYSmark® 2012 Benchmarking Rules

This document describes the rules governing publication of results derived from running the BAPCo SYSmark 2012 benchmark. Any licensee who wishes to publish such results is obliged to adhere to all rules and regulations described in this document or other documents provided by BAPCo related to execution and reporting of SYSmark 2012 benchmark results. BAPCo reserves the right to change the rules outlined in this document at any time. Licensees are encouraged to consult BAPCo website at www.bapco.com for the latest information regarding execution and publication rules. For more information please consult the Software License Agreement.

Benchmark Execution

Workload Manager: All benchmarks must be run using the SYSmark 2012 Workload Manager. This utility is an executable program that runs the SYSmark 2012 benchmark. It also includes a module that generates the final benchmark results for the system under test. All published results must be derived only from a complete and correct run of the benchmark. All tests must be performed without modification to any part of the SYSmark 2012 software.

The collective set of hardware and software used in generation of an official SYSmark 2012 result must be available to the public as defined by BAPCo's availability criteria. The following specific rules apply:

Operating System: The operating system used to generate and publish results must be a publicly available release from the original software vendor. Consult the product manual at www.bapco.com for the current list of supported operating systems. Upgrade of specific drivers that are released and maintained by vendors other than the operating system vendor (e.g. graphics drivers, disk drivers, motherboard setting files, multimedia drivers) is allowed provided these drivers are publicly available, release-quality drivers from original vendors of such drivers. Licensees may also use operating system service packs, API updates (e.g. Direct X) and other such updates provided they are publicly available, release-quality software from the original vendor, and that they meet the benchmark's Operating System requirements. Licensees should also consult license agreements from individual software vendors to ensure compliance with vendor benchmark restrictions.

Performance Enhancing Utilities: Use of performance enhancing utilities or techniques is allowed provided that the utility or technique is publicly available, release-quality software from the original vendor. The utility needs to be documented and such techniques should not compromise the integrity of the system under test or the benchmark. BAPCo shall reserve the right to review the usage of such tools or techniques and invalidate published results if need be.

Hardware: The system hardware used to generate official SYSmark 2012 results must be publicly available at the time of publication or within 60 days thereafter. The system must be purchasable as a

complete platform from an Original Equipment Manufacturer within 60 days of publication. Alternatively, licensees may report results for systems which may not be available from an OEM but whose individual components are publicly available and purchasable from various vendors at the time of publication or within 60 days thereafter. Note that the 60-day grace period does not apply to system software. All software used must be publicly available and be of release-quality available from the original software vendor.

Full Disclosure Report

A complete Full Disclosure Report (FDR), must be generated by the Workload Manager for all published results. This FDR must include the overall SYSmark 2012 Rating, the ratings for each of the six scenarios as well as pertinent system information about the state of the system under test. The format and the information included in this report is determined by BAPCo. No modifications should be made to the FDR (modifications to the FDR will invalidate the FDR). FDRs can be saved using the Result Brower software.

Publication

BAPCo encourages all licensees to submit FDRs on the BAPCo website (www.bapco.com) for all publically available results. To submit results, the licensee emails a Full Disclosure Report to BAPCo (report@bapco.com) that was generated by the Workload Manager. If the licensee publishes results external to the BAPCo web site, the licensee agrees to submit the FDR within 5 business days, upon request from BAPCo.

All FDRs submitted by licensees to BAPCo are subject to a 10 working day review period. During this review period any BAPCo member can challenge the submitted FDR or submit a counter FDR. When a challenge occurs or a counter FDR is submitted, BAPCo will decide which, if any, of the FDRs will be accepted for inclusion in the FDR database

Availability

When publishing SYSmark 2012 results, the tested system must be available for purchase by the public either at the time of publication or within 60 days after publication. Note that the 60-day grace period does not apply to system software. All software used must be release-quality and made publicly available from the original software vendor.

FDR Processing

The submitted FDRs are processed by BAPCo and classified as:

Released for publication - The results are released for publication as filed.

Rejected - The results are rejected for publication as filed.

The Released for publication classification is in no way a validation or an endorsement of the results by BAPCo. The submitting licensees are free to publish results as long as a complete and valid FDR has been generated. The licensee agrees to submit the valid FDR to BAPCo within 5 business days, upon request from BAPCo. BAPCo will perform frequent audits of the submitted FDRs and reserves the right to revoke the license granted to licensees who have not adhered to the regulations described in this or other SYSmark 2012 documentation. In the case where an FDR is returned to the licensee with rejected classification, the licensee must immediately stop publication of the rejected results until the matter is clarified by BAPCo. Any publication of results must be accompanied by at least the system model number plus any discrepancies between the configuration of the stated model number and the configuration of the system tested. The publication can use the single overall SYSmark 2012 rating or the combination of the overall rating and a scenario rating. Licensees may not publish scenario ratings unless the overall SYSmark 2012 rating is also included. (E.g. the 3D Modeling scenario rating cannot be published without disclosing the SYSmark 2012 overall rating) The term SYSmark is a registered trademark of the Business Applications Performance Corporation and may only be used in conjunction with performance metrics generated by the SYSmark 2012 Workload Manager. Any other performance characterizations may be made but must be derived from the performance metrics generated by the Workload Manager. The terms SYSmark and SYSmark 2012 may not be used as the performance metric describing such characterizations.

Publication of Results on Non-OEM Platforms

BAPCo allows the publication of performance indices using SYSmark 2012 for making "Non- OEM" platform comparisons. This includes performance comparisons on systems that are not shipped from an OEM as a complete platform. An example of such comparisons is when a graphics card manufacturer wishes to compare the performance of its graphics card to that of another manufacturer in an identical platform by swapping the cards and measuring the performance. Results published on Non-OEM platforms must be marked as Modified on the accompanying FDR and whenever appearing in publications of any kind.

Publication of Results for Competitive Comparisons

Licensees may publish results on competitor systems as long as the results for the competitor system have been submitted and accepted by BAPCo for inclusion in the FDR database. The submitted results may not be published until the FDR review period has expired and BAPCo has resolved all matters with respect to any challenges or counter FDR submissions.

Media outlets may publish results for making competitive comparisons without being subject to the restrictions in the preceding paragraph. Media outlets are subject to all other regulations set forth in this document