PCMARK®10

Command Line Guide

Updated March 4, 2020 for use with
PCMark 10 Professional Edition v2.1.2177

Installation

When installing the application using a command line the following options are available.

```
pcmark10-setup.exe [options]
```

Command	Description
`/installpath=<install path>`	Defines the install path, default is C:\Program Files\UL\PCMark 10
`/quiet /silent`	Silent install, displays no user interface
`/force`	Force install
`/install`	Installs the product (Default)
`/uninstall`	Uninstalls the product

⚠ Running the installer while using elevated permissions can cause the application to not function correctly. Please avoid running the installer with elevated permissions until prompted.

PCMark 10 Command Line Usage

Run the program from a command prompt that was started as an administrator, (right-click on the *cmd* shortcut, and select *Run as Administrator*).

```
PCMark10Cmd.exe [options]
```

⚠ PCMark Professional Edition license is required for command line use.

⚠ You can force every test to run on Arm-powered devices from the command line. Note that some workloads in PCMark 10 benchmark and PCMark 10 Extended are not compatible with Arm devices, which means you will not get an overall score for these tests.

The workloads in the Modern Office and Gaming battery life scenarios are not optimized for Arm devices. Therefore, the results from these scenarios cannot be used as a representative battery life for these devices.

Options

⚠ Square brackets, [ ], means an optional parameter where the default value will be used if no parameter is given.

⚠ When *on/off* is omitted with an option, *on* is assumed.

The parameters to an option can be given either with a space in between (**`--in myresult.pcmark10-result`**), or with an equal sign (**`--in=myresult.pcmark10-result`**).

Command	Description
`-h, --help`	Prints the available command line options.
`--register <product key>`	Register PCMark 10 with the given key.
`--unregister`	Unregister PCMark 10.
`-d <benchmark.xml>,` **`--definition <benchmark.xml>`**	Specifies the benchmark definition XML file that defines the tests and settings to be used. See description below on benchmark definition files.
`--loop [<count>]`	Set the number of times to loop benchmark. The default is 1. Use 0 for infinite loop stress test, where the benchmark will not end until aborted.
`--in <file.pcmark10-result>`	Load the given result file. To be used in conjunction with --online to submit the result online, or with --export-xml or --export-pdf to export the result file.
`--out <file.pcmark10-result>`	Save the benchmark results to the given result file.
`--result-name <name>`	Sets the string value “Name” in the result file.

--result-description <description>	Sets the string value “Description” in the result file.
--export-xml <file.xml>	Export the benchmark results to the given XML file.
--export-pdf <file.pdf>	Export the benchmark results to the given PDF file.
--export-storage <output input_1 ... input_n>	Export storage results to Excel. Argument is a list of files separated by spaces. The first argument is the output file (must end with .xlsx), the rest are the result files that are used as the input. If the argument is used when running a test only the output file is needed.
--systeminfo [on|off]	Collect SystemInfo. Default value: off.
--systeminfomonitor [on|off]	Enable SystemInfo Monitoring. Default value: off.
--online [on|off]	Send the benchmark result to UL Online Service. Default value: off.
--log <log-file>	Save benchmark progress log to `<log-file>`. Logging does not affect scores. If this option is not used, the last 1000 lines of logging are saved to the default location: `C:\Users\*username*\Documents\PCMark 10\Log\PCMark10.log`
--debug-log	Enable per workload debug logging. Log files for each workload run are saved to: `C:\Users\*username*\Documents\PCMark10\Log`
--trace	Verbose logging
--list-opencl-devices	Lists available OpenCL devices
--video-conferencing-opencl-devi	Specify the OpenCL devices to use for the Video Conferencing test. The

ce <device index>	device indexes can be listed with the command --list-opencl-devices.
--photo-editing-opencl-device <device index>	Specify the OpenCL devices to use for the Photo Editing test. The device indexes can be listed with the command --list-opencl-devices.
--spreadsheets-opencl-device <device index>	Specify the OpenCL devices to use for the Spreadsheets test. The device indexes can be listed with the command --list-opencl-devices.
--video-editing-opencl-device <device index>	Specify the OpenCL devices to use for the Video Editing test. The device indexes can be listed with the command --list-opencl-devices.
--drive <drive letter>	Specify the drive to use for the storage test
--list-drives <definition file>	List storage devices. The optional argument is a test definition file used to check the compatibility of the drives.
--gpuCount <integer>	Specify how many GPUs are used. The default value is the GPU count given by SystemInfo, with the fallback value being 1 if SystemInfo isn't run or fails.
--recovery	Recover a result after a crash, saved to My documents PCMark 10 folder unless --out is defined
--clean-temporary-files	Cleans temporary files left by previous runs.
--no-scheduled-task	Do not use scheduled tasks when running battery tests.

Examples

These examples assume that there is a custom settings file mybenchmark.pcmdef in the folder c:\PCMark10Results, and that the user has write permissions to the same directory. Note that these examples omit systeminfo scans - if hardware information is desired, add --systeminfo=on and if hardware monitoring data is desired, add --systeminfomonitor=on to each example.

Run the PCMark 10 benchmark

Run the PCMark 10 benchmark and save the result to a given file.

```
PCMark10Cmd.exe --definition=pcm10_benchmark.pcmdef
--out=C:\PCMark10Results\myresults.pcmark10-result
```

Run the PCMark 10 Express benchmark

Run the PCMark 10 express benchmark and save the result to a given file.

```
PCMark10Cmd.exe --definition=pcm10_express.pcmdef
--out=C:\PCMark10Results\myresults.pcmark10-result
```

Run the PCMark 10 Extended benchmark

Run the PCMark 10 extended benchmark and save the result to a given file.

```
PCMark10Cmd.exe --definition=pcm10_extended.pcmdef
--out=C:\PCMark10Results\myresults.pcmark10-result
```

Run the PCMark 10 Applications benchmark

Run the PCMark 10 applications benchmark and save the result to a given file.

```
PCMark10Cmd.exe --definition=pcm10_applications.pcmdef
--out=C:\PCMark10Results\myresults.pcmark10-result
```

Run the PCMark 10 Storage benchmark

Run the PCMark 10 storage benchmark for C: drive and save the result to a given file.

```
PCMark10Cmd.exe --definition=pcm10_storage_full.pcmdef
--out=C:\PCMark10Results\myresults.pcmark10-result
```

Run the PCMark 10 Battery benchmark

Run the PCMark 10 Modern Office battery benchmark and save the result to a given file.

```
PCMark10Cmd.exe --definition=pcm10_modern_office_batterylife.pcmdef
--out=C:\PCMark10Results\myresults.pcmark10-result
```

Note that you must have a battery and you must unplug the device from mains power when prompted.

Loop three times

Run the benchmark with a customized "mybenchmark.pcmdef" settings file, looping it three times, and saving the results to myresults.pcmark10-result. There will be three numbered result files, one per run.

```
PCMark10Cmd.exe --definition=C:\PCMark10Results\mybenchmark.pcmdef
--loop=3 --out=C:\PCMark10Results\myresults.pcmark10-result
```

Load a result file and export it as a PDF file

With a customized "mybenchmark.pcmdef" settings, saving results to myresults.pcmark10-result (there will be three numbered result files, one per run)

```
PCMark10Cmd.exe --in=C:\PCMark10Results\myresults.pcmark10-result
--export-pdf C:\PCMark10Results\myresults.pdf
```

Recover a result

After a crash or a battery run draining the battery, use --recovery to recover the benchmark result and save the result.

```
PCMark10Cmd.exe --recovery
--out="C:\PCMark10Results\recoveredResult\myresult.pcmark10-result"
```

Set the OpenCL device to use

To set the OpenCL device to use, first list the available OpenCL devices.

```
PCMark10Cmd.exe --list-opencl-devices
```

Set the desired OpenCL device for each test that uses OpenCL with the index listed by the above command, and run the PCMark 10 benchmark.

```
PCMark10Cmd.exe --video-conferencing-opencl-device=1
--photo-editing-opencl-device=1 --spreadsheets-opencl-device=1
--video-editing-opencl-device=1 --definition=pcm10_benchmark.pcmdef
--out=C:\PCMark10Results\myresults.pcmark10-result
```

Definition XML files

PCMark 10 comes with definition files that enable you to set up and run a benchmark with standard or custom settings. By default, these definitions can be found in:

```
C:\Program Files\UL\PCMark 10\
```

Using the default definition files are the same as running a test from the GUI.

Custom definition files mirror the options available on the Custom tab of the GUI. Copy the appropriate custom definition file and edit it to match your desired settings. Note that custom runs only produce sub-scores, never an overall score.

Definition files for PCMark 10

pcm10_benchmark.pcmdef	Run default PCMark 10 benchmark tests
pcm10_express.pcmdef	Run default PCMark 10 Express tests
pcm10_extended.pcmdef	Run default PCMark 10 Extended tests
pcm10_benchmark_custom.pcmdef	Run custom PCMark 10 benchmark tests
pcm10_express_custom.pcmdef	Run custom PCMark 10 Express tests
pcm10_extended_custom.pcmdef	Run custom PCMark 10 Extended tests

Definition files for PCMark 10 Battery Life

pcm10_applications_batterylife.pcmdef	Run default Applications Battery Life test.
pcm10_gaming_batterylife.pcmdef	Run default Gaming Battery Life test.
pcm10_idle_batterylife.pcmdef	Run default Idle Battery Life test.
pcm10_modern_office_batterylife.pcmdef	Run default Modern Office Battery Life test.
pcm10_video_batterylife.pcmdef	Run default Video Battery Life test.
pcm10_applications_batterylife_custom.pcmdef	Run custom Applications Battery Life test.

pcm10_gaming_batterylife_custom.pcmdef	Run custom Gaming Battery Life test.
pcm10_idle_batterylife_custom.pcmdef	Run custom Idle Battery Life test.
pcm10_modern_office_batterylife_custom.pcmdef	Run custom Modern Office Battery Life test.
pcm10_video_batterylife_custom.pcmdef	Run custom Video Battery Life test.

Definition files for PCMark 10 Applications

pcm10_applications.pcmdef	Run default Applications test.
pcm10_applications_custom.pcmdef	Run custom Applications test.

Definition files for PCMark 10 Storage

pcm10_storage_full_default.pcmdef	Run default Full System Drive benchmark
pcm10_storage_full_custom.pcmdef	Run custom Full System Drive benchmark
pcm10_storage_quick_default.pcmdef	Run default Quick System Drive benchmark
pcm10_storage_quick_custom.pcmdef	Run custom Quick System Drive benchmark
pcm10_storage_data_default.pcmdef	Run default Data Drive benchmark
pcm10_storage_data_custom.pcmdef	Run custom Data Drive benchmark
pcm10_storage_consistency_default.pcmdef	Run default Drive Performance Consistency Test
pcm10_storage_consistency_custom.pcmdef	Run custom Drive Performance Consistency Test

Examples

pcm10_express.pcmdef

```
<?xml version="1.0" encoding="utf-8"?>
<benchmark>
	<test_info>
		<benchmark_tests>
			<benchmark_test name="Pcm10ExpressBenchmarkDefault"
test_run_type="EXPLICIT" version="1.0"/>
		</benchmark_tests>
	</test_info>
	<application_info>
		<selected_workloads>
			<selected_workload
name="Pcm10VideoConferencingDefault"/>
			<selected_workload name="Pcm10WebBrowsingDefault"/>
			<selected_workload name="Pcm10AppStartUpDefault"/>
			<selected_workload name="Pcm10WritingDefault"/>
			<selected_workload name="Pcm10SpreadsheetDefault"/>
		</selected_workloads>
	</application_info>
</benchmark>
```

If all you want is to specify which tests to run (for example, to skip a certain test), just make a copy of the appropriate definition file and edit the list of tests.

pcm10_express_custom.pcmdef

```
<?xml version="1.0" encoding="utf-8"?>
<benchmark>
	<test_info>
		<benchmark_tests>
			<benchmark_test name="Pcm10ExpressBenchmarkCustom"
test_run_type="EXPLICIT" version="1.0"/>
		</benchmark_tests>
	</test_info>
```

```
      <application_info>
            <selected_workloads>
                  <selected_workload
name="Pcm10VideoConferencingCustom"/>
                  <selected_workload name="Pcm10WebBrowsingCustom"/>
                  <selected_workload name="Pcm10AppStartUpCustom"/>
                  <selected_workload name="Pcm10WritingCustom"/>
                  <selected_workload name="Pcm10SpreadsheetCustom"/>
            </selected_workloads>
      </application_info>
      <settings>
         <setting>
             <name>wait_between_workloads</name>
             <value>15</value>
         </setting>
            <setting>
                  <name>use_video_acceleration</name>
                  <value>1</value>
            </setting>
            <setting>
                  <name>use_opencl</name>
                  <value>1</value>
            </setting>
            <setting>
                  <name>tempdir</name>
                  <value>"C:\TEMP\MY_TEMP"</value>
            </setting>
            <!-- OpenCL device values are indices of the devices and
are specific to a given computer.
                  You can find allowed values by running the command
line application with the option list-opencl-devices -->
            <!--
         <setting>
             <name>spreadsheet_opencl_device</name>
             <value>0</value>
         </setting>
         <setting>
             <name>opencv_opencl_device</name>
             <value>0</value>
         </setting>
         -->
```

```
    </settings>
</benchmark>
```

Custom definition files contain settings with the default values used in the test.

Definition file settings

The table below lists all settings used in the definition files.

wait_between_workloads	The time to wait between each workload run.
use_video_acceleration	1 - enable the use of hardware acceleration in video processing 0 - disable the use of hardware acceleration in video processing
use_opencl	1 - use OpenCL 0 - disable OpenCL
opencv_opencl_device	The index of the OpenCL device to use in the Video Conferencing
photo_opencl_device	The index of the OpenCL device to use in the Photo Editing test
spreadsheet_opencl_device	The index of the OpenCL device to use in the Spreadsheets test
video_opencl_device	The index of the OpenCL device to use in the Video Editing test
tempdir	Sets the directory where the temporary workload data will be stored.
use_opengl	Debug setting for Spreadsheets and Writing. 1 - use OpenGL 0 - disable OpenGL Default value: 1 - use OpenGL
use_chromium_sandbox	Debug setting for Application Startup and Web Browsing. 1 - use sandbox 0 - disable sanbdbox Default value: 0 - disable sanbdbox

Battery Life definition file settings

minimum_run_time	Tells the workload how long to run in each loop. A zero value tells the workload to not loop but instead run continuously.

Storage definition file settings

storage_path	The path to the drive to benchmark. Can be a drive letter or a path. String. Default value: C:\
modify_power_profile	Allow the benchmark to temporarily create and use a custom power profile based on the current power profile. Boolean. Default value: true
server_interactive_login	Setting for the Data Drive benchmark. Enables that Windows can display an interactive login dialog for the network resource if needed. Boolean. Default value: false
server_username	Setting for the Data Drive benchmark. Purpose: Specifies the username to login to the network resource. String. Default value: empty
server_password	Setting for the Data Drive benchmark. Specifies the password to login to the network resource. String. Default value: empty
required_free_space	Megabytes of free space required on the target drive after the initialization of the benchmark. The test will not run if less space available. Related: fill_space Integer in megabytes. Default value: 4096
fill_space	Fill the drive with extra data. Boolean. Default value: true for Consistency test, false otherwise.
idle_compression	Idle periods longer than the value are shorted to the value. An integer in milliseconds. Default value: 1000 for FUll, Quick and Data tests; 10 for Consistency test.
trace_playback_time_limit	The maximum time spent on playing back a trace. Then the time is reached, the playback stops for the trace and the test moves on to the next one. Results are calculated based on the actual executed I/O. Integer in milliseconds. Default value: 600000 for Full, Quick and Data tests; 120000 for Consistency test
precondition_queue_depth	Setting Drive Performance Consistency Test. The queue depth of write operations in the precondition phase. Integer. Default value: 10

precondition_passes	Setting Drive Performance Consistency Test. The number of passes in the precondition phase. Integer. Default value: 2
precondition_block_size	Setting Drive Performance Consistency Test. The block size (in bytes) used for write operations in the precondition phase. Integer in bytes, a multiple of 4096. Default value: 131072
post_precondition_idle	Setting Drive Performance Consistency Test. The time to idle (in ms) between precondition and degrade phases. Default value: 0
degrade_duration_init	Setting Drive Performance Consistency Test. The initial duration (in ms) of a degrade phase pass. Integer in milliseconds. Default value: 60000
degrade_duration_increment	Setting Drive Performance Consistency Test. The amount of time (in ms) that the duration of the degrade phase pass is (cumulatively) incremented on each pass. Integer in milliseconds. Default value: 60000
degrade_data_size_init	Setting Drive Performance Consistency Test. The initial maximum data size (in megabytes) of a degrade phase pass. Integer in megabytes. Default value: 51200
degrade_data_size_increment	Setting Drive Performance Consistency Test. The amount of maximum data size (in megabytes) that the data size of the degrade phase pass is (cumulatively) incremented on each pass. Integer in megabytes. Default value: 51200
degrade_queue_depth	Setting Drive Performance Consistency Test. The queue depth of write operations in the degrade phase. Integer. Default value: 10
degrade_passes	Setting Drive Performance Consistency Test. The number of passes in the degrade phase. Integer. Default value: 8
degrade_min_block_size	Setting Drive Performance Consistency Test. The minimum block size (in bytes) used with write operations in degrade phase. Integer in bytes, a multiple of 4096. Default value: 4096
degrade_max_block_size	Setting Drive Performance Consistency Test. The maximum block size (in bytes) used with write operations in the degrade phase. Integer in bytes, a multiple of 4096. Default value: 1048576
degrade_alignment	Setting Drive Performance Consistency Test. Alignment of write operation offsets in the degrade phase. Integer in bytes, a multiple of 4096. Default value: 4096
steady_passes	Setting Drive Performance Consistency Test. The number of passes in the steady phase.

	Integer. Default value: 3
recovery_duration_init	Setting Drive Performance Consistency Test. The initial duration (in ms) of a recovery phase pass. Integer in milliseconds. Default value: 300000
recovery_duration_increment	Setting Drive Performance Consistency Test. The amount of time (in ms) that the duration of the recovery phase pass is (cumulatively) incremented on each pass. Integer in milliseconds. Default value: 0
recovery_passes	Setting Drive Performance Consistency Test. The number of passes in the recovery phase. Integer. Default value: 5
postcondition_queue_depth	Setting Drive Performance Consistency Test. The queue depth of write operations in the postcondition phase. Integer. Default value: 10
postcondition_passes	Setting Drive Performance Consistency Test. The number of passes in the postcondition phase. Integer. Default value: 1
postcondition_block_size	Setting Drive Performance Consistency Test. The block size (in bytes) that is used with write operations in postcondition phase. Integer in bytes, a multiple of 4096. Default value: 131072

Selecting an OpenCL device

To get the index of the OpenCL device to use with the OpenCL settings, list the available OpenCL devices by running the following command line:

```
PCMark10Cmd.exe --list-opencl-devices
```

> ⚠ The indexes are computer system specific, so the definition file can only be used on that specific system if an OpenCL device has been specified.

Here is an example of a custom run of the Spreadsheets test using the OpenCL device with the index of one.

```
<?xml version="1.0" encoding="utf-8"?>
<benchmark>
      <test_info>
            <benchmark_tests>
                  <benchmark_test name="Pcm10ExpressBenchmarkCustom"
test_run_type="EXPLICIT" version="1.0"/>
            </benchmark_tests>
      </test_info>
      <application_info>
            <selected_workloads>
                  <selected_workload name="Pcm10SpreadsheetCustom"/>
            </selected_workloads>
      </application_info>
      <settings>
        <setting>
            <name>spreadsheet_opencl_device</name>
            <value>1</value>
        </setting>
      </settings>
</benchmark>
```