

# Mobile Client Capability Brief for Exporting Mail in Microsoft\* Office\* Outlook\* 2007



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## About this Document

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This document is a guide measuring performance of an Intel® Solid-State Drives on application software. The primary audience for this document includes individuals, publications, OEMs and technical analysts whose goal is to test or evaluate the performance benefits and features of an Intel® Solid-State Drive. If there are questions that are not answered here on software application performance evaluation of an Intel® Solid-State Drive, please contact your Intel representative.

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# Chapter 1

## Solid-State Drive Performance using Microsoft\* Office\* Outlook\* 2007's Export feature

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### 1.0 Software Description

Microsoft\* Office\* Outlook\* 2007 allows you to manage your e-mail, calendar, contacts, and tasks all in one program.

### 1.1 Test Workload Description

The workload consists of a mix of email messages that include 800 text messages, 25 text messages with picture attachments, 25 text messages with embedded objects, and 25 text messages with an inline picture.

## Chapter 2

# Measurement Methodology

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The following is a description of the measurement methodology that should be used to evaluate performance and energy efficiency of the mobile platform while running this scenario.

### 2.0 System Setup

This section outlines the system setup recommended for all mobile benchmarks under Microsoft Windows\* Vista Ultimate Edition:

- Always start with a clean, formatted hard disk.
- Set your system to boot from CD/DVD drive in the bios.
- Begin installation Windows\* Vista Ultimate Edition\* SP1 from the operating system CD.
- Format the file system to NTFS during installation if the drive if you have not already done so.
- After installation of the OS is complete restart your system.
- Immediately after installing the Windows Vista operating system, install the latest drivers (INF files) to allow the operating system to recognize the chipset and all the components on the motherboard. The drivers can be downloaded from the chipset software link at <http://downloadfinder.intel.com>
- Install the latest Intel Matrix Storage Manager. The install file can be downloaded from the chipset software link at <http://downloadfinder.intel.com>. (Windows Vista installs the basic driver for Intel Matrix Storage, and you should update the driver once the OS boots up.) The Intel® Matrix Storage Driver can provide better system performance because features like Native Command. Some system benchmarks with an I/O component, like BAPCo\* SYSmark\*, may show increased performance with the Intel Matrix Storage Driver installed and the system set to raid-ready.
- Install the Intel integrated sound driver from <http://support.intel.com> or from your motherboard CD.
- Install the latest LAN driver from <http://support.intel.com>.
- Download and Install the latest Windows Vista graphics driver for your graphics card from the manufacturer website.
- The table below describes how to perform an initial setup of Windows Vista.

Microsoft Windows* Vista Setup	Setting	Description of how to set up Windows Vista
Windows Aero	Enable	Ensure Windows Aero is enabled - Right click on desktop -> Personalize -> Window color and appearance -> click on "Open classic appearance properties for more color options" - Ensure "Windows Aero" is checked. Note: In order for Aero to work on Intel Graphics Media Accelerator X3000 and 3000, Vista drivers should be installed prior to setup Aero feature in Vista.
Search Indexing	Enable	Leave Search Indexing Enabled - You can check if Search Indexing is enabled by Open Control Panel -> System and Maintenance -> Indexing Options. The Indexing location will include: Offline Files, Start Menu, and Users.
Internet Offline Files	Enable	Leave Internet Offline files Enabled - You can check if Offline files is enabled, Open Control Panel -> Network and Internet -> Offline Files. On the general tab, the "Disable Offline Files" button should appear.
Disable Screen saver	Disable	Right click on desktop -> Personalize -> Screen Saver. Set the screen saver to "None"
Disable Power Management	High Performance	Right click on desktop -> Personalize -> Screen Saver -> Change Power settings -> Select "High Performance" and click "Change plan settings" below this option. A new view will appear called "Edit Plan Settings." Change "Turn off display" to "Never." Click Save Change. (Note: Exceptions include MobileMark* and other standardized benchmarks that measure battery life; these should be run with their own power management settings.)
Vista Desktop Display resolution, monitor refresh	Custom	Right click on desktop -> Personalize -> Display Settings. In the "Display Settings" dialog choose Resolution=1024x768 and Colors= Highest (32bit). Click the "Advanced Settings" button. Select the "Monitor" tab and change the "Screen refresh rate" to 75 Hz.
Remove always on top	Disable	Right click on Windows task bar at the bottom -> Properties -> Taskbar -> uncheck "Keep the taskbar on top of other windows"
Remove hide inactive icons	Disable	Right click on Windows task bar at the bottom -> Properties -> Select the "Notification area" tab and uncheck "Hide inactive icons"

Disable Windows Defender	Disable	Open Control Panel -> Security -> Windows Defender. Click on "Tools" in the toolbar at the top. Click on the Options link in the next view. Uncheck all boxes.
Disable Windows "Welcome screen"	Disable	Open Control Panel -> System and Maintenance -> Welcome Center, Uncheck "Run at Startup" at the bottom of the Windows Welcome screen
Disable System Protection (previously "System Restore")	Disable	Open Control Panel -> System and Maintenance -> System. Under the tasks link on the left side select System Protection. Uncheck "Local Disk" found in the "Automatic restore points" section.
Disable Security Center Alerts	Disable	Open Control Panel -> Security Center. On the left side at the bottom click on the link, "Change the way Security Center alerts me." In the dialog select "Don't notify me and don't display the icon (not recommended)"
Adjust Folder Options for hidden files	Custom	Open Control Panel -> Appearance and Personalization -> Folder Options. On the view tab select "Show hidden files and folder" uncheck "Hide extensions for known file types" and uncheck "Hide protected operating system files (Recommended)"
Disable backup on Recycle bin	Disable	Right click on the recycle bin and choose properties. On the general tab select "Do not move files to the Recycle Bin. Remove files immediately when deleted"
Disable Windows Sidebar	Disable	Remove "Windows Sidebar" by right click on the Windows sidebar, click properties, Uncheck "Start Sidebar when windows Starts"
Disable Disk Defragmentation	Disable	Click on "My Computer", right click on the C: drive. Click "Properties", "Tools", "Defragment Now". Uncheck "Run on Schedule"
Disable User Account Control	Disable	Open Control Panel -> User Accounts and Family Safety -> User Accounts -> Turn User Account Control on or off -> Continue -> Uncheck Use User Account Control (UAC) to help protect your computer -> OK -> Restart Computer

### Clean up Windows prefetch

1. Delete the contents of the c:\windows\prefetch directory between testing of **individual** benchmarks.

**Allow your system to settle into an idle state:**

1. Reboot your computer.
2. Open the Task Manager by right clicking on the Taskbar and clicking the option for Task Manager. Click on the Performance tab in the Task Manager.
3. Click on the Resource Monitor button in the Task Manager. This will bring up the Resource Monitor Window below.
4. Click on the panel that says Disk. This will allow you to view the various active requests to the disk drive.
5. Watch the Resource Monitor. The number of requests to the disk will gradually decline. Wait until there are no more requests to the disk as shown below.
6. After there are no more requests to disk, close the Resource Monitor.

### **Process Idle Tasks**

1. Call the ProcessIdleTasks API from advapi32.dll using the command line or create and execute a batch file with the following command: ***rundll32.exe advapi32.dll,ProcessIdleTasks***

### **Benchmark Run:**

1. After you have run the ProcessIdleTasks API, run the workload 5 times in a row without reboots in between each run.
2. Take the median of the 5 runs.

## Chapter 3

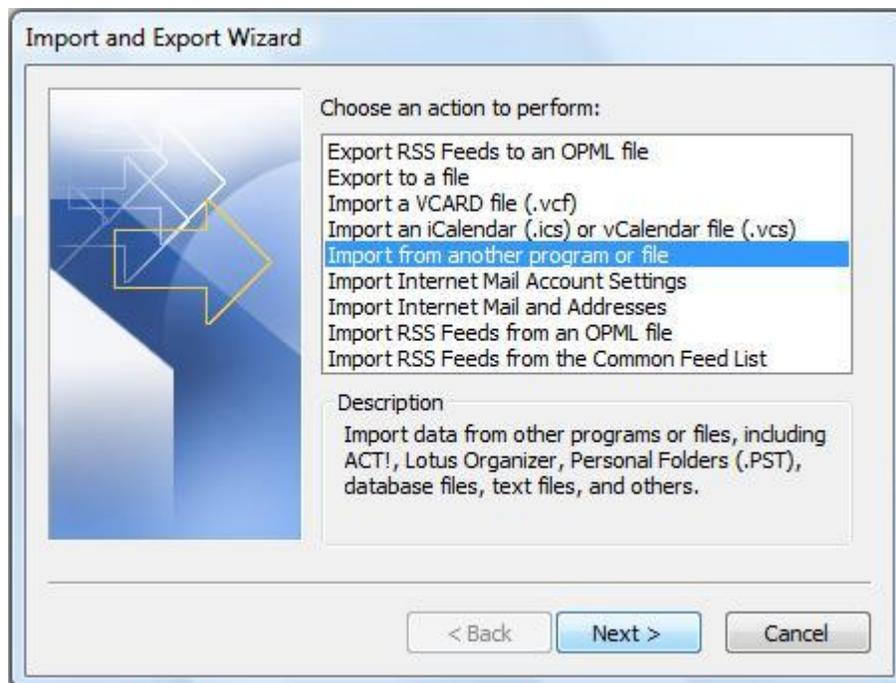
# Procedure for Evaluating Performance

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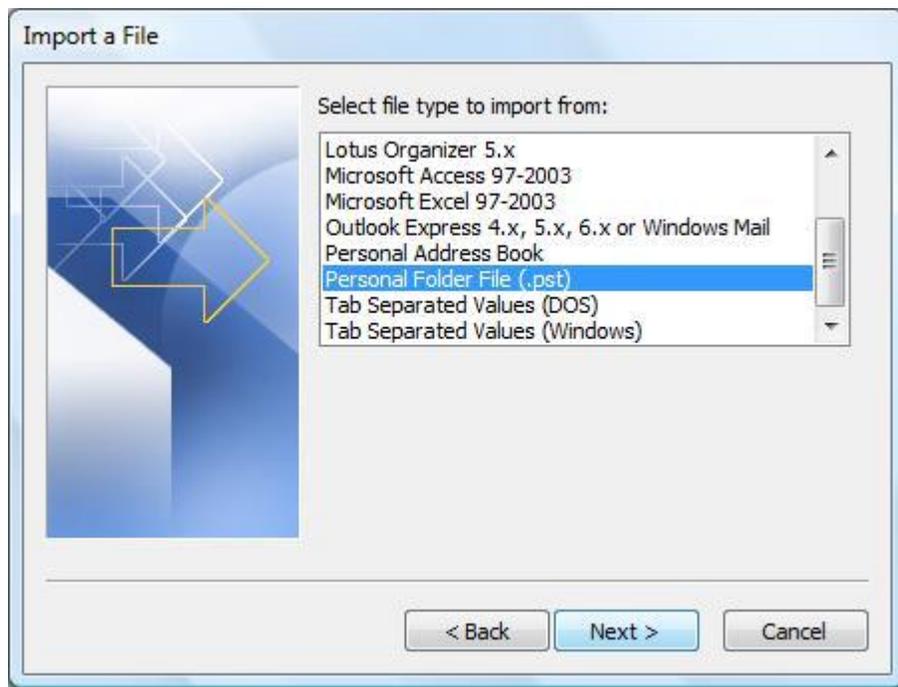
The following is a procedure for evaluating performance using Microsoft\* Outlook\* 2007's export feature.

Setting up Microsoft\* Outlook\* 2007

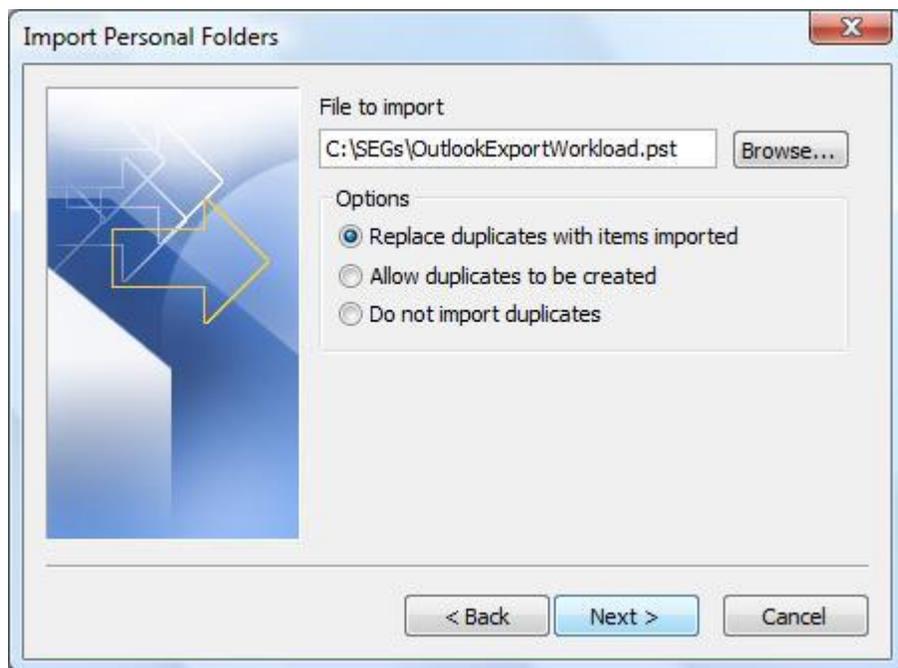
1. Install Microsoft\* Office\* 2007 Ultimate with default installation options.
2. Launch Microsoft\* Outlook\* 2007 by clicking on the Start menu, then selecting All Programs->Microsoft Office->Microsoft Office Outlook 2007.
3. The initial launch of Microsoft\* Outlook\* 2007 may require product activation. This means you will need an Internet connection to activate it online. You also may have the following screens appear:
  - i. When prompted to configure an e-mail account, select "No" and continue.
  - ii. Checkmark "Continue without e-mail support" when asked.
  - iii. Deselect "Search Microsoft Office Online for Help content when I'm connected to the Internet" and continue.
  - iv. Disable Microsoft Update by selecting "I don't want to use Microsoft Update" when asked.
4. Click on File>Import and Export. Select "Import from another program or file" and click "Next".



5. Select "Personal Folder File (.pst)" and click "Next".



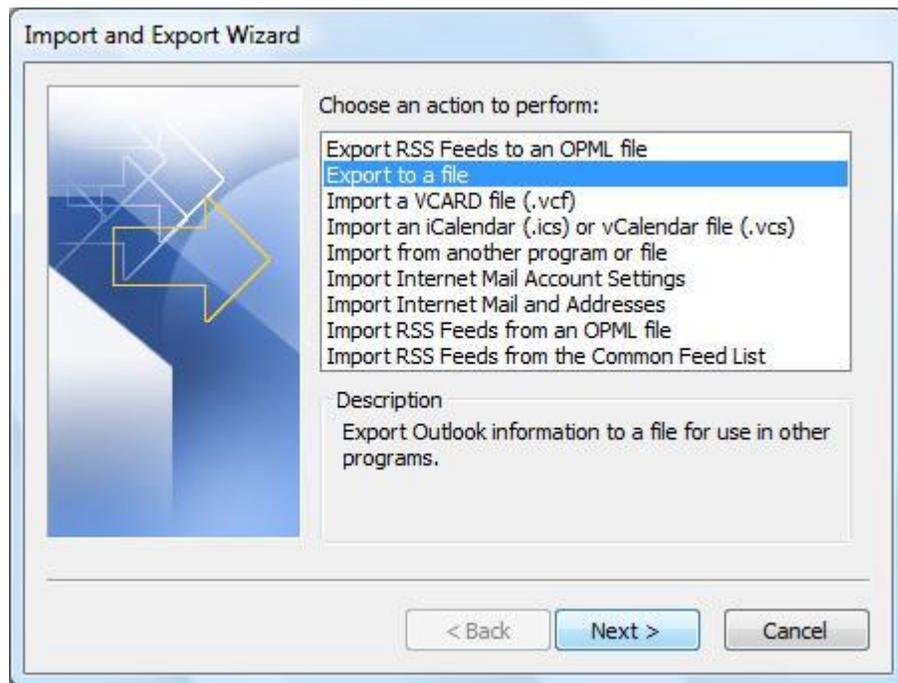
6. Click "Browse" and then navigate to the OutlookExportWorkload.pst, select it, and then click "Open". Click "Next" to proceed.



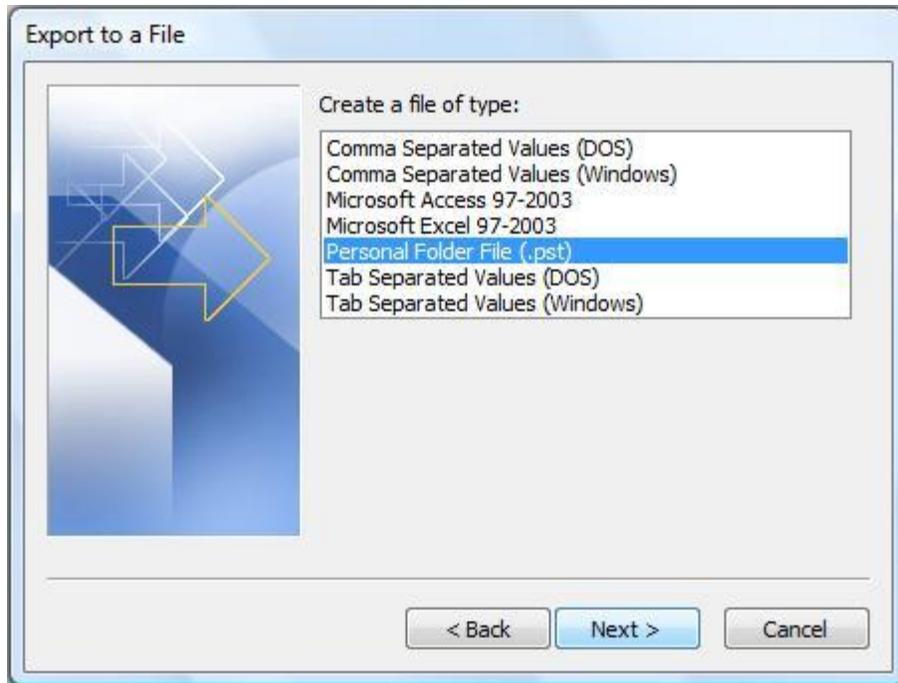
7. Click on "Finish" to have the workload imported then, restart your system.

#### Running Microsoft\* Outlook\* 2007 Export Workload

1. Launch Microsoft\* Outlook\* 2007 by clicking on the Start menu, then selecting All Programs->Microsoft Office->Microsoft Office Outlook 2007.
2. Click on File>Import and Export. Select "Export to a file" and click "Next".



3. Select "Personal Folder File (.pst)" and click "Next".

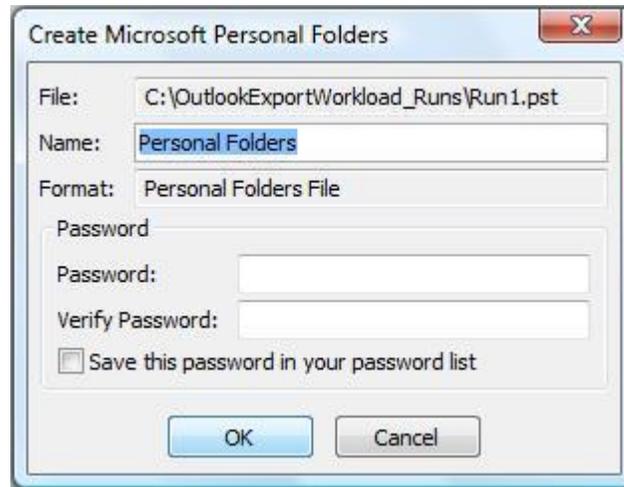


4. Select "Inbox" and then click on "Next"



5. Next, click Browse and specify a new file to be saved. You will want to save a new file for each run and not overwrite an existing one.

6. Click on "Finish"
7. Click on "OK" and begin your measurement.



8. A progress bar will pop up indicating that the Inbox is being exported to a file. Once the mouse pointer indicates the system is no longer busy, stop your measurement.

To repeat measurement

1. Repeat the procedures to export after each run without exiting the program.