

Intel Corporation (Intel) commissioned Principled Technologies (PT) to run a set of performance tests on the following OEM notebook systems:

- an AMD Turion 64 X2 TL-52 mobile processor-based
- an Intel Core Duo T2300E mobile processor-based system
- an Intel Core Duo T2400 mobile processor-based system

The goal of the testing was to gauge the performance and energy consumption that buyers would experience when performing common business-oriented tasks. Intel specified the test systems and provided the tests, test procedures, and test settings. PT purchased and set up the systems and executed all tests. To keep the focus of this report on the relative performance of the Intel and AMD processors at the core of the test systems, Intel requested we not disclose the OEM name.

We measured system performance and energy consumption with the following six custom tests designed to simulate tasks that business users commonly perform on notebook PCs:

- Data management
- Data management while scanning for viruses
- Inventory control
- Inventory control while scanning for viruses
- Email archival
- File conversion

As the Key Findings detail, the systems with the Intel processors ran faster and used less energy on all the tests than the system with the AMD processor.

KEY FINDINGS

- The Intel Core Duo T2400 processor-based system ran from 11 to 42 percent faster and consumed from 27 to 47 percent less energy than the AMD Turion 64 X2 TL-52 processor-based system during our tests.
- The Intel Core Duo T2300E processor-based system ran from 4 to 33 percent faster and consumed from 28 to 58 percent less energy than the AMD Turion 64 X2 TL-52 processor-based system during the tests.

PERFORMANCE RESULTS (seconds)						BENCHMARK OR TEST	ENERGY CONSUMPTION RESULTS (watt hours)					
Score			Comparative rating				Score			Comparative rating		
System w/ AMD	System w/ Intel Core Duo	System w/ Intel Core Duo	System w/ AMD	System w/ Intel Core Duo	System w/ Intel Core Duo		System w/ AMD	System w/ Intel Core Duo	System w/ Intel Core Duo	System w/ AMD	System w/ Intel Core Duo	System w/ Intel Core Duo
Turion 64 X2 TL-52 1.6 GHz (62 nits)	T2300E 1.66 GHz (75 nits)	T2400 1.83 GHz (75 nits)	Turion 64 X2 TL-52 1.6 GHz (62 nits)	T2300E 1.66 GHz (75 nits)	T2400 1.83 GHz (75 nits)		Turion 64 X2 TL-52 1.6 GHz (62 nits)	T2300E 1.66 GHz (75 nits)	T2400 1.83 GHz (75 nits)	Turion 64 X2 TL-52 1.6 GHz (62 nits)	T2300E 1.66 GHz (75 nits)	T2400 1.83 GHz (75 nits)
Custom Tests – single test workloads												
98	88	81	1.00	1.11	1.21	Microsoft Excel Business Data Management	1.25	0.87	0.91	1.00	1.44	1.37
92	69	65	1.00	1.33	1.42	Microsoft Excel Inventory Control	1.15	0.73	0.78	1.00	1.58	1.47
161	144	131	1.00	1.12	1.23	Microsoft Outlook with McAfee VirusScan	2.16	1.58	1.60	1.00	1.37	1.35
112	108	101	1.00	1.04	1.11	Microsoft PowerPoint to Adobe Acrobat	1.52	1.19	1.20	1.00	1.28	1.27
Custom Performance Tests – multitasking workloads												
Microsoft Excel Business Data Management foreground with virus scanning background												
94	86	78	1.00	1.09	1.21	Microsoft Excel Business Data Management	1.75	1.26	1.28	1.00	1.39	1.37
130	116	108	1.00	1.12	1.20	McAfee VirusScan						
Microsoft Excel Inventory Control foreground with virus scanning background												
93	72	66	1.00	1.29	1.41	Microsoft Excel Inventory Control	1.69	1.19	1.18	1.00	1.42	1.43
127	112	99	1.00	1.13	1.28	McAfee VirusScan						

The table summarizes the performance results and energy consumption measurements of each test. In the rightmost three columns of each result set, we compare the median results of the systems. We calculate this comparison by dividing the AMD Turion processor-based system's score by the Intel Core Duo processor-based system's score. Consequently, comparative results above 1.00 indicate tests on which the Intel Core Duo processor-based system performed better or was more energy-efficient, and those below 1.00 indicate tests on which the AMD Turion processor-based system performed better or was more energy-efficient.

For more information on these tests and to see the full test report, visit: www.principledtechnologies.com/clients/reports/Intel/BusNotePerf0806.pdf.

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