Intel® Core™ i7 Processor 3770
Embedded Application Power Guideline Addendum

May 2012

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Revision History

Document Number	Revision Number	Description	Date
327345	001	Initial Release	May 2012
327345	002	Fixed error in processor name in Background section	May 2012

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Background

This document provides power numbers on the Intel® Core™ i7 Processor 3770 while running real life applications. This document is complementary to the specs published in the datasheet. The application power guidelines should be used for reference only. The power numbers provided in this document are not design points and should not be used as such.

The specifications contained in this document complement the document in the Related Documents table.

Information types defined in the Nomenclature section of this document are consolidated into this update document and are no longer published in other documents. Addition information about Applications Power Guidelines is provided under the Reference Documents table.

Related Documents

Document Title	Document Number/Location
Embedded Application Power Guideline	http://edc.intel.com/Link.aspx?id=4025

Reference Documents

Document Title	Document Number/Location
Desktop 3rd Generation Intel® Core™ Processor Family and Intel® Xeon® Processor E3-1200 v2 Product Family External Design Specification (EDS) – Volume 1 of 2	http://www.intel.com/cd/edesign/library/asmo-na/eng/473717.htm
Desktop 3rd Generation Intel® Core™ Processor Family, Mobile 3rd Generation Intel® Core™ Processor Family, and Intel® Xeon® Processor E3-1200 v2 Product Family External Design Specification, Volume 2 of 2	http://www.intel.com/cd/edesign/library/asmo-na/eng/473770.htm

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Disclaimer

Values presented represent a typical or average processor SKU and do not guarantee a customer will achieve these exact values for each silicon sample. These values are not intended to replace TDP, nor to be used for reliability assessments. Individual test results may vary.

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Nomenclature

APG	Application Power Guidelines
TDP	Thermal Design Power
SKU	Stock Keeping Unit

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Application Power Guidelines

The Application Power Guidelines (APG) numbers listed in this document are intended to reflect the nominal use conditions. Several factors such as temperature, platform configuration and other variables can influence the numbers. Specific information about the platform, benchmarks, temperatures, etc are provided in this document to enable a repeatable power measurement. Since Application Power Guidelines are provided on limited applications and SKUs, and it is expected that users understand these numbers and apply them in their own use cases.

Application Power Guidelines for the Intel® Core™ i7 Processor 3770

The following table and graph indicate the Application Power Guidelines for embedded applications for the Intel® Core™ i7 Processor 3770. TDP specification = 77W.

Figure 1. Application Power Guidelines for the Intel® Core™ i7 Processor 3770
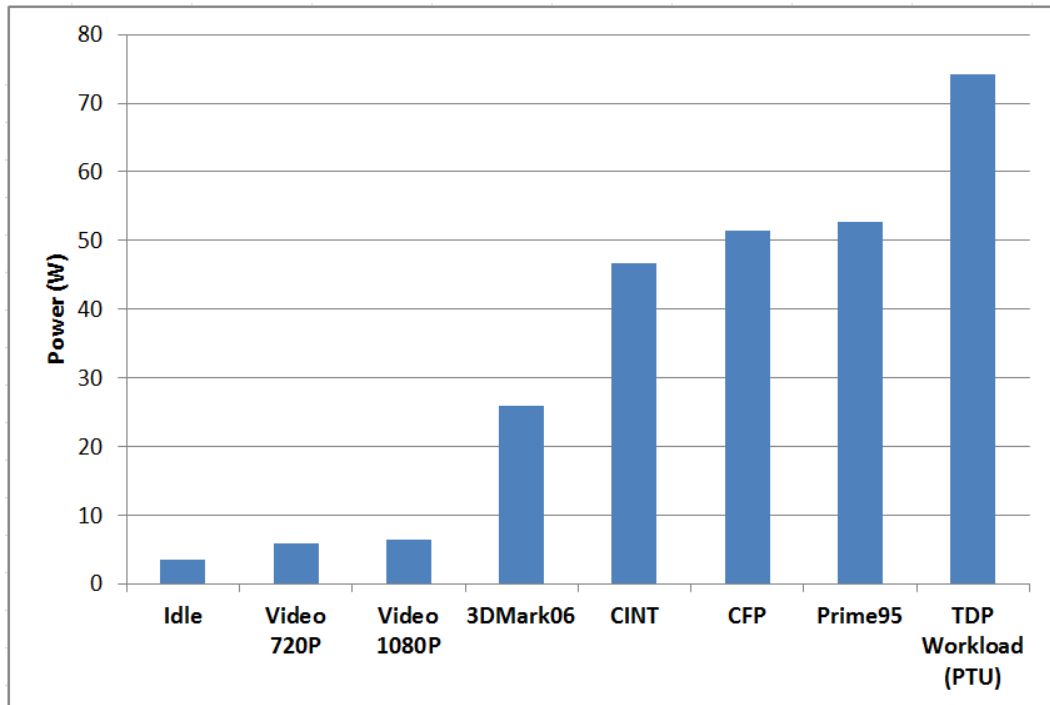
Application/Benchmark	Processor Power (W)	Junction Temperature (°C)
Idle	3	26
Video 720P	6	28
Video 1080P	6	28
3DMark 06	26	42
CINT	47	58
CFP	51	61
Prime 95	53	72
TDP Workload (PTU)	74	81

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

APG Configuration:

The results presented in this document are collected on a single sample. The data has not been post processed to account for part to part variation.

Platform: Intel® Core™ i7 Processor 3770 with Intel® Q77 Express Chipset

Bios Rev: ACRVMBY1.86C.0078.P00

Bios Configuration: Hyper Threading Enabled, IA Turbo Disabled, C States On

Memory: 2 DIMMs x 2GB /DDR3/1333MHz

OS: Windows 7 x64 and Linux Ubuntu11.04 x64

Windows Benchmarks: PTU (Power Thermal Utility, Ivy Bridge Desktop Processor Rev1.1), Video 720P/1080P (VLC Player: Elephants Dream 1280x720 and 1920x1080), 3Dmark 06

Linux Benchmarks: SPEC CPU2006 (CINT.400 Perlbench, CFP.416 Gamess)

A reference heat sink with fan was used while running these benchmarks.

Application Power Guidelines testing was conducted by Intel Corporation.

For more information got to http://www.intel.com/performance/

Additional Information:

-   In case of conflict the Datasheet supersedes this document.
-   Temperature values are mean temperatures measured through the duration of the test.
-   APG configuration is provided for repeatability of the test.
-   SPEC CPU2006 is one of the most widely used industry standard benchmark for evaluating IA CPU compute capabilities. The CINT benchmark used in this test is 400.Perlbench. The CFP benchmark used in this test is 416.gamess.
-   Power Thermal Utility tool (PTU) or Thermal Analysis tool (TAT) are developed by Intel to generate TDP like workloads on a system.
-   3DMark 06 is a 3D game performance benchmark.
-   VLC Player is an open source media player.
-   Elephants Dream is an open movie, made entirely with open source graphics software.
-   The Idle Power reported above is while displaying the Windows7 Desktop screen.