Intel® Xeon® Processors E3-1125C v2 and E3-1105C v2, Intel® Core™ i3-3115C Processor, and Intel® Pentium® Processor B925C

Embedded Application Power Guidelines

Supporting:
Intel® Xeon® Processor E3-1125C v2
Intel® Xeon® Processor E3-1105C v2
Intel® Core™ i3-3115C Processor
Intel® Pentium® Processor B925C

November 2013

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Revision History

Date	Revision	Description
October 2013	001	Initial release.

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1 Introduction

This document provides the Embedded Application Power Guidelines (APG) data for Intel® Xeon® Processors E3-1125C v2 and E3-1105C v2, the Intel® Core™ i3-3115C Processor, and the Intel® Pentium® Processor B925C , while running real-life applications. This document complements the specifications published in the product datasheet.

These guidelines should be used for reference only. The power data provided in this document are not design points or specifications and should not be used as such.

The specifications contained in this document complement documents listed in the Reference Documents table. Additional information about the APG can be found in the documents listed in the Related Documents table.

1.1 Reference Documents

Table 1. Reference Documents

Document	Document No./Location
Intel® Xeon® E3-1125C v2, E3-1105C v2, and Intel® Core™ i3-3115C Processors for Communications Infrastructure- External Design Specification - Volume 1 of 2	507920[1]
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	473770[1]
Crystal Forest Gladden Platform Design Guide (PDG)	450897[1]
Intel® Xeon® E3-1125C v2, E3-1105C v2, Intel® Core™ i3-3115C, and Intel® Pentium® B925C Processors for Communications Infrastructure Thermal and Mechanical Design Guide	506518

1. Intel Confidential; available on the Intel Business Portal; contact your Intel representative for access to the latest version.

1.2 Related Documents

Table 2. Related Documents

Document	Document No./Location
Embedded Application Power Guideline	324759

1.3 Terminology

Table 3. Terminology

Term	Description
APG	Application Power Guidelines
NDA	Non-disclosure Agreement
PTU	Power Thermal Utility Tool
SKU	Stock Keeping Unit
TAT	Thermal Analysis Tool
TDP	Thermal Design Power

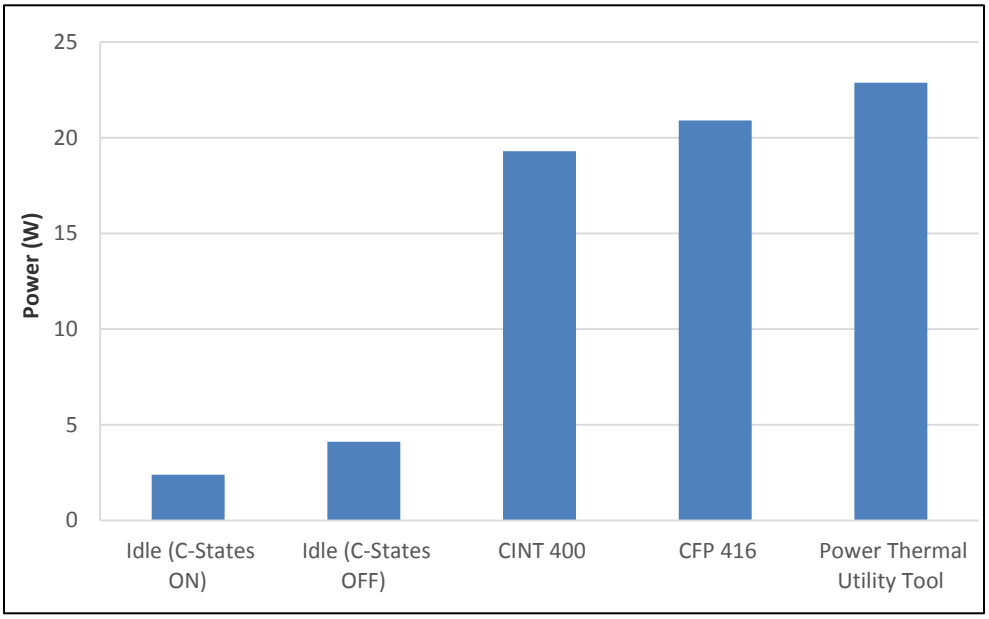
2 Application Power Guidelines

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

2.1 Application Power Guidelines for the Intel® Xeon® Processor E3-1125C v2

Figure 1 indicates the APG of various embedded applications for the Intel® Xeon® Processor E3-1125C v2 with a 40W TDP specification.

Figure 1. APG for the Intel® Xeon® Processor E3-1125C v2



Application / Benchmark	Processor Power (W)	Junction Temperature (°C)
Idle with C-states Enabled	2.4	29
Idle with C-states Disabled	4.1	30
CINT400	19.3	46
CFP416	20.9	48
Power Thermal Utility Tool	22.9	52

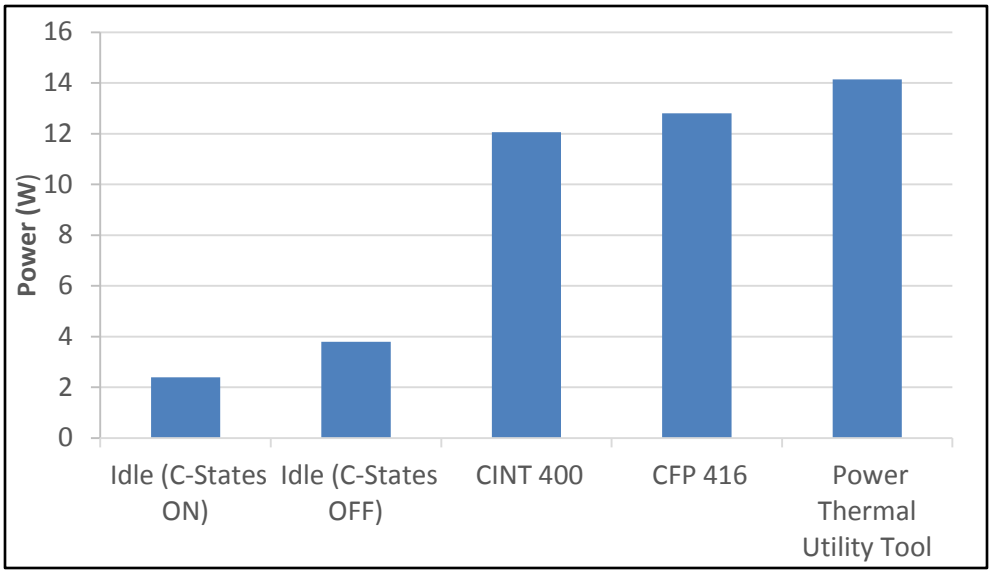
Notes:

1. 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. For more information go to http://www.intel.com/performance.
2. Configuration details are listed in Section 3.
   Source: Intel internal testing as of June 2013.

2.2 Application Power Guidelines for the Intel® Xeon® Processor E3-1105C v2

Figure 2 indicates the APG of various embedded applications for the Intel® Xeon® Processor E3-1105C v2 with a 25W TDP specification.

Figure 2. APG for the Intel® Xeon® Processor E3-1105C v2



Application / Benchmark	Processor Power (W)	Junction Temperature (°C)
Idle with C-states Enabled	2.4	30
Idle with C-states Disabled	3.8	36
CINT400	12.1	43
CFP416	12.8	45
Power Thermal Utility Tool	14.1	46

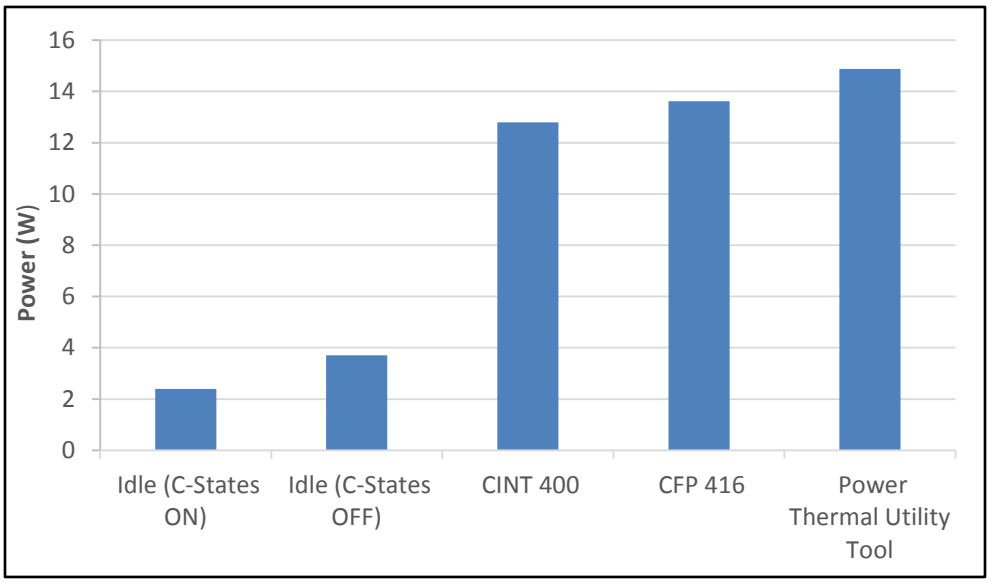
Notes:

1. 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. For more information go to http://www.intel.com/performance.
2. Configuration details are listed in Section 3.
   Source: Intel internal testing as of June 2013.

2.3 Application Power Guidelines for the Intel® Core™ i3-3115C Processor

Figure 3 indicates the APG of various embedded applications for the Intel® Core™ i3-3115C Processor with a 25W TDP specification.

Figure 3. APG for the Intel® Core™ i3-3115C Processor



Application / Benchmark	Processor Power (W)	Junction Temperature (°C)
Idle with C-states Enabled	2.4	30
Idle with C-states Disabled	3.7	31
CINT400	12.8	42
CFP416	13.6	43
Power Thermal Utility Tool	14.9	46

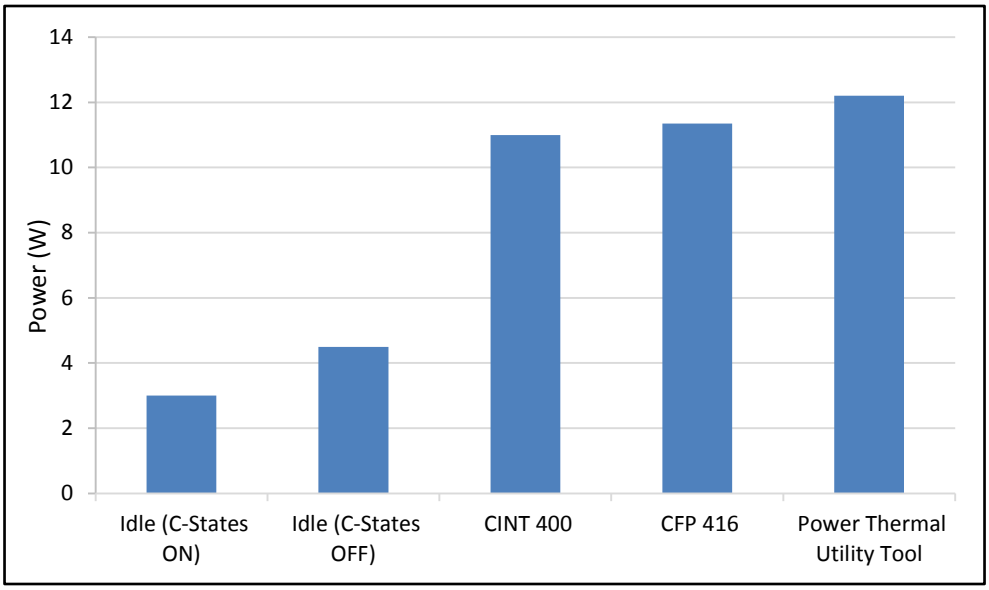
Notes:

1. 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. For more information go to http://www.intel.com/performance.
2. Configuration details are listed in Section 3.
   Source: Intel internal testing as of June 2013.

2.4 Application Power Guidelines for the Intel® Pentium® Processor B925C

Figure 4 indicates the APG of various embedded applications for the Intel® Pentium® Processor B925C with a 15W TDP specification.

Figure 4. APG for the Intel® Pentium® Processor B925C



Application / Benchmark	Processor Power (W)	Junction Temperature (°C)
Idle with C-states Enabled	3.0	35
Idle with C-states Disabled	4.5	39
CINT400	11.0	47
CFP416	11.4	49
Power Thermal Utility Tool	12.2	52

Notes:

1. 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. For more information go to http://www.intel.com/performance.
2. Configuration details are listed in Section 3.
   Source: Intel internal testing as of June 2013.

3 Configuration and 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 are they intended to be used for reliability assessments. Individual test results may vary.

Software and workloads used in performance tests may have been optimized for performance only on Intel processors. 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.

3.1 Application Power Guidelines Configuration

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

- Platforms:
  - Platform 1: Intel® Xeon® Processor E3-1125C v2 with Intel® Communications Chipset 8920
  - Platform 2: Intel® Xeon® Processor E5-1105C v2 with Intel® Communications Chipset 8920
  - Platform 3: Intel® Core™ i3-3115C Processor with Intel® Communications Chipset 8920
  - Platform 4: Intel® Pentium® Processor B925C with Intel® Communications Chipset 8920
- BIOS Rev: CIVGCCK1.86C.0008.P00
- Memory: 2x 2 GB Crucial 1Rx8 PC3-12800U-11-1-A1 1600 MHz
- Peripherals: Standard keyboard, mouse, and Gigabyte (GV-NX84S512HP) graphics card
- OS: Linux* Ubuntu*11.10 (kernel 3.10.1) , Windows* 7 64-bit Professional
- Linux* Ubuntu* Software: CPU2006v1.2 (400.Perlbench for CINT (specint) and 416.Gamess for CFP (specfp) with AVX binaries. ICC Compiler version 13.1
- Windows* 7 Software: Intel® Power Thermal Utility v1.0
- Intel® Hyper-Threading Technology enabled and C-States enabled
- A reference heat sink with fan was used while running benchmarks
- Measurement tool: Power Profiler 2.0 (National Instruments* USB-6255 DAQ with signal conditioning breakout board)

APG testing was conducted by Intel Corporation in June 2013.

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

3.2 Additional Information

- In case of conflict, the datasheet supersedes this document.
- Temperature values shown represent the mean temperatures measured throughout the duration of the test.
- APG configuration is provided for repeatability of the test.
- SPEC* CPU2006v1.2 is an industrial standard benchmark designed to provide performance measurements that can be used to compare compute-intensive workloads on different computer systems. SPEC* CPU2006 test on Intel microprocessors were measured using particular, well-configured systems. These results may or may not reflect the relative performance of Intel microprocessor in systems with different hardware or software designs or configurations (including compilers). Buyers should consult other sources of information, including system benchmarks, to evaluate the performance of systems they are considering for purchase. For more information about SPEC* CPU2006, please visit www.spec.org/cpu2006/. The CINT benchmark used in this test was 400.Perlbench. The CFP benchmark used in this test was 416.gamess.
- Intel developed the Power Thermal Utility tool (PTU) and Thermal Analysis tool (TAT) to generate TDP-like workloads on a system, “Non-disclosure Agreement (NDA) required.”
- The Idle Power shown in the figures above occurs while displaying the Window7* desktop screen.

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