



**TO: Andrew Fanara, EPA
Becky Duff, ICF**

**FROM: Ken J. Salaets
Director**

DATE: May 8, 2009

SUBJECT: Final Draft, ENERGY STAR® Computer Server Specification

ITI appreciates the opportunity to comment on the referenced draft specification, which you are free to post on the ENERGY STAR web site. We would welcome the opportunity to provide additional detail regarding any of the comments outlined below.

Implementation Date

ITI remains concerned about the ENERGY STAR Office decision to implement the new regulation without sufficient opportunity for the market to adapt to the requirements. Manufacturers have made it clear that few server models will be able to comply with the ENERGY STAR Computer Server requirements on or near the proposed May 15, 2009 effective date. Given the statutory requirement for Federal agencies to acquire “ENERGY STAR-listed” products, such a decision will unnecessarily create confusion in the Federal marketplace and in effect force the heads of agencies to use their authority to waive ENERGY STAR qualification as a procurement criterion.

We see little benefit in such an outcome for the program, for the government or for ENERGY STAR partners. Indeed, we believe that it would be prudent to avoid any action that might encourage a waiver, given the relative slow uptake of ENERGY STAR as a contract criterion in the Federal marketplace. Accordingly, we once again urge you to reconsider rendering the Computer Server specification effective on the same date that it is published and, in lieu thereof, to follow the guidance of the Energy Policy Act of 2005 to “provide appropriate lead time...prior to the applicable effective date...”

Power Factor Correction

With respect to power supply units (PSUs) power factor correction (PFC) under low load conditions; ITI still questions the value of specifying PFC below the 100 W level, given that few power supplies will ever operate below that level. This requirement adds unnecessary costs and complexity. In referencing the ENERGY STAR EPS 2.0 standard, which deals with single output PSUs, PFC values are not a requirement below 100 W. See below.

In addition to the Active Mode efficiency requirements found above, power supplies with greater than or equal to 100 W *input* power must have a true power factor of 0.9 or greater at 100% of rated load when tested at 115 volts @ 60Hz.

In our view, it does not make sense to reference different PFC values across PSU architectures.

Further, we note that the PFC values were revised in the Final Draft. Making such critical changes so late in the process will negate the good faith efforts that industry partners made several months back to anticipate and request PS design changes by their suppliers. This will add costs and further delay their ability to introduce ENERGY STAR-compliant systems into the Federal marketplace. Please see ITI's previous comments regarding schedules and timelines for implementation.

Proposed Alternate Language for the Computer Server Requirements

The computer server will provide an estimation of the processor or system utilization that is visible to the operator or user of the computer server through the operating environment (operating system or hypervisor). The number is intended to provide the data center operator a qualitative indication of the amount of load on the system to provide guidance regarding opportunities for virtualization and consolidation of workloads to deliver more work for each unit of energy used.

ITI proposes that the utilization requirement be qualitative in nature for the following reasons:

1. Each processor, system and operating system or hypervisor using different technical techniques to estimate or quantify utilization, making the requirement of an absolute or comparative number problematic given that the requirements are scheduled to go into effect on May 15, 2009.
2. With the introduction of power management functions and multi-thread systems, the current processor utilization measurement algorithms or functions cannot fully compensate for the presence of more than one thread or reductions in processor frequency. This in turn introduces significant inaccuracies into the measurement which make it unreasonable to establish a quantitative requirement with prescribed levels of accuracy. Each hardware and operating software supplier has their own approach to resolving this for their customers. No single formula can represent all implementations.
3. Any option to provide a defined algorithm, as was done in the current draft to improve reporting accuracy, will require a coding fix to implement. Given the variability in processor manufacturers, operating environments, an operating system versus hypervisor and proprietary source versus open source will result different timing for generating solutions which may disadvantage specific

manufacturer's despite the fact that this requirement is not one of the primary means by which ENERGY STAR is encouraging the purchase of computer servers with more efficient power supplies and lower idle power demand,

4. The intent of making processor or system utilization available to the data center operator is to encourage them to track the use of their equipment and identify equipment that is unutilized or underutilized. For this purpose, the measurement does not need to be quantitative or highly accurate. Rather, it needs to show where the system is not doing any work, as well as where it is underutilized. Providing a qualitative measure of server utilization provides a data center operator the information needed to identify these opportunities.

In order to avoid this problem, we recommend that the OS or Hypervisor CPU load reporting be accepted as reported. In addition, we request the insertion of the following language in the power monitoring section:

CPU loading accuracy requirements are limited to system operating conditions.

Blade Servers

In the note box on page 9, you indicate that the agency is delaying but not precluding consideration of idle limits for blade systems. Industry continues to be concerned that EPA intends to attempt to set idle power limits at various levels of blade population in a chassis. Extensive comments were provided in response to Draft 4 that highlighted the difficulty of this approach. Issues such as the variation in blade form factors, the fact that chassis are available with 7, 10, 14, and 24 or 25 blade slots, and the different disposition of fans, I/O, power supplies and other peripherals across the chassis and between the blade and the chassis make it almost impossible to attain any meaningful idle power qualification metric for blade systems.

In light of this, ITI wishes to reiterate the recommendation that bladed systems be treated similar to 4 Socket systems, and be included in Tier 1 as an effective short-term solution. We also endorse the Green Grid proposal to create an alternate blade implementation.

Typical Configurations

ITI members have identified that, with the significant level of variations in servers, the term "typical configuration" is vague and market-specific. For example, a typical server configuration for business applications would be very different from a server configured to optimize Internet communications. ITI recommends removing "typical" from the data collection and product family description. The range of classification from "maximum configuration" and "minimum configuration" should be sufficient to describe the product family.

Instrument Accuracy

We continue to fail to see the value of requiring power analyzers to have a resolution of 0.01 W or better for power measurements of 10 W or less. Such instruments are extremely expensive, and it would be extremely unusual for such systems to reach or fall below 10 W. If EPA believes it is important to specify a level of accuracy at 10 W or less, we ask that you provide a clarification that if no measurement is taken below 10 W, then the measuring meter does not have to meet the requirement for .01 W accuracy below 10 W.

Data Reporting

As you know, the data reporting requirement will entail the submission of very sensitive proprietary information. Accordingly, we recommend the inclusion of text on the related spreadsheet clarifying what can and cannot be shared. We also recommend the inclusion of a new tab to help distinguish common and product-specific information. ITI will be happy to develop a specific proposal to accomplish both.

Paperwork Reduction

For the purpose of efficiency, cost and maintaining the greenest of standards with this new set of server requirements, we recommend revising the requirement for the inclusion of paper copies of materials, e.g., data sheets, and allow the provision of data via electronic formats or via the posting of such information on a readily accessible web site. It is ITI's position that all ENERGY STAR-related marketing or technical materials be distributed in electronic format.

Thank you for the opportunity to comment.