

ENERGY STAR Server Conference Call
June 30, 2010
Conference Call Agenda
12:30-2PM EST

EPA Team

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Topics

- I. Introduction**
- II. Data Measurement and Output**
- III. SERT**
- IV. Idle**
- V. Families**
- VI. Blades**

Introduction

- The call commences at 12:30 PM EST.
- *EPA Intro (Una Song, US EPA)*: Discussion opened and goals of call presented
 - Offer an opportunity for more interactive discussion than was possible during the May online meeting
 - Follow up on stakeholder comments
- *EPA Comment*: Agenda items presented

Data Measurement and Output

- *EPA Intro (Evan Haines, ICF International)*: Clarification provided on EPA intent for Section 5: Data Measurement and Output.
 - It was intended to provide meaningful data while being mindful of minimizing the cost burden on server manufacturers.
 - EPA intending requirement to note the necessary internal measurement capability, NOT the rate at which the data must be pushed from the server to off-board management hardware and NOT to specify any analysis of data within the server itself.

- Sample rates were selected based on input from currently deployed examples of this capability, as well as input from potential users of this information (ala System and Datacenter management entities).
- Measurements with the 30 second rolling average was intended to assure the capture of high change rate data, while the simple 1 second sample of temperature was intended to allow for current results to be presented when polled by external management systems, and to allow for quick re-sampling in the case of unexpected results – thereby placing the burden of smoothing functions outside the server and in the management system.
- *Stakeholder Comment:* A stakeholder notes that the clarification regarding data management was now better understood
- *Stakeholder Comment:* A stakeholder suggests EPA clarify the intended end use of the data to help stakeholders provide targeted feedback on the specific frequency and sampling proposals.
- *Stakeholder Comment:* A stakeholder suggests that anti-aliasing of the resulting data is required to avoid misinterpretation and undue action by the end user.
- *EPA Comment:* EPA clarifies that fine grained information is necessary to allow analysis of transitory events and ensure that polled data was current. EPA restates the intention that analysis and filtering of the measurements is not required within the server.
- *Stakeholder Comment:* A stakeholder states agreement with EPA's points, but reiterates a previous question by saying that EPA clarification on the types of uses for power/temperature/utilization data will help determine if 1 second data is needed versus some other time period.
- *EPA Comments:*
 - EPA states the understanding that such high frequency measurements may not be necessary for data analysis purposes, but that the intent is that acquired data be relevant and current.
 - Regarding intended uses of the data, EPA states that the requirement is forward-looking. EPA sees tie-ins between server activity data and power management implementation, resource and workload allocation within a datacenter's servers, on-demand application of cooling and overhead.
 - EPA states that since it is established that the requirement is not intended to govern storage or management of the data, just its measurement and ability to report upon request, the stakeholder group should be positioned to comment on the specific frequency proposals.
 - The power sampling rates were based on noted current best practice provided by stakeholders
 - The temperature sampling rates were based on discussions with the cooling equipment and datacenter operator representatives
- *Stakeholder Comment:* A stakeholder notes that instead of *sampling rate*, it is better to think of the term as *currency rate* of the data (how recent it is).
- *Stakeholder Comment:* A stakeholder suggests EPA make clearer distinctions regarding how often data is made available versus how often it must be analyzed. It is necessary to sample at high enough rates to capture variations in behavior of the server. The stakeholder also notes that some users may not have the expertise to make accurate decisions based on the data and that EPA might need to require some "smoothing functions" in server hardware to separate actionable activity versus aberrations.

- *Stakeholder Comment:* A stakeholder requests that EPA clearly set for the “currency” of data concept in future communications. With this stated, stakeholders with engineering experience will be positioned to make productive suggestions on the specific Draft 1 proposals.
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SERT

- *EPA Intro (Evan Haines, ICF International):*
 - EPA notes that SPEC has provided a development update in the form of a revised Design Document. The link to this document will be provided via email with the meeting minutes from the call [Design document link: http://www.spec.org/sert/docs/SERT-Design_Doc.pdf]. EPA calls stakeholder attention to slides 9 and 10 from the SPEC presentation in May [link: http://www.energystar.gov/ia/partners/prod_development/revisions/downloads/computer_servers/SPEC_Server_Efficiency_Rating_Tool.pdf]. These slides detailed the OS-Architecture combinations SPEC is proceeding to design SERT for and has resources available to commence work and also the development milestones.
- *Stakeholder Comment:* A stakeholder asks if EPA is going to indicate how users will get access to SERT.
- *EPA Comment:* EPA responds that stakeholders should look at the logistics information in the Design Document, which covers issues of cost and access information. EPA notes that this, with other information in the Design Document, is open for further stakeholder comment.
- *Stakeholder Comment:* A stakeholder mentions that some of their contacts from the vendor and small/medium business portions of the market expressed concerns on in the following areas: cost, accessibility, intellectual property, and run rules. The stakeholder suggests that EPA consider these issues further
- *EPA Comment:* EPA clarifies that stakeholder feedback on concerns is welcomed and should be forwarded as soon as possible so that EPA can take further steps to make relevant revisions.
- *Stakeholder Comment:* A stakeholder requests clarification on how SERT will be made available. The stakeholder suggests that either a page on the SPEC or ENERGY STAR websites should be created for distribution of SERT BETA releases to stakeholders for review once available.
- *Stakeholder Comment:* A stakeholder suggests that review of the Design Document should be focused at this stage on the content of the planned SERT tool such that SPEC can receive input on the structure.
- *Stakeholder Comment:* A stakeholder asks if EPA has considered alternatives to the SERT tool should development not yield an acceptable tool.
- *EPA Comment:* EPA clarifies that the primary focus and goal of the program remains to incorporate SERT, which will allow disclosure of active mode efficiency data. EPA states that alternatives will be considered if necessary and that it is monitoring benchmark developments in case one is necessary.

- *Stakeholder Comment:* A stakeholder asks if time will be allowed in the process for stakeholders to review the type of data collected by EPA from outputs of the SERT tool.
 - *EPA Comment:* EPA states that the outputs of the tool will take two forms: (1) the Power and Performance Datasheet (PPDS) and (2) the ENERGY STAR qualified product list. As the SERT tool continues to develop, likely coinciding with the release of Draft 3, EPA will submit to stakeholders a second PPDS template with refined information to accept stakeholder feedback. EPA took as a note to provide stakeholders with an opportunity to review the structure of the qualified product list fields as part of the specification revision process.
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Idle

- *EPA Intro (Evan Haines, ICF International):* EPA introduces the Idle power topic by noting the hardware-category structure of the Version 1 requirements and the scaling alternatives referenced in the note box of Draft 1. Specifically, options were referenced that scale idle allowances by either a performance or power reference point. The performance reference point could be derived from SERT, but this would delay idle power data collection until a vetted beta version was available for stakeholder use. EPA concludes by stating initial investigations into workloads that could be used now for data collection and ultimately built into the SERT tool.
- *Stakeholder Comment:* A stakeholder suggests conversation on Energy Efficient Ethernet [IEEE 802.3az - <http://www.ieee802.org/3/az/public/index.html>]. The stakeholder reviewed comments forwarded to EPA that noted more time was needed to implement EEE as an ENERGY STAR requirement. The stakeholder noted that the EEE working group is set to complete the standard by September 2010 and that this seems to enable it to become a requirement in the ENERGY STAR specification.
- *Stakeholder Comment:* A stakeholder raises the topic of silicon and technology roadmaps in response. The stakeholder mentions support of adopting the standard, but that if it is implemented before compliant silicon/hardware is available, it will result in “holes” in availability of ENERGY STAR servers.
- *Stakeholder Comment:* A stakeholder states that while the EEE standard will be complete in the fall, it will take additional time to build it into server platforms.
- *EPA Comment:* The stakeholder is asked if there are any estimates of the time it will take to incorporate EEE into platforms, assuming a fall finalization date.
- *Stakeholder Comment:* The stakeholder responds that it could be into 2013 before platforms are available. It would be anticipated that the first available technologies would not be sufficiently robust/proven for immediate adoption into the data center.
- *Stakeholder Comment:* A stakeholder mentions that the steps would be finalization of the standard, then building the standard into product roadmaps, then product refresh.
- *Stakeholder Comment:* The stakeholder who brought up the EEE topic states an understanding that 2011 might be too early to make it a requirement and suggests EPA clearly communicate intent to adopt EEE when the standard is next updated after Version 2.0.

- *EPA Comment:* EPA clarifies that the Appendix A test procedure builds in a step to allow implementation of EEE during ENERGY STAR testing if it is enabled in a server. While not required, any savings the technology offers will be realized in the ENERGY STAR test.
 - *EPA Comment:* EPA asks stakeholders if there are any alternative workloads that might allow near-term Idle testing, as introduced.
 - *Stakeholder Comment:* A stakeholder notes that it may take a few months to evaluate any candidate workload to do this type of testing.
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Families

- *EPA Intro (Evan Haines, ICF International):* The topic is introduced with a reference to Table 1 in the ENERGY STAR Draft 1 document, a brief note regarding the stakeholder comments to EPA, and EPA's openness to determine a better "bracketing" system for representative testing. EPA notes that the key consideration for EPA is that resulting testing truly represents qualified configurations and that active power disclosure for tested models is useful for server purchasers.
- *Stakeholder Comment:* A stakeholder expresses support for the Green Grid proposal from their public comments. The motherboard is referenced as the key commonality in a platform of servers and it is suggested that by just specifying a common motherboard, consistency will be set such that maximum and minimum configurations may be derived from the other components.
- *EPA Comment:* EPA notes that there was some stakeholder disagreement on the definition for motherboard and asks call participants if it is possible to cite a single definition for the component.
- *Stakeholder Comment:* Two stakeholders state that this is not possible since motherboards differ with different server designs (accommodate whatever combinations of CPU, Memory, I/O, and Storage placed in a design. Multiple CPUs may exist within a specified platform Thermal Design Point (TDP) and that the motherboard will be designed to accommodate the maximum necessary TDP.
- *EPA Comment:* EPA clarifies that it is interested in minimizing partner test burden as possible but also that it must identify the most efficient configurations and clearly communicate to customers how their purchasing choices will result in more or less efficient products.
- *EPA Comment:* EPA asks call participants if it is likely to see the same model motherboard in different form factors (rack-mounted, pedestal, etc.)
- *Stakeholder Comment:* One stakeholder responds that some of their designs in the past have used the same motherboard sku in different form factors and that this is a possibility.
- *EPA Comment:* EPA states that in different form factors, the combinations of other components would likely differ even with the same motherboard.

- *Stakeholder Comment:* A stakeholder notes that it is likely not a good idea to have the family concept generalized over different form factors and that all configurations within a family should share the same form factor.
 - *EPA Comment:* EPA states the belief that different types of CPUs may be marketed for different types of use. For example, certain skus would be intended for users who desire performance regardless of efficiency, while others would be intended for a balance of performance and efficiency.
 - *Stakeholder Comment:* A stakeholder stated that the CPU, along with other components, is often selected to optimize a server for their specific deployment and workloads.
 - *Stakeholder Comment:* A stakeholder states that they advocate ENERGY STAR focusing at the platform level and less on the specific sku of components used to achieve efficiency of the platform.
 - *EPA Comment:* EPA asks if CPU and Memory fall into the “noise bucket” [the types of components which can safely be allowed to differ without missing any details in a “bracketed” representative family].
 - *Stakeholder Comment:* A stakeholder responds that this is not the case, but that EPA should consider the CPU another “knob” which manufacturers should be able to adjust to generate platform efficiencies rather than locking it down.
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Blades

- *EPA Intro (Evan Haines, ICF International):* In a brief period of time at the end of the call, it is noted that EPA received numerous proposals on testing blade servers.
 - *EPA Comment:* A number of comments focused on how to populate the chassis during testing, with a number bringing up the topic of “power domains” and suggesting that loading of the chassis be based on the available power from the chassis’ power supplies.
 - *EPA Comment:* Stakeholders also raised the possibility of using a set of features as requirements for blade chassis efficiency, rather than the framework of power allowances set forth in Draft 1.
 - *EPA Comment:* EPA states that it is working on developing the consensus testing approach for blades, based on all of the feedback, and will use this to initiate testing.
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Closing

- *EPA Closing (Una Song, US EPA):* EPA thanks participants for their comments and presence on the call. Interested stakeholders are encouraged to contact either Una Song (song.una@epa.gov) or Evan Haines (ehaines@icfi.com) if they are interested in setting up any side discussions on server topics.
- The call is closed at 2pm EST.