| Ref. # | Topic | Subtopic | Stakeholder Comment | EPA Response |
|---|---|---|---|---|
| 1 | Definitions | Computer Server | A stakeholder noted that it appears that the items underneath "Product Type" represent ten different product types and "Computer Server" is one of them. This could be misleading and the distinction is important in the application of the definitions. The commenter recommended that "Computer Server" should replace "Product Type" and the different types of servers be represented in sub-bullets underneath. | The current approach, with the Computer Server definition on top, mirrors the approach taken in other ENERGY STAR specifications such as Computers Version 5.2 and UPS Version 1.0. This approach forms part of the template for ENERGY STAR specifications. |
| 2 | Definitions | Blade Server | A stakeholder recommended that a sixth type of blade server be added because at least one manufacturer has this product and others are expected: (5) Multi-node Blade Server-A blade server which has multiple nodes. The blade server will be hot swappable, the individual nodes will not. | EPA has added a definition for multi-node blade servers to address this type of product which is currently on the market and within scope. |
| 3 | Definitions | High Performance Computing System | A stakeholder commented that the reference to “high speed inter-processing interconnects” is incorrectly written, since interconnects do no “processing”. The stakeholder also commented that the term IPC is not defined. | EPA has revised the language in the definition of High Performance Computing System to remove the reference to the undefined IPC reference. |
| 4 | Definitions | Buffered DDR Channel | A stakeholder commented that the existing definition does not specify that the DDR channel is located on the memory buffer chip, which is specific to a resilient server, and that the definition should be expanded to provide more clarity. | EPA appreciates this stakeholder's feedback but has decided to maintain the current definition as it sufficiently describes the part of the product that is eligible for the Buffered DDR Channel adder in Table 4. |
| 5 | Definitions | Product Family Attributes | A stakeholder commented that there are products that share the same server enclosure and electronics between rack-mount and pedestal products, but differ in mechanical options that are added to make one mount to a rack or the other to make it a pedestal server. The stakeholder requested a revision to the current definition to allow for variation in superficial mechanical differences to support multiple form factors, provided the products share the same mechanical and electrical designs. | EPA has revised the common product family attributes section to allow mechanical and electrical designs with only superficial mechanical differences to enable a design to support multiple form factors. |
| 6 | Definitions | Product Family Configurations | Two stakeholders noted that because of the limited range of configurations for a one processor socket system, the Minimum Power, Low-end Performance and Maximum Power, High-end Performance are indistinguishable and so there is no benefit to testing five configurations for a one processor socket family. | The number of configurations is based on the number of options offered combined with the number of those options that can be supported. One socket machines typically support a lower quantity of options, but EPA does not believe the variety should be dramatically less. EPA remains committed to testing these one socket systems with the five corner approach. |
| 7 | Power Supply Requirements | | A stakeholder requested to add a consideration in Section 8 to explore a requirement on right sizing of power supplies in Computer Server products. his could be addressed for example by a requirement requesting that for product families covering a certain range of power demand, several power supplies of different capacity must be provided to support right sizing.<br><br>The stakeholder also requested an addition to Section 8 for future consideration of DC-DC Computer Servers. | EPA has added both of these topics to Section 8 for consideration in future specification revisions. |
| 8 | Power Management Requirements | | A stakeholder requested to add a consideration in Section 8 to expand the existing list of power management options to include:<br>• Power monitoring features<br>• Power management features supporting management at the server unit level and system level (standby and reactivation options in racks etc., e.g. for virtual migration)<br>• Chassis power management features (for blade servers only)<br>• Standby power feature for redundant power supplies<br>• Power capping | EPA has added standby power for redundant power supplies to Section 8 for future consideration. EPA will include fields in the data collection form for additional power monitoring features, chassis power management features, and power capping functionality. |
| 9 | Qualification Criteria | Active Mode Disclosure | Two stakeholders appreciate EPA’s decision to blind the Server Efficiency Rating Tool (SERT) result submissions for the period between publish date and effective date of the rule. This provides the EPA and server manufacturers with the necessary time to assess the SERT results and determine if there are any specific issues with the reporting of the data.<br><br>The stakeholders further encourage the EPA to consult manufacturers or industry groups, such as ITI and the Green Grid, that have been active in the development of the ENERGY STAR server requirements regarding any concerns with public reporting of the data and any actions that may be appropriate prior to or as part of the release of the data with manufacturer and machine type identification. This should occur by the third quarter of 2013. If issues are identified, it would be possible to address them by issuing a Version 2.1 of the requirements prior to the November 20, 2013, the effective date of version 2.0. | EPA appreciates these comments and will host an "off-season" SERT data review and Computer Server discussion with stakeholders in Q3 of 2013. |

| | | | | |
|---|---|---|---|---|
| 10 | Additional I/O Device Allowance | | A stakeholder requested the following addition to Section 3.6.ix: "applied for I/O devices that are active/enabled upon shipment, are capable of functioning when connected to an active switch, and are active during test." | EPA has clarified that additional I/O devices that claim adders must be enabled during testing. |
| 11 | Idle Allowances | | A stakeholder states that the Draft 2 dataset shows the potential market penetration levels (based upon idle requirements and idle allowances) are high. While these data points may represent a small sub-set of the market, it does suggestion that the allowances in table 4 are potentially only a small improvement over the Version 1.0 levels and could be made more stringent. | EPA has struck a balance between the stringency of its levels and the goal of providing abundant and useful data to purchasers on the energy efficiency of their products. EPA has increased the stringency of the memory adder in Table 4 significantly and believes that will further increase differentiation of energy efficient products in the current market place, while also collecting active SERT data from a sufficient number of products to create active energy efficiency requirements in Version 3.0 and provide necessary data to purchasers during the lifetime of Version 2.0. |
| 12 | Adder for Additional Power Supplies | | A stakeholder stated that there are redundant power supplies on the market that can be kept in standby mode, and are only activated when needed. Thus is is unclear why a standard adder of 20 watts is still offered for redundant power supplies. | EPA has had several discussion with manufacturers and has learned that the ability for redundant power supplies to be kept in standby mode is not currently present in the Computer Server market. Stakeholders provided data showing that the current 20 watt adder is appropriate for the market at this time. EPA encourages the development of standby mode capable redundant power supplies in Computer Servers and will strongly consider introducing this as a requirement in Version 3.0. |
| 13 | Qualification Criteria | Removal of Full Load Efficiency Criteria | A stakeholder agreed with the deletion of Section 3.6.2 and other full load power requirements in subsequent sections, as full load power is not a criterion for qualification. | EPA thanks the stakeholder for this feedback. |
| 14 | Data Disclosure | | A stakeholder stated that there are the description for the idle mode data disclosure for 3S/4S servers in Section 3.7.1 and blade servers Section 3.8.1. But for the 1S/2S servers, there is no description for the data disclosure in 3.6.1. The stakeholder believes it is necessary to have the same description for the idle mode data disclosure of 1S/2S servers. | EPA has added this language to Section 3.6 for clarification. |
| 15 | Qualification Criteria | Idle - Blades | A stakeholder requested to change the language for blade server rounding to the nearest power domain to: "Blade Servers with asymmetric power domains shall may round up to the nearest by ±1 blade to fill the base power domain." | EPA has revised the language in Section 3.8.2.i to address this concern. The test method has also been revised to reflect this change. |
| 16 | Auxiliary Processing Accelerator (APA) Requirements | | A stakeholder supports the requirement for reporting the idle state power of each APA, but believes the current proposal of allowing the same allowance for each APA after the first does not address newer technologies designed to reduce idle mode power demand in desktop and notebook GPUs, specifically the ability for secondary GPUs to consume less power in idle mode. | EPA has received stakeholder feedback that the hardware associated with APAs designed for Computer Servers differs significantly from the hardware found in desktop and notebook products. Additionally, the workloads addressed by APAs used in Computer Servers differ significantly from the workloads addressed by GPUs in desktop and notebook products. EPA has not received any stakeholder data to support that secondary APAs designed for use with Computer Servers consume less power than the primary APA and will maintain the current approach in Section 3.10. |
| 17 | Power Calculator | | A stakeholder suggested to remove the reference to ""Whenever possible" in relation to provision of a detailed power calculator, as this greatly reduces the possibility of compliance to this useful requirement. If there are specific cases where a detailed power calculator cannot be provided, industry should provide justification for these, | EPA will maintain the current language with expectation that if a more detailed power calculator has been developed by the manufacturer for a product, that it is made available on their web site. |
| 18 | Measurement Requirements | | A stakeholder recommends the following changes to Section 5.1.1 and 5.3.2: "…utilization of all logical CPUs…" to "AVERAGE utilization of all logical CPUs". In the case where there are many hardware threads running on many cores on several processors, it would not be practical nor would it provide value to report the utilization values for every thread on the system. | Upon further consideration, EPA agrees with this feedback and has revised Sections 5.1.1 and 5.3.2 to reference average utilization of all logical CPUs. |
| 19 | Measurement Requirements | | A stakeholder asked if the system has one PSU and consumes less than 200W, and the +/- 5% of actual input power is less than +/- 10W, can they use the measurement value by PSU? Or use different method to measure the actual system input power value? | EPA wishes to clarify that the requirement is that the power reporting accuracy for each PSU is never required to be more accurate than +/- 10 Watts. If a system consumes less than 200W, then the stakeholder is correct that +/- 5% would be less than the +/- 10W value. In this case, the system must only meet the +/- 10W requirement and does not have to go lower.<br><br>A further example:<br>System 1 consumes 400W. 5% of this = 20W. So, the system must report with an accuracy of at least +/- 20W and may be more accurate (+/-15W, +/-10W, +/-8W, etc.) if the manufacturer desires.<br>System 2 consumes 100W. 5% of this = 5W. This is below the set maximum accuracy of +/-10W, so the requirement simply moves to that level-- +/- 10W. It may be more accurate (+/-8W, +/-5W, etc.) if the manufacturer desires, but this is not required. Maximum required accuracy is set at +/10W to accomodate the uncertainties inherent in measuring power at low levels. |

| | | | | |
|---|---|---|---|---|
| 20 | Measurement Requirements | Sampling Requirements | A stakeholder appreciates and supports EPA's clarification of the requirements for the availability of the input power, inlet air temperature, and processor utilization data. Clarifying that the server has to have the data available, rather than supplying the data, as required in sections 5.4.1 to 5.4.3 provides a workable solution for this requirement for server manufacturers. | EPA thanks the stakeholder for this feedback. |
| 21 | Testing | SERT | A stakeholder stated that the most up to date reference for SERT should be listed in Table 5 of the specification. | EPA will continue to update the applicable test method table to reference the appropriate version of the ENERGY STAR Computer Servers test method and SPEC SERT rating tool. |
| 22 | Testing | 2 Processor Socket Servers with 1 CPU | A stakeholder appreciates the clarification of testing and idle requirements for two processor socket servers populated with a CPU that is designed only for 1 Socket operation. Customers choose to place these CPU SKUs in a 2S system to gain features not found in the low end / lowest cost 1S systems. | EPA thanks the stakeholder for this feedback. |
| 23 | Considerations for Future Revisions | | A stakeholder suggested an addition to Section 8 to explore a warranty from manufacturers that guarantees normal server operation and lifetime of equipment at inlet temperature up to 27° C is listed. Such an initiative could support data managers in choosing appropriate operation tempera-tures that my be higher than their current (more cautious) levels – thus resulting in energy savings. | EPA appreciates the stakeholder feedback and is open to holding discussions on this topic in future specification developments and in the "off-season" meeting tentatively scheduled for September 2013. |
| 24 | Resilient Server | Appendix B | A stakeholder requested that Section A.1.b of Appendix B should be changed to "single bit error correction (or better). They do not want to impede excellence in improving resilient server functionality and there are servers that correct multi-bit errors.<br><br>The stakeholder also suggested removing the requirement in Section B.4 of Appendix B as they do not believe the use of memory buffers relates to resiliency. | EPA has revised the language in Section A.1.b of Appendix B as suggested.<br><br>EPA has not revised the other language in Appendix B, as these system attributes have been previously agreed upon by stakeholders and EPA's current understanding is that memory buffers do relate to resiliency. EPA welcomes further discussions of the accuracy of the resilient server definition at the off-season meeting and in preparation for the future Version 3.0. |
| 25 | General | | Throughout the document there is inconsistent capitalization of the terms Ac and Dc (or is it ac and dc), such that it creates confusion about whether there is a difference between the terms Ac and ac, and Dc and dc. | EPA appreciates this feedback but will maintain the current language in order to be consistent with other ENERGY STAR specifications. |