

IBM is pleased to provide the following comments to the ENERGY STAR® Specification for Computer Servers Version 3 Draft 1. IBM has a long history of working with USEPA on the ENERGY STAR program and intends to participate in the development process for the Version 3 specification. We are also heavily involved in The Green Grid SERT Analysis Working Group (TGG WG) and have focused our efforts to support development of a single value active efficiency metric for servers in that group.

IBM generally supports the full set of comments submitted by Information Technology Industry Council (ITI) and the TGG WG and will not repeat those comments here. The ITI/TGG comments cover the majority of the specific questions and requests for comment made by EPA in the draft 1 document. We offer the following, additional, IBM specific comments.

Section 3.6.2 Idle state efficiency

One socket resilient server idle limit: Table 4, line 460: A preliminary review of the one socket resilient server idle limit indicates that it is set too low. IBM will do more work during the Draft 2 development phase to provide additional information and data to support a higher value for the 1 socket idle limit.

Table 5: Line 468: Additional Idle Allowance, Power Supplies: We believe that the 10 W idle adder for the larger power supplies of 900 W to 2000 W used in the resilient servers is too low. The power supplies incur losses during the idle phase resulting from power losses in the power factor correction (PFC) stage of the power supply, the amount of standby currents, and the internal fans, which must run continuously to cool the PFC stage and control supplies. IBM will attempt to test several power supplies for planned and future products to propose a data based redundant supply power adder.

Resilient Server definition, Appendix B, B.4: At least one of family of our next generation Power® processors will have the memory controller and buffer on the processor chip, not on a dedicated memory buffer card. The additional circuitry for the controller and buffer will require additional energy overhead but those systems will no longer be eligible for the “Additional Buffered DDR Channel” idle adder. Overall, the movement of the controller and buffer function to the processor die will reduce the energy consumption of the server and increase the active efficiency. In order to continue to capture the memory buffers as a resilient server characteristic for this configuration, the second sentence of this section needs to be modified to read:

“Memory buffer can be a separate standalone buffer chip which is integrated on the system board, or integrated on custom-built memory cards, ***or circuitry integrated on the processor chip.***”

This addition will incorporate the processor based memory controller and buffer into the resilient server definition.

APA Requirements (lines 529 to 558):

Reduction of the APA idle power limit: lines 545 to 546: IBM has discussed the reduction of the idle limit from the current 46 watts to 30 watts. The preliminary response is that the 30 W limit may be too low due to higher power demands resulting from the smaller line widths and internal losses of the next generation semiconductor manufacturing processes and more complex circuitry. IBM will work with its suppliers to gather available data to identify and justify a higher idle limit for APA chips.

Direct Attach APA chips: In some instances, APA chips will be direct attached to the mother board for improved functionality and processing speed. This will render the current verification for APA idle power use unworkable. The testing/reporting requirements need to be modified to enable idle power measurement and/or reporting for the APA chips.

1. We may be able to completely turn the APA chip off so that it does not draw power. We could then run two idle tests, one with the APA chip turned off and one with it turned on that would allow us to assess idle power. This option needs to be included in 3.10.1.i.
2. We recommend that EPA provide an option for the server manufacturer to work with their APA supplier to determine the idle power requirements for the chip based on chip test data. Manufacturers should be allowed to submit a test report from the supplier. If this option is necessary, IBM will work with its APA suppliers to recommend an acceptable test method.

Please contact Jay Dietrich at jdietric@us.ibm.com with any questions regarding these comments.