ENERGY STAR® Tier 2 Computer Specification Update
9/12/06

Background
EPA intends to include two tiers in the revised ENERGY STAR specification for computers (Version 4.0). Tier 1 of this revised specification will go into effect in July of 2007 and is now nearly finalized. EPA continues to work on Tier 2 of this revised specification which will go into effect in January of 2009. EPA intends to base Tier 2 of the ENERGY STAR computer specification on an energy and performance assessment. By developing or adopting an energy and performance assessment, EPA hopes to create an energy efficiency metric that will remain relevant regardless of changing technologies or application. This method will allow EPA to move away from prescriptive specifications that set individual component levels and move towards specifications that recognize whole product energy efficiency. A specification based on performance and capability will also provide manufacturers with design flexibility, so that they may maximize energy efficiency in ways that best complement other priorities. EPA has implemented other ENERGY STAR specifications that simultaneously take into consideration both energy and performance including those developed for: imaging equipment, workstations (currently proposed for Tier 1), monitors, air cleaners, ventilating fans, and ceiling fans.

Goals for an ENERGY STAR Energy Efficiency Performance Metric
EPA is working to identify or develop a method that specifically identifies energy efficiency for computers across all modes of operation and believes that a successful method will:

(1) Approximate the performance/capability of a computer. This could be coupled with energy use measurements for ENERGY STAR qualification;
(2) Directly reflect the annual energy use and savings of products as they are expected to be used;
(3) Provide a consistent and neutral platform for comparison across different product platforms (based both on OS and/or hardware differentiators), types and capabilities, even as products evolve and change in the marketplace;
(4) Be developed by or endorsed by a broad range of constituents, in a transparent and open nature;
(5) Be available for downloading for free so that interested parties can assess the efficiency of their systems compared to the ENERGY STAR criteria;
(6) Be intuitive and accessible to a broad audience;
(7) Function without disrupting the installed software load of a deployed computer; and
(8) Be fully ready for use by July 2008, in anticipation of the Tier 2 Computer Specification effective date of January 2009. A version close to the final one should be ready by January 2008 to allow time for system testing and determination of categorization and energy limits for the specification.

EPA understands there are many different potential approaches to measuring system performance and capability, and remains open to additional suggestions for such methods. Furthermore, EPA understands that there will be a need to strike a

balance between accuracy and ease of use/functionality. Therefore, at this time, both synthetic and application based metrics will continue to be considered.

Progress Made on an Energy Efficiency Performance Metric

EPA has been investigating the energy and performance assessment approach with a range of stakeholders including the ECMA working group TC38-TG2. The ECMA working group has been tasked with developing a cross platform method for determining the energy efficiency of desktops, notebooks and workstations, and is interested in the development of an energy efficiency metric that can be used for Tier 2 of the ENERGY STAR computer specification. The Agency believes that EPA and ECMA share many common goals for such an efficiency metric, and EPA remains hopeful that the ECMA process will yield an end product that meets the content and timing needs for Tier 2 of the revised ENERGY STAR computer specification. With the goal of helping develop a product that the Agency can embrace in mind, EPA is actively participating in the TC38-TG2 working group.

Over the course of the last few months two different operating system vendors have become directly involved in the ECMA process and some additional OEMs have expressed interest in participating. Both of these developments have been a direct result of the cooperation between EPA and participating industry partners to ensure the Tier 2 process is open and well represented by the various stakeholders. The ECMA working group has presently engaged in discussions with several potential vendors who could perform the development and maintenance of the software that implements the ECMA approach.

The ECMA method under development is currently based on assumptions of typical usage patterns for different types of products and markets. The assumptions will have greater credibility and relevance if they are based on empirical data about current usage patterns along with known industry and consumer trends. To accomplish this, EPA would like to propose a joint venture with industry to gather such data through survey and other sampling techniques in order to determine appropriate workloads, usage patterns and computer power state distributions over time.

Network Connectivity and Link Rate

EPA has also included network requirements for connectivity and link rate in the specification under revision. The research, development, and standards processes necessary to implement these criteria have begun, and EPA will keep stakeholders aware of all major developments in this area. Stakeholders who may wish to actively contribute to this development should contact EPA as noted below.

Further Information

Stakeholders with questions or comments on EPA's Tier 2 efforts for computers should contact Katharine Kaplan Osdoba, US EPA, at osdoba.katharine@epa.gov. Stakeholders interested in further information on ECMA's progress in developing an energy efficiency metric for computers should contact Kevin Fisher, Intel, at kevin.fisher@intel.com or visit http://www.ecma-international.org/memento/TC38-TG2.htm.