ENERGY STAR®

Version 3.0 Computer Servers Draft 3 Specification Webinar

U.S. Environmental Protection Agency
May 17, 2018

energy
ENERGY STAR

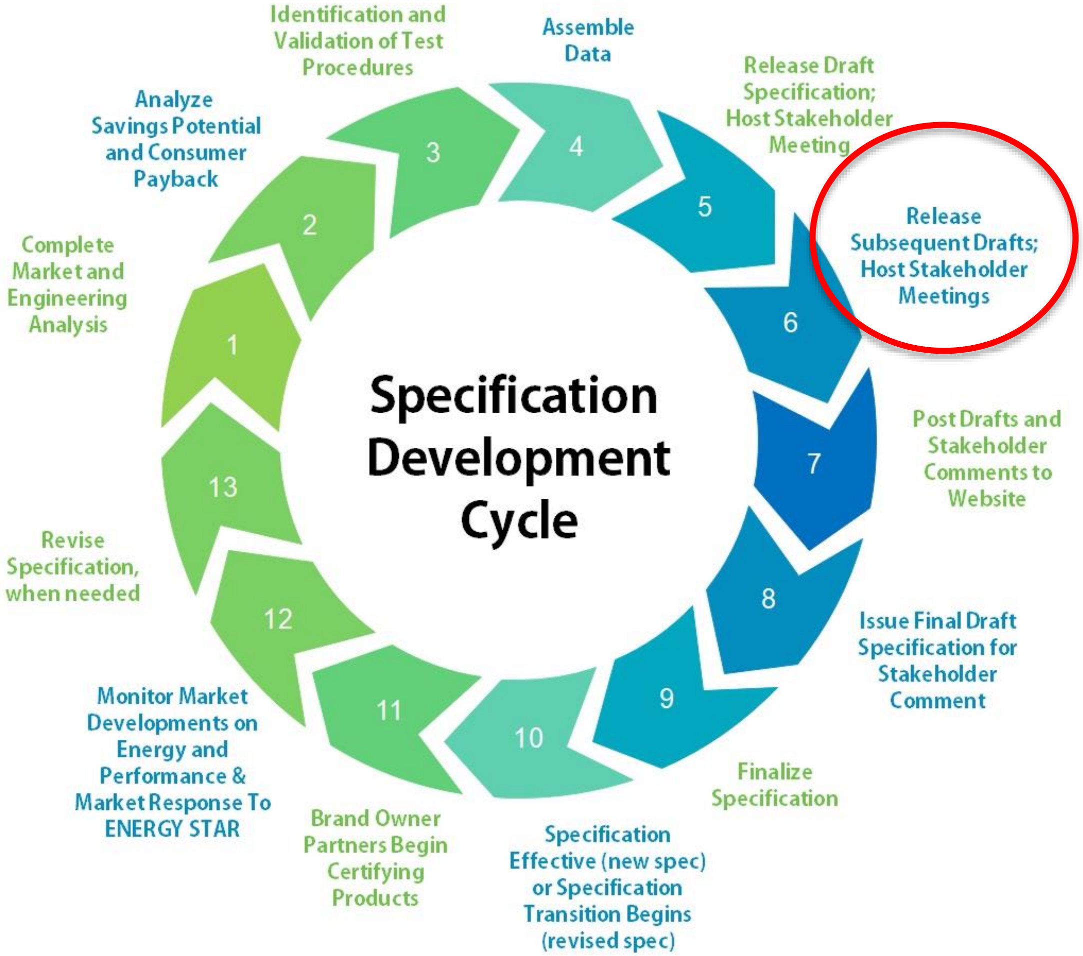
Introductions

- Ryan Fogle – EPA, Computer Servers Product Lead
- John Clinger – ICF

Outline

- Overview
  - Specification Development Cycle
  - Summary of Draft 3 Proposal
- Definitions
- Active State Efficiency Criteria
- Idle State Reporting
- Other Testing Criteria
- Timeline & Next Steps

Review of Specification Development Cycle



Specification Development Cycle

1 Complete Market and Engineering Analysis

2 Analyze Savings Potential and Consumer Payback

3 Identification and Validation of Test Procedures

4 Assemble Data

5 Release Draft Specification; Host Stakeholder Meeting

6 Release Subsequent Drafts; Host Stakeholder Meetings

7 Post Drafts and Stakeholder Comments to Website

8 Issue Final Draft Specification for Stakeholder Comment

9 Finalize Specification

10 Specification Effective (new spec) or Specification Transition Begins (revised spec)

11 Brand Owner Partners Begin Certifying Products

12 Monitor Market Developments on Energy and Performance & Market Response To ENERGY STAR

13 Revise Specification, when needed

Current Step

Summary of Draft 3 Proposals

- Proposed more aggressive active only requirements.
- Amended idle requirements to reporting only and removed the manual test measurement.
- Updated APA requirements.

Definitions

- Resilient Server
  - Definition based on stakeholder feedback.
  - Incorporates language directly into the Definitions section of the specification and removes Appendix B from the specification.
- High Performance Computing System (HPC)
  - Minor edits made to address recent advancements in the HPC market.
- Product Family Tested Configurations:
  - Updated the definition to provide additional clarity and increase the consistency of system configurations within each product testing configuration.

Active State Efficiency - Threshold

- ENERGY STAR utilized SERT V2.0.0 data points.
  - Incorporates newer, more modern reference server.
  - Reduced the values by as much as 5x compared to SERT V1.1.1
- With the removal of idle requirements, EPA increased the stringency of the active requirements to differentiate the top quartile of the market.
  - Includes new chipsets as well as current chipsets expected to be sold over the lifetime of the specification.
- Analyzed projected pass rates at both configuration and product family based, separated by form factor (rack, blade, tower, resilient) and socket count (1, 2, 4).
- All ENERGY STAR products will have to meet their applicable minimum Eff_{ACTIVE} values shown in Table 3 to certify as ENERGY STAR.

Active State Efficiency - Threshold

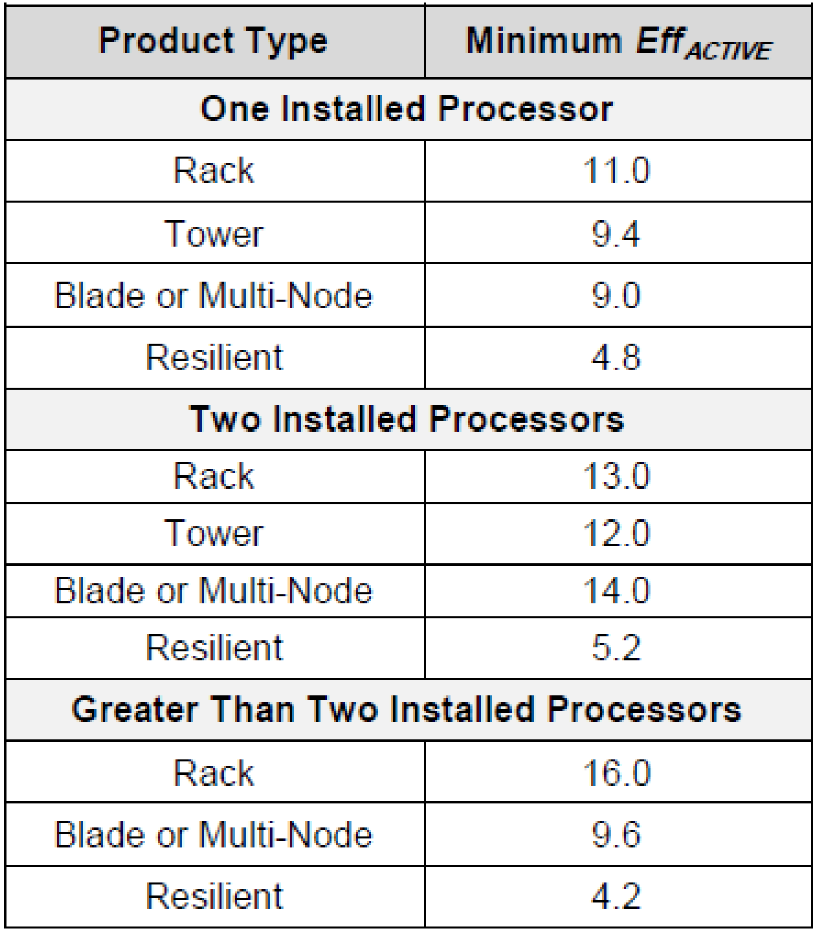
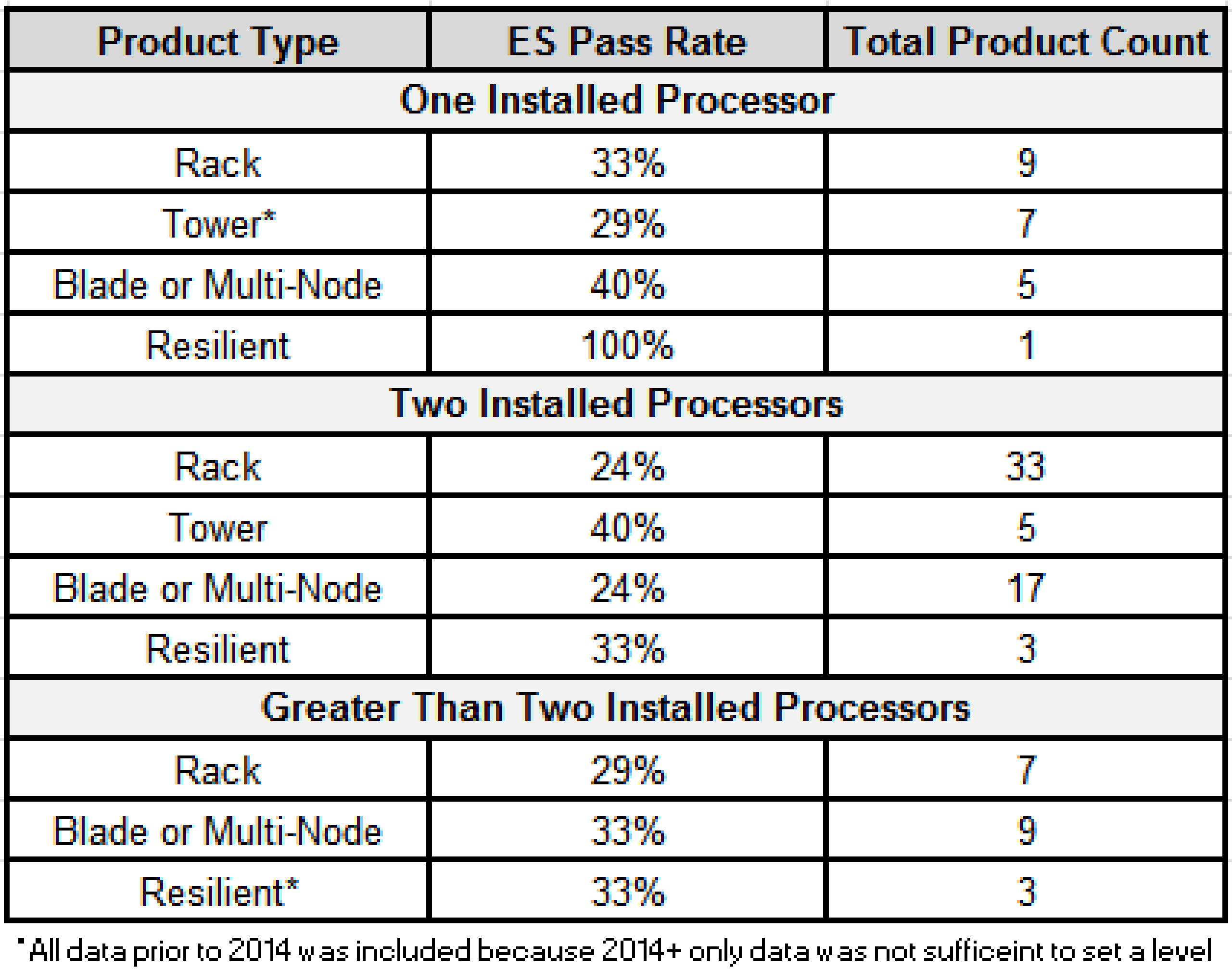


Table 3: Active State Efficiency Thresholds for all Computer Servers

Product Type	Minimum Eff_{ACTIVE}
One Installed Processor	
Rack	11.0
Tower	9.4
Blade or Multi-Node	9.0
Resilient	4.8
Two Installed Processors	
Rack	13.0
Tower	12.0
Blade or Multi-Node	14.0
Resilient	5.2
Greater Than Two Installed Processors	
Rack	16.0
Blade or Multi-Node	9.6
Resilient	4.2

Pass Rates by Product Category



Product Type	ES Pass Rate	Total Product Count
One Installed Processor		
Rack	33%	9
Tower*	29%	7
Blade or Multi-Node	40%	5
Resilient	100%	1
Two Installed Processors		
Rack	24%	33
Tower	40%	5
Blade or Multi-Node	24%	17
Resilient	33%	3
Greater Than Two Installed Processors		
Rack	29%	7
Blade or Multi-Node	33%	9
Resilient*	33%	3

*All data prior to 2014 was included because 2014+ only data was not sufficeint to set a level

Active State Efficiency – Analysis Observations

- EPA found that pass rates in the dataset were at least 24%.
  - Includes models between 2014 and November 2017.
    - Exceptions:
      - One socket tower products.
      - Greater than two socket resilient servers
- Data reviewed by the Agency, indicated that 11 product categories were necessary to adequately differentiate computer servers with varying performance levels and architectures.

Idle State Reporting

- EPA has maintained idle state reporting for Version 3.0.
  - Two sections were removed from the specification (Sections 3.7 and 3.8 in Draft 2).
  - The manual idle measurement test was also removed from the test method.
    - Only the SERT idle test will be required for reporting.

Other Testing Criteria

- APA Requirements:
  - EPA received feedback from several stakeholders showing that there are multiple divergent APA technologies developing which require higher idle power consumption, but also provide much greater processing capability.
  - However, an apple to apple comparison of different memory bandwidth and performance options is not feasible at this time.
    - E.g. GPGPUs vs. FPGAs
  - With the lack of a test method, EPA is proposing that all servers be tested without expansion APAs installed during test and that manufacturers report the APA details and idle power consumption.

Timeline

- Draft 3, V3.0 Specification Release – May 3, 2018
- Final Draft V3.0 Specification + Final Specification Release – Summer 2018
- V3.0 Specification Effective – Spring 2019

Any Questions?

Draft 3 Specification Comment Deadline

- Please send written feedback to servers@energystar.gov

Comment Deadline
Monday, June 4, 2018

Thank You!

Specification Development		**Test Method**
Ryan Fogle		Jeremy Dommu
EPA ENERGY STAR	and	Department of Energy
(202) 343-9153		(202) 586-9870
Fogle.Ryan@epa.gov		Jeremy.Dommu@ee.doe.gov

John Clinger
ICF
(215) 967-9407
John.Clinger@icf.com

- Feedback can also be directed to servers@energystar.gov