SERT
Server Efficiency Rating Tool

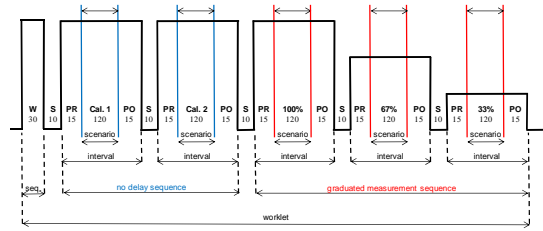Developed by the SPEC Power Committee
http://www.spec.org/sert

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The SERT:

- A rating tool for measuring server efficiency
- Built on existing SPEC methods and expertise
- Developed for use by the US EPA's ENERGY STAR for Server and other worldwide energy efficiency programs
- In collaboration with the EPA's industry partners

SERT Worklet Timing

W = Warmup (30 sec)   S = Sleep (10 sec)
PR = Pre measurement (15 sec) PO = Post measurement (15 sec)
Cal. N = Calibration Interval N (120 sec) nnn% = Measurement Interval (120 Sec)

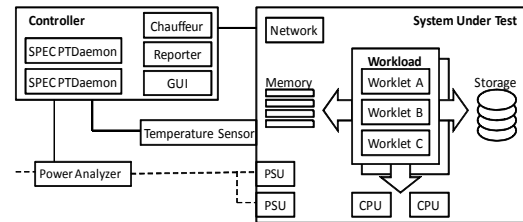## Goals For and Design of the SERT:

- Flexible, adaptable and extensible to 32 and 64-bit server platform architectures and capabilities:
  - x64, POWER, SPARC, ARM
- Includes multiple workloads (CPU, random & sequential storage I/O, memory I/O, hybrid and idle), each of which comprises multiple independent worklets
- Targeting non-benchmarking specialists, via:
  - Graphical User Interface (GUI)
  - Imports XML describing approved JVM and client options from the SPEC Web site
  - Automatically captures system hardware and software configurations

Workload	Worklet Name	Load Level
CPU	Compress	100%, 75%, 50%, 25%
	CryptoAES	
	LU	
	SHA256	
	SOR	
	SORT	
	XMLValidate	
Storage	Sequential	100%, 50%
	Random	
Hybrid	SSJ	100%, 87.5%, 75%, 62.5%, 50%, 37.5%, 25%, 12.5%
Memory	Flood	Flood: Full, Half
	Capacity	Capacity: 4GB, 8GB, 16GB, 128GB, 256GB, 512GB, 1024GB
Idle	Idle	0%

SERT Worklets

HW / SW Overview

Implementation:

- Uses SPEC PTDaemon to coordinate the Controller, and System Under Test with the power analyzer and temperature sensor
- Measures AC power consumed by the entire server
- Supports single and multi-node server platforms
- Run time in around 4.5 hours
- Summary and Detailed Results Report provided
- Results directly submitted to the EPA

Scoring System:

Workload Efficiency Score				Idle Power [W]
CPU	Storage	Hybrid	Memory	
21.8	8.9	25.8	11.3	178.2