

Driving Energy Efficiency

SPECpower_ss2008



Developed by the SPECpower Committee
http://www.spec.org/power_ss2008



Driving Server Energy Efficiency

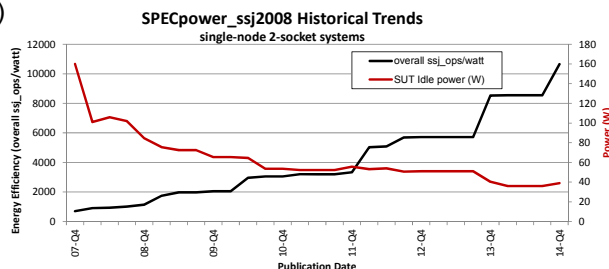
- 15x energy efficiency gain since release (Q4-2007)
- 698 -> 10,654 overall ssj_ops/watt

Game Changing Innovation

- 1st industry standard benchmark to measure the power and performance characteristics of volume server-class compute-equipment

Flexible

- Supports single and multi-node servers

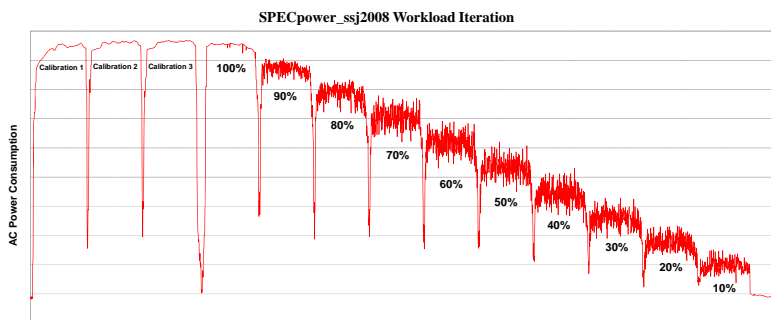
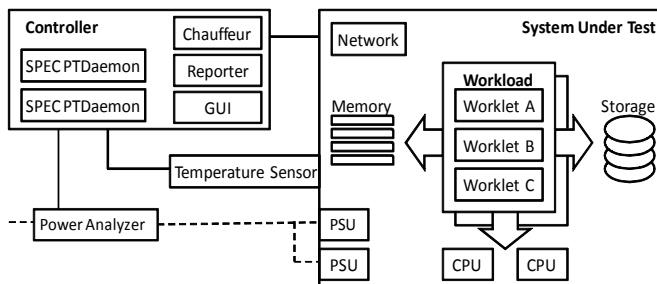


Benchmark design

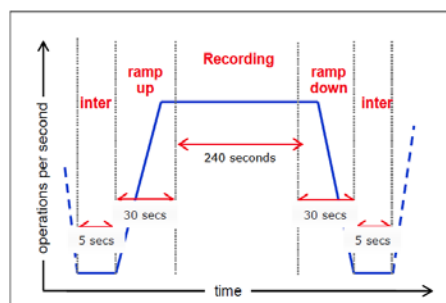
- Java based transactions
- Multiple load levels / measurement intervals
- Idle plus 10% increments (10% -100%)

Implementation

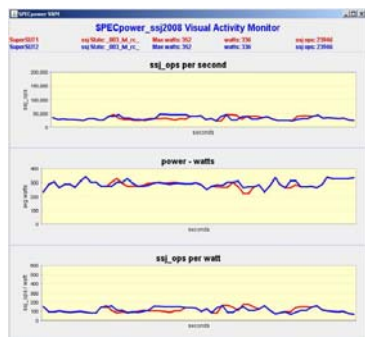
- Measures AC power for entire server
- Automated power measurement harness
- Standardized reporting and publication process



HW / SW Overview



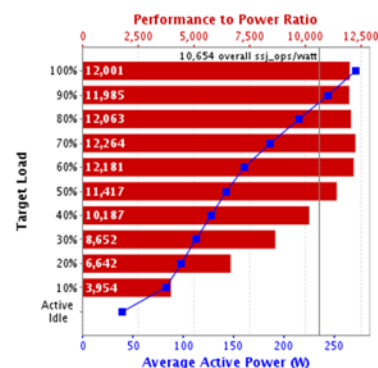
Usage & Reporting Examples



Visual Activity Monitor

Performance		Power		Performance to Power Ratio
Target Load	Actual Load	ssj_ops	Average Active Power (W)	
100%	100.00%	3,257,627	271	12,001
90%	89.90%	2,929,344	244	11,985
80%	79.80%	2,599,922	216	12,063
70%	70.10%	2,283,039	186	12,264
60%	60.10%	1,957,744	161	12,181
50%	50.10%	1,633,106	143	11,417
40%	40.00%	1,303,216	128	10,187
30%	30.00%	978,558	113	8,652
20%	20.00%	652,175	98.2	6,642
10%	10.00%	326,571	82.6	3,954
Active Idle		0	39	0
		$\Sigma ssj_ops / \Sigma power = 10,654$		

Performance / Power Results Table



Results Graph