

ENERGY STAR® Power and Performance Data Sheet

Dell PowerEdge R910 Featuring the Dell 1100W Power Supply and Intel Xeon E7-4870



System Characteristics

Form Factor	4U
Available Processor Sockets	4
Available DIMM Slots / Max Memory Capacity	64 DIMMs/1TB
ECC and/or Fully Buffered DIMMs	ECC Registered DIMMS
Available Expansion Slots	12
Minimum and Maximum # of Hard Drives	1, 16
Redundant Power Supply Capable?	Yes
Power Supply Make and Model	Dell 1100W
Power Supply Output Rating* (watts)	1100
Minimum and Maximum # of Power Supplies	1, 4
Input Power Range (AC or DC)	100 - 240 VAC 50-60Hz
Power Supply Efficiency at Specified Loadings*	81.6%@10%, 89.2%@20%, 92.3%@50%, 90.7%@100%
Power Supply Power Factor at Specified Loadings*	0.88@10%, 0.93@20%, 0.96@50%, 0.99@100%
Operating Systems Supported	Microsoft Windows® 7 Microsoft Windows® Server 2008 SP2 Microsoft Windows Essential Business Server 2008 Microsoft Windows Small Business Server 2008 Red Hat Enterprise Linux 4 and 5 Citrix XenServer 5.x ³ Vmware ESXi 3.5 ³ SUSE Linux Enterprise Server 10 and 11
Installed Operating System for Testing	Microsoft Windows® Server 2008 SP2

* Note: Power supply information is for a single power supply only

System Configurations

Processor Information	4 Intel Xeon E7-4870
Memory Information	32 RDIMMS, 4GB, 1067 MHz
Internal Storage	4x 147GB 10k SAS HDD
I/O Devices	4x 1Gb LOMs, 1x PERC H700, 1x PERC H800, 2x Dual Port FC8 HBA, 2x Dual-port 1Gb NIC
Power Supply Number and Redundancy Configuration	2 PSUs + 2 PSUs for Redundancy
Management Controller or Service Processor Installed?	Yes
Other Hardware Features / Accessories	ODD, iDRAC6 Enterprise

Power Data

Idle Category (1S and 2S only)	N/A (3S or 4S)
ENERGY STAR Idle Power Allowance (1S and 2S only)	N/A (3S or 4S)
Measured Idle Power (watts)	568.6
Power at Full Load* (watts)	940.4
Benchmark / Method Used for Full Load Test	Sandra Drystone 2010 isse 4.2
Test Voltage and Frequency for Idle and Full Load Test	100 V/60 Hz
Range of Total Estimated Energy Usage ** (kWh/year)	9,962 to 16,476
Link to Detailed Power Calculator (if available)	WWW.Dell.com/CALC

* Note: Full load power represents the sustained, average power at 100% load of the given workload, and does not necessarily represent the absolute peak power or the highest average, sustained power possible for other workloads.

** Note: Estimated kWh/year gives the absolute range of energy use a user could expect from continuous operation (24x7x365) and ranges from 100% Idle usage to 100% full load operation. The calculation also includes typical data center overhead at a ratio of 1 watt of overhead to every 1 watt of IT load (corresponding to a PUE of 2.0). Closer approximations may be found by using established power calculators and specific information about the intended operating environment (e.g., average time at Idle, data center PUE, etc.).

Power and Performance for Benchmark #1

Benchmark #1	Benchmark Used and Type of Workload	Sandra Drystone 2010 isse 4.2
	Avg. Power Measured During Benchmark Run	940
	Benchmark Performance Score	744.4
	Power Performance Ratio (perf score/avg. power)	0.79
	Link to Full Benchmark Report (Where Available)	

Power and Performance for Benchmark #2 (optional)

Benchmark #2	Benchmark Used and Type of Workload	
	Avg. Power Measured During Benchmark Run	
	Benchmark Performance Score	
	Power Performance Ratio (perf score/avg. power)	
	Link to Full Benchmark Report (Where Available)	

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Power Saving Features

	<i>Enabled on Shipment</i>	<i>End-User Enabling Required</i>
Processor Dynamic Voltage and Frequency Scaling	YES	NO
Processor or Core Reduced Power States	YES	NO
Power Capping	YES	NO
Variable Speed Fan Control Based on Power or Thermal Readings	YES	NO
Low Power Memory States	NO	YES
Low Power I/O States	YES	NO
Liquid Cooling Capability	NO	NO
Non-Legacy IOH	YES	NO
Other2:		
Other3:		
Other4:		

Power and Temperature Measurement and Reporting

Input Power Available & Accuracy?	Yes, +/- 5% for 20%-100% of max PSU load
Input Air Temp Available & Accuracy?	Yes, +/- 2%
Processor Utilization Available?	Yes
Other Data Measurements Available & Accuracy?	
Compatible Protocols for Data Collection	IPMI
Averaging method and time period	Power: 1 min running average of 2s interval samples. Temperature: no averaging, 5s interval sampling.

Thermal Information *

	<i>Minimum</i>	<i>Typical</i>	<i>Maximum</i>
Reference Configurations		4 Intel Xeon E7540 4x 1100W PSU 32 RDIMMS, 4GB, 1067 MHz 4x 147GB 10k SAS HDD 4x 1Gb LOMs 1x PERC H700, 1x PERC H800, 2x Dual Port FC8 HBA, 2x Dual-port 1Gb NIC iDRAC6 Enterprise ODD	
Total Power Dissipation (watts)		829.1	
Delta Temperature at Exhaust at Peak Temp. (°C)		6.9	
Airflow at Maximum Fan Speed (CFM) at Peak Temp.		195 (when managed, else 350)	
Airflow at Nominal Fan Speed (CFM) at Nominal Temp.		70.0	

* Thermal information is provided for the minimum, typical and maximum configurations for the model line
 References: ASHRAE Extended Environmental Envelope Final August 1, 2008
 Thermal Guidelines for Data Processing Environments, ASHRAE, 2004, ISBN 1-931862-43-5
 Peak temperature is defined as 35 °C, Nominal Temperature is defined as 18 - 27 °C

Notes

1. SPECpower_ssj2008 is a registered trademark of the Standard Performance Evaluation Corporation (SPEC). Benchmark results stated above reflect results published on XX/XX/XX. For the latest SPECpower_ssj2008 benchmark results, visit http://www.spec.org/power_ssj2008.