ENERGY STAR® Power and Performance Data Sheet

HA8000 RS220xK1 and xL : NK1, CL model

System Characteristics

Form Factor	2U
Available Processor Sockets	2
Available DIMM Slots / Max Memory Capacity	12slots / 48GB
ECC and/or Fully Buffered DIMMs	ECC DIMMs
Available Expansion Slots	5slots
Minimum and Maximum # of Hard Drives	Min 1, Max 8
Redundant Power Supply Capable?	Yes
Power Supply Make and Model	Delta Electronics DPS-750QB B
Power Supply Output Rating* (watts)	750
Minimum and Maximum # of Power Supplies	Min 1, Max 2
Input Power Range (AC or DC)	AC 100V/200V(for market condition)
Power Supply Efficiency at Specified Loadings*	83.00@10%, 89.07@20%, 92.16@50%, 90.51@100%
Power Supply Power Factor at Specified Loadings*	0.8061@10%, 0.9101@20%, 0.9668@50%, 0.9873@100%
Operating Systems Supported	WindowsServer®2008/2008 R2, RedhatEnterpriseLinux
Installed Operating System for Testing	Microsoft Windows Server® 2008 R2 Enterprise

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

System Configurations	Minimum	Typical	Maximum
Configuration ID	GQ*221NK-*******	GQ*221NK-*******	GQ*221NK-*******
Processor Information	L5630	L5630	L5630
Memory Information	4GBx2=8GB	4GBx6=24GB	4GBx12=48GB
Internal Storage	146GBx1	146GBx4	146GBx8
I/O Devices	On board 1G LAN x2port	On board 1G LAN x2port, Add-in card 1G LAN x4port x1, SCSI x1, SAS 6G 8portx1	On board LAN 1G x2port, Add-in card 1G LAN x2port x1, 8G Fibre x2port x1, SCSI x1, SAS 6G RAID 8portx2
Power Supply Number and Redundancy Configuration	1 / No redundancy	1 / No redundancy	2 / Redundant
Management Controller or Service Processor Installed?	Yes	Yes	Yes
Other Hardware Features / Accessories	-	-	DAT72

Power Data	Minimum	Typical	Maximum
Idle Category (1S and 2S only)	Category D: Managed Dual Installed Processor (2P) Servers		
ENERGY STAR Idle Power Allowance (1S and 2S only)	158 W		390 W
Measured Idle Power (watts)	147.2		252.0
Power at Full Load* (watts)	173.7		289.4
Benchmark / Method Used for Full Load Test	Sandra 2011 Engineer		
Test Voltage and Frequency for Idle and Full Load Test	230.01 V / 60 Hz		
Range of Total Estimated Energy Usage ** (kWh/year)	2,579 to 3,043	0,000 to 0,000	4,415 to 5,070
Link to Detailed Power Calculator (if available)			

*** 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		Minimum	Typical	Maximum
Benchmark #1	Benchmark Used and Type of Workload	Sandra 2011 Engineer		
	Avg. Power Measured During Benchmark Run			
	Benchmark Performance Score			
	Power Performance Ratio (perf score/avg. power)	#DIV/0!	#DIV/0!	#DIV/0!
	Link to Full Benchmark Report (Where Available)	N/A	N/A	N/A

Power and Performance for Benchmark #2 (optional)		Minimum	Typical	Maximum
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	***Enabled on Shipment***	***End-User Enabling Required***
Processor Dynamic Voltage and Frequency Scaling	**Yes**	
Processor or Core Reduced Power States	**Yes (C1)**	**Yes (C3/C6)**
Power Capping		**Yes**
Variable Speed Fan Control Based on Power or Thermal Readings	**Yes**	
Low Power Memory States		
Low Power I/O States		
Liquid Cooling Capability		
Other1:		
Other2:		
Other3:		
Other4:		

Power and Temperature Measurement and Reporting

Input Power Available & Accuracy?	Yes, +/-10% under the operating power range
Input Air Temp Available & Accuracy?	Yes, +/-3degC
Processor Utilization Available?	Yes
Other Data Measurements Available & Accuracy?	
Compatible Protocols for Data Collection	Yes, IPMI
Averaging method and time period	Input power: Arithmetic average at 1s interval Input Air Temp: 10s sampling(No averaging)

***Thermal Information** *	***Minimum***	***Typical***	***Maximum***
Total Power Dissipation (watts)			
Delta Temperature at Exhaust at Peak Temp. (˚C)			
Airflow at Maximum Fan Speed (CFM) at Peak Temp.			
Airflow at Nominal Fan Speed (CFM) at Nominal Temp.			

* 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.

ENERGY STAR Qualified Configurations

Include specific information on ENERGY STAR Qualified SKUs or configurations

All configurations of HA8000 RS220 NK1 and CL model
(Configuration ID : GQ*221NK-*******, GQ*220CL-*******)

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ENERGY STAR Qualified Configurations (Continued)

Include specific information on ENERGY STAR Qualified SKUs or configurations