

# ENERGY STAR® Power and Performance Data Sheet

## Technical Documentation for EU regulation 617/2013

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8284-22A (IBM Power Systems S822); 8247-22L (IBM PowerLinux S822L)

### System Characteristics

Product Type	Computer Server
General Description of Product and its Intended Use	This product is a computer server which provides services and manages networked resources for client devices
Form Factor	2U
Available Processor Sockets	2
Available DIMM Slots / Max Memory Capacity	16 / 1024 GB
ECC and/or Fully Buffered DIMMs	Yes
Available Expansion Slots	13
Minimum and Maximum # of Hard Drives	1 and 12 HDD; 1 and 14 SSD
Redundant Power Supply Capable?	Yes
Power Supply Make and Model	IBM P/N94Y8156 (Emerson P/N 7001692-J000)
Power Supply Output Rating* (watts)	1400
Minimum and Maximum # of Power Supplies	2
Input Power Range (AC or DC)	AC
Power Supply Efficiency and Power Factor*	80 PLUS® Platinum
Operating Systems Supported	Linux; AIX; IBM i
Installed Operating System for Testing	RHEL 6.5; AIX 7.1
Year First Manufactured	2014
Acoustical Noise Level	Declared A-weighted sound pressure level, LpAm = 70 dB

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

### System Configurations

System Configurations	Minimum Power	Low-end Performance	Typical	High-end Performance	Maximum Power
Configuration ID					
Processor Information	2 x Power8 6-core 3.891 GHz	2 x Power8 10-core 3.425 GHz	2 x Power8 6-core 3.891 GHz	2 x Power8 10-core 3.425 GHz	2 x Power8 12-core 3.026 GHz
Memory Information	8 x 16 GB DDR3 CDIMMs	8 x 16 GB DDR3 CDIMMs	8 x 32 GB DDR3 CDIMMs	16 x 64 GB DDR3 CDIMMs	16 x 64 GB DDR3 CDIMMs
Internal Storage	1 x 387 GB SSD	1 x 387 GB SSD	6 x 1.2TB 10 kRPM HDD	8 x 387 GB SSD; 6 x 400 GB SSD	12 x 1.2TB 10 kRPM HDD
I/O Devices	1 x IBM P/N 74Y4064 (4port, 1Gb Ethernet); 1 x IBM Raid Controller (feature code EJ0T)	1 x IBM P/N 74Y4064 (4port, 1Gb Ethernet); 1 x IBM Raid Controller (feature code EL3U)	1 x IBM P/N 74Y4064 (4port, 1Gb Ethernet); 1 x IBM Raid Controller (feature code EJ0T); 2 x IBM P/N 00E1232 (2 x RJ45 1Gb, 2 x SFP+ 10Gb); 1 x IBM P/N 00MH911 (PCIe3 RAID SAS DASD adapter quad port)	1 x IBM P/N 74Y4064 (4port, 1Gb Ethernet); 1 x IBM Raid Controller (feature code EL0U); 2 x IBM P/N 00E1232 (2 x RJ45 1Gb, 2 x SFP+ 10Gb); 2 x IBM P/N 00E2865 (quad port 10 Gb Ethernet); 1 x IBM P/N 00E2864 (2port 10Gb Ethernet); 2 x IBM P/N 00MH911 (PCIe3 RAID SAS DASD adapter quad port)	1 x IBM P/N 74Y4064 (4port, 1Gb Ethernet); 1 x IBM Raid Controller (feature code EJ0T); 2 x IBM P/N 00E2864 (2port 10Gb Ethernet); 2 x IBM P/N 00E3495 (2port SFP+ 10Gb); 1 x IBM RAID Controller (feature code EL3V); 1 x IBM P/N 00MH911 (PCIe3 RAID SAS DASD adapter quad port)
Power Supply Number and Redundancy Configuration	2	2	2	2	2
Management Controller or Service Processor Installed?	Yes	Yes	Yes	Yes	Yes
Other Hardware Features / Accessories					

### Power Data

Power Data	Minimum Power	Low-end Performance	Typical	High-end Performance	Maximum Power
Idle Category (1S, 2S, and Resilient only)			Resilient		
ENERGY STAR Idle Power Allowance (1S, 2S, and Resilient only)	394	458	634	1458	1378
Measured Idle Power (watts)	344	442	453	737	752
Power at Full Load* (watts)	541	683	646	1006	1013
Benchmark / Method Used for Full Load Test			SERT		
Sleep mode power	Not applicable to computer servers				
Off mode power	Not applicable to computer servers				
Link to Detailed Power Calculator (if available)	<a href="http://www-912.ibm.com/see/EnergyEstimator">http://www-912.ibm.com/see/EnergyEstimator</a>				

\* Note: Full load power represents the sustained, maximum power at the highest load level of the SERT SSJ workload, and does not necessarily represent the absolute peak power or the highest average, sustained power possible for other workloads.

**Test Parameters for Measurements**

Test Voltage and Frequency	230 V ac / 50 Hz
Total Harmonic Distortion of the Electricity Supply System	The maximum total harmonic content of the power system voltage waveforms on the equipment feeder does not exceed 5 percent with the equipment operating <a href="http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/index.jsp?topic=%2Fp7ebe%2Fp7ebevoltageandfrequencylimits.htm">http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/index.jsp?topic=%2Fp7ebe%2Fp7ebevoltageandfrequencylimits.htm</a>
Information and Documentation on the Instrumentation Set-up and Circuits used for Electrical Testing	ENERGY STAR Test Method for Computer Servers
Measurement Methodology Used to Determine Information in this Document	ENERGY STAR Servers Version 2.0 Program Requirements

**Power Saving Features**

	<b>Enabled on Shipment</b>	<b>End-User Enabling Required</b>	<b>Notes</b>
Processor Dynamic Voltage and Frequency Scaling		Yes	
Processor or Core Reduced Power States	Yes		
Power Capping		Yes	
Variable Speed Fan Control Based on Power or Thermal Readings	Yes		
Low Power Memory States			
Low Power I/O States		Yes	
Liquid Cooling Capability			

**Power and Temperature Measurement and Reporting**

Input Power Available & Accuracy?	Yes, +/- 3%
Input Air Temp Available & Accuracy?	Yes, +/- 1°C typical, +/- 2°C maximum
Processor Utilization Available?	Yes
Other Data Measurements Available & Accuracy?	
Compatible Protocols for Data Collection	REST
Averaging method and time period	30 second average, 1 second peak

**Thermal Information \***

	<b>Minimum Power</b>	<b>Low-end Performance</b>	<b>Typical</b>	<b>High-end Performance</b>	<b>Maximum Power</b>
Airflow at Maximum Fan Speed (CFM) at Peak Temp.	229.0	229.0	229.0	229.0	229.0
Airflow at Nominal Fan Speed (CFM) at Nominal Temp.	78.0	78.0	78.0	78.0	78.0

\* Reference: Thermal Guidelines for Data Processing Environments, 3rd Edition, ASHRAE, 2011, ISBN-10: 1936504332  
Peak temperature is defined as 35 °C, Nominal Temperature is defined as 18 - 27 °C

**ENERGY STAR Qualified Configuration Notes**

**Include specific information on ENERGY STAR Qualified configurations (power supplies, processors, etc.)**