

HP 1050W 80 Plus Power Supply Site Preparation Guide



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Power consumption and cooling

Introduction

This document presents power consumption and cooling considerations and limitations when using a 1050W 80 Plus power supply in an HP workstation in a typical office environment.

Power consumption and cooling considerations

An HP workstation with a 1050W 80 Plus power supply might require more power than the typical office environment can supply. Consider the following issues:

- A fully loaded configuration might draw up to 15 amps of 110-volt power, leaving no power for other accessories. A typical office has one, or maybe two, 15-amp circuits.
- An office air conditioning system must accommodate the extra heat generated by fully-loaded workstation configurations.
- Some environments might have power conditioning problems that prevent the reliable use of high end workstation configurations.

Power consumption limitations

- **IMPORTANT**—The power supply is capable of continuously supplying 1050 watts output power when the input voltage is greater than 90 volts. If the input voltage is less than 90 volts for *any* reason (for example, a brown out or a line sag), the maximum power that can be drawn is 900 watts.
- When you use a fully loaded workstation configuration in a poor power grid area, use an uninterruptible power supply (UPS). The UPS must be rated for at least 2 KVA. Without line conditioning to guarantee greater than 90 volts, the maximum power that can be drawn is 900 watts.
- To reduce the risk of overload:
 - Do not exceed the rated load of any single power distribution unit (PDU).
 - Do not load a single National Electrical Manufacturers Association (NEMA) 5–15 receptacle with more than 15 amps.
 - Do not load a single International Electrotechnical Commission (IEC) 320-1/C13 receptacle with more than 10 amps.
 - In general, verify that each power source circuit can safely provide the current required by equipment drawing power from it.

Input current calculation

The 1050W power supply can provide 1050 watts in a 15-amp circuit by using this input current calculation:

$$\text{Input Current} = \text{Output Power} / (\text{Voltage} \times \text{Power Factor} \times \text{Efficiency})$$

where:

Output Power = 1050 watts

Voltage = 90 volts

Power Factor = 0.998

Efficiency = 0.8

In this formula, the voltage (90 volts) includes all power line variations—line voltage sag, brown out conditions, power grid characteristics, and so on.

- △ **CAUTION:** Check with your power provider to see if your facility is exposed to 90-volt power. If 90 volts cannot be guaranteed to your workstation, the input voltage source might blow the fuse in the power supply or trip the breaker.

For reliable workstation operation under heavy loading, use an uninterruptible power supply (UPS) because it provides reliable voltage levels.

Power dissipation

The following table contains typical system configurations for an HP xw8600 Workstation.

Table 1 Typical HP xw8600 Workstation system configurations

Configuration	CPU	DIMM	Graphics	HDD	ODD	PCI	Power Consumption*
1	2 x 80W	8 x 4GB 667 MHz	Two FX5600	5	2	0	825W
2	2 x 80W	16 x 4GB 667 MHz	Two FX5600	5	2	0	920W
3	2 x 120W	8 x 4GB 667 MHz	Two FX5600	5	2	0	915W
4	2 x 120W	16 x 4GB 667 MHz	Two FX1700	5	2	0	760W
5	2 x 120W	16 x 4GB 667 MHz	Two FX3700	5	2	0	875W
6	2 x 120W	16 x GB 667 MHz	Two FX4600	5	2	0	950W
7	2 x 120W	16 x 4GB 667 MHz	Two FX5600	5	2	0	1000W
8	2 x 150W	16 x 2GB 800 MHz	2 x FX4600	2	2	0	1025W

* Power consumption is highly dependent on software use. The table values represent examples of maximum power consumption per configuration, and may not represent actual usage.

Cooling considerations

To ensure proper ventilation and cooling for your workstation, observe the following guidelines.

- Keep your workstation in an area where the airflow is not obstructed.
- Keep the workstation off from surfaces where dust can gather.
- Remove dust on the front panel (vent area) and the rear fans with a small vacuum, compressed air, or dust rag.
- Keep the front and back of the workstation at least 0.15 m (6 in.) away from a wall or other obstruction, as shown:

Figure 1 Maintain proper clearance

