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maintenance & service guide

Presario 1700 Series
Models: XL260, XL261, XL262, XL264, XL265, XL266, XL274, XL275, XL360, XL361, XL362, XL363, XL364, XL365, XL366, XL367, XL368, XL369, XL370, XL371, XL372, XL373, XL374, XL375, XL376, XL377, and XL378

Battery and Power Management

This chapter describes power management and proper battery operating practices for Presario 1700XL Series Notebooks. These practices include conservation of AC power and extending the operating life of the battery. The following sections also outline the proper methods for starting and shuting down the Notebook in different situations.

Power Modes

Compaq Presario 1700 Series Notebook Computers have three levels of low-power management: **Hibernation, Standby**, and **Off**.

Hibernation

Hibernation mode helps conserve battery life and protect data. The Notebook automatically enters Hibernation when the battery has little power left, or when the Notebook (operating on battery power) is in Standby mode for more than one hour. As the Notebook enters Hibernation, it automatically stores the contents of its memory to the hard drive before it shuts down. When the Notebook comes out of Hibernation, it returns to its former state.

Activate Hibernation mode by pressing the **Power** ⏻ button once.

To restart the Notebook, press the **Power** ⏻ button once. When the Notebook enters or wakes from Hibernation mode, a Progress window is displayed on the screen.

Standby

Standby mode is a low-power mode, also referred to as *Sleep* mode. Selecting Standby mode instead of turning off the Notebook when finished has two advantages: 1. It allows the Notebook to wake up more quickly than if it had been turned off completely; 2. It saves more power than the active (On) mode.

Activate Sleep mode by pressing **Fn+F4**. Or click **Start,** select the **Shut Down** option, and click **Standby**.

> ⚠ **CAUTION:** The Notebook maintains system information and open files while in Standby mode. However, unsaved information is lost if the Notebook is turned off prior to system wake-up, or if a power loss occurs while using the AC adapter.

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Full Off

Off mode consumes no power. However, the battery charges while the Notebook is in Off mode if the battery is installed and the Notebook remains plugged into external AC power.

> **Note:** Unsaved information is lost if the Notebook is shut down without first saving the data.

To activate Off mode, click the **Start** button on the Windows taskbar, click **Shut Down**, then select **Shut down** from the options.

To restart the Notebook from Off mode, press the **Power** ⏻ button once.

> ⚠ **CAUTION:** The Notebook must be in Off mode (completely shut down) when installing or replacing components. Follow the instructions for putting the Notebook into Off mode, unplug it from the outlet, and remove the battery pack before servicing any parts.

Summary of Power Modes

The following table outlines the procedures for entering and exiting the various power modes and the external indicators for each mode.

	Standby Mode	Hibernation Mode	Off Mode
Automatic Activation	15 minutes if using battery power. Notebook will not automatically enter Standby mode if using AC Power.	When battery is low, or after 1 hour of Standby.* Notebook will not automatically enter Hibernation mode if using AC Power.	Standard Shutdown: Perform normal Windows shutdown using the **Start** button on the Windows taskbar.
Manual Activation	Press **Fn+F4** key combination or click the **Start** button on the Windows taskbar, then point to **Shut Down** and click **Standby**.	Press **Power** ⏻ button once.	Manual Shutdown**: Press and hold down the **Power** ⏻ button for 4 seconds.
Deactivation	Press any key.	Press **Power** ⏻ button once.	Press **Power** ⏻ button once.
Indicators		**Power** light is off, screen is blank.	**Power** light is off, screen is blank.

The Notebook will not automatically enter Standby or Hibernation mode if using AC power.
***Important**: The Manual Shutdown procedures are not recommended unless the Standard Shutdown is unsuccessful.*

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Power Management Settings

Different patterns of Notebook use determine the level of power management required. These power management levels can be initiated based on the amount of time passed since the last system activity. System activity includes keyboard strokes, mouse movement, DVD/CD playback (while under program control that monitors Standby), and modem use.

Power Schemes

You may access and select different settings or Power Schemes through Power Management on the Control Panel. The default Power Schemes are Home/Office Desk, Portable/Laptop, and Always On. The settings can be customized by changing the following options:

- **System Standby**: length of inactivity before the Notebook goes into Standby mode

- **Turn Off Monitor**: length of inactivity before the screen times out and goes blank

- **Turn Off Hard Disks**: length of inactivity before the hard drive goes into low power mode

   Important: The setting for the Hard Disk must be less than or equal to the setting for the system. If the Notebook is on a network, Compaq recommends that System Standby be set to **Never**.

The following table shows the default settings for each Power Scheme.

Power Scheme	Always On	Portable/Laptop	Home/Office Desk
AC Power System Standby Turn OFF Monitor Turn OFF Hard Disks	 Never 15 minutes 1 hour	 Never 3 hours 15 minutes	 20 minutes 15 minutes 30 minutes
Battery Power System Standby Turn OFF Monitor Turn OFF Hard Disks	 5 minutes 2 minutes 3 minutes	 15 minutes Never 10 minutes	 1 minute 2 minutes 10 minutes

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Alarms

The Notebook can be set to Alarm when the battery power level is reduced or when it reaches a critical low level. The Notebook can also be set automatically to enter a low-power mode when the battery reaches a specific power level.

⚠ **CAUTION:** The settings on the Alarms tab are preset for the Notebook to run at its best. Changing any of these settings could cause the Notebook to function improperly. It is recommended that these settings be left at their default values.

Default Alarm Settings		
Setting	**Low Battery**	**Critical Battery**
Alarm power level	10%	0%
Notification	Text Power	No Action
Power Mode	No Action	Hibernation
Active	Enabled	Enabled

SpeedStep Technology Modes

SpeedStep™ Technology features several speed options for processor response to low-power conditions. These include the following settings:

- **Maximum Performance**: always at high speed

- **Battery Optimized**: always at low speed

- **Reversed**: opposite recommended

- **Recommended**: performance on AC, Battery Optimized on battery

- **Disabled**: no run-time support, high speed

SpeedStep options can be accessed in three ways:

- Access **F10** Setup during startup and select the **Advanced** screen.

- Click **Start>Settings>Control Panel>Power Options>Intel(R) SpeedStep(TM) technology** tab.

- Double-click the **Flag** icon on the Windows taskbar to open the **Intel(R) SpeedStep(TM) technology** dialog box.

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Servicing the Notebook – Full Off Mode

The Notebook must be turned off completely when installing or replacing components in the system. Follow the instructions for putting the Notebook into Off mode properly, unplugging it from the outlet, and removing the battery (see *Battery Pack Removal Sequence*).

Rebooting After a Lockup

To reboot the Notebook (from a cold start) when the keyboard is frozen or the screen is locked, press and hold down the Power button for at least four seconds; this causes a manual shutdown. Then, restart your Notebook with a single press of the **Power** ⏻ button.

If the Notebook still does not recover, press the **Power** ⏻ button and hold for four seconds to shut it down, then remove the battery or unplug the AC power for at least 30 seconds. Reinsert the battery or reconnect AC power and press the **Power** ⏻ button once to reboot.

Recovering From a Loss of Electrical Power

Loss of electrical power causes the Notebook to turn off automatically. This may cause loss of data because the Microsoft Windows operating system is not able to close all files and programs properly.

Loss of power may be caused by one of the following:

- Electrical power service is interrupted.

- The power cord is accidentally disconnected.

If power surges or sags, the display and status lights may flicker, and the Notebook may automatically restart. If an improper shutdown occurs, the Microsoft Windows utility program ScanDisk, runs automatically once power is restored. ScanDisk determines if the improper shutdown caused any errors on the hard disk. These errors may occur if the Microsoft Windows operating system is not able to close all files properly before the shutdown. If no errors are found, the restart process continues. If ScanDisk does detect errors, follow the instructions on the screen to continue the restart process. Work that was not saved before the loss of power or shutdown may be lost.

If a power failure occurs, or the power cord disconnects while the Notebook is turned on, turn it off until normal service is restored. The next time the Notebook is turned on, ScanDisk may run to check the hard disk for errors caused by improper shutdown.

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Increasing Battery Pack Operating Time

Battery pack operating time varies depending on several factors. To avoid unnecessary replacement, consider the following when determining how long a charged battery pack should last:

- Power management settings

- Hardware configuration

- Software applications

- Installed options

- Display brightness

- Hard drive usage

- Changes in operating temperature

- Type and number of installed PC cards

Note: The power consumption requirements for PC cards vary widely. Some cards drain the battery pack very rapidly.

Battery pack operating time can be increased by as much as 50 percent by controlling the energy required by the computer and the energy stored in the battery pack.

Minimizing the Energy Required

To minimize the energy required by the computer, follow these steps:

- Set the power conservation levels in the Power Management utility to **Maximum**.

- Customize the timeout value to work more efficiently with the applications. The amount of battery life depends on the values selected.

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Maximizing the Energy Stored

To maximize the energy stored in the battery pack, follow these guidelines:

- Condition the battery pack at least every 30 days to improve overall battery performance.

- Keep a battery pack in the Notebook when using it with AC power to supply the battery pack with a constant trickle charge.

- Store the battery pack in a cool, dry place when not in use.

Conditioning a Battery Pack

⚠ **CAUTION:** To avoid a loss of data, ensure that all data is saved before discharging a battery pack.

To condition a battery pack, complete the following steps:

1. Plug in the AC adapter and allow the battery to charge until the **Fast Charge** arrow on the display disappears. Your battery gauge may read 100 percent for a period of time before the arrow disappears. Do not unplug the AC adapter until the arrow disappears.

2. Unplug the AC adapter and allow the battery to drain until the computer reaches hibernation and turns itself off.

⚠ **CAUTION:** Do not unplug the AC adapter during this process or you will need to restart with step 1. You may use the computer while the battery is draining.

3. The battery is reconditioned.

4. Plug in the AC adapter and begin using the computer.

The table below shows battery pack charge times by model.

Battery Charge Time	
Li-ION Battery Pack	**Charge Time**
Computer On Line	4.5 hours premature termination
Computer Off Line	2.50 hours

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Disposing of a Used Battery Pack

In the interests of safeguarding our environment, Compaq Computer Corporation recommends that nickel metal hydride (NiMH) and lithium-ion (Li-ion) battery packs be recycled. Battery packs should be handled in accordance with country, state, province, or local regulations.

△ **CAUTION:** Never attempt to open or service a battery pack. Opening a battery pack not only damages the pack and makes it unusable, but also exposes potentially harmful battery components.