Battery and Power Management

This chapter gives information on using battery power. It also describes how the Power Management features works to save power.

Battery Pack

The rechargeable battery pack supplies power to your Qbe when external power is not connected.

The average operating time of a battery pack is 2.5 hours for a Li-Ion battery pack. The operating time can be prolonged if Power Management is activated. However, actual operating time can vary, depending on several factors; these could be the Power Management settings, the software in use, the brightness of the display, and the system configuration.

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If you wish to extend the operating time when using battery power, you can use an additional battery pack. (See the "Additional Battery Pack" section later in this chapter.)

Initializing the Battery Pack

To assure optimal performance, initialize a battery pack before you use it for the first time. Initialization means discharging and fully recharging twice. This procedure could take a few hours.

1. Make sure the AC adapter is not connected and the battery pack is installed.
2. Turn on the Qbe.
3. Select the "Run SCU Setup" item using the arrow key and then press [Enter] to run SCU.
4. Leave the power on.
5. Wait until the battery is fully discharged and the power is off.
6. Connect the AC adapter to fully charge the battery pack.
7. Repeat steps 2 to 7.

You cannot initialize two battery packs at the same time.

Recharging the Battery Pack

To recharge the battery pack, connect the AC adapter to the computer and an electrical outlet.

To ensure the battery pack is charged to its full capacity, it is advisable to keep the computer turned off during the recharging process. The battery is fully recharged when all four bars of the battery indicator glow and the frame stop flashing.

It takes, on average, 90 minutes to charge the battery pack to 80% of its capacity. Two or three more hours are needed to charge it fully.

1. *Recharging will not start if the battery temperature is below 0°C (32°F) or above 45°C (113°F).*
2. *The recharging process will stop if the battery temperature rises above 60°C (140°F). It will continue when the temperature drops.*
3. *During recharging, do not disconnect the AC adapter before the battery has been fully charged. This could result in a prematurely charged battery.*
4. *After the battery has been fully recharged, do not immediately disconnect and reconnect the AC adapter to charge it again. Doing so may damage the battery.*

Checking the Battery Level

The battery level cannot be measured physically. Any reading on a battery meter or gauge is only an estimation. This, however, could be less than accurate due to factors such as temperature and a long period of storage. If the difference between the displayed battery level and the actual operating time is too large, initialize the battery pack as described earlier in this chapter to correct the problem.

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By Operating System

Some operating systems, such as Windows, display a battery meter that indicates the battery level.

By Gas Gauge

A "gas gauge" on the battery pack itself also indicates estimated battery charge. If the battery pack is not installed and you want to check the level of the battery, you can do so by noting the number of lighted green segments. These indicate the relative percentage of the battery charge. The battery pack is fully discharged when a lighted green segment no longer appears.

Additional Battery Pack

There is danger of explosion if the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to the manufacturer instructions.

If you wish to prolong operating time on battery power while traveling, an optional extra fully charged battery pack is necessary.

This additional battery pack can either be installed in the computer as the secondary battery pack or used to replace the primary discharged battery pack.

Installing the Secondary Battery Pack

1. *As a special bracket is required to install the secondary battery pack, you are advised to purchase the optional battery pack from an authorized dealer.*
2. *When the secondary battery pack is installed, recharging and discharging always begins with the primary battery pack.*

The additional battery pack can be installed in the floppy disk drive bay as the secondary battery pack. For installation instructions, see the "Replacing the Floppy Disk Drive" section in Chapter 4.

Replacing the Primary Battery Pack

1. Make sure the computer is not turned on or connected to AC power.
2. Carefully turn the computer upside down.
3. Slide the locking latch toward the unlocked position and remove the compartment cover.

4. Pull the battery pack out of the compartment.

Figure 3-1. Removing the Primary Battery Pack

5. Slide the new battery pack into the compartment.
6. Replace the compartment cover. Make sure the locking latch is in the locked position.

Low Battery

When a single bar begins to flash in the battery indicator, battery power has reached the "Low" level and only ten minutes of computer operation remains.

At this stage, make sure to save your data then connect the AC adapter or turn off the computer.

Battery operating time depends on functions performed. If, for example, the audio subsystem, PC card, or disk drives are in use, then the battery expends itself sooner.

If no appropriate action is taken within about three minutes of the battery reaching "Low" level, the computer automatically suspends to disk and turns off.

1. *If the suspend-to-disk partition does not exist on your hard disk, the computer will not be able to suspend to disk.*
2. *If you fail to save data when the battery power runs out, then you lose it.*

Power Management

Your Qbe' s Power Management feature saves power by automatically reverting to low power mode when the system is inactive for some time. The computer returns to full power mode whenever activity is detected such as when a key is pressed.

This section describes how Power Management works. To customize Power Management, you need to run the SCU program. (See the "Power Management Menu" section in Chapter ? for instructions.)

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Local Power Management

Local Power Management is "Device-level" power saving. When a single device is inactive for some time, it automatically shuts down or is slowed down to reduce power consumption. The device reactivates when next accessed.

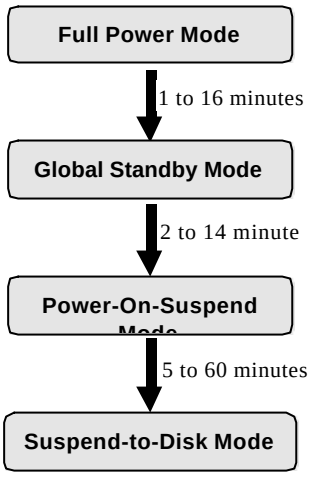
For your computer, the single devices under its control are:

- **LCD display**
  The screen blanks out after a period of inactivity.
- **Hard disk drive**
  The hard disk drive pins down" after a period of inactivity.

Global Power Management

Global Power Management is system-level power saving. When the system is inactive for some time, it automatically enters low power mode to reduce power consumption. The PCT resumes operation when a system activity is detected. You can press any key to resume operation.

Low power mode work in the following way:



In **Global Standby** mode, the CPU clock stops and several system devices enter lower power mode.

In **Power-On-Suspend** mode, more system devices enter lower power mode. The power/suspend indicator (☼/⏻) lights amber in Power-On-Suspend mode. To end Power-On-Suspend mode, you need to press a key.

When **Suspend-to-Disk** takes effect, the system saves the current status to a "Suspend-to-disk partition" on the hard disk. The computer then turns off automatically. When you next turn on the computer, it retrieves the status from the suspend-to-disk partition, so that your computer is returned to exactly where you were at the time of suspension.

Suspend-to-Disk is convenient in the sense that you do not have to close all the software applications before turning off, and, when you next turn on the computer, the software applications are ready for use in a matter of seconds.

1. *Whenever the computer is turned on, it checks the suspend-to-disk partition. If the partition does not exist and there is enough hard disk space left, the computer automatically creates the partition.*
2. *If there is no suspend-to-disk partition, you can not use the Suspend-to-Disk function.*
3. *You can verify the suspend-to-disk partition using the SCU program. (See the "Utility Menu" section in Chapter 5.)*

Manually Entering Low Power Mode

In addition to the timer setup in the SCU program that causes the computer to enter lower power mode automatically, you can manually initiate lower power mode at any time in one of the following ways:

- **By pressing [Fn]+[F1]**
  This will activate Power-On-Suspend mode. If the computer remains in Power-On-Suspend mode until Suspend-to-Disk mode timer times out, the computer enters Suspend-to-Disk mode.

- **By closing the top cover**
  If an external monitor is not connected, closing the top cover causes the computer to enter Power-On-Suspend mode. When you next open the LCD display, the computer operation resumes. If the top cover remains closed until the Suspend-to-Disk mode timer times out, the computer enters Suspend-to-Disk mode.

- **By pressing the power button**
  When you press the power button, the computer enters Power-On-Suspend or Suspend-to-Disk mode depending on the "Power Button Function" setting in the SCU program. (Default setting is *PowerOn Suspend*.) If the computer remains in Power-On-Suspend mode until the Suspend-to-Disk mode timer times out, the computer enters Suspend-to-Disk mode.

It a good habit to save your data before you manually initiate low power mode.