3.5.3 CPU Performance Facts

For a long time, processor clock speed was used as a measure of processor performance. This is not necessarily true for newer processors for the following reasons:

- If two processors are of the same type, higher speed typically means higher performance. With processors of different types, speeds might not be comparable.
- It is important to make sure your motherboard can support the speed of your processor.
- Many processors use a performance rating, instead of speed. A higher number indicates a better-performing processor. However, performance ratings are typically applicable only between models of the same manufacturer.
- In some cases, buying a processor with double the cache can nearly double the performance.
- Dual core processors offer better performance, but typically not double. Software must be specially written to take best advantage of the dual core processors.
- Special instruction sets supported by a processor can increase performance. For example, hyper-threading support on Intel processors can boost performance for specific types of operations.
- Performance can also be increased by modifying other system components such as adding more RAM, using a faster disk, or improving cooling and ventilation.
- *Overclocking* is a feature that causes the processor to operate at a higher speed. Overclocking is typically performed by those who want to get the maximum performance from their systems. Some important things to know about overclocking are:
  - Overclocking can cause system instability, component damage, and can void your warranty.
  - Motherboard bus, processor, and memory settings should be adjusted to match the overclock speed.
  - Overclocking may require more voltage.
  - Overclocking often increases heat output. For this reason, it may be necessary to upgrade your cooling devices.