# Chapter 4

# Supporting Processors and Upgrading Memory

## Reviewing the Basics

1. Who are the two major manufacturers of processors?

Intel, AMD

2. What is the name of the memory cache that is on the same die as the processor?

L1 cache

3. What is the name of the memory cache that is closest to the processor die but is not housed on the die?

L2 cache

4. What is the name of the Intel technology that allows a processor to handle two threads at the same time?

Hyper-Threading

5. How many threads can a quad-core processor handle at once?

Eight

6. Which Intel processor socket uses a screw head to hold down the socket load plate?

Socket LGA1155

7. Which is faster, SRAM or DRAM? Why?

SRAM, because it does not need to be refreshed

8. How many pins are on a DDR3 DIMM? DDR2 DIMM?

For DDR3 DIMM, 240 pins. For DDR2 DIMM, 240 pins.

9. How many pins are on a DDR DIMM? SDRAM DIMM?

For DDR DIMM, 184 pins. For SDRAM DIMM, 168 pins.

10. How many notches does a DDR3 DIMM have?

One

11. What was the first type of DIMM that ran synchronized with the system clock?

SDRAM DIMM

12. What major improvement did DDR make over regular SDRAM?

Data is processed twice in one clock beat, doubling the speed of regular SDRAM

13. Which DIMM performs better, a double-sided dual-ranked DIMM or a double-sided single-ranked DIMM?

A double-sided single-ranked DIMM

14. What prevents a DDR DIMM from being installed in a DDR2 DIMM slot on a motherboard?

The position of the one notch on the DIMM module

15. Which module, a DDR3 or DDR2 DIMM, uses lower voltage?

DDR3 DIMM

16. In a memory ad for DIMMs, you notice 64Meg ×72 for one DIMM and 64Meg ×64 for another DIMM. What does the 72 tell you about the first DIMM?

The first DIMM supports ECC technology for error checking

17. A DIMM that contains memory chips in two memory banks on the module is said to be _____.

Dual ranked

18. What type of DIMM supports triple channeling?

DDR3 DIMM

19. If two bits of a byte are in error when the byte is read from ECC memory, can ECC detect the error? Can it fix the error?

Yes, No

20. How many notches are on an SDRAM DIMM?

Two

21. Looking at an SDRAM DIMM, how can you know for certain the voltage needed by the module?

Look at the notch on the right side of the module.

22. A DIMM memory ad displays 5-5-5-15. What is the CAS Latency value of this DIMM?

CL5

23. What is the most amount of RAM that can be used by a 32-bit installation of Windows 7 Professional?

4 GB

24. A motherboard uses dual channeling, but you have four DIMMs available that differ in size. The motherboard supports all four sizes. Can you install these DIMMs on the board? Will dual channeling be enabled?

Yes, the DIMMs will work on the board, but dual channeling will not be enabled.

25. You need to upgrade memory on a motherboard that uses RIMMs. You notice one RIMM and one C-RIMM module are already installed on the board. Which module should you replace?

The C-RIMM module

26. What types of memory can be used on a 100-MHz motherboard?

SDRAM and DDR SDRAM

27. Which is faster, CL3 memory or CL5 memory?

CL3 is faster than CL5 memory

28. You are looking to purchase two DIMMs running at 400 MHz. You find DIMMs advertised at PC4000 and PC3200. Which do you purchase?

PC3200

29. You need to find out how much RAM is installed in a system. What command do you enter in the Search box to launch the System Information utility?

Msinfo32.exe

30. Although ECC memory costs more than non-ECC memory, why would you choose to use it? Which type of computer typically requires ECC memory?

ECC memory is more reliable than non-ECC memory. A server.

## Thinking Critically

1. You need to upgrade memory in a system but you don't have the motherboard documentation available. You open the case and notice that the board has four DIMM slots; three slots are colored yellow and one slot is black. What type of DIMM does the board likely use? How can you be sure?

The three yellow slots probably indicate triple channeling, which means the board uses DDR3 DIMMs. To know for sure, remove a DIMM and look for the position of the notch on the DIMM.

2. If your motherboard supports DIMM memory, will RIMM memory still work on the board?

No, you can only use the type of memory module the board is designed to support.

3. If your motherboard supports ECC SDRAM memory, can you substitute non-ECC SDRAM memory? If your motherboard supports buffered SDRAM memory, can you substitute unbuffered SDRAM modules?

You can substitute non-ECC memory on an ECC board, and the error-checking feature will be shown disabled in BIOS setup. You cannot use unbuffered SDRAM on a motherboard that supports buffered memory, because the notches on buffered DIMMs are in different positions than for unbuffered DIMMs.

4. You have just upgraded memory on a computer from 1 GB to 2 GB by adding one DIMM. When you first turn on the PC, the memory count shows only 1 GB. Which of the following is most likely the source of the problem? What can you do to fix it?

    a. Windows is giving an error because it likely became corrupted while the PC was disassembled.

    b. The new DIMM you installed is faulty.

    c. The new DIMM is not properly seated.

    d. The DIMM is installed in the wrong slot.

The new DIMM is not properly seated. Turn off the PC and reseat the DIMM. Check that the DIMM is standing in the slot at the same height of the other DIMM installed.

5. Your motherboard supports dual channeling and you currently have two slots used in Channel A on the board; each module holds 1 GB. You want to install an additional 1 GB of RAM. Will your system run faster if you install two 512 MB DIMMs or one 1 GB DIMM? Explain your answer.

The system will run faster if you install two DIMMs because dual channeling can be used if both Channel B slots are filled. Dual channeling is faster than single channeling.