

A Guide to Building a PC with an AMD Athlon™ Processor

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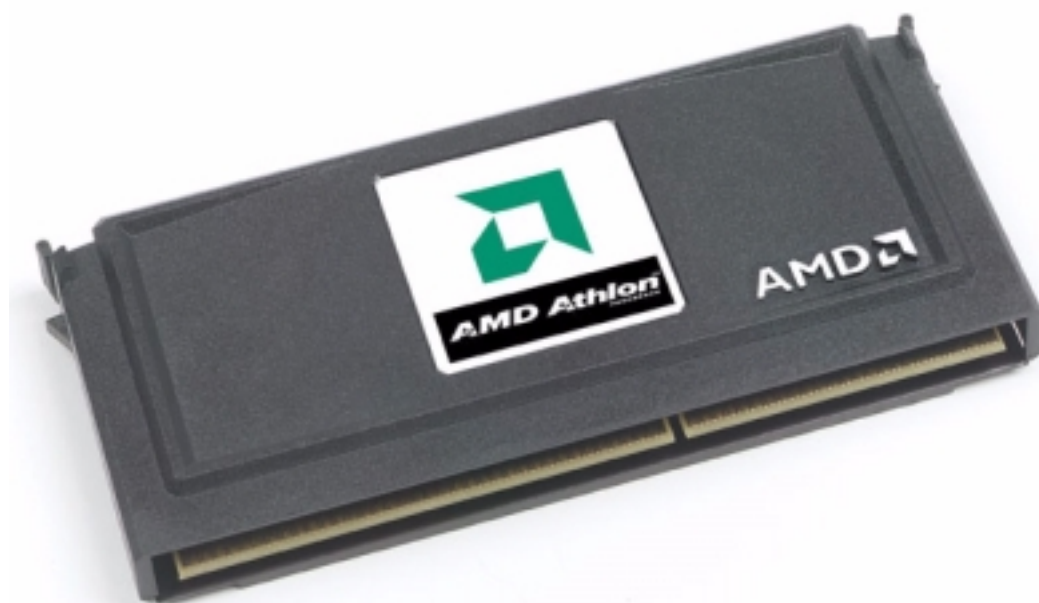
Contents

A Guide to Building a PC with an AMD Athlon™ Processor	1
Why Build a PC with an AMD Athlon Processor?	2
Benchmarks	2
Performance Gains	7
Features and Benefits.	8
The AMD Processor In A Box	9
Why Buy Processor in a Box?	9
Before You Start Building	10
Read the FAQ and Recommendations	10
Take Notes	10
Serial Numbers and Receipts	10
Basic Tools	10
Surge Protectors and Uninterruptible Power Supplies (UPS)	11
Building the System	13
Frequently Asked Questions (FAQ)	66
Compatible Components List.	77
Installation Checklist	89

List of Tables

Table 1.	AMD Athlon™ Processor Features and Benefits	8
Table 2.	AMD Athlon™ Processor PC-100 Memory Requirements (PC-100 Rev 1.0 minimum)	67
Table 3.	AMD Athlon™ Processor Motherboard Drivers	72
Table 4.	Recommended Power Supply List (Revised 08-06-99)	78
Table 5.	Recommended Enclosure (Case) List (Revised 08-06-99)	79
Table 6.	Microstar Motherboard Recommended Memory List (Revised 08-06-99)	79
Table 7.	AMD Athlon™ Processor Component Compatibility List (Revised 08-15-99)	81

A Guide to Building a PC with an AMD Athlon™ Processor



**READ THIS GUIDE FULLY BEFORE STARTING TO BUILD
YOUR AMD Athlon™ PROCESSOR-BASED SYSTEM.**

It is crucial that you use the download and configuration information available at the AMD web site. The latest configuration information and drivers are available at:

www1.amd.com/athlon/config

On page 89 there is a checklist for assembling AMD Athlon processor-based systems. You can use this checklist to verify the steps of the assembly process as you proceed.

Why Build a PC with an AMD Athlon™ Processor?

The AMD Athlon processor sets a new performance standard in personal computing.

- True seventh-generation features include a 200-MHz system bus—twice the peak bandwidth of the current industry standard 100-MHz bus.
- High-performance cache architecture featuring an integrated 128-Kbyte level-one (L1) cache—four times the L1 cache of a Pentium® III—and a programmable, high-speed backside L2 cache interface scalable to support up to eight Mbytes. Current processor modules implement a 512-Kbyte L2 cache.
- AMD Athlon processor available at clock speeds of 650 MHz, 600 MHz, 550 MHz, and 500 MHz.
- The AMD Athlon processor marks the introduction of the PC industry's fastest floating-point engine, featuring three out-of-order, superscalar floating-point units.
- If you need fast rendering of high-resolution graphics and video, the AMD Athlon processor provides the solution.
- 3DNow!™ technology has been enhanced for the AMD Athlon processor with 24 new instructions added to the 21 instructions already implemented in the currently available AMD-K6® family of processors.
- If you are looking for long-term investment protection, the AMD Athlon processor delivers next-generation features designed to allow your investment to last for years to come. High clock speeds and seventh-generation architecture are designed to allow you to be prepared for emerging technologies or future innovations in PC software.
- Whether you are a business user, power user, or PC hobbyist, AMD has the solution that is right for you.
- With over 120-million PC processors sold worldwide, AMD delivers a broad range of highly reliable products to power mission-critical applications.

Benchmarks

The following benchmarks (Figure 1, Figure 2, Figure 3, and Figure 4) show the outstanding performance of the AMD Athlon processor. You can build the world's fastest PC system with the AMD Athlon processor.

3DMark

3DMark™ 99 MAX from Futuremark was designed specifically to measure 3D performance and includes optimizations for AMD's 3DNow! technology, Intel's SSE technology, and standard floating point processing for CPUs without 3DNow! or SSE technologies. CPU 3DMark is a subset of 3DMark 99 MAX that indicates how quickly your processor can handle large amounts of 3D geometry and lighting operations.

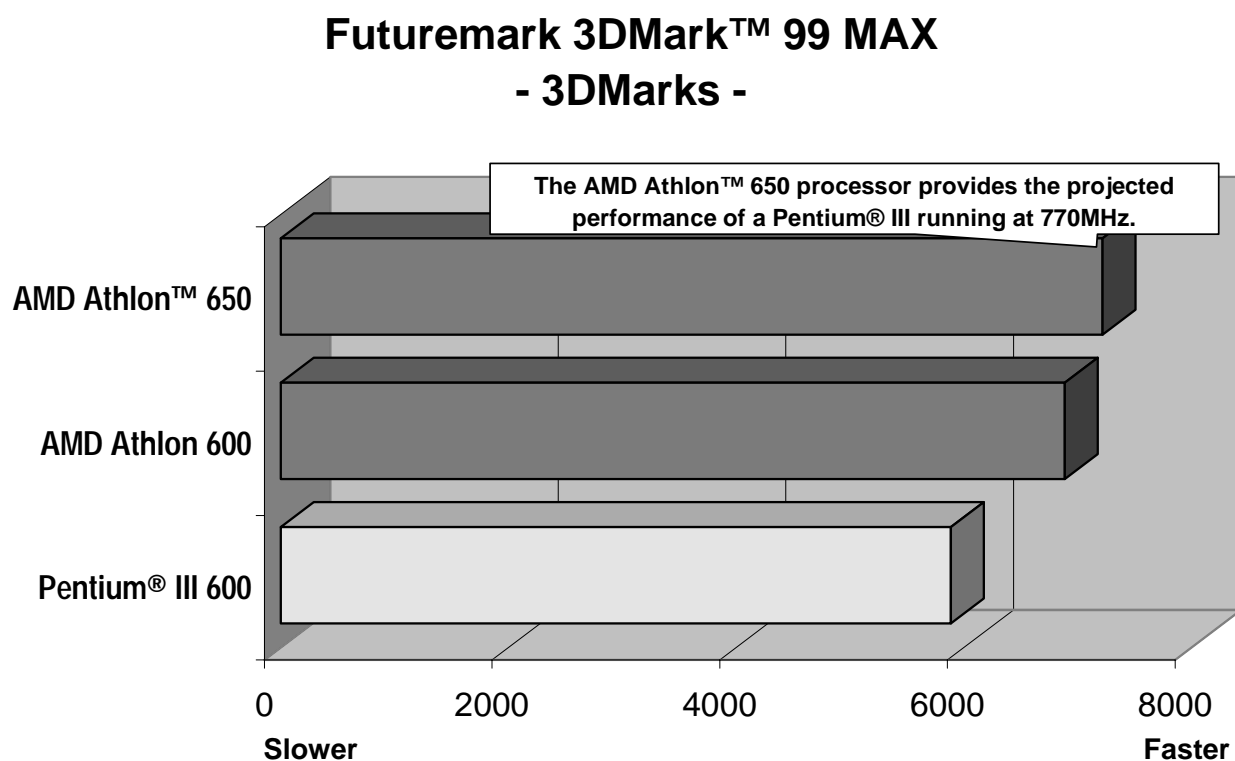


Figure 1. 3D Mark Benchmark Results

Benchmark System Configuration. Diamond 770 using nVidia TNT2 Ultra 150MHz core, 183MHz memory clock 32MB, Western Digital Expert 41800, single PC100 128MB DIMM, SoundBlaster Live (Value) Audio, Linksys HPN100 Home Ethernet card, Toshiba 6X DVD SD-M1212, Dual Boot Windows® 98 & Windows NT® 4.0 using Norton System Commander. Windows NT 4.0 is installed with SP4, Windows 98 with DX 6.1A build 2150, and nVidia TNT2 Ultra Driver Rev 1.81 under Windows 98 and Windows NT. AMD Athlon™ processor-based system: Reference Motherboard Rev. B*, BIOS Rev AFTB00-2, Bus Mastering EIDE Driver v1.03, AGP miniport v4.41.

Pentium® III processor-based system: ASUS P2B Rev 1.02, BIOS Rev 1008 beta 4, EIDE-BM Driver 5/11/98, AGP miniport 5/11/98.

* This Futuremark benchmark employs an AMD Athlon processor-specific DLL that has been developed independently by AMD. This benchmark is not meant to replace or be a new version of 3DMark, it is simply intended to demonstrate the superior performance capabilities of the AMD Athlon processor architecture.

** This motherboard is not commercially available at this time.

Business Winstone 99 Windows 98

Ziff-Davis Business Winstone®99 is an application-based benchmark that measures system performance when running popular Windows-based 32-bit business applications. Winstone 99 uses real business suite applications with scripts that mimic the usage patterns of typical computer users, and allows end-users and organizations to evaluate PCs for mainstream use.

Business Winstone® 99 (Windows® 98)

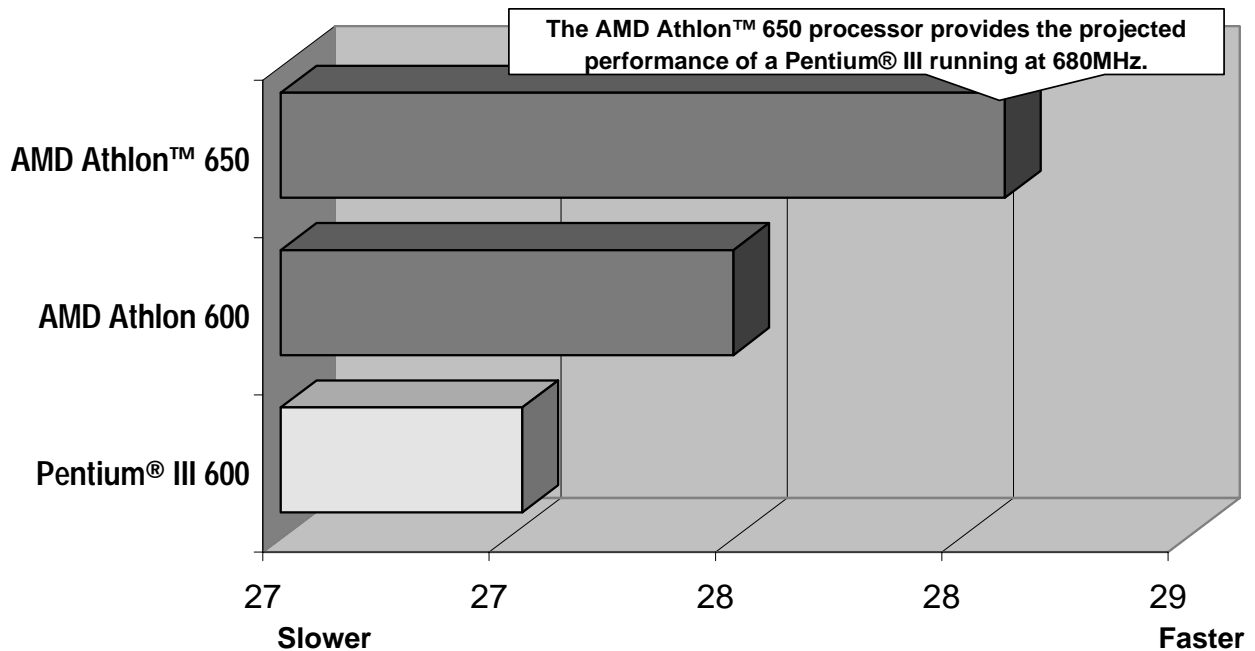


Figure 2. Business Winstone 99 (Windows® 98) Benchmark Results

Benchmark System Configuration. Diamond 770 using nVidia TNT2 Ultra 150MHz core, 183MHz memory clock 32MB, Western Digital Expert 41800, single PC100 128MB DIMM, SoundBlaster Live (Value) Audio, Linksys HPN100 Home Ethernet card, Toshiba 6X DVD SD-M1212, Dual Boot Windows® 98 & Windows NT® 4.0 using Norton System Commander. Windows NT 4.0 is installed with SP4, Windows 98 with DX 6.1A build 2150, and nVidia TNT2 Ultra Driver Rev 1.81 under Windows 98 and Windows NT.

AMD Athlon™ processor-based system: Reference Motherboard Rev. B*, BIOS Rev AFTB00-2, Bus Mastering EIDE Driver v1.03, AGP miniport v4.41.

Pentium® III processor-based system: ASUS P2B Rev 1.02, BIOS Rev 1008 beta 4, EIDE-BM Driver 5/11/98, AGP miniport 5/11/98.

*This motherboard is not commercially available at this time.

Business Winstone 99 Windows NT

Ziff-Davis Business Winstone 99 is an application-based benchmark that measures system performance when running popular Windows-based 32-bit business applications. Winstone 99 uses real business suite applications with scripts that mimic the usage patterns of typical computer users, and allows end-users and organizations to evaluate PCs for mainstream use.

Business Winstone® 99 (Windows NT® 4.0)

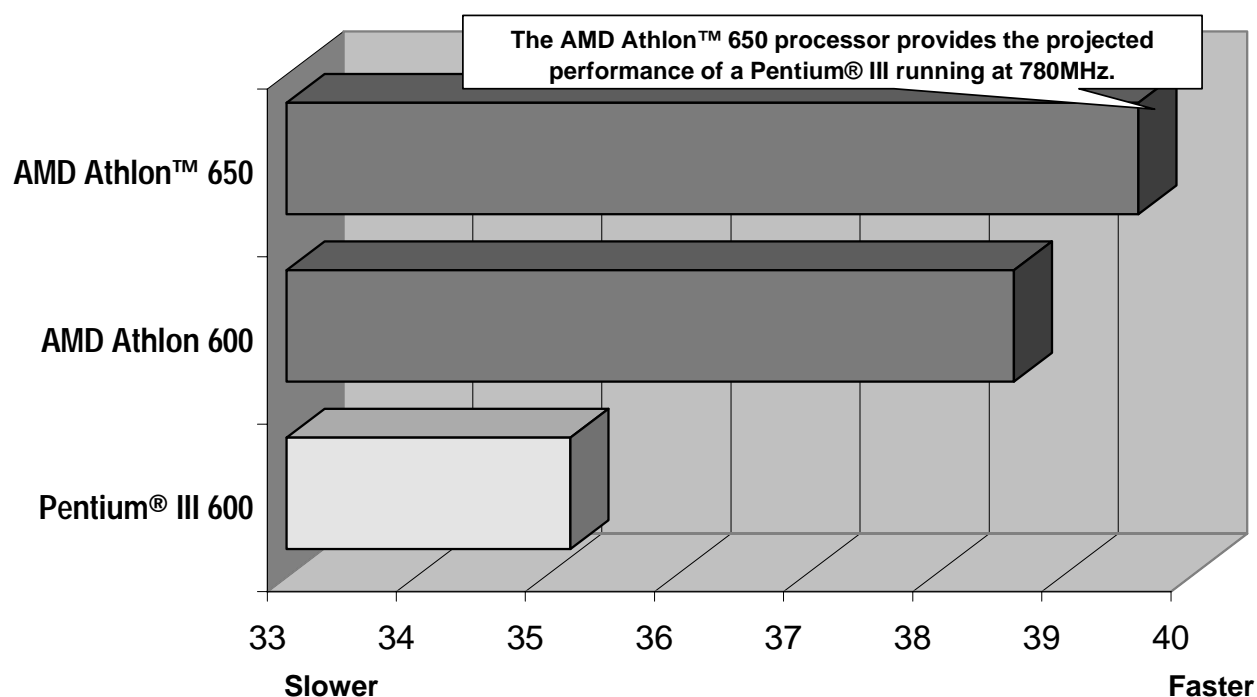


Figure 3. Business Winstone 99 (Windows NT®) Benchmark Results

Benchmark System Configuration. Diamond 770 using nVidia TNT2 Ultra 150MHz core, 183MHz memory clock 32MB, Western Digital Expert 41800, single PC100 128MB DIMM, SoundBlaster Live (Value) Audio, Linksys HPN100 Home Ethernet card, Toshiba 6X DVD SD-M1212, Dual Boot Windows® 98 & Windows NT® 4.0 using Norton System Commander. Windows NT 4.0 is installed with SP4, Windows 98 with DX 6.1A build 2150, and nVidia TNT2 Ultra Driver Rev 1.81 under Windows 98 and Windows NT.

AMD Athlon™ processor-based system: Reference Motherboard Rev. B*, BIOS Rev AFTB00-2, Bus Mastering EIDE Driver v1.03, AGP miniport v4.41.

Pentium® III processor-based system: ASUS P2B Rev 1.02, BIOS Rev 1008 beta 4, EIDE-BM Driver 5/11/98, AGP miniport 5/11/98.

*This motherboard is not commercially available at this time.

SPECfp

Standard Performance Evaluation Corp. (SPEC) SPECfp_base95 is a component of the CFP95 suite, an industry standard for measuring and comparing a processor's floating performance. SPEC benchmarks are typically used by members of the scientific and technical communities to measure the performance of high-end computer systems.

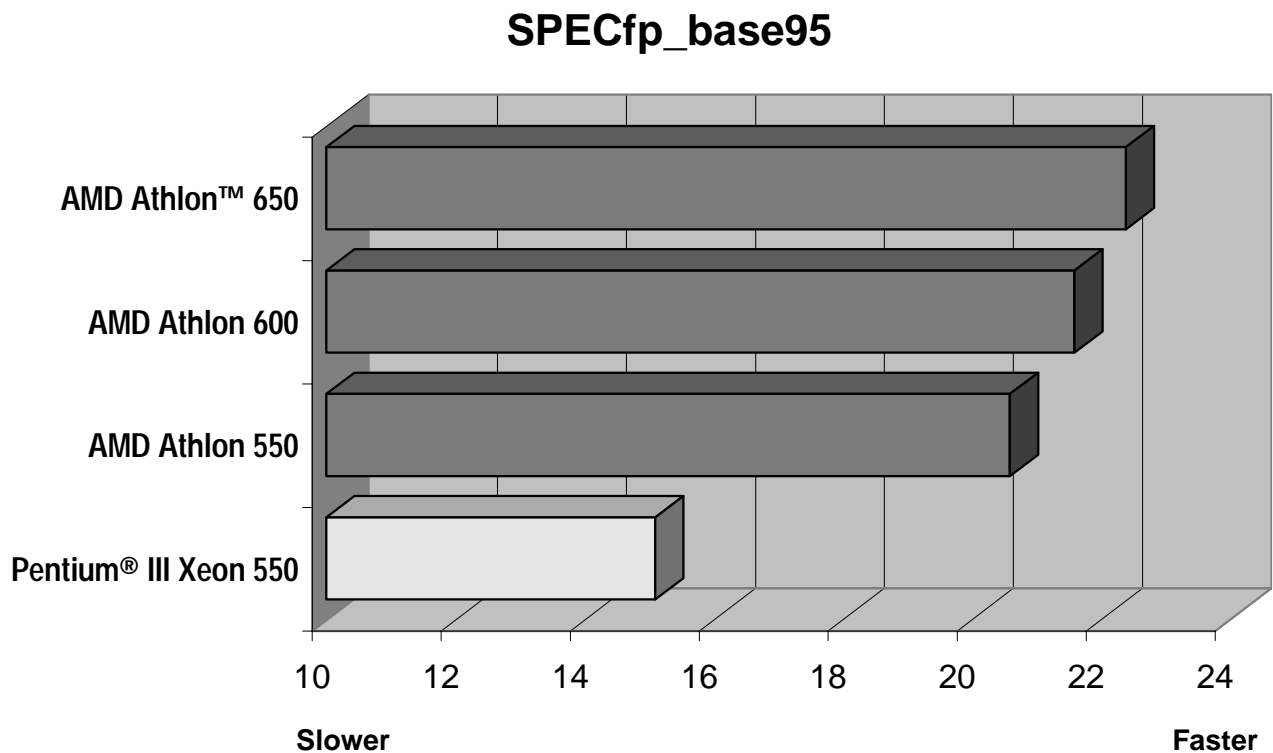


Figure 4. SPECfp Benchmark Results

Benchmark System Configuration. Diamond 770 using nVidia TNT2 Ultra 150MHz core, 183MHz memory clock 32MB, Western Digital Expert 41800, single PC100 128MB DIMM, SoundBlaster Live (Value) Audio, Linksys HPN100 Home Ethernet card, Toshiba 6X DVD SD-M1212, Dual Boot Windows® 98 & Windows NT® 4.0 using Norton System Commander. Windows NT 4.0 is installed with SP4, Windows 98 with DX 6.1A build 2150, and nVidia TNT2 Ultra Driver Rev 1.81 under Windows 98 and Windows NT.

AMD Athlon™ processor-based system: Reference Motherboard Rev. B*, BIOS Rev AFTB00-2, Bus Mastering EIDE Driver v1.03, AGP miniport v4.41.

Pentium® III Xeon processor-based system (512K L2): Tyan Thunder X Motherboard, BIOS 1.02, EIDE-BM Driver 5/11/98, AGP miniport 5/11/98.

*This motherboard is not commercially available at this time.

Performance Gains

Internet

- With a performance gain of up to 29% over a Pentium III 600 (JMark 2.0 Advanced Processor Test), the AMD Athlon 650 processor offers new levels of multimedia productivity.

Entertainment

- The AMD Athlon 650 processor provides up to 46% gains in performance over a Pentium III 600 processor on popular 3D action and adventure games.

Speech Recognition

- Compared to a Pentium III 600, the AMD Athlon 650 processor provides a 10% performance gain to power next-generation features in speech recognition technology.

Business Customers

- The AMD Athlon 650 processor delivers a performance gain of up to 45% over a Pentium III 600 processor when running popular Windows® software business applications.

Features and Benefits

Table 1 shows AMD Athlon processor features and benefits.

Table 1. AMD Athlon™ Processor Features and Benefits

Features	Benefits
<ul style="list-style-type: none"> ■ PC Industry's First 200-MHz Bus <ul style="list-style-type: none"> • 200 MHz versus 100 MHz in Pentium III 	<ul style="list-style-type: none"> • Delivers twice the peak bandwidth of today's 100-MHz bus. • Enables users to better take advantage of high-bandwidth Internet connectivity like IEEE 1394, cable modem, etc.
<ul style="list-style-type: none"> ■ Most Advanced x86 Architecture <ul style="list-style-type: none"> • Nine-Issue, superscalar microarchitecture • Initial debut includes 650, 600, 550, and 500 MHz 	<ul style="list-style-type: none"> • Highest frequency and best performance • Investment in the future
<ul style="list-style-type: none"> ■ Superscalar Floating-Point Unit <ul style="list-style-type: none"> • Issues three superscalar, pipelined floating-point or multimedia instructions simultaneously • Fastest x87 floating-point unit today 	<ul style="list-style-type: none"> • Outstanding processing speed for math-intensive software programs like CAD and scientific applications • The 650-MHz AMD Athlon processor has over 45% faster floating-point performance versus the Pentium III 600.
<ul style="list-style-type: none"> ■ High-Performance Cache <ul style="list-style-type: none"> • Industry's largest L1 cache (128 Kbytes) Four times the Pentium III • High-speed 64-bit backside L2 cache (512 Kbytes) 	<ul style="list-style-type: none"> • Processor-level cache (L1) is faster than system cache (L2), enhances overall system performance.
<ul style="list-style-type: none"> ■ Enhanced 3DNow! Instruction Set Capabilities <ul style="list-style-type: none"> • Five new 3DNow! instructions (not in Pentium III) • Nineteen new multimedia instructions that augment the MMX™ instruction set. 	<ul style="list-style-type: none"> • Relieves the floating-point-intensive bottlenecks in 3D graphics processing • Improved processing of audio, video, and Internet content for a compelling visual computing experience.

The AMD Processor In A Box

The AMD Processor In A Box includes the following:

- AMD Athlon processor assembled with heatsink and fan
- Installation Guide with configuration specifications
- AMD Athlon processor bezel logo
- A three-year limited warranty
- Certificate of Authenticity

Build a Better PC

The AMD Processor in a Box product, featuring an AMD Athlon processor, comes assembled with a premium ball-bearing fan and heatsink. The unit is assembled with a thermal compound that provides the thermal conditions required for your system. You have it all in one unit. It's fast and easy. It's a great way to build a better PC.

The boxed processor is factory-sealed to ensure authenticity of your AMD processor. The Certificate of Authenticity included in the box validates that you have purchased an authentic AMD Athlon processor. Plus, we stand behind our product with a three-year limited warranty, offering peace of mind for you and your customers.

In addition, the AMD Athlon processors undergo extensive testing for compatibility. Hardware and software tests are performed in AMD's internal compatibility lab. The Microsoft WHQL and XXCAL also conduct independent testing to evaluate compatibility with the installed base of x86 software and operating systems.

Buying quality AMD products from an authorized distributor makes good business sense. When you buy from an unauthorized distributor, you risk getting chips that have been re-marked or mishandled somewhere in the pipeline—problems that are invisible until the part fails to perform in your system.

Why Buy Processor in a Box?

Confidence, Convenience, a Limited Three-Year Warranty, and More

The confidence that your AMD processor is marked accurately and the internal architecture matches the speed on the package.

The convenience of having a processor module with the appropriate heatsink and fan, assembled, and ready to install.

A three-year limited warranty on each processor you buy with assembled heatsink and fan through the Processor in a Box program. Products other than Processor in a Box products provide only a one-year warranty.

Before You Start Building

Follow these steps before you start building your AMD Athlon processor-based PC.

On page 89 there is a checklist for assembling AMD Athlon processor-based systems. You can use this checklist to verify the steps of the assembly process as you proceed.

Read the FAQ and Recommendations

The FAQ (frequently asked questions) begins on page 66. The configuration recommendations begin on page 77. Read the FAQ and system configuration recommendations before you begin assembling your system.

Take Notes

Get a small notebook (a three-ring binder with lined paper works great). Keep notes on what you're doing, especially when trouble-shooting a problem. This keeps you from making the same mistake more than once. When dealing with technical support, always write down the name, telephone number and extension of the technical support person who helps you.

Write clear and understandable notes on the resolution of the problem or call, and don't forget the case number. It can be very useful when having to call back later if the problem was not resolved in your conversation.

Serial Numbers and Receipts

When you buy a component or peripheral, write down the serial number on the receipt. Make sure you place all the receipts inside an envelope, and keep it in a safe place. If you need to send a component back under warranty, you will have the receipt and serial number required for the return RMA (Return Manufacturer Authorization). You get a side benefit by having records of your computer and peripherals for insurance purposes as well.

Make a photocopy of the Microsoft Certificate of Authenticity, which has the CD-Key code of your operating system, and copy other critical program access codes and keep them with the receipts.

Basic Tools

Basic installation of computer components requires a minimum set of tools as follows:

1. A #2 Phillips screwdriver
2. A very small, straight blade screwdriver
3. Needlenose pliers and diagonal cutting pliers
4. A nut driver for screws that secure the case cover (The size will vary.)
5. A grounded wriststrap to wear while you are working on the system
6. Tiewraps to secure wires and cables
7. Locktite (optional)

Surge Protectors and Uninterruptible Power Supplies (UPS)

Probably one of the most overlooked items is a surge protector or UPS unit. The power that runs in most homes and businesses can have substantial variations (i.e. drops in power, spikes in power, etc.).

The purpose of a surge protector is to protect your computer (and peripherals) against an electrical spike. You can guess what channeling a very high voltage through your computer can do. At a minimum, you should have at least one surge protector. Better yet, if the budget can afford it, acquire a UPS.

A UPS usually has additional safeguards built in which allows your computer to deal with drops, brownouts, and even total failures, depending on the unit you purchase. Many units have voltage regulators to keep the power to the computer absolutely uniform. This is the optimal performance you want.

A UPS is designed to keep your system running, even with a total power failure, but only for a short period of time to allow you to properly shut everything down. Only the more expensive UPSs, with substantial additional battery reserves can keep running for extended periods of time or support additional devices like printers or scanners. The manufacturer of the UPS can provide performance rating information.

If you can, get a good UPS with power conditioning for the computer, modem, and monitor. All other peripherals should be plugged into a quality surge protector.

Building the System

Step 1. Your Computer Case

The recommended computer case that you buy (see Table 5 on page 79) can be a complicated mechanism. Take some time to learn how to take the side panels off and put them back on. It is a good idea to ask your salesperson to show you how the case is disassembled and assembled—especially the installation of the power supply.



Photo 1. Your Computer Case

Step 2. If Necessary, Install the Power Supply

If necessary, install the power supply in your case as shown in Photo 2. Secure the power supply with screws and bolts as applicable as shown in Photo 3.

Set the power supply to the correct voltage setting—either 115V or 230V as shown in Photo 4. In the United States we use 115V.

WARNING

Do not plug the power supply into a wall outlet until you have completed all the steps of building your PC and you are ready to turn it on for the first time.

AMD Athlon processor-based computer systems distribute power to the motherboard whenever the power supply is plugged into the wall. You can damage components by inserting them or removing them from the system when the power supply is plugged in—even when the system is turned off.

Always unplug the power supply from the wall outlet when you work inside your computer system.

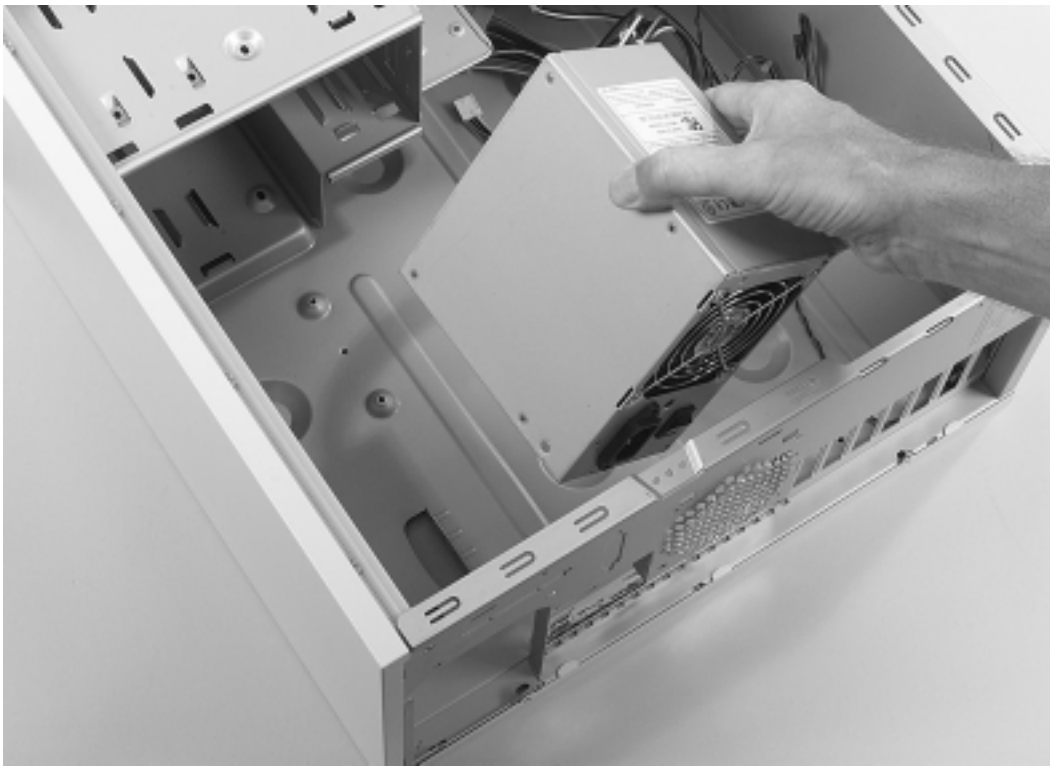


Photo 2. Power Supply Being Installed



Photo 3. Screw in the Power Supply

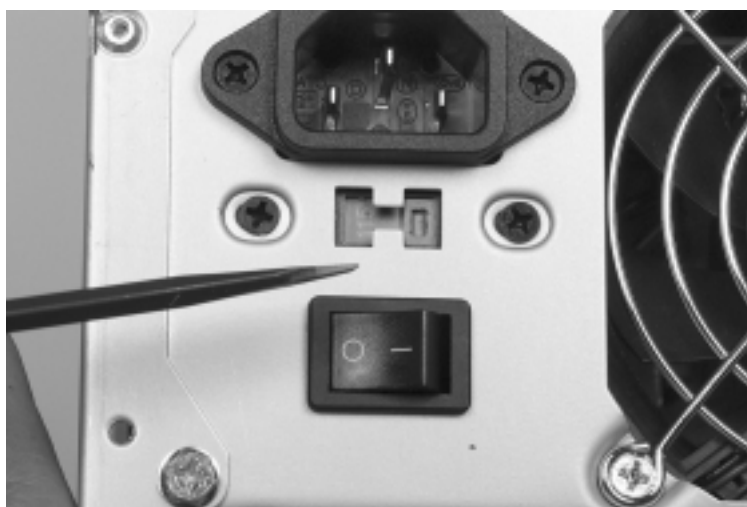


Photo 4. Set the 115/230 Volt Switch

Step 3. Ground Yourself

Use a wrist strap to ground yourself whenever you are working on the internal parts of your computer. We recommend that you purchase a wriststrap that plugs into a wall outlet and uses the ground pin of the wall outlet to provide an earth ground.

Another type of wriststrap has an alligator clip on the end and must be clipped to some grounded object. The computer case will not provide a ground for this type of strap until the power supply is plugged into the wall socket. Because we don't recommend that the power supply be plugged into a wall socket until you have completed the assembly process, you must connect the alligator clip to some other metallic source of ground.

Electrostatic discharge (ESD) damage to electronic components can be cumulative. Each time a part gets zapped, it can be damaged enough so that it will fail before its normal lifetime. You can avoid any problems like this with your computer system by using a ground strap.

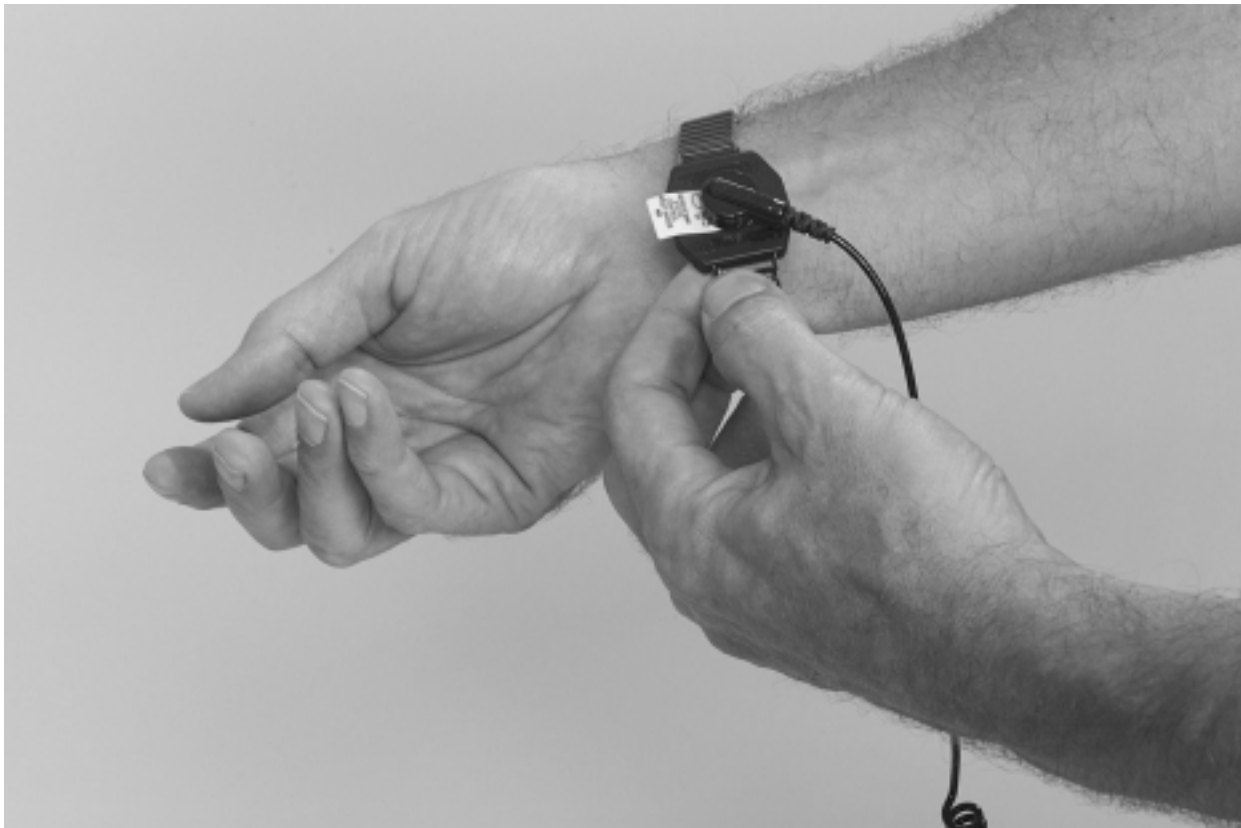


Photo 5. Ground Yourself

Step 4. Install the Exhaust Fan

We recommend that you install an exhaust fan in the back of the case. The recommended case list is in Table 5 on page 79. If an exhaust fan can be installed in the case, we recommend that you install one.

The exhaust fan must be installed in the rear of the case, drawing air out of the inside of the case. The arrows in Photo 6 show the required direction of the airflow from the fan.

The fan should be positioned as closely as possible to the location where the processor module will be installed on the motherboard.



Photo 6. An Exhaust Fan in the Rear of the Case

Step 5. Your Basic Startup System

For your basic startup system you should install a floppy disk drive, a CD-ROM drive, and a hard disk drive. After you have the basic system installed and working with your operating system and some applications, you can come back and install additional drives or other devices.

Get these components ready to install in the case as shown in Photo 7.

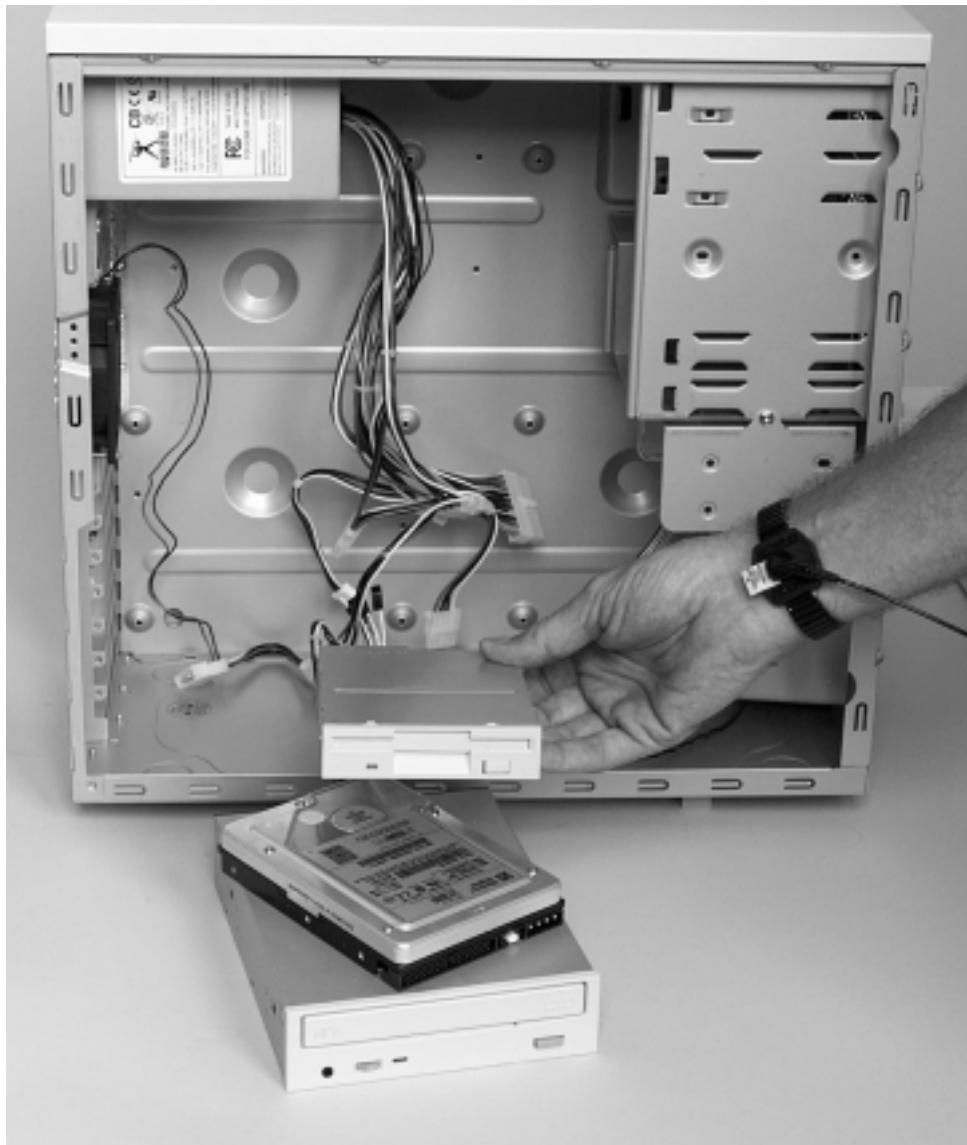


Photo 7. The Basic Startup System

Step 6. Remove Blocking Plates

Your case may have snap out plates blocking the front access to the floppy disk drive and CD-ROM drive. Remove these plates if they exist. (Many cases do not have blocking plates installed for the three basic disk drives.) You can usually use a screwdriver to snap the blocking plates out.



Photo 8. Remove Blocking Plates

Step 7. Get Familiar with Your Drive Cable Connectors

In Step 8 you will install the drives in the case. Before you do that, you should become familiar with the cables that are used with the various drives.

Photo 9 shows the logic cable that is plugged into the floppy disk drive. Notice that the cable has a dark stripe on the right side. This stripe is usually red and it mates with the pin 1 side of the cable connector on the floppy disk drive.

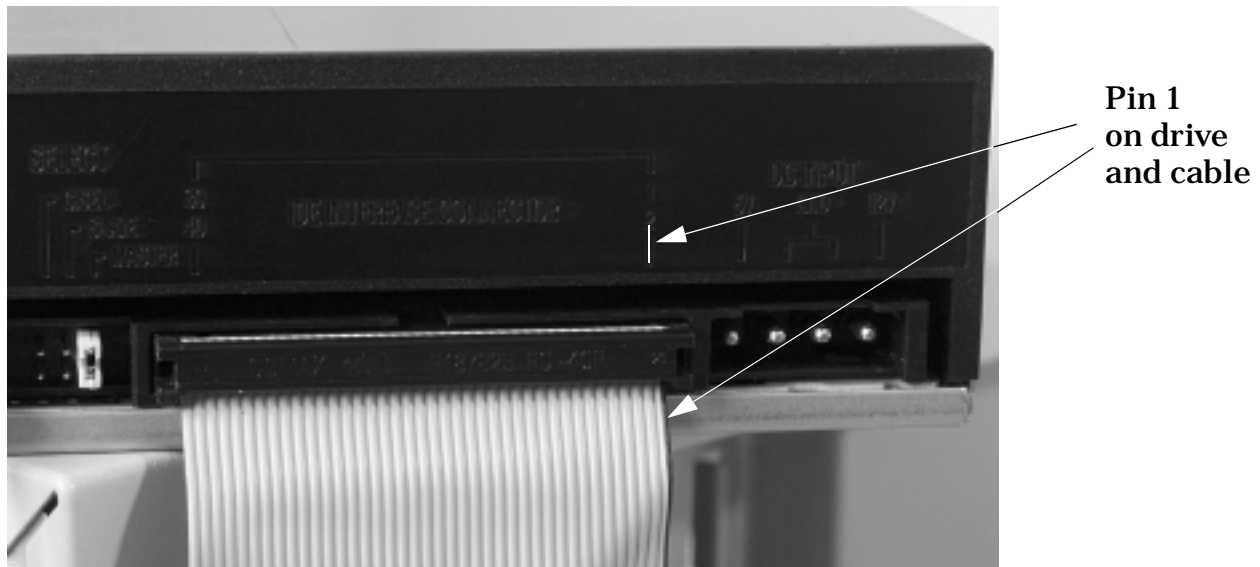


Photo 9. Pin 1 on Floppy Drive Connector

Photo 10 shows two cables that are the same except the bottom one has keys and the top one doesn't. You may get either type with your motherboard. If you have the keyed type of cables, it will be very apparent where the cable can be plugged in. If you have the unkeyed type of cable, you must depend on the pin 1 colored stripe to show you how to match the cable to the cable connector.

Notice that in Photo 10 both cables have a red marking for the pin 1 side. The cable on the bottom has a dashed stripe for pin 1.

Photo 11 shows a UDMA/66 (ATA-66) cable versus a regular IDE cable. The UDMA/66 cable is on top and it has much thinner wires to allow 80 wires in the cable. The cable on the bottom has only 40 wires that are obviously thicker.

Photo 12 on page 22 shows a hard disk drive connector that uses a 40-pin connector. Hard disk drive cables are connected to the drive with pin 1 (the red stripe) towards the power connector. The arrow in Photo 12 shows the location of pin 1 on the connector.

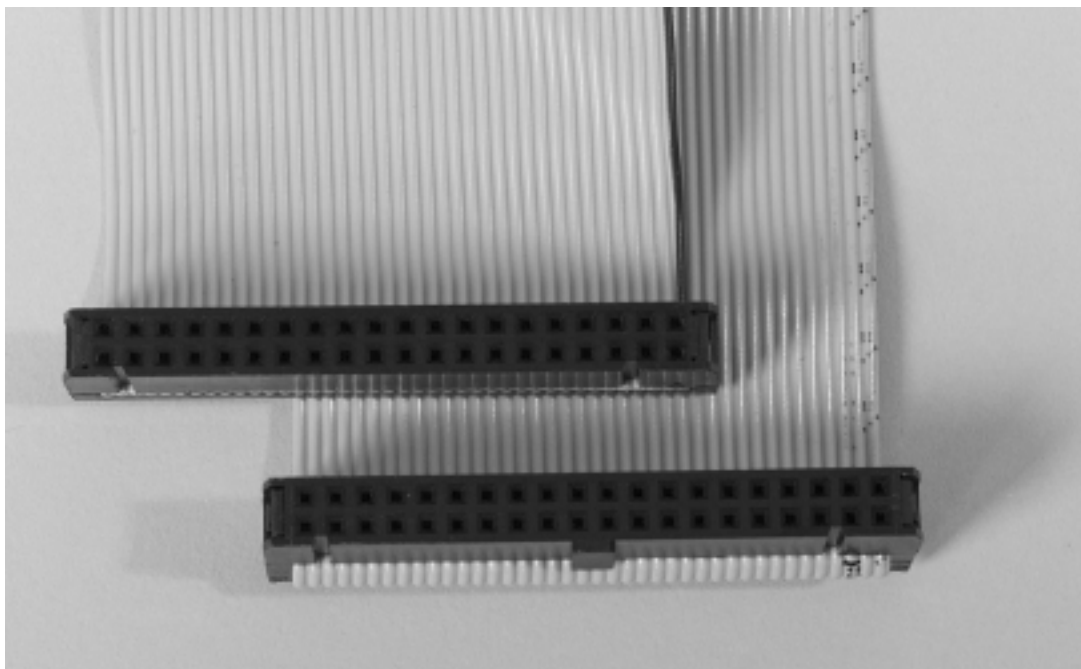


Photo 10. Keyed and Unkeyed Cables

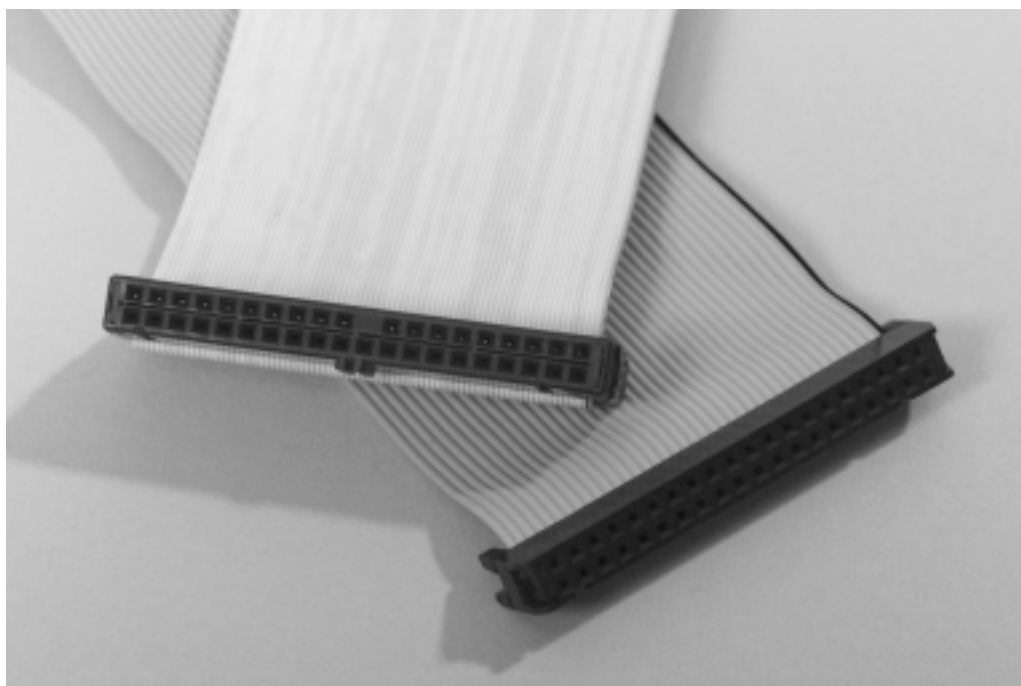


Photo 11. UDMA-66 versus Regular IDE Cable

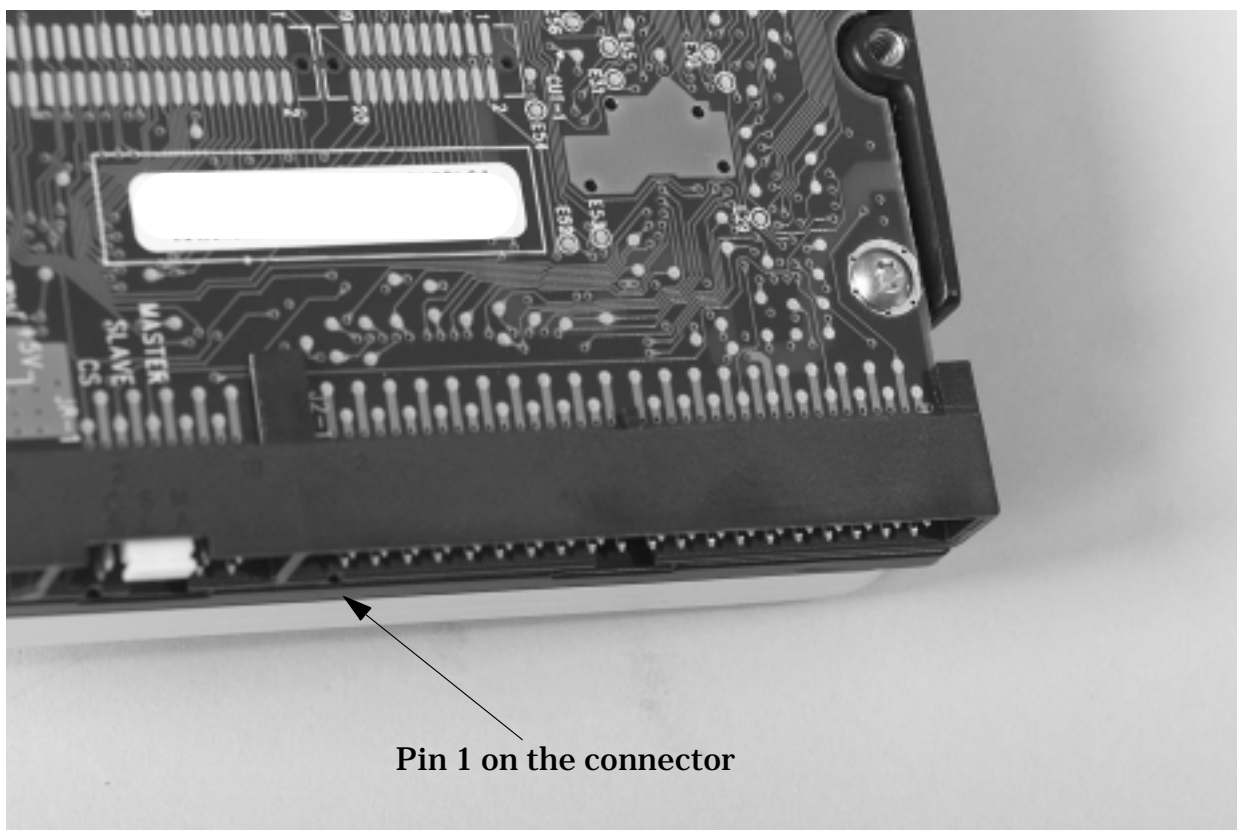


Photo 12. 40-Pin Connector on the Hard Disk Drive

Step 8. Install the Drives

Install the floppy, CD-ROM, and hard disk drives in the appropriate locations in the case as shown in Photo 13.

Install the appropriate flat data cables on the drives before you seat the drives permanently. It can be difficult to install these cables after the motherboard and other components are installed in the case.

If necessary, secure the drives in the case with the screws that were supplied with the case.



Photo 13. The Drives Installed in the Case

Step 9. Motherboard, Case, and Processor Module

Remove the motherboard and AMD Athlon processor module from their respective boxes. Set aside the CD-ROM or floppy disk that comes with the motherboard to be used later when you are installing drivers for the system.

The AMD Athlon Processor-in-a-Box product comes with a Certificate of Authenticity/Installation Guide and a plastic bag with a heatsink support in it. Set the Certificate of Authenticity/Installation Guide aside and keep the plastic bag in your workspace.



Photo 14. Motherboard, Case, and Processor Module

Step 10. Motherboards With and Without a Heatsink Support

Photo 15 shows two motherboards that are very similar except for the heatsink support that is installed on the motherboard on the left.

Notice that the motherboard on the right has processor module guides that can be folded down. These guides will need to be folded up when you install the processor module in the guides.

If your motherboard has a heatsink support installed on it, go to Step 12.

If your motherboard does not have a heatsink support installed, go to Step 11.

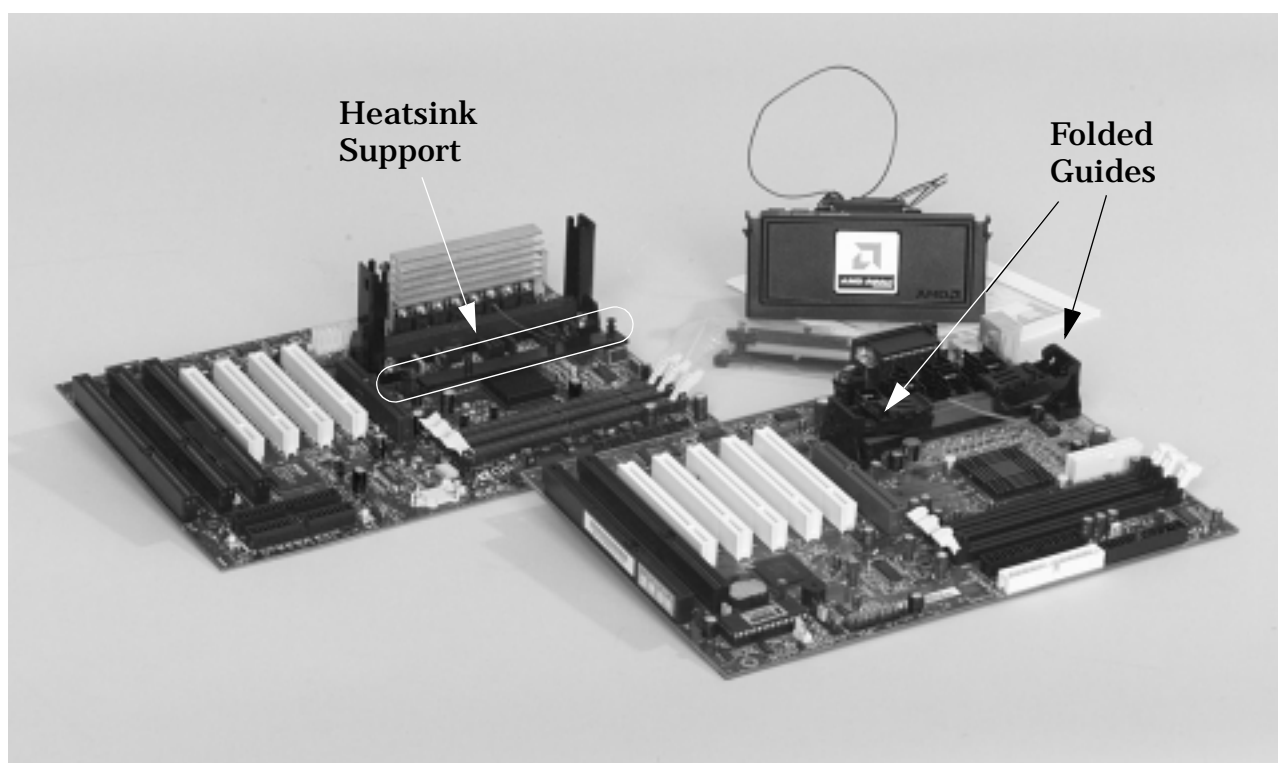


Photo 15. Motherboards With and Without a Heatsink Support

Step 11. Installing the Heatsink Support Assembly

Photo 16 shows the parts of the heatsink support assembly. The heatsink support base installs on the motherboard and serves to provide a stable base for the processor module heatsink. The legs of the heatsink support base are different sizes. You can only install the heatsink support base oriented in one direction.

The heatsink support clip attaches the heatsink to the heatsink support base after the processor module has been installed in the motherboard. This process is described beginning with Step 18 on page 37.

The two pins that are circled in the picture are inserted through the bottom of the motherboard into the legs of the heatsink support base after it has been positioned on the motherboard as shown in Photo 17.

The mounting holes for the heatsink support base are roughly indicated by the two arrows in Photo 16. Position the heatsink support base in the mounting holes with the larger leg of the base in the larger hole of the motherboard. If you have trouble identifying the larger hole, turn the motherboard over and position the heatsink support base on the backside of the motherboard to see how the holes match up.

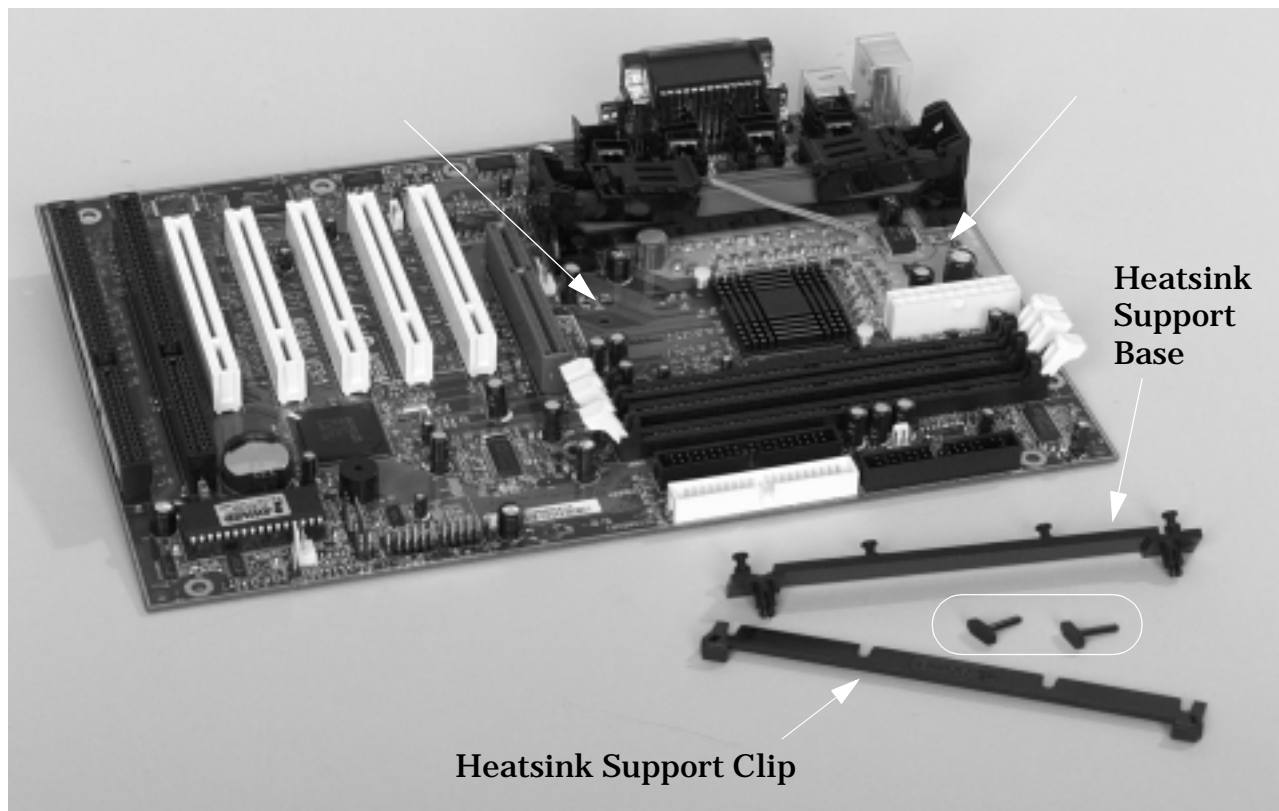


Photo 16. The Heatsink Support Assembly

After positioning the heatsink support base on the top of the motherboard, turn the motherboard over and insert the two retaining pins through the bottoms of the heatsink support base legs as shown in Photo 17.

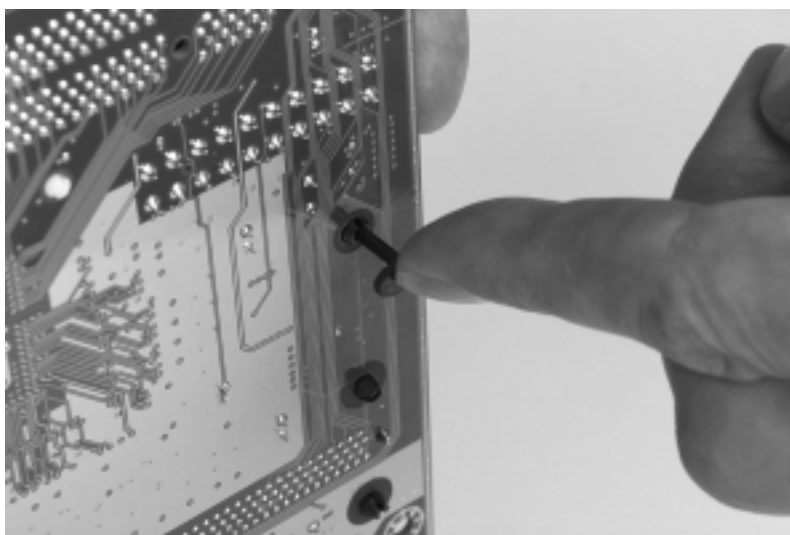


Photo 17. Bottom of Motherboard, Installing the Heatsink Support

Photo 18 shows the heatsink support base properly installed on a motherboard. Leave the heatsink support clip off the support base until later in this procedure.

Go to Step 13



Photo 18. Top of Motherboard, Installing the Heatsink Support

Step 12. Remove the Heatsink Support Clip

The heatsink support clip is shown in Photo 16. Remove the clip from your already installed heatsink support by squeezing the small tabs on the end of the clip and sliding the clip off the base as shown in Photo 19.

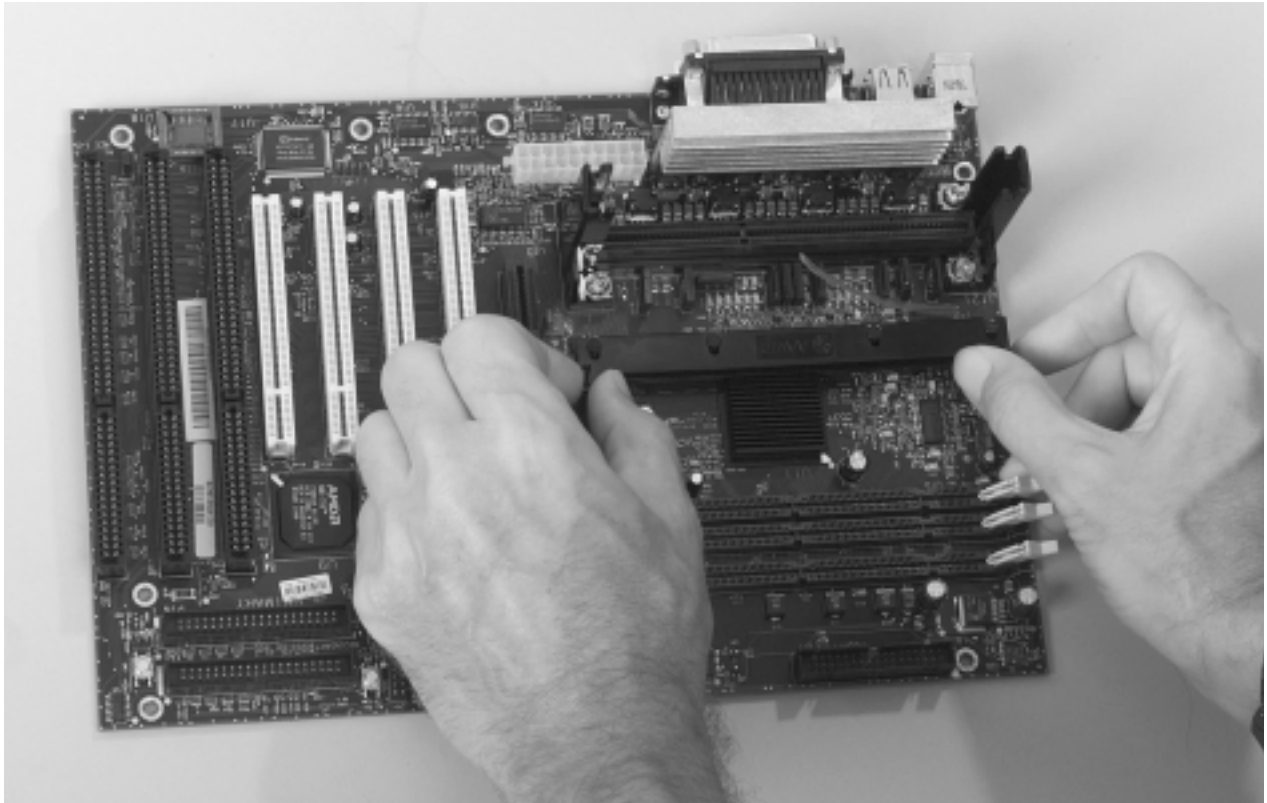


Photo 19. Remove the Heatsink Support Clip

Step 13. Verify Motherboard Jumper Settings

Most AMD Athlon processor motherboards do not have jumper settings for processor speed or voltages. However, there may be jumper settings for other features on your motherboard as shown in Photo 20.

Consult the reference manual for your motherboard to determine any jumper or switch settings that may be required.

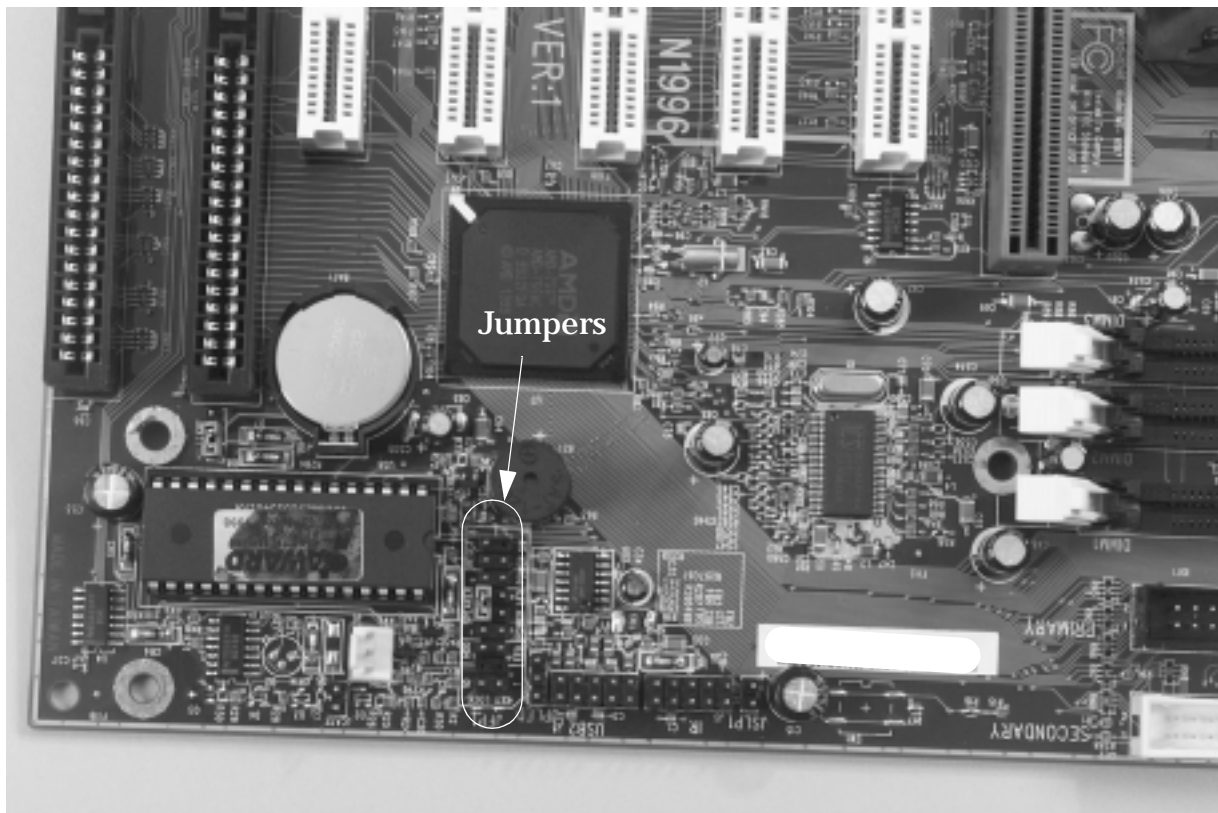


Photo 20. Verify Motherboard Jumper Settings

Step 14. Prepare the Punchout Access Ports

Your motherboard has cable connectors for the keyboard, mouse, serial, and parallel ports, etc. These connectors are accessed through punchout holes in the case.

Place the motherboard near the punchout access ports in the case and determine which punchouts you want to remove as shown in Photo 21.

Photo 22 shows a typical punchout being removed with a pair of needlenose pliers.



Photo 21. Locate the Punchout Access Ports



Photo 22. Removing an Access Port

Step 15. Preparing to Install the Motherboard in the Case

The motherboard will be installed on standoffs in the base of the case. Photo 23 shows standoffs in a typical case.

Photo 23 also shows a location where an extra standoff can be installed. Extra standoffs may be needed to provide support in areas of high potential mechanical stress on your motherboard, like the area where circuit cards are inserted. Photo 26 shows an extra standoff installed in a case.

Extra standoffs are included with the hardware that comes with your case. They are usually brass or brass-like and they have male threads on one end and female threads on the other end. The male threads secure the extra standoff to the case. The female threads hold a screw that is used to secure the motherboard to the extra standoff.

Extra standoffs can be secured to the case by applying Loctite to the screw threads before installing the extra standoff as shown in Photo 24.

Photo 25 shows the extra standoff with Loctite on it being installed in the case. The Loctite will secure the extra standoff in the case so it won't back out if you ever need to remove the motherboard.

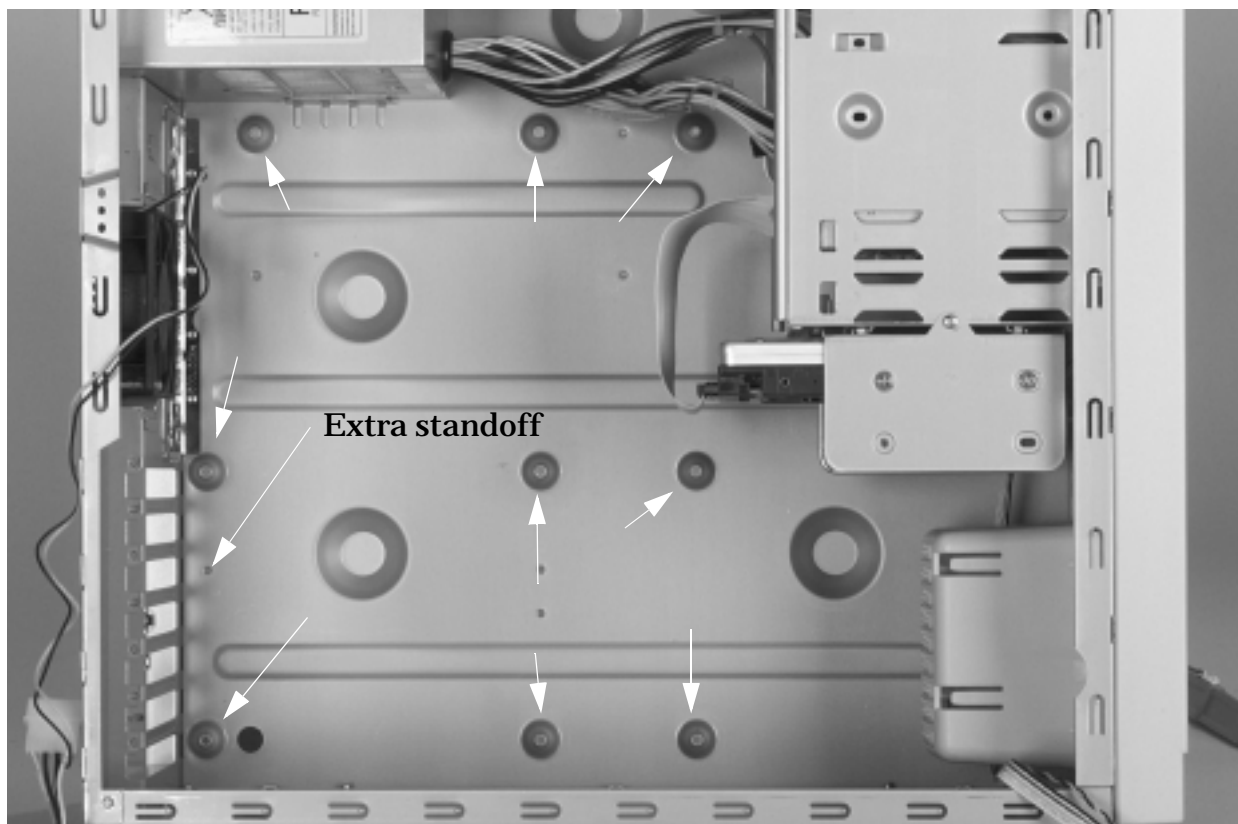


Photo 23. Standoff Bulbs in the Case



Photo 24. Placing Loctite on the Male Threads of the Extra Standoff



Photo 25. Installing the Extra Standoff



Photo 26. An Extra Standoff That has been Installed

Step 16. Check Alignment of the Motherboard with the Standoff Holes

Position the motherboard in the case so you can see the alignment of the mounting holes in the motherboard with the standoffs. Verify that you can install the motherboard in the case with the processor module on it. Some cases have power supplies or other components that block the installation of the motherboard after the processor module is installed.

Note: *It is best to install the processor module in the motherboard before you install the motherboard in the case. Unfortunately this is not possible with some cases.*

If you can install your motherboard in the case with the processor module on it, continue with the next step. Otherwise, install the motherboard in the case before going to the next step.

When you are installing the processor module outside the case, use an anti-static mat or other soft surface under the motherboard.



Photo 27. Check Alignment of the Motherboard with Standoff Holes

Step 17. Processor Installation

There are retention latches on the top of the processor module. Normally, the processor is shipped with the retention latches disengaged. If they are disengaged, they will feel a little loose.

Before installing the processor, you must push the retention latches in firmly until they click. The latches are located at the very top corners of the processor as shown in Photo 28.

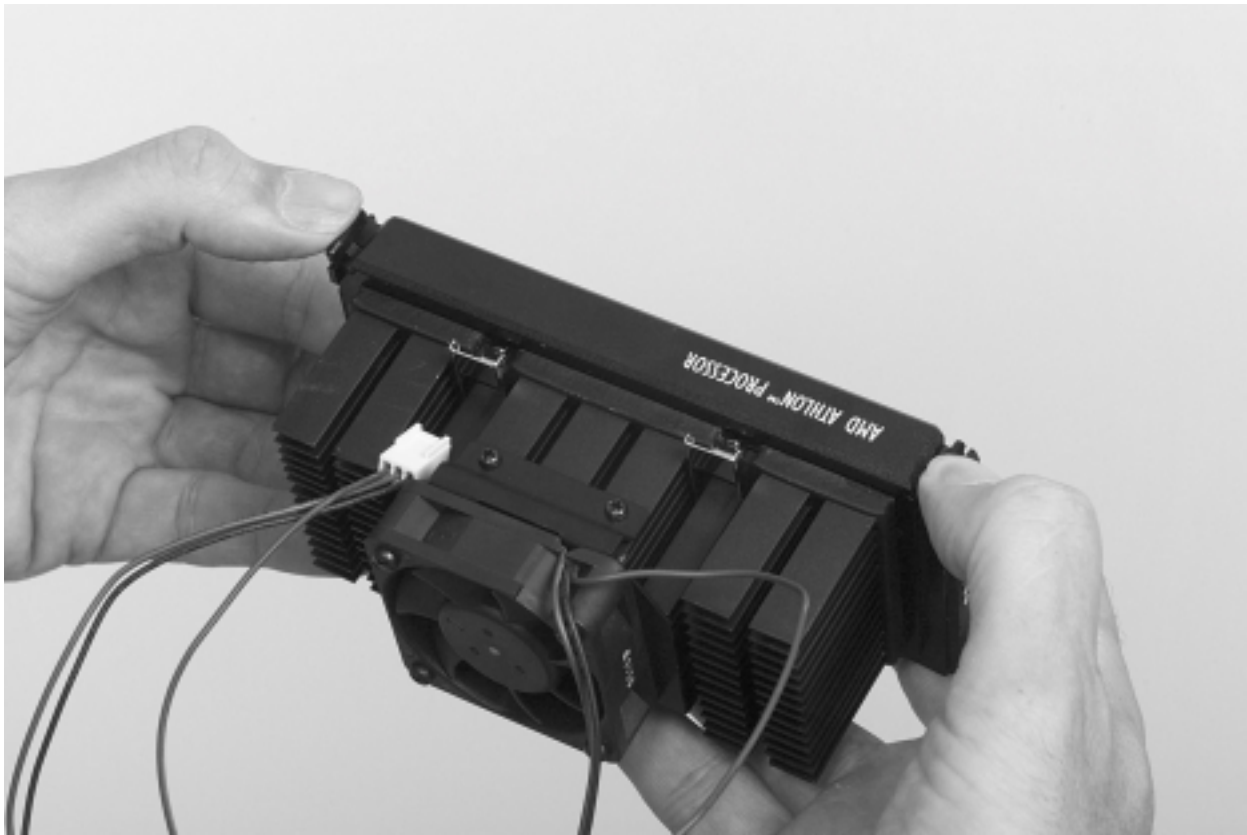


Photo 28. Press the Retention Latches In

Step 18. Place the Heatsink Clip in the Heatsink Fins

Install the heatsink support clip between the first and second rows of fins at the bottom of the heatsink as shown in Photo 29. The openings of the locking slots on the heatsink support clip should be facing up.

The heatsink support clip is symmetrical—there is no designated top or bottom—you can install it either way. However, there is a front and back. The locking slots must face up.

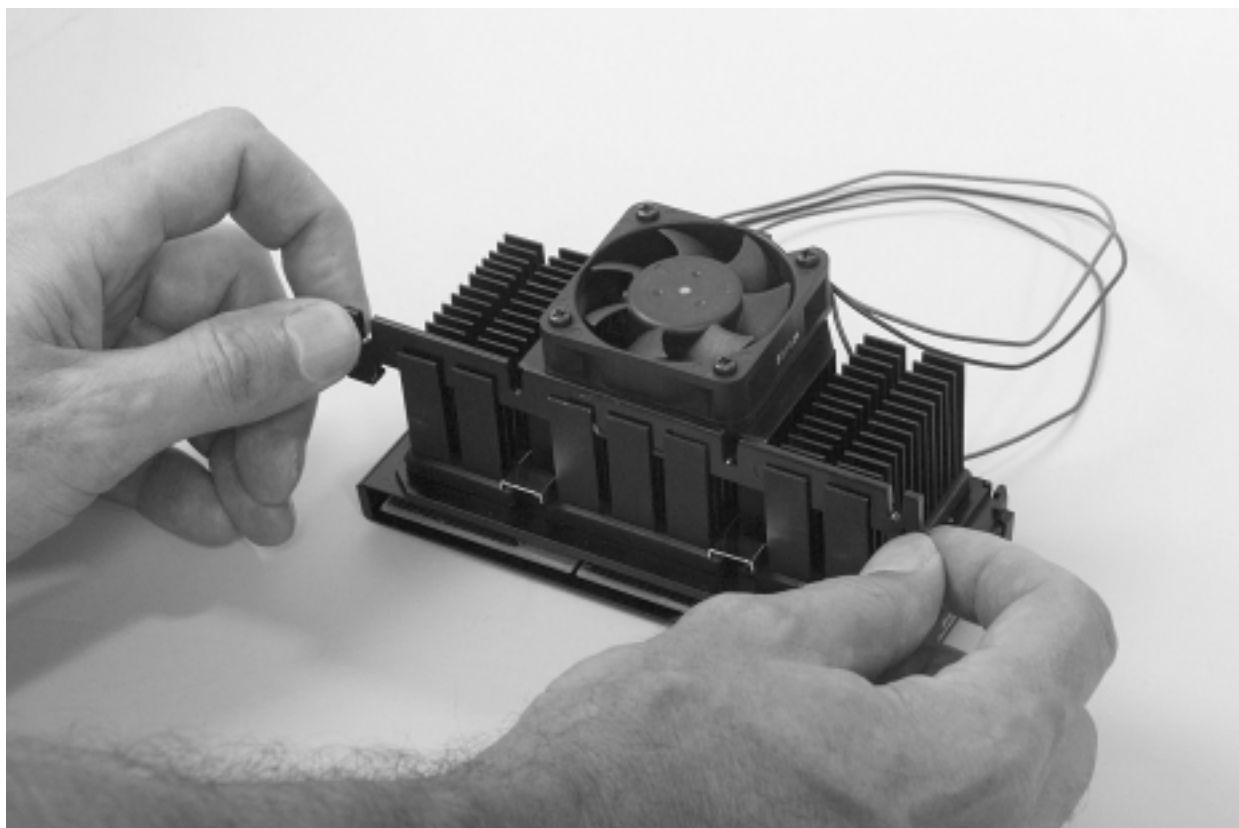


Photo 29. Place the Heatsink Clip in the Fins

Step 19. Install the Fan Power Cable

Before you install the processor, install the power connector for the processor fan. Check your motherboard reference manual for exact details.

On most motherboards, the power connector is located between the processor connector socket and the AGP card slot. The connector is keyed.

Install the connector carefully on the power pins on the motherboard. Make sure it is firmly seated.

Warning: *There is a thermal sensor ribbon on the motherboard at the point where the processor module is inserted. In the lower right portion of Photo 30, there is a circle with an arrow pointing to it. The circle is in the vicinity of the ribbon sensor.*

Exercise caution when inserting the processor module. Do not crease or break the thermal sensor ribbon. And be certain the ribbon is not caught under the processor module and blocking the card edge connector.

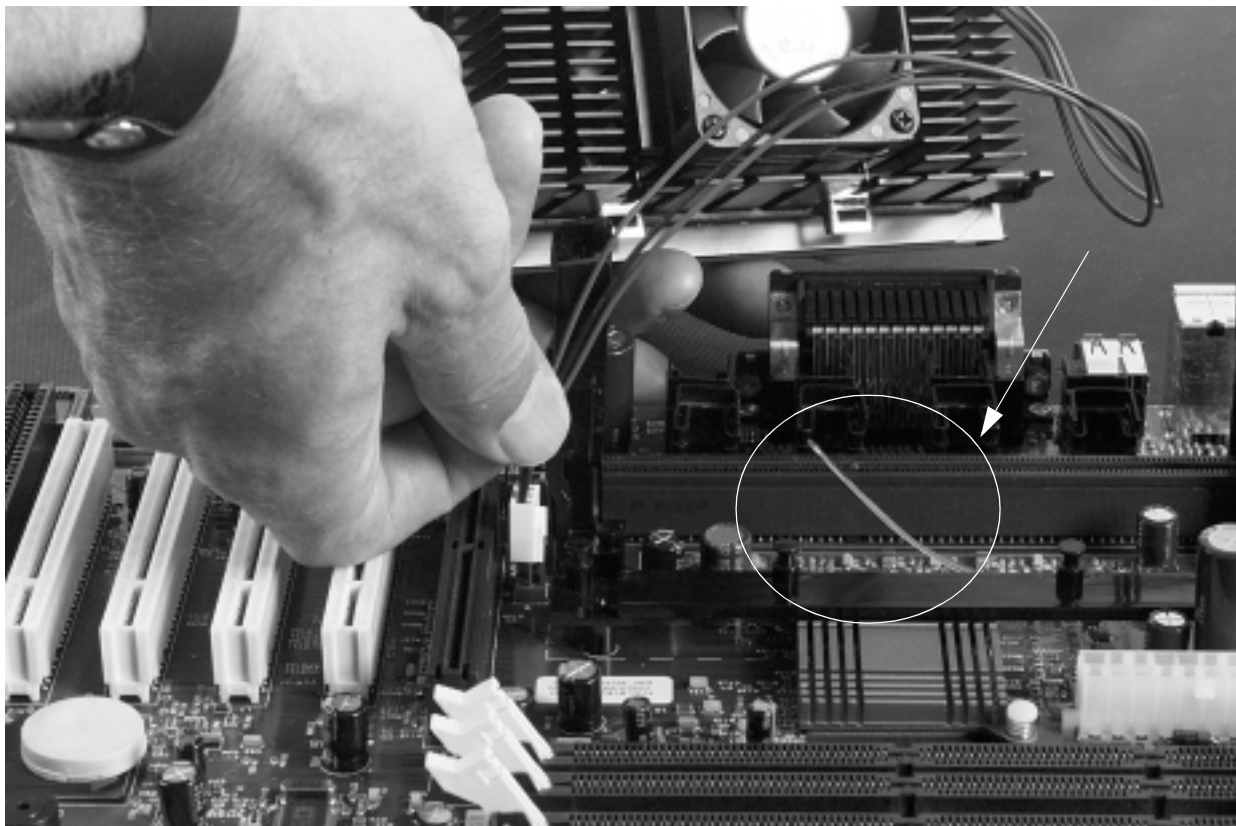


Photo 30. Install the Fan Power Cable

Step 20. Slide the Processor Module into the Guides

The processor module guides may be folded down. Photo 15 on page 25 shows a motherboard with the processor module guides folded down. If the processor module guides are folded down, fold them up.

The heatsink support clip must be pushed fully into the fins or the clip will jam and you will not be able to seat the processor module.

Slide the processor module squarely into the processor module guides and then squarely into the processor socket. Make sure the processor module is fully seated in the socket.

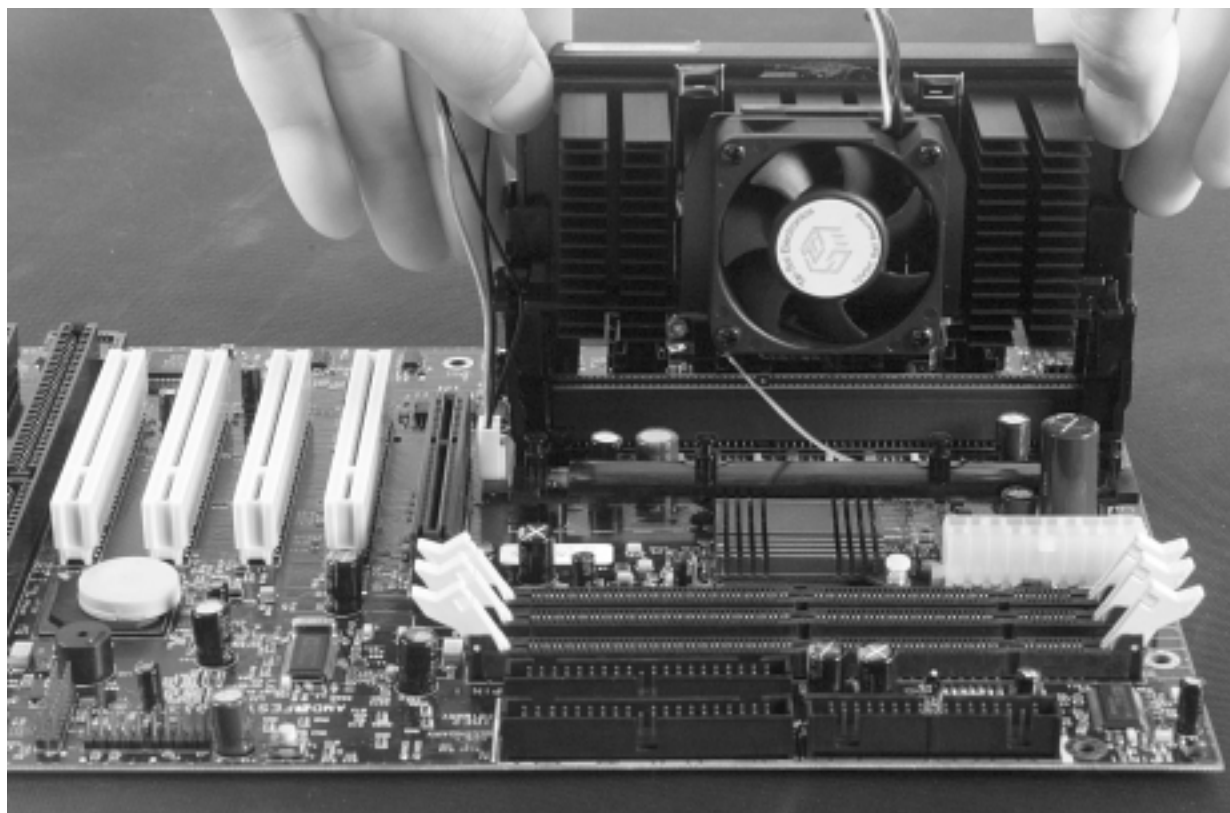


Photo 31. Slide the Module In

Step 21. Firmly Seat the Processor Module

Push the processor down firmly to make sure the processor is fully seated. Visually inspect the processor module to verify that it is full inserted.

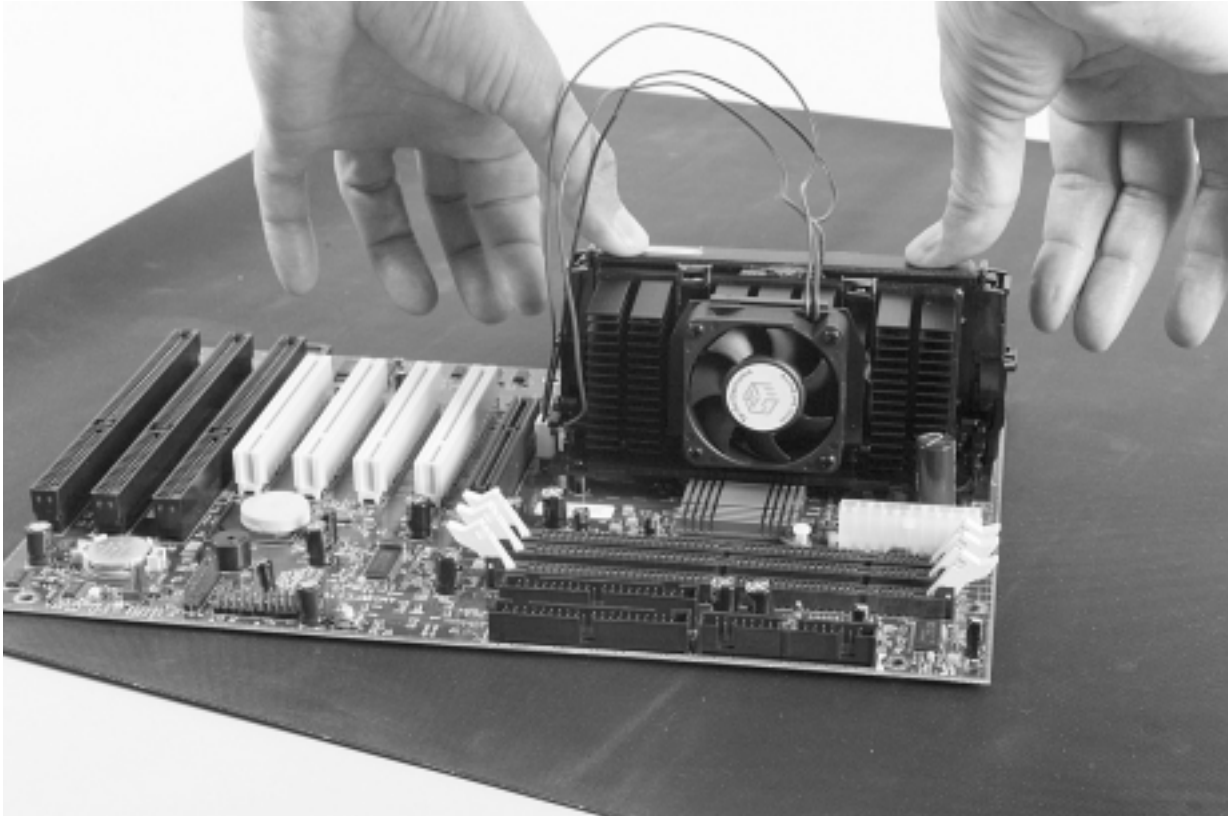


Photo 32. Firmly Seat the Processor Module

Step 22. Lock the Processor Module

Pull out the retention latches located at the top corners of the processor module as shown in Photo 33 until they click into place and lock. Do this to both sides of the processor module.

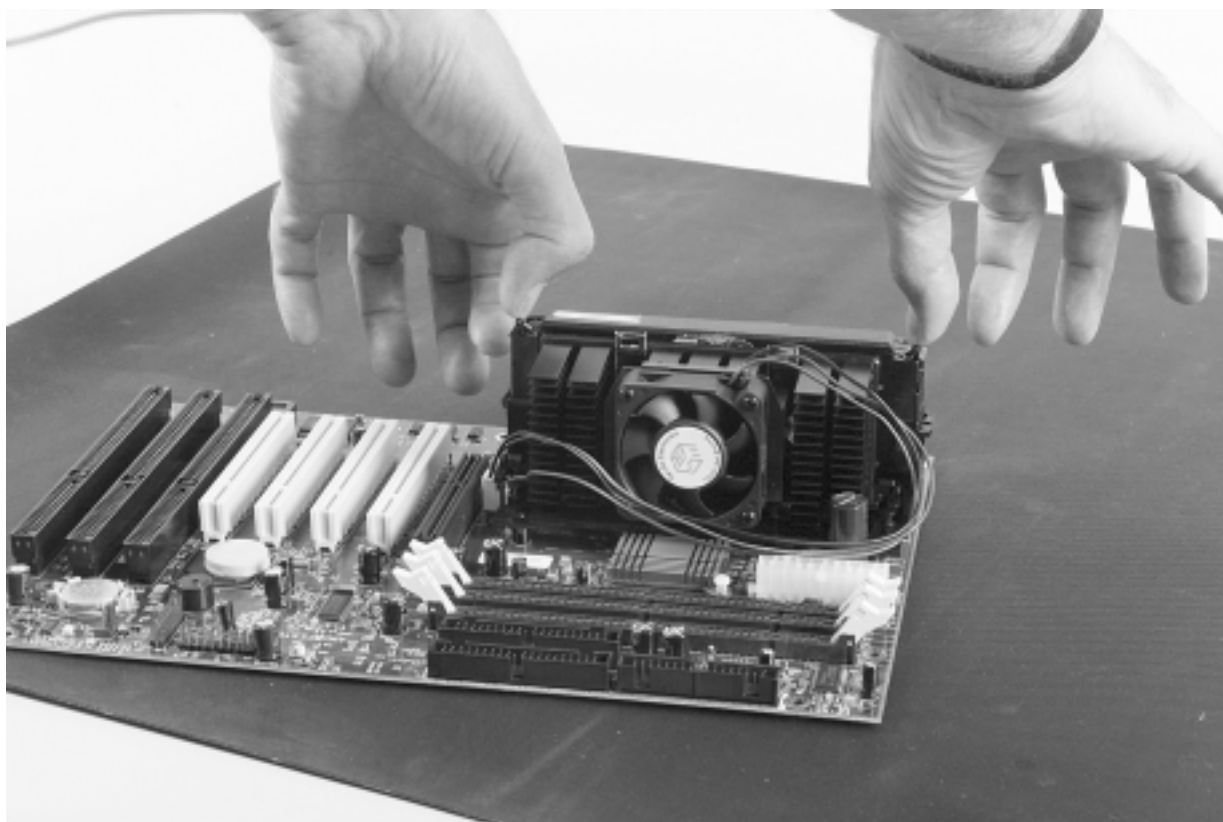


Photo 33. Lock the Processor Module

Step 23. Install the Heatsink Support Clip

Slide the heatsink support clip onto the grooves on the heatsink support as shown in Photo 34. The clip should snap into position.

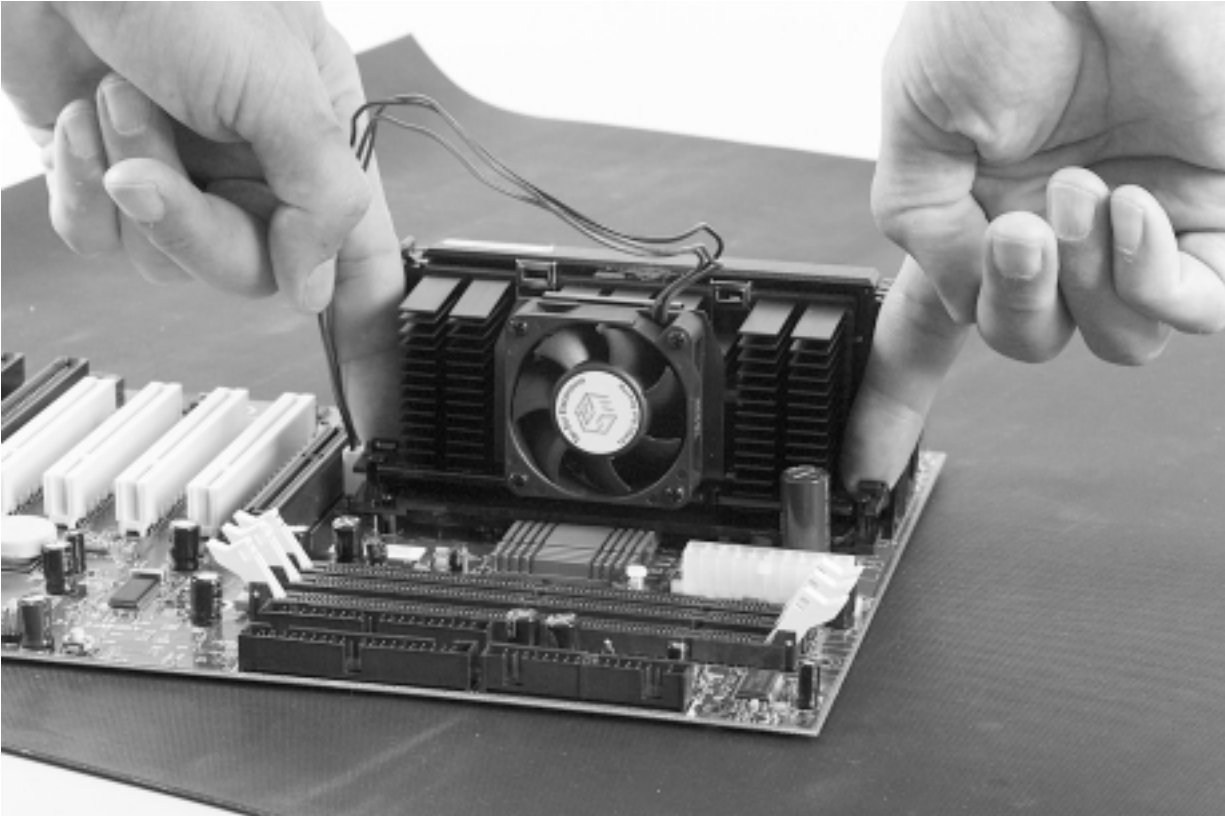


Photo 34. Install the Heatsink Support Clip

Step 24. Check the Processor Module Installation

When you are finished, the processor module should look like Photo 35. Notice the relative location of the processor module case and retention brackets. If properly installed, the processor module will be securely attached to the system board.

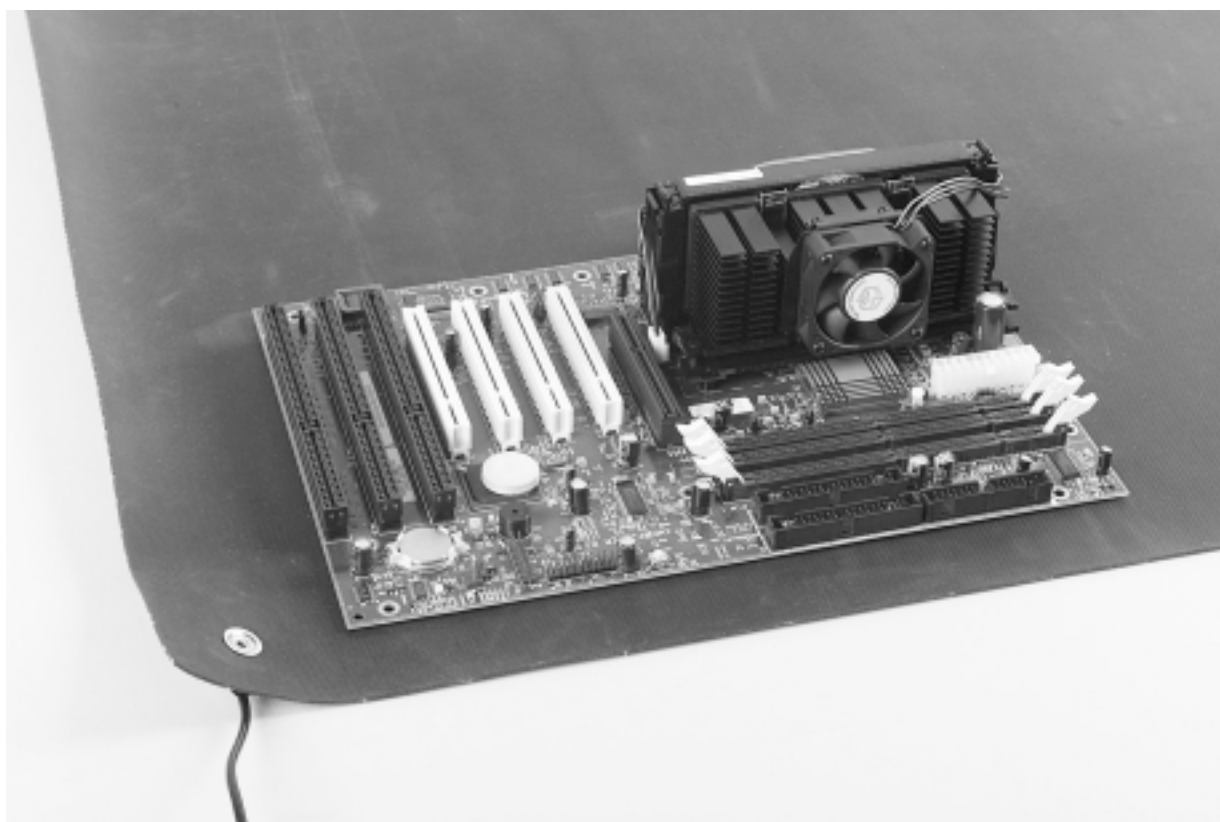


Photo 35. Processor Module Installed

Step 25. Install Motherboard on Standoffs and Tighten Screws

Install the motherboard using the screws that were supplied with your case as shown in Photo 36.

Do not overtighten the screws. Gentle pressure is sufficient.



Photo 36. Install Motherboard on Standoffs and Tighten Screws

Step 26. Installing Memory on the Motherboard

Be sure to check the reference manual for your motherboard for a list of recommended memory devices for your motherboard. If this information is not in the reference manual, check the motherboard manufacturers web site.

Memory for the AMD Athlon processor motherboards comes in DIMM (dual in-line memory module) modules or sticks. Photo 37 shows two DIMM sticks.

Do not handle the DIMM sticks by the edge connectors.

The DIMM sticks have notches that align them to the memory sockets.

Consult the reference manual for your motherboard to determine the correct installation sequence for the memory. Usually you should install the first stick in socket 1 and the second in socket 2 and so on. However, your motherboard may have special requirements, so check the manual.

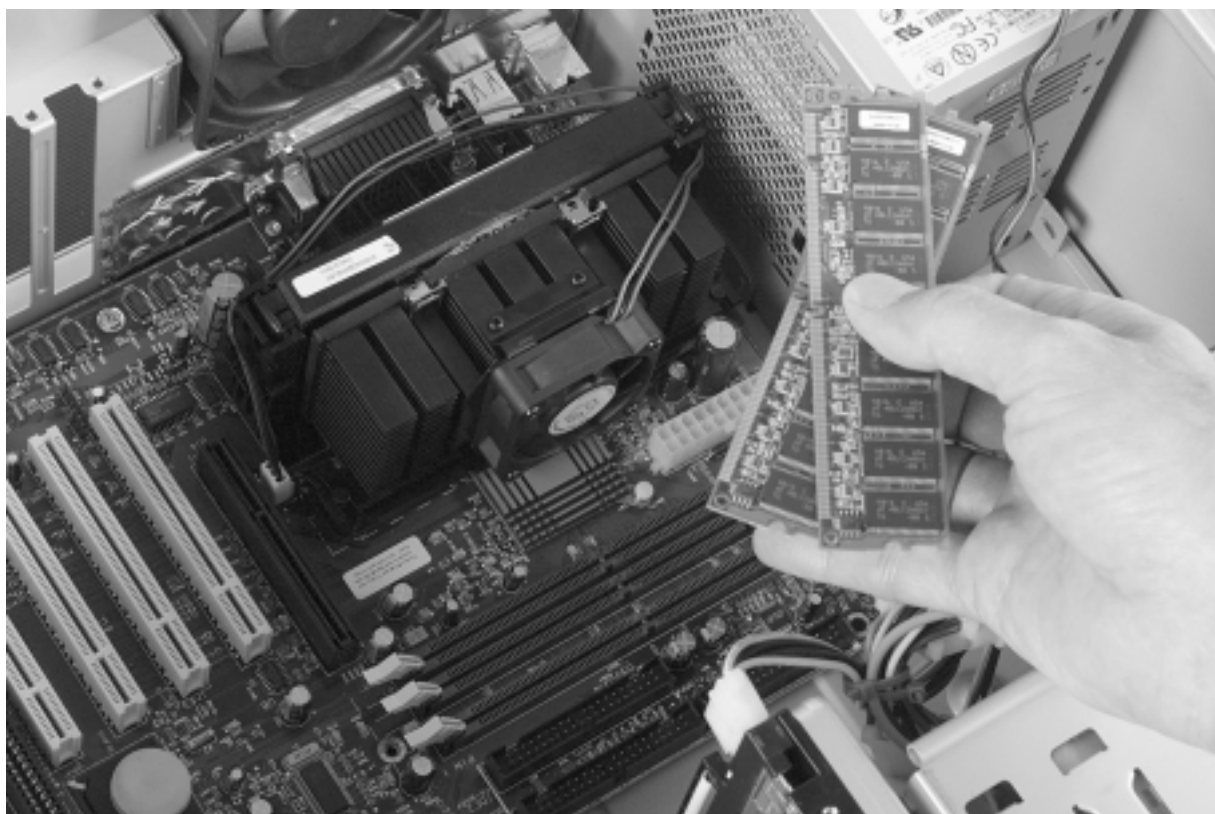


Photo 37. Two DIMM Memory Sticks

26 Cont. Inserting the DIMM Stick in the Motherboard

1. The first step to installing the DIMM stick is to open the levers on the left and right of the memory socket as shown in Photo 38.
2. Using the notches in the DIMM stick, properly orient the stick to the memory socket.
3. Using a straight down motion, insert the DIMM stick into the memory socket and seat it firmly.
4. The locking levers will close automatically when you have properly seated the DIMM stick.

Photo 38 shows a DIMM stick being installed with the notches properly aligned and the locking levers open.

To remove DIMM sticks, pull the locking levers out, and the stick will pop out of the socket.

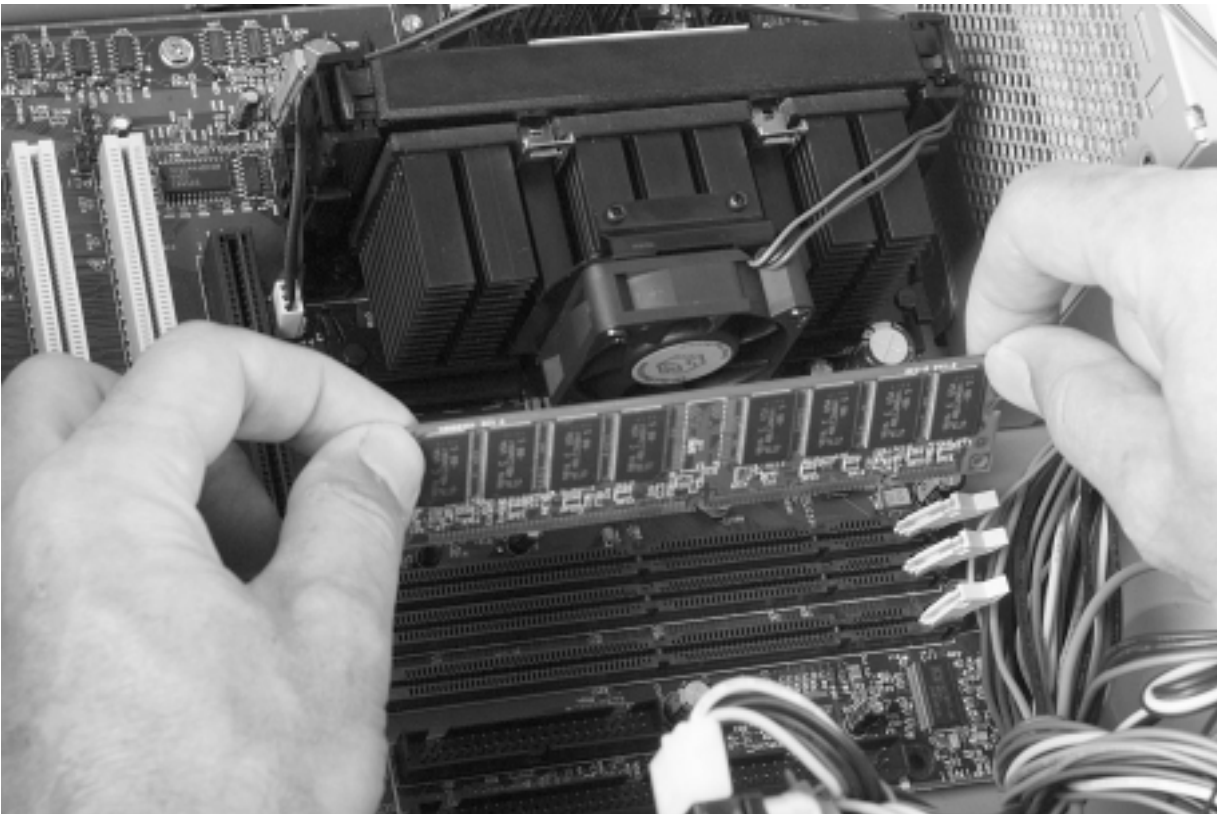


Photo 38. Installing a DIMM Memory Stick

Step 27. Install the AGP Graphics Card

To get the full benefits of the AMD Athlon processor you need to install components with equivalent performance levels. Therefore, AMD recommends an AGP graphics card to provide the best performance for your new AMD Athlon processor-based system.

To bring the system up initially, configure the system with the minimum necessary components. The first (and only) card to be installed is the AGP graphics card. With processor, memory, drives, and graphics, the system will start and run. A basic configuration minimizes troubleshooting in case of problems.

Insert the AGP card into the dedicated slot. This card fits into only one slot—normally the slot nearest the processor. When the card is fully seated, install the hold-down screw into the case.



Photo 39. Install the AGP Card

Step 28. Connect and Route Power Cables

The first cable to install is the pass-through cable for the processor exhaust cooling fan. This cable has male and female connectors and is designed to go between the end of the power lead from the power supply and the power connector on one of the drives.

As you can tell from Photo 40, the ends of the power cables are very different. The cable can only be installed one way because of the keys.

Install this cable between the power supply and the CD-ROM drive. The CD-ROM drive does not draw much power on a sustained basis.

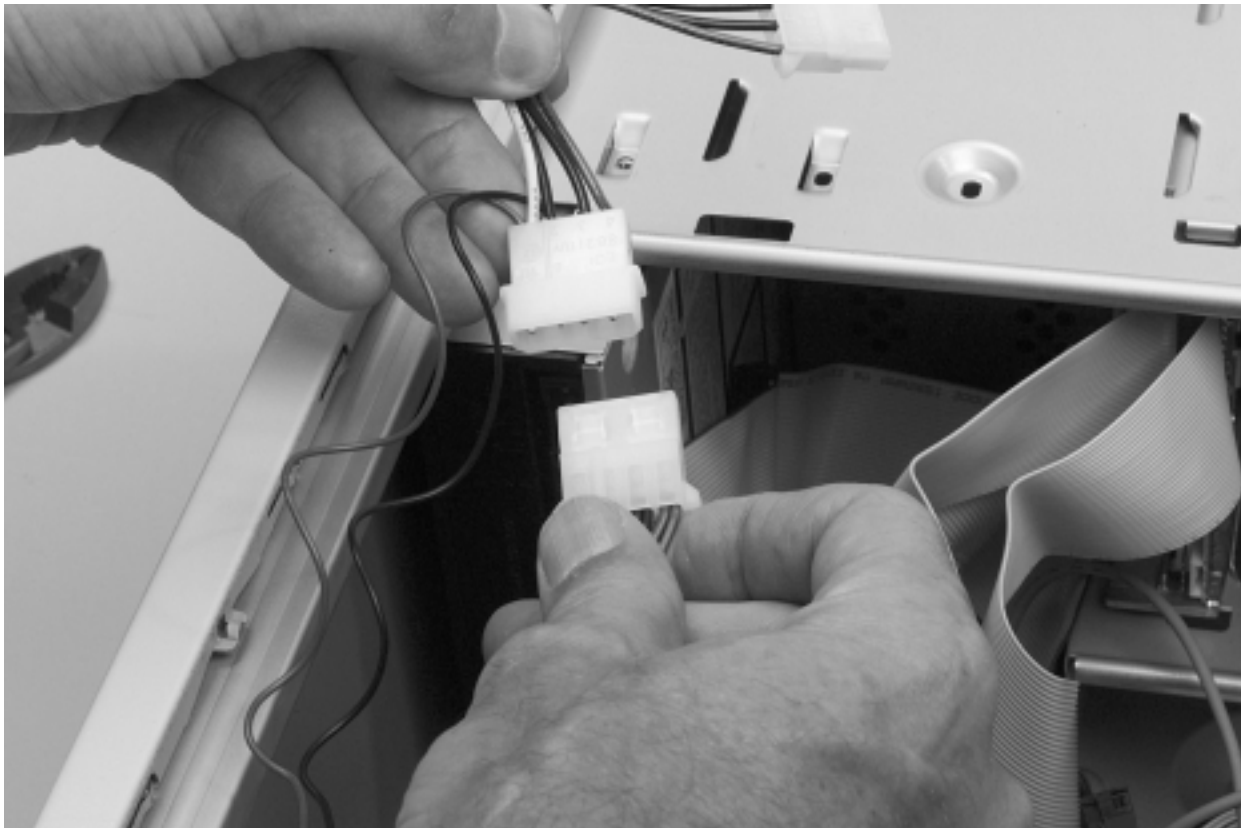


Photo 40. Power Cable Pass-Through for the Exhaust Fan

Step 29. Install the Remaining Power Cables

Depending on your power supply, you will have two or three additional power cables. Most cables will have large four-prong connectors like the cooling fan, others will have very small connectors.

The floppy drive uses the very small power connector. Carefully push the cable end onto the power prongs on the back of the floppy drive. If this power cable has multiple connectors, connect the remaining large power connector to the hard drive.

Make sure the power connectors are properly seated and firmly attached.

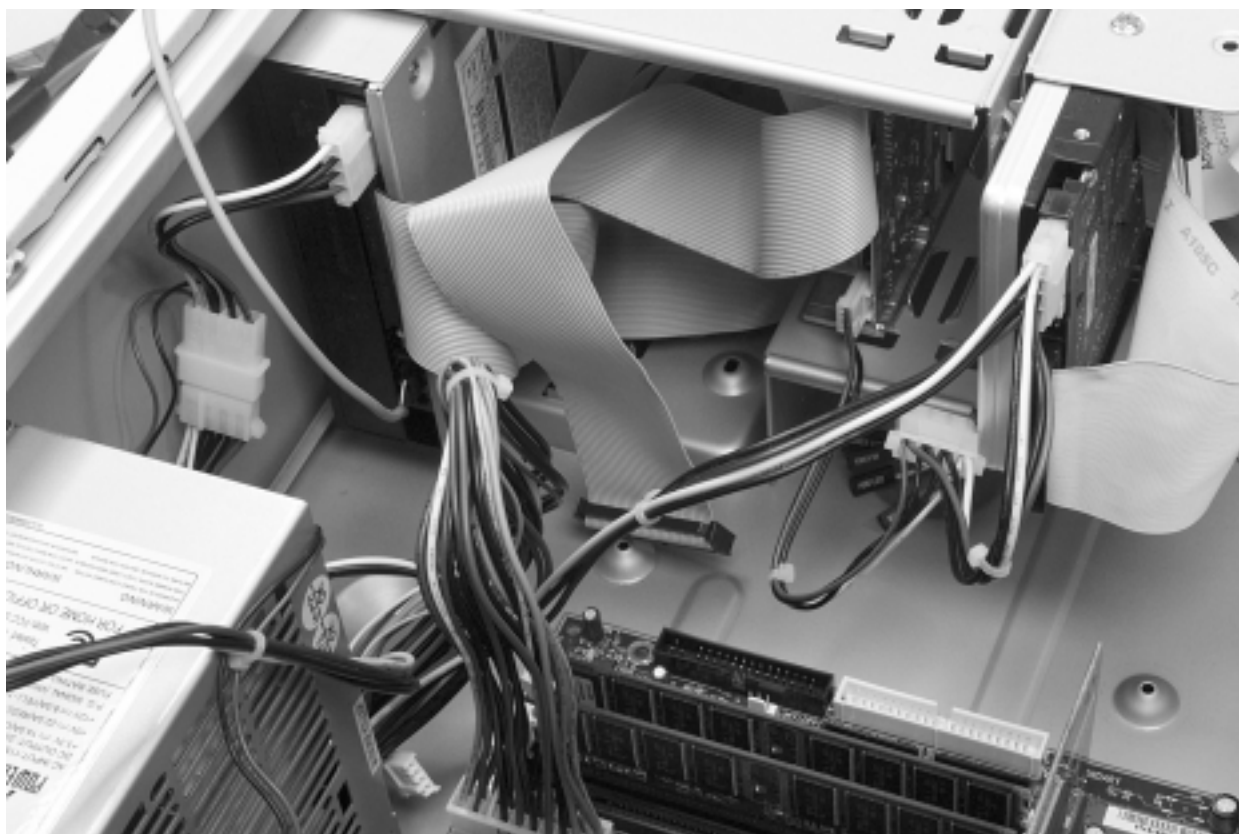


Photo 41. Power Cables Installed

Step 30. Install the Primary and Secondary IDE Cables

On the system board, there are two forty-pin connectors (see Photo 42). One is marked PRIMARY, this is for the high-speed storage devices (the hard drive). The other is marked SECONDARY, this is for the low-speed storage devices (the CD-ROM and some tape backup drives could use this). In Photo 42, the pins are surrounded by a plastic shroud. Most motherboards will have these plastic shrouds.

As Photo 11 on page 21 shows, the cables for the IDE-type drives are similar in appearance, but very different in wire count. The cable with the fine wires is the high-speed hard-drive cable. This goes into the PRIMARY connector.

On the board, one end of the connector is marked 1 2 (see the circles in Photo 42), the other end is marked 39 40. The edge of the cable that is red (or marked with red ink) must be next to the 1 2. Push the hard drive cable squarely onto the PRIMARY pins.

Next take the cable from the CD-ROM drive (the cable with the larger wires) and place on the pins marked SECONDARY, again pushing it on squarely and firmly.

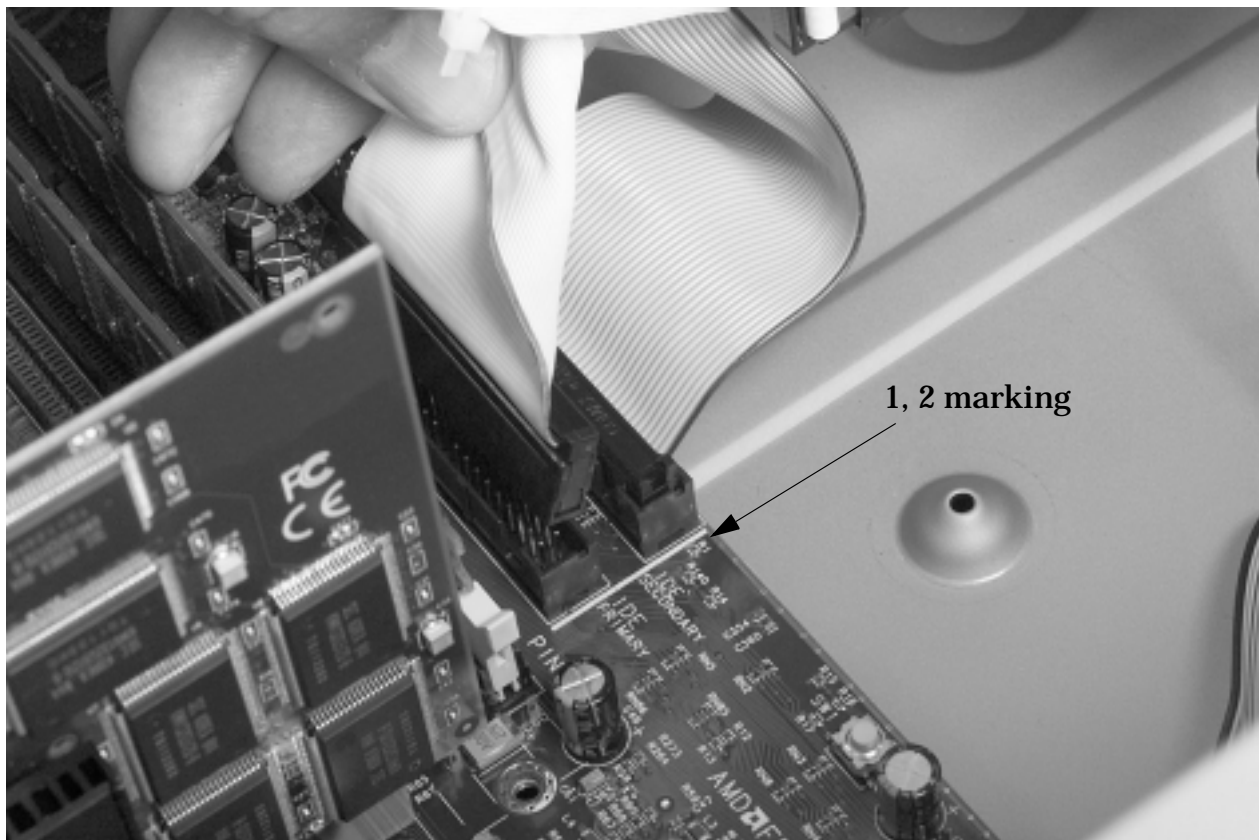


Photo 42. Primary and Secondary IDE Cables

Step 31. Install Floppy Drive Cable

Photo 43 shows that one end of this connector is marked **1 2**. The edge of the floppy drive cable marked in red must face **1 2**. Your floppy drive cable will have more drive connectors than you will use. Make sure you use the cable connectors that do *not* have *twisted* wires between them. One end is connected to the system board and the other end is connected to the floppy drive. Make sure that the cable is mounted squarely and securely.

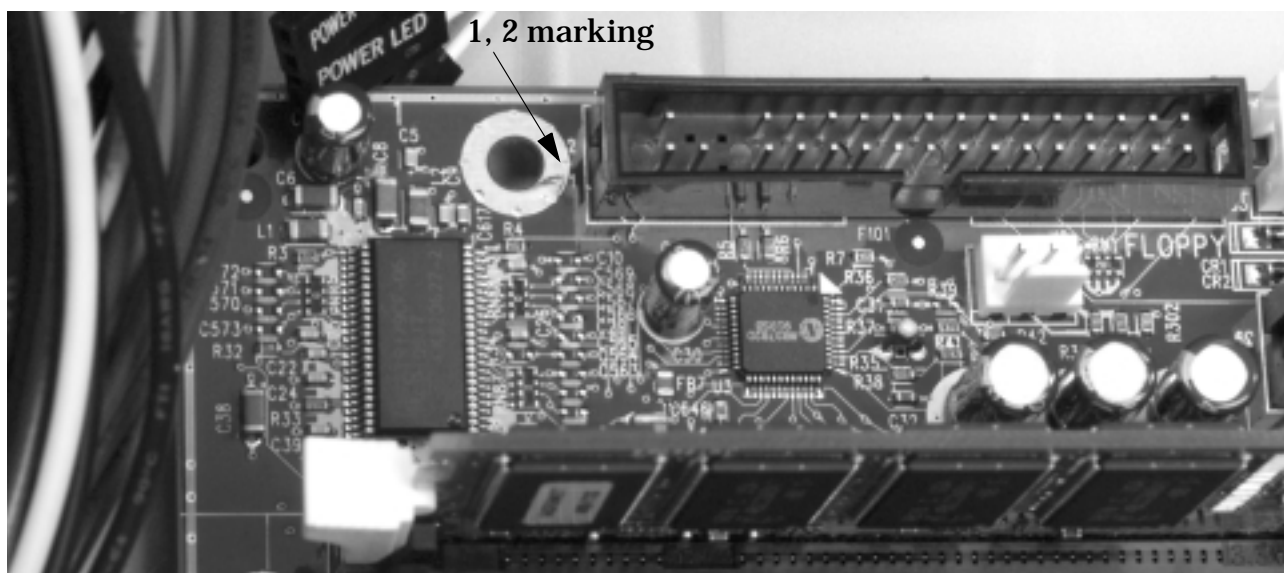


Photo 43. Proper Floppy Cable Orientation

Step 32. Install Tiewraps on All the Cables

When you are done installing cables, the case will be cluttered by loose cables. Install tiewraps on all the cables to ensure that adequate airflow is maintained in the case. Adequate airflow is essential for the operation of any modern computer to reduce heat buildup.

Take your time and fold/route the cables in a manner that allows minimum blockage of airflow. As Photo 44 shows, the cables are folded out of the way and tied together with tiewraps. The data cables have two tiewraps connected together to make one wrap that is long enough to go around a cable without crushing it.



Photo 44. Cables Rerouted Using Tiewraps

Step 33. Clear the Airflow by Rerouting Cables

Photo 45 shows a recommended way to route the power cables. With this arrangement, there is minimum blockage of the vents in the power supply. Proper airflow ensures that your system will not be damaged by excessive heat buildup.

Fold and route cables so that the end result looks basically like this photo. Use as many tie wraps as needed, make sure you trim off the excess. (Before the system is run for any time the sound card cable must be attached to the fan with a tie wrap to prevent it from blocking the fan airflow.)

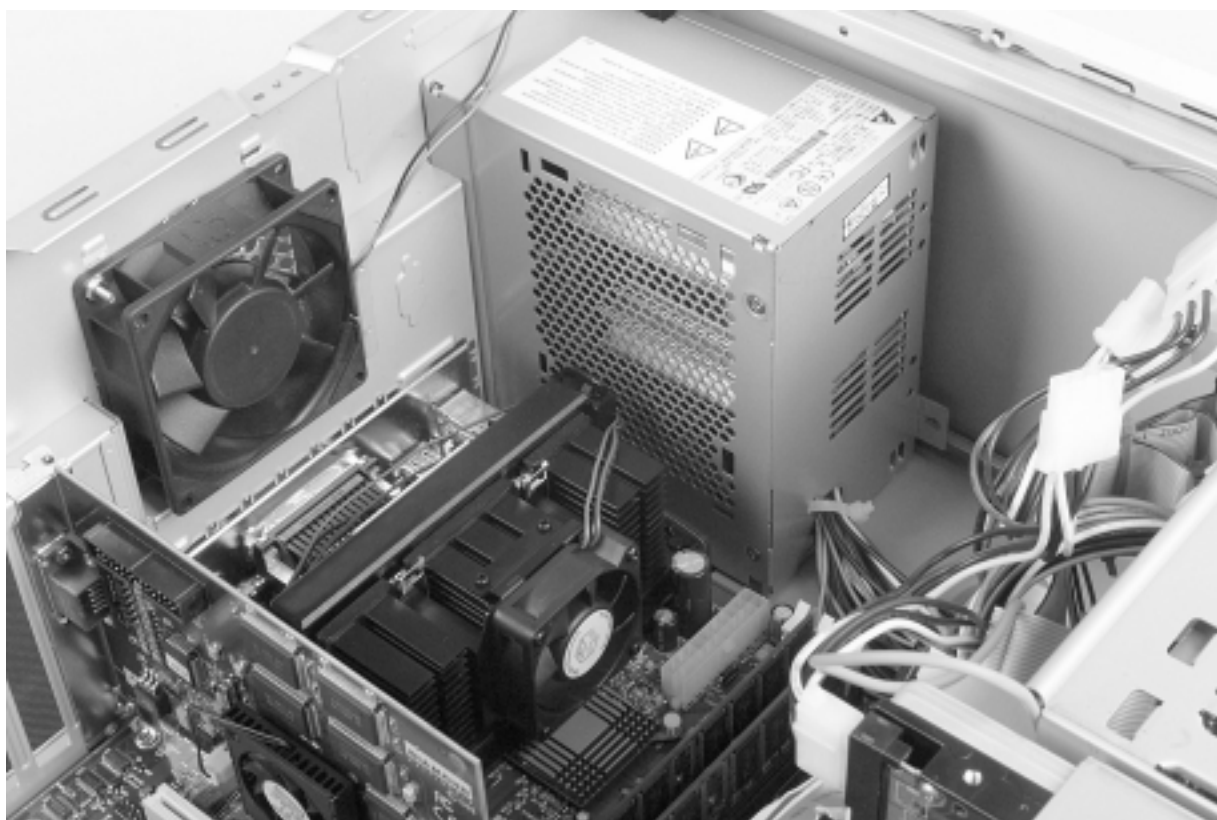


Photo 45. Airflow Clear

Step 34. Install Feet on Enclosure

Install the feet on the bottom of the case. Photo 46 shows the backing paper being taken off the pressure sensitive adhesive on the back of the molded rubber feet. Install the feet in the center of the raised circle, as shown.

This procedure will vary for different cases. Check your case reference manual for additional instructions.



Photo 46. Install Feet on Enclosure

Step 35. Install the Keyboard and Mouse Cables

Check the connectors on the keyboard and mouse to see if they are round or rectangular. Photo 47 shows the location of the round mini-DIN connectors on the back of the system. The round connector on the right has a mouse icon. The round connector on the left shows a keyboard icon. These connectors are keyed and can only be inserted one way.

Below the round mini-DIN connectors are two USB ports. If your input devices are USB devices (USB devices have smaller rectangular connectors), they are plugged into the USB ports. With USB devices, you can either daisy-chain them—plug one into the other—or they can go into separate connectors. Please check your keyboard/mouse manual for detailed instructions.



Photo 47. Keyboard and Mouse Cable Connectors

Step 36. Install the Monitor Cable

Install your monitor cable to the monitor output port of the AGP graphics port. Photo 48 shows that this connector is trapezoid shaped and can only be installed one way.

Place the cable squarely and firmly on the connector and tighten the retention screws.



Photo 48. Install Monitor Cable

Step 37. Verify the 115/230 Setting

Verify the power voltage setting on the back of your power supply. The power voltage setting is usually visible on a red slide switch on the back of the system.

If the voltage value shown matches the voltage in your area, then proceed to the next step. Otherwise, slide the switch to the appropriate voltage value using a small bladed screwdriver.

Notice in Photo 49 the indentation on the slide switch. Use this to change your voltage setting.

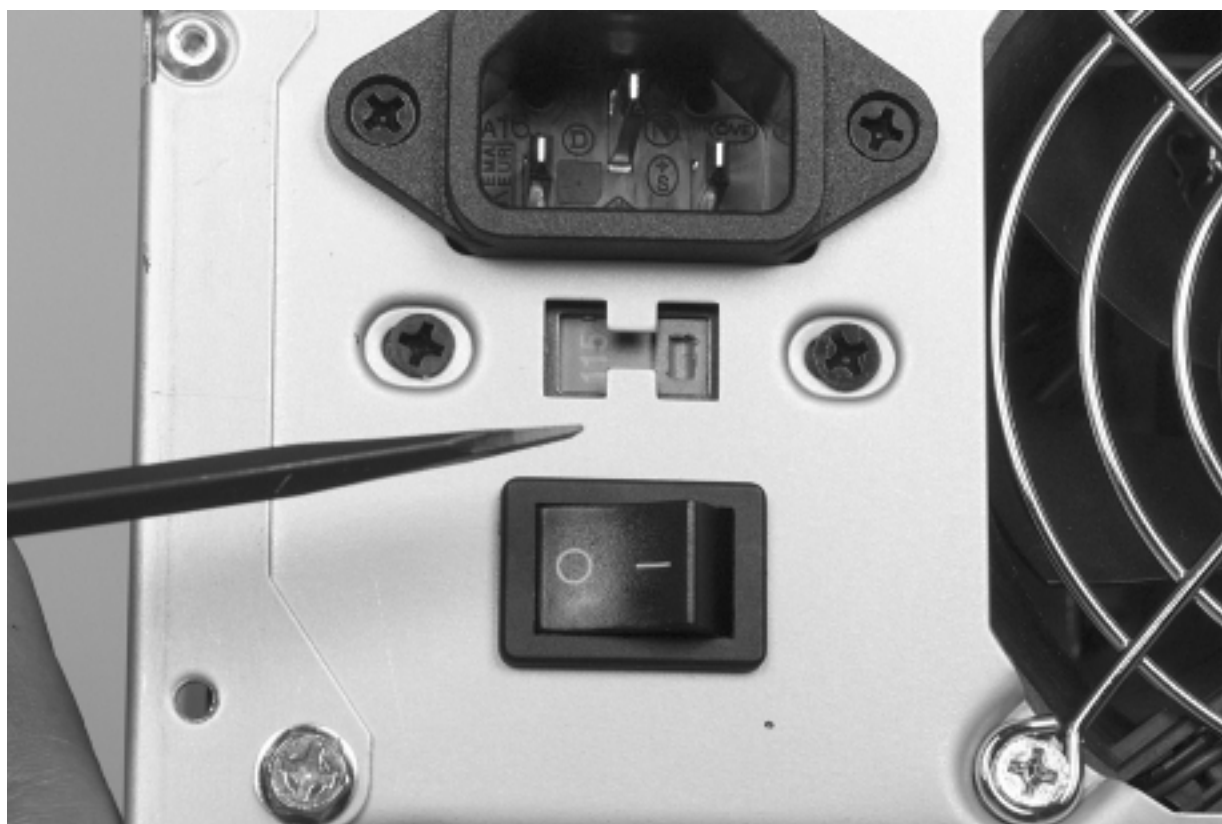


Photo 49. Verify the 115/230 Setting

Step 38. Install the Line Power Cable

Plug one end of the line power cable into the power supply socket. Then plug the standard power plug into the wall socket.

If there is a power switch in the back of the machine, make sure that it is set to ON (0=OFF, 1=ON).



Photo 50. Power Cable Installed

Step 39. Start Your System and Configure the BIOS

Your system is now ready to power up and run.

After being turned on, the system should start and run through its standard testing procedure. Your motherboard manual will explain how to configure your BIOS on initial startup. Please read and follow those instructions carefully.



Photo 51. A Completed System

Step 40. Load the Operating System

After your BIOS is configured properly, you can load your operating system. If your operating system uses a startup diskette, place it into the diskette drive and restart your system by either pressing the restart button or turning off the power, waiting about ten seconds, and then turning it back on.

If your operating system can start directly from the CD-ROM, press the button on the CD-ROM drive, place the CD-ROM in the tray, and push the tray or the button to retract the tray. Then restart the system.

Follow the operating system's detailed instructions for proper installation.

Step 41. Install Additional Cards and Devices

When the system is operating properly, turn it off, unplug the line power cord, and install the next internal add-on card. When the card is installed properly and secured with a mounting screw, plug the system back into the wall socket and turn it back on.

After installing any necessary drivers (see card manual or card manufacturer's website for details), you should have complete functionality. Check and verify this before you proceed.

Repeat this procedure until all of your add-in cards or devices are installed and working properly. If you are upgrading from an old system, you may find that you have more ISA cards than you have ISA slots in your new AMD Athlon processor-based system. This is because ISA cards are nearing the end of their technologically useful life. The next section illustrates some superior PCI replacements for many older ISA cards, so that you can continue to have the same (or superior) functionality in your new AMD Athlon processor-powered system.

ISA and PCI Card Options

When you upgrade from an older system, you may find that all your old ISA cards won't fit in your new AMD Athlon processor-based system.

Photo 52 shows network cards (top), sound cards (middle), and SCSI cards (bottom). The ISA is on the left and the superior PCI card is on the right. In every case, the PCI card has added functionality. Where the ISA network card is 10BaseT, the PCI card is 10/100BaseT, for ten times the maximum throughput.

The PCI soundcard typically adds 3D wavetable sound positioning and the latest PCI SCSI cards are UltraSCSI for fast throughput.

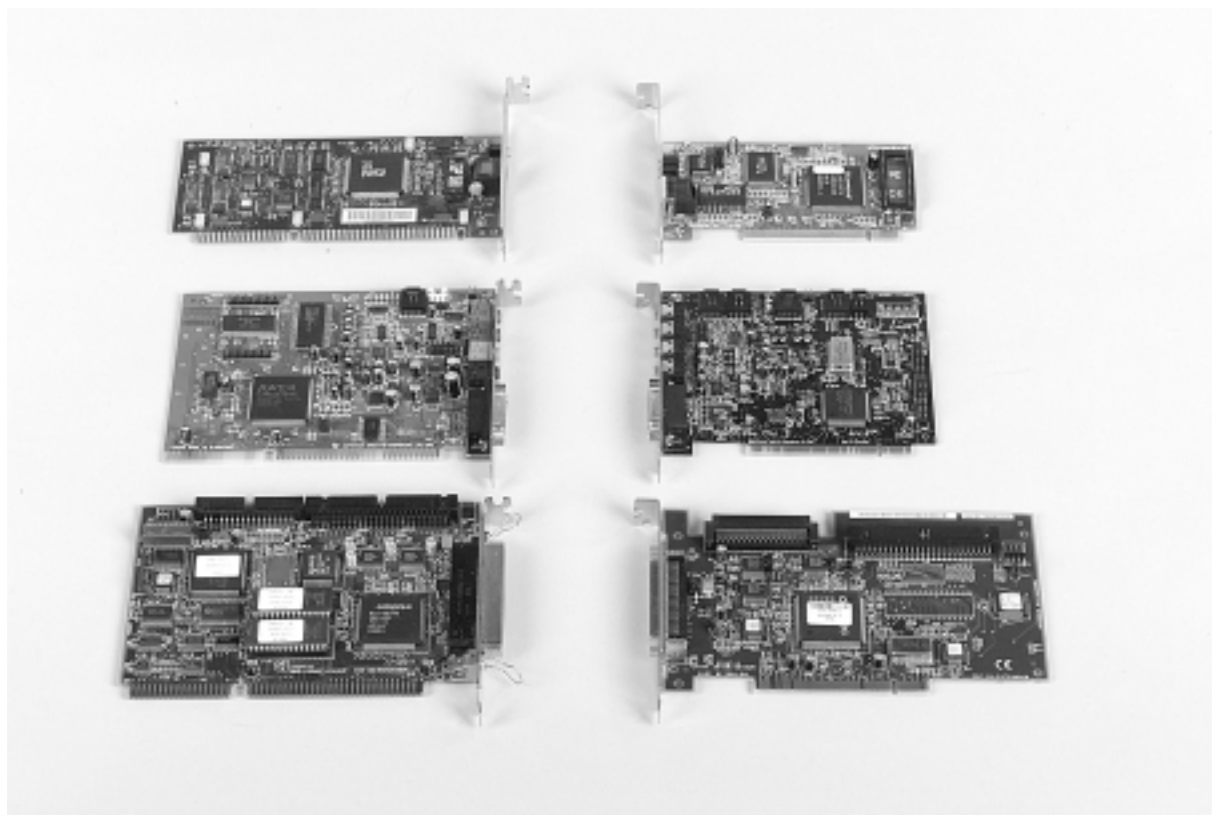


Photo 52. ISA and PCI Card Options

Two Modems

Modems are typically not available in PCI format. This is because modems use a low-speed 8-bit communication protocol and cannot gain from the additional speed that is possible in a 32-bit PCI slot.

Photo 53 shows two typical modem designs. The modem on the top uses the full 16-bit ISA slot. The modem on the bottom uses only the 8-bit portion of the ISA slot. Either of these modems will work in your new AMD Athlon processor-powered systems

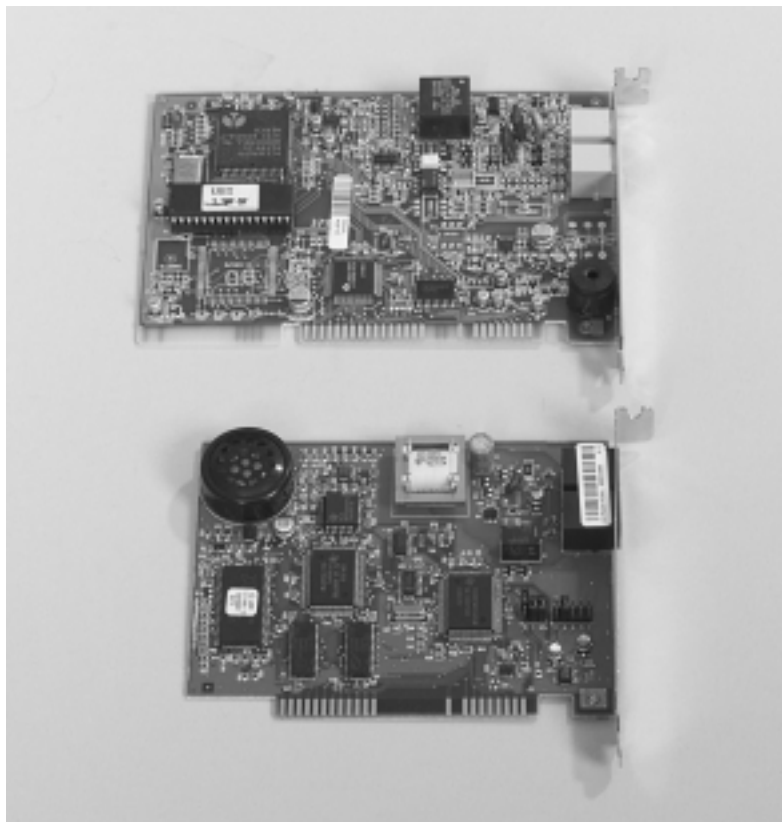


Photo 53. Two Modems

AGP and PCI Video

Both of the cards shown in Photo 54 will also work in your AMD Athlon processor-powered system. However, the performance and technology in the new AGP (advanced graphics port) graphics card better complements the performance of the AMD Athlon processor.

Because the AGP port is 64-bits wide and runs at 66 MHz (2X AGP), you have the potential for four times the bandwidth—four times the performance—compared to a 32-bit 33 MHz PCI board. You will also notice that there is a fan on the AGP card. That is because the graphics processor on the AGP card runs at a much faster speed (and therefore develops more heat) than the graphics processor on the PCI graphics card.

Bottom line—only install an AGP graphics card in your new AMD Athlon processor-powered system to get the enhanced performance benefits from the technology designed into your new processor and motherboard.

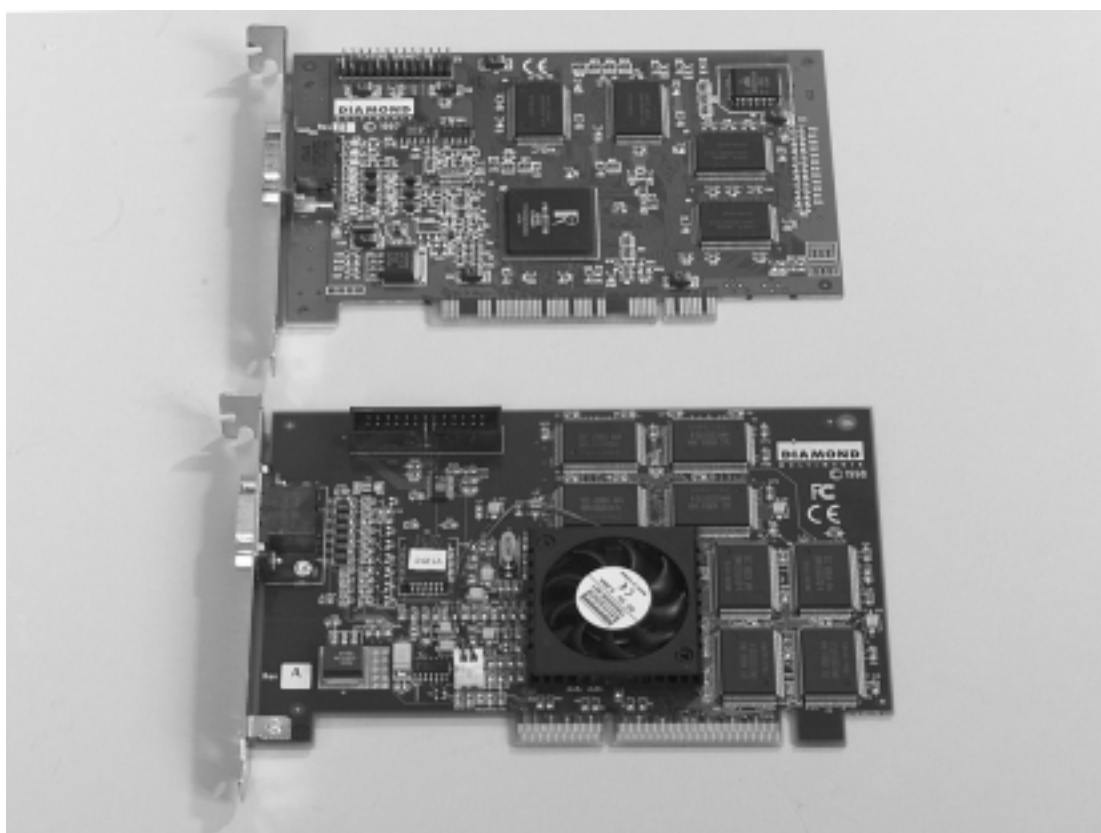


Photo 54. AGP and PCI Video

Step 42. Secure the Cards

When you finish installing all of your cards and devices, install and tighten down the screws in the blocking plates. In Photo 55, the screw in the last blocking plate is being tightened.

Notice that there is an open slot next to the AGP card. Modern AGP cards have as much memory and processing power as desktop computers of a few years ago. They need room for proper airflow to keep components running cool and reliably.

There is also an empty slot next to the sound card, because the sound card is also a very significant source of heat.

Before this system is run, the sound cable should be tiwrapped to the top of the exhaust cooling fan to remove it from the airflow path.

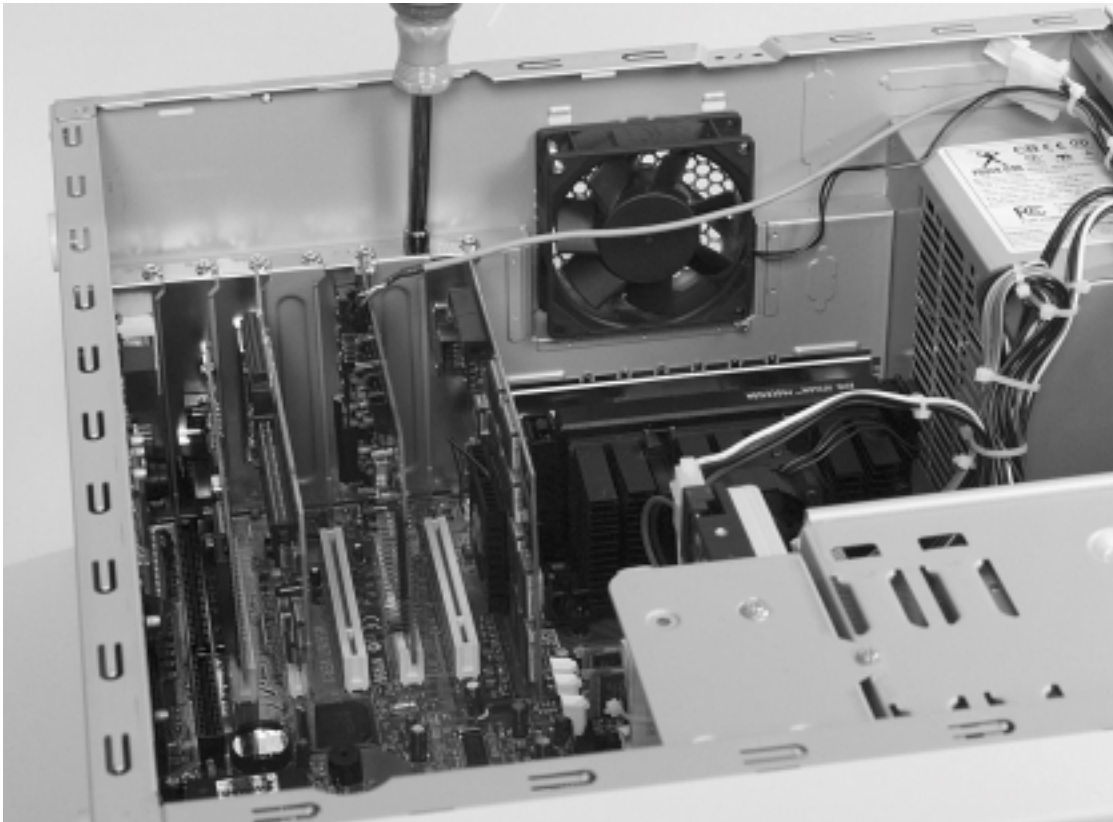


Photo 55. Cards Installed

Step 43. Periodically Check on Driver Updates

Your system should now be fully configured and running properly. You should periodically check both the AMD website at www1.amd.com/athlon/config and the websites of the manufacturers of your critical components to see if any updated drivers have been released.

Notes

Keep notes on trouble issues and problems you come across, as well as the results and fixes. It is easy to keep track of the technicians' names and telephone numbers as well as the resolutions to the problem in a little notebook.

Final Walk-Through

Give your system one last inspection before you put the case covers back on and start installing all your applications and data.



Photo 56. A Completed System

Frequently Asked Questions (FAQ)

Recommendations for An AMD Athlon™ Processor-Based Computer

Power Supplies and Computer Cases

ONLY AMD RECOMMENDED POWER SUPPLIES SHOULD BE USED. FAILURE TO USE A RECOMMENDED POWER SUPPLY MAY RESULT IN DAMAGE TO YOUR MOTHERBOARD.

For the most current information on power supplies and cases for your AMD Athlon processor-based system, be sure to refer to the configuration information page at the following URL:

www1.amd.com/athlon/config

Q. What size power supply will I need with my AMD Athlon processor?

A. We strongly recommend a 300-watt power supply from the approved list. For the latest recommended power supply list, you must consult our web site at:

www1.amd.com/athlon/config

Q. What do I need to consider when acquiring a computer case for my AMD Athlon processor and recommended ATX motherboard?

A. You should consider the number of devices you plan to use before making your computer case purchase. The size of the tower case can have a direct impact on heat and cooling issues, and can limit the number of devices you can use. For an approved computer case list, you must consult our web site at:

www1.amd.com/athlon/config

When acquiring a computer case, make sure it has the following features:

- Designed for an ATX power supply and motherboard
- Has room for an additional rear cooling fan in the area of the processor
- Has the proper number of standoff posts for mounting your motherboard correctly and that they are aligned properly as well
- Has easy side access that doesn't require removing all of the cables first
- Has good air ventilation for proper air circulation in the case

Note: *The AMD Athlon processor was not optimized to run in a desktop case. You should use an approved mid-tower, full tower, or server case only.*

Memory

For the most current information on memory for your AMD Athlon processor-based system, be sure to refer to the configuration information page at the following URL:

www1.amd.com/athlon/config

Q. Can buffered memory be used with my AMD Athlon processor?

A. No. Use unbuffered memory only.

Q. I already have EDO memory or 66-MHz DIMM memory. Do I have to use PC-100-MHz DIMM memory to run my AMD Athlon processor?

A. YES. The AMD Athlon processor does not run on EDO memory or 66-MHz DIMM memory. The AMD Athlon processor requires, at a minimum, PC-100-MHz memory. Table 2 outlines the PC-100 memory requirements.

Table 2. AMD Athlon™ Processor PC-100 Memory Requirements (PC-100 Rev 1.0 minimum)

Description	Mandatory	Preferred
Unbuffered	YES	
Speed of PC-100 memory chip	8 ns (or faster)	
CAS/Latency of either 2 or 3	3	2
Error Correction Controlled (ECC)		YES
6 ply (thickness)		YES
Lifetime warranty		YES
All of the above confirmed (written) on the invoice	YES	

Q. Can I mix different brands of memory in my computer?

A. It is not advisable because some brands of memory are incompatible with other brands regardless of whether the speed is the same or not. We recommend that you use only one brand of memory in your computer system.

Q. Can I mix different nanosecond speeds of my memory modules?

A. Yes, but it is not advisable because the system will only use the memory speed of the slowest memory chip. In other words, if you had two 32-Mbyte 7 ns memory chips and one 32-Mbyte 8 ns chip, the system memory will operate at 8 ns. We recommend you acquire memory modules of the same speed for consistent performance.

- Q.** What is the minimum amount of memory I should use with my AMD Athlon processor?
- A.** We recommend a minimum of 64 Mbytes of PC-100 memory to operate current software satisfactorily, but it is strongly recommended that you have 96 Mbytes to 128 Mbytes (or more) in order to enjoy all of the benefits that the AMD Athlon processor has to offer you.
- Q.** Can I use generic or no-name brands of PC-100 memory with my AMD Athlon processor?
- A.** We recommend that you do not use generic or no-name memory modules because you really don't know what you're getting or what type of quality control your memory chip was subjected to. There is no way to tell compatibility of one generic or no-name memory module with another module. We strongly recommend you purchase and use well-known and approved memory modules for the following reasons:
- Uniformity and consistency of the memory module
 - Compatibility issues
 - Warranty and technical support
 - Verified specifications

Heat and Cooling Issues

- Q.** Are there any special requirements for keeping my AMD Athlon processor cool?
- A.** Yes. As with any modern processor, as well as current peripherals and components, heat is always a problem to contend with. New hard drives and devices generate a substantial amount of heat, so you should never operate your AMD Athlon processor without an approved processor heatsink and fan.

In addition to the processor cooling fan, make sure you have a least one fan (not including the power supply fan) in your case that will reduce the temperature. We recommend that the fan be in the back of the case, drawing air over the processor, and exhausting the air out the back of the case.

Many mid-tower cases allow at least one fan in the bottom-front. Since the power supply fan exhausts air out of the case, the additional fan in the bottom-front *must draw* air in.

Muffin fans (case fans) are very inexpensive and easy to install. Just be sure to mount the fan in the proper direction based upon the airflow arrow that you will find on the outer fan housing.

If you can install more than one fan, it is recommended that you have at least the same number of exhaust fans as draw fans. For example, in a full-tower case you can install two draw fans in the bottom-front and have two or three exhaust fans (including the power supply fan) in the top-back of the computer case. This arrangement provides excellent airflow throughout the case and reduces heat build-up. Be careful not to block the intake or exhaust of your fans.

Installation of Your Motherboard

Q. Are there any special requirements for installing my approved ATX motherboard?

A. No. There are no special requirements for installing your ATX motherboard, but the following recommendations will help enable proper installation:

- Perform a dry-run installation of the motherboard into the case without the AMD Athlon processor or memory installed. Get familiar with how each component positions itself and where the standoffs will fit.
- If possible, install the processor module in the motherboard before installing the motherboard in the PC case. Place the motherboard on a softer surface like foam from the box or cardboard during this process. This is not possible with some cases where you cannot install the motherboard with the processor module on it due to power supply clearance or other problems.
- Do not plug the power supply into a wall outlet until all the components have been installed and cables are attached. This is because there is power in the system as soon as it is plugged into the wall, even when the power switch is turned off.
- If there is not a heatsink support on the motherboard, install the heatsink support that is supplied with the AMD Athlon Processor-in-a-Box.
- Do not install the motherboard in the case with memory installed. You may damage the components when installing the standoff screws.
- Use as many of the mounting postholes in your motherboard as possible. If you cannot use all the mounting holes in the motherboard, place non-metal spacers between the bottom of the motherboard and the case (of the same size as a standoff) to take up the slack.
- Do not over-tighten the metal standoffs into the computer case.
- Do not over-tighten the metal screws that fit into the metal standoffs.
- Do not use screws for the metal standoffs that are the same size or larger than the solder ring around the mounting hole in the motherboard. (This could lead to damaging or shorting out of your motherboard.)

Using UDMA/66 (ATA-66) or UDMA/33 (ATA-33) Devices

Q. Can the AMD Athlon processor-based systems be used with UDMA/66 (ATA-66) devices (i.e. hard drives)?

A. Yes. The UDMA/66 capability of your motherboard is contingent on three factors:

- Your motherboard supports UDMA/66
- You are using a UDMA/66 device
- You have the newer UDMA/66 cable

If the wrong cable is used, you will experience corrupted installations and loading of programs, system lockups, and various other types of failures.

If you are using UDMA/33 (ATA-33) devices, your motherboard will automatically default to UDMA/33 (as long as the motherboard supports UDMA/33 as well).

Installing the AMD Athlon™ Processor on the Motherboard

Q. Is there any special way to install the AMD Athlon processor on my motherboard?

A. Yes. Refer to the AMD Athlon Processor Installation Guide that comes with your AMD Athlon Processor-in-a-Box product.

Installing IDE and Diskette Drive Cables

Q. How do I install my IDE and floppy drive cables on my motherboard?

A. Most cables supplied by motherboard manufacturers have a tooth or key in the center of the end of the cable connector that matches up against the notch cutout on the connector end of the device you're hooking the cable connector up to (i.e. hard drive, CD-ROM, etc).

If there is no key on your IDE or diskette drive cable, use the red stripe located on the side of the cable as a guide. The red stripe should correspond to pin one on the cable connector. The pin number location is printed on the motherboard.

Installing a Previously Configured Hard Drive

- Q.** Can I use my original, preconfigured hard drive from my old computer since it already has all my programs and stuff loaded on it?
- A.** To optimize the performance of your new AMD Athlon processor-based system, you should use a new high-performance drive (UDMA/66 or Ultra-SCSI) as your primary drive. Then use your older drive as a secondary drive so you can access your current data.

If you wish to use your current drive as your primary drive, we strongly recommend you back up all your valuable data and critical files first before attempting this. Most of the time, you will be able to transfer the drive from a recently built system to your new AMD Athlon processor-based system with no problems. Drives from some systems (especially older systems) will not tolerate this. (Subtle variations can occur in the specifications like signal timing and intensity between two different controllers.) Even if the drive will work, you should expect to load current drivers and reload some of your software.

Ideally, to reuse an old drive, you should departition and repartition the hard drive (using the FDISK command), and format the drive (using the FORMAT command). Then do a fresh installation of your operating system, install the AMD Athlon platform-specific drivers, and install the applications. This way, your system is loaded with the settings and configuration that your motherboard and the AMD Athlon processor-based system require. Your data (but not operating system or applications) can then be copied from your backups.

Motherboard Drivers

Please note that with constantly changing specifications and enhancements, motherboard drivers are subject to being updated. Check the configuration information web page at the following URL for updates:

www1.amd.com/athlon/config

- Q.** Do I need any special motherboard drivers for proper installation of my AMD Athlon processor and motherboard? If so, what are they and where do I get them?
- A.** Yes. To date there are two drivers designed for motherboards for proper installation and performance of your operating system(s) and hardware with the AMD Athlon processor. The motherboard drivers should have been included on the floppy disk or CD_ROM that was included with your motherboard. Table 3 shows the versions of these drivers as of August 6th, 1999.

Table 3. AMD Athlon™ Processor Motherboard Drivers

Description	Version	Date Updated
AGP Miniport Driver (Windows 95 and Windows 98, not required for Windows NT)	4.45	08-06-1999
IDE Bus Master Driver (For motherboards with the AMD-756 peripheral bus controller)	1.11RC	08-06-1999

Note: *These drivers should be loaded immediately after your operating system is installed and before you load your video drivers for your specific video card.*

Installation of Your Operating System—What Hardware to Install

Q. What hardware should I have in my computer when I am ready to load my operating system?

A. We strongly recommend that you have no more than the following peripherals and components installed at the time you load your operating system:

- Processor and heatsink with fan
- Case exhaust fan (if possible with your case)
- Recommended memory module (use only one to start with)
- VGA-capable graphics card
- Hard drive
- CD-ROM drive
- Diskette Drive
- Keyboard
- Mouse

We recommend only these core components because if you can't get the operating system to properly load and configure with these core components, you will have more problems with other devices installed. Having a sound card, 3D graphics accelerator, modem, or other devices would only confuse the diagnostic process.

After your operating system has been successfully loaded, make sure that you set your video card up in generic VGA mode. Do not load your video card drivers until you have loaded all motherboard drivers. You will need to load the following specific motherboard drivers before you should continue loading your additional hardware and software:

- AGP Miniport Driver, Version 4.45
(Windows 95 and Windows 98, not required for Windows NT)
- IDE Bus Master Driver, Version 1.11RC
(For motherboards with the AMD-756™ peripheral bus controller)

Once these two drivers are loaded, you will be ready to continue installing components, software, and configuring your system. Just be sure to reset your computer system after loading each of these drivers for successful installation and configuration.

Migrating Peripherals and Components

- Q.** Can I use all of my peripherals and components presently in my old computer in my new AMD Athlon computer?

First, you must understand that the AMD Athlon is a new generation of processor that also requires a new generation of motherboard. Check with the device vendor to see if they have developed drivers for AMD Athlon processor-based systems.

- A.** However, some components, peripherals, and software presently compatible in your older computer:
- May not have current fixes or drivers for satisfactory performance
 - May not work with various software applications
 - May experience intermittent problems
 - May not be compatible

For these reasons, it is important to check the AMD web site at www1.amd.com/athlon/config for the most up-to-date list of recommended components and drivers.

- Q.** What about compatibility issues with legacy or end-of-life components and my AMD Athlon computer?
- A.** Legacy or end-of-life (EOL) components and peripherals are usually no longer supported by their manufacturers. In many cases, modern software cannot be used with them, especially current operating systems and application software. In most cases, drivers are no longer researched and developed for legacy and EOL components.

In order to get the best performance from your AMD Athlon processor and recommended motherboard, we recommend using current-production components and peripherals that support the AMD Athlon processor. Again, for these reasons, it is very important to check the AMD web site at www1.amd.com/athlon/config for the most up-to-date list of compatible components, peripherals, and drivers.

ISA Components—Limitations

- Q.** Can I use my older ISA components, such as an ISA video card?
- A.** Most will work, however, there are specific limitations of older generation, legacy, and end-of-life components (i.e. ISA video cards, etc). Check with the device vendor to see if they have developed drivers for AMD Athlon processor-based systems.

Miscellaneous Rules to Practice—Ideas, Tips, and Important Information

Q. Is there anything else I should know before I build my AMD Athlon processor-based computer?

A. Well, there are hundreds of tips and suggestions that we could make but there just isn't enough room. That's what our web site is all about. By visiting our web site regularly, you will be able to keep up on all the new information, building tips, and suggestions to optimize your computer and its performance. On our web site you will find just a few of these helpful and constructive areas:

- Listings of recommended peripherals, components, and accessories that are updated on a regular basis
- Installation and configuration recommendations, tips, and information that is updated on a regular basis
- Setup and optimizing ideas and tips to make your AMD Athlon processor run at its very best
- New products and information releases regarding your AMD Athlon to keep you up to date
- Up-to-date listings and links of drivers for your approved motherboards
- FAQs, updated on a regular basis, to assist you in many aspects of building and maintaining your AMD Athlon processor-based computer
- The e-mail address and telephone number for competent and qualified technical support

Here are a few immediate tips or suggestions:

- Before you start working on your computer or handling sensitive components, always use some type of static protection. Static is the number one killer of electrical components and parts. A simple wristband static protection device (that plugs into a regular electrical wall socket) will cost around \$40.00. It will be the best investment you can make for your future computer building endeavors.
- Never add or remove any device, peripheral, accessory, component, cable, or mouse while the system is plugged into the wall.
- Anytime that you load a program, application or utility, when you have completed loading it, properly exit and shut your system down completely. This allows you to purge the system memory completely and results in the most successful installation of your software. This is especially true when you have loaded a big application and the system doesn't ask to be reset.
- Do not try to build your whole computer system in a night. Take your time. Build it in stages. Most mistakes will be made when you are tired. Learn to take breaks, and most important, learn to call it quits for the day.

Technical Support

Q. Where do I go for technical support? Who do I call?

A. phone: (408) 749-3060

E-mail: hw.support@amd.com

Compatible Components List

The compatible components are listed in the following tables:

- Power Supplies (See Table 4)
- PC Enclosures (Cases) (See Table 5)
- Memory (See Table 6 for Microstar motherboard memory)
- Various Peripheral Devices (See Table 7)
 - 3.5-inch Diskette Drives
 - CD-ROM Drives
 - DVD Drives
 - Graphics Cards
 - Sound Cards
 - Modems
 - Hard Disk Drives
 - Mass Storage
 - Tape Drives
 - Network Interface Cards
 - SCSI Controllers
 - Keyboards
 - Mice
 - Joysticks
 - USB Devices

Table 4. Recommended Power Supply List (Revised 08-06-99)

Vendor	Part Number	Output Wattage	Combined +3V and +5V Power	Form Factor	Maximum Projected Supported Frequency
AGI	HP-235 ATX	235 W	145 W	ATX	700 MHz
American Media Systems	CWT-300ATX	300 W	160 W	ATX	800 MHz
Astec	SA302-3515-288	300 W	170 W	NLX ¹	800 MHz
Delta Electronics Inc.	DPS-200PB-103A	250 W	145 W	ATX	700 MHz
Delta Electronics Inc.	DPS-338AB C rev:00	330 W	220 W	NLX ¹	800 MHz
Emacs	AP2-5300F-RV2	300 W	175 W	ATX	800 MHz
Enhance Electronics	ATX-1125B Rev .01	250 W	150 W ²	ATX	700 MHz
Enlight Corp.	HPC-250G2 rev: A1-01	250 W	150 W	ATX	800 MHz
Ever Power	CWT-300ATX	300 W	160 W	ATX	600 MHz
FKI	ATX-250-1	250 W	160 W	ATX	800 MHz
HIPRO	HP-250NLXAK	250 W	150 W	ATX	800 MHz
Jou Jye	AP-3-1	250 W	130 W	NLX ¹	600 MHz
Leadman Electronic	LP-6100	400 W	155 W ³	ATX	800 MHz
Powerman	FSP300-60GT	300 W	145 W	ATX	700 MHz
Seventeam	ST-301HR	300 W	125 W	NLX ¹	600 MHz
Sparkle Power (SPI)	FSP250-61GN	250 W	145 W	NLX ¹	700 MHz
Sparkle Power (SPI)	FSP300-60GT	300 W	150 W	ATX	800 MHz
Sparkle Power (SPI)	FSP350-60BN	350 W	220 W	NLX ¹	800 MHz
PC Power and Cooling	Turbo-Cool 300ATX	300 W	150 W	ATX	800 MHz

¹ An exhaust fan is required in the rear of the case.

² Need to specify Rev .01 when ordering due to product upgrade of model ATX-1125B from 130 W to 150 W combined power

³ Measured combined power

Table 5. Recommended Enclosure (Case) List (Revised 08-06-99)

Vendor	Model	Form Factor	Power Supply*	Rear Fan Tested	Maximum Frequency
Antec	KS-282	Mid-Tower	ATX or NLX	80x80x25 FKI	650 MHz
Avance	CI-8A04	Mini-Tower	Custom	No slot for fan	600 MHz
Fong Kai	FK-318	Mid-Tower	ATX or NLX	80x80x25 FKI	650 MHz
Min Maw	MM3713	Mid-Tower	ATX or NLX	60x60x25 Papst	650 MHz
Palo Alto Products	ATCX	Mid-Tower	ATX or NLX	80x80x25 Sunon	650 MHz
Yeong Yang	YY-5381	Mid-Tower	ATX or NLX	80x80x25 FKI	650 MHz
Yeong Yang	YY-5271	Mid-Tower	ATX only	No slot for fan	600 MHz

* If you do not install a rear exhaust fan in the case, you must use an ATX 2.01-compliant power supply. When a rear panel case fan is used, an NLX compliant power supply can be used in place of the ATX 2.01 power supply. The ATX 2.01 solution is preferred in any case.

Table 6. Microstar Motherboard Recommended Memory List (Revised 08-06-99)

Manufacturer	Model Number (IC Part Number)	Type	Size
Fujitsu (BUFFALO)	81F16822D-102LFN (ECC)	SDRAM	32MB
LGS (Apacer)	GM72V661641CTJ7	SDRAM	32MB
Micron	MT48LC4M16A2TG-8C	SDRAM	32MB
NEC (BUFFALO)	D4516821AG5-A10-7JF (ECC)	SDRAM	32MB
SEC	KM48S2020CT-GH (ECC)	SDRAM	32MB
SEC (BUFFALO)	KM48S2020CT-GH (ECC)	SDRAM	32MB
TI	TMS626812BDGE5H-8 (ECC)	SDRAM	32MB
Toshiba (ARMAS)	TC59S1608AFT-10	SDRAM	32MB
Hitachi (PQI)	HM5264165TTB60	SDRAM	64MB
Hitachi (PQI)	HM5264805TTB60	SDRAM	64MB
Hyundai	HY57V658020ATC-74 (ECC)	SDRAM	64MB
Hyundai (PQI)	HY57V651620ATC-10S	SDRAM	64MB
LGS	GM72V66841CT7J	SDRAM	64MB
LGS (Apacer)	GM72V661641CT7J	SDRAM	64MB
LGS (Apacer)	GM72V66841CT7J	SDRAM	64MB
Micron	MT48LC8M8A2TG-8C	SDRAM	64MB
Micron	MT48LC8M8A2TG-8B (ECC)	SDRAM	64MB
Micron	MT48LC8M8A2TG-8E	SDRAM	64MB
Micron (E-Ton)	MT48LC8M8A2TG-8E	SDRAM	64MB
Mitsubishi (BUFFALO)	M5M4V64S30ATP (ECC)	SDRAM	64MB

Table 6. Microstar Motherboard Recommended Memory List (Revised 08-06-99) (continued)

Manufacturer	Model Number (IC Part Number)	Type	Size
NEC (BUFFALO)	D456841G5-A10-9JF (ECC)	SDRAM	64MB
NEC (PQI)	D4564163G5-A10B-9JF	SDRAM	64MB
SEC (BUFFALO)	KM48S8030BT-GH (ECC)	SDRAM	64MB
Toshiba (BUFFALO)	TC59S6408FTL-80H (ECC)	SDRAM	64MB
Toshiba	TC59S6408FTL-80H	SDRAM	64MB
Mosel (Turbo)	V54C365804VBT8PC	SDRAM	64MB
Mosel (Unifosa)	V54C365804VBT8PC	SDRAM	64MB
Fujitsu (BUFFALO)	81F64842B-103FN (ECC)	SDRAM	128MB
LGS (PQI)	GM72V66841CT7J	SDRAM	128MB
LGS	GM72V66841CT7J	SDRAM	128MB
NEC	D4564841G5-A10B-9JF)	SDRAM	128MB
SEC	KM48S8030BT-GH	SDRAM	128MB
Toshiba (BUFFALO)	TC59S6408FTL-80H (ECC)	SDRAM	128MB
Micron	MT48LC8M8A2TG-8E	SDRAM	128MB
SEC	KM48S16030T-GL	SDRAM	256MB
SEC	KMM377S3227BT1-GL (ECC)	SDRAM	256MB

Table 7. AMD Athlon™ Processor Component Compatibility List (Revised 08-15-99)

Component	Manufacturer	Model	Interface Style
3.5-inch Diskette Drives	Citizen		
	Panasonic		
	TEAC		
	Sony		
CD-ROM Drives	Acer	40X	IDE
	Creative Labs	48X	IDE
	Goldstar	Various	IDE
	Kenwood	42X, 52X TrueX Series	IDE
	Kenwood	52X	SCSI
	Lgeus	40X	IDE
	Memorex	48X	IDE
	Orchard (Diamond)	CDS-3110	IDE
	Plextor	32X, 40X	SCSI
	Sony	24X	SCSI
	Sony	32X	IDE
	Teac	32X	IDE, SCSI
	Toshiba	40X	IDE, SCSI
DVD Drives	Creative Labs	PC-DVD Encore 6X	
	Creative Labs	Blaster DVD-ROM 6X	
	Creative Labs	DVD 5X	
	Hitachi	DVD 2000	
	Hitachi	DVD 2500	
	HiVal	DVDIII-ROM	
	Sony	5X	
	Toshiba	6X DVD SD-M1212	
Graphics Cards	3dfx	V2 1000	PCI
	3dfx	Voodoo3 3000	AGP
	3dfx	Voodoo3 2000	AGP, PCI
	3dfx	Voodoo3 3500 AGP	AGP
	ATI	Rage Fury	AGP
	ATI	All-in-Wonder 128	AGP, PCI
	ATI	Xpert 128	AGP
	ATI	Xpert 98	AGP, PCI

Table 7. AMD Athlon™ Processor Component Compatibility List (Revised 08-15-99) (continued)

Component	Manufacturer	Model	Interface Style
Graphics Cards (continued)	ATI	Xpert @ Play 98	AGP, PCI
	ATI	Xpert 128 Rage Fury	AGP
	ATI	3D Pro Turbo	
	ATI	Xpert XL	AGP
	Creative Labs	3D Blaster Savage	AGP, PCI
	Creative Labs	3D Blaster RIVA TNT2 U	AGP
	Diamond	Viper 770 Ultra	AGP
	Diamond	Viper 770	AGP
	Diamond	Viper 550	AGP, PCI
	Diamond	Viper 330	AGP, PCI
	Diamond	Stealth III S540	AGP
	Diamond	Monster Fusion	AGP, PCI
	Diamond	Stealth II G460	
	Diamond	Stealth II S220	
	Diamond	Stealth 3D 2000 Series	PCI
	ELSA	Gloria-XXL	
	ELSA	Gloria XL	
	ELSA	Erazor III	
	ELSA	Erazor III Ultra	
	Guillemot	Xentor 32	
	Guillemot	Maxigamer Phoenix 2	
	Hercules	Dynamite TNT2	
	Hercules	Terminator Beast	
	Hercules	Stingray/2	
	Hercules	Dynamite 3D/GL	
	Hercules	Stingray 128/3D	
	Hercules	Thriller 3D	
	Matrox	Millennium G200	AGP
	Matrox	Marvel G200	
	Matrox	Mystique G200	
	Matrox	Productiva G100	
	Matrox	Millennium G400	
MetaByte, Inc.	Wicked 3D		
Orchard (Diamond)	Fahrenheit Video 3D		

Table 7. AMD Athlon™ Processor Component Compatibility List (Revised 08-15-99) (continued)

Component	Manufacturer	Model	Interface Style
Graphics Cards (continued)	Orchard (Diamond)	Celsius	
	Orchard (Diamond)	Fahrenheit Plus Series	
	Orchard (Diamond)	Fahrenheit 1280	
	Orchard (Diamond)	Righteous 3D	
	Paradise	128/S3 Savage 3D	AGP
	Paradise	Hawaii 128	AGP
	Paradise	Bahamas	
	Paradise	Fiji 64 Plus	
	S3	ViRGE/DX/GX Series	
	S3	Savage4	
	S3	Savage 3D	
	S3	Trio3D	
	S3	Trio64V2	
	STB (3dfx)	Velocity 128	
	STB (3dfx)	Velocity 4400	
	STB (3dfx)	BlackMagic 3D	
	STB (3dfx)	Nitro 3D	
	Sound Cards	Creative Labs	SoundBlaster 16PnP
Creative Labs		SoundBlaster PCI16	PCI
Creative Labs		SoundBlaster PCI128	PCI
Creative Labs		SoundBlaster Live!	PCI
Creative Labs		SoundBlaster PCI512	PCI
Creative Labs		Ensoniq 16	PCI
Creative Labs		Monster Sound	
Creative Labs		Sonic Impact S90	
Creative Labs		Sonic Impact S70	
Diamond		Monster Sound MX200	PCI
Diamond		Monster Sound MX300	PCI
Orchard		NuSound PnP	
Orchard		SoundWave 32	
Orchard		GameWave 32	
Orchard		GameWave Plus	

Table 7. AMD Athlon™ Processor Component Compatibility List (Revised 08-15-99) (continued)

Component	Manufacturer	Model	Interface Style
Sound Cards (continued)	Voyetra Turtle Beach	Montego II Quadzilla	
	Voyetra Turtle Beach	Montego II	PCI
	Voyetra Turtle Beach	Daytona PCI	PCI
	Voyetra Turtle Beach	Cancun FX	
Modems	3COM (USR)	56K V.90 Voice/Fax	External/Internal
	3COM (USR)	56K V.90 Winmodem	PCI, Internal
	3COM	56K V.90 Standard	External/Internal
	3COM	56K FaxModem PCI	Internal
	3COM	ImpactIQ ISDN	External
	3COM	ISDN TA	External
	ActionTec	56K PCI	Internal, PCI
	ActionTec	56K V.90 DeskLink	Internal
	Creative Labs	56K V.90 Modem Blaster	ISA
	Creative Labs	56K V.90 Modem Blaster	ISA
	Diamond	56K V.90 SupraExpress	ISA
	Diamond	56K V.90 PCI Windows	Internal, PCI
	Maxtech (GVC)	56K V.90 PCI PnP	Internal, PCI
	Paradise	56K V.90 PCI WaveCom	PCI, Internal
	Zoom	56K V.90 Faxmodem	Internal
Hard Disk Drives	Fujitsu	3.24G, 4.3G, 6.4G, 8.4G, 9.1G, 10.8G, 13.7G, 18.2G	IDE, UDMA33, UDMA66
	Fujitsu	4.55G, 9.1G, 18.2G	SCSI
	Hewlett Packard	4.3G, 6.4G, 10.1G	IDE
	IBM	Deskstar Series, 6.4G, 8.4G	IDE
	Maxtor	DiamondMax 4320 Series, 4.3G, 8.4G, 13.0G, 17.2G	IDE
	Maxtor	DiamondMax 6800 Series, 6.8G, 10.2G, 13.6G	IDE, UDMA66
	Maxtor	DiamondMax Plus 5120 Series, 10.2G, 15.3G	IDE

Table 7. AMD Athlon™ Processor Component Compatibility List (Revised 08-15-99) (continued)

Component	Manufacturer	Model	Interface Style
Hard Disk Drives (continued)	Quantum	Fireball CR Series, 4.3G, 6.4G, 8.4G, 12.7G	IDE UDMA66
	Quantum	Fireball EX Series, 6.45G, 10.2G, 12.75G	IDE
	Quantum	Fireball CX Series, 6.4G, 10.2G, 13.0G, 20.1G	IDE, UDMA/66
	Quantum	Fireball ST Series, 3.23G	SCSI
	Quantum	Fireball Plus KA Series, 6.4G, 9.1G, 13.6G, 18.2GB	IDE UDMA66
	Quantum	Fireball EL Series, 10.G	IDE
	Quantum	Viking II Series, 4.5G, 9.1G	SCSI
	Quantum	Atlas III Series, 9.1G, 18.2G	SCSI
	Quantum	Atlas IV Series, 9.1G, 18.2G	SCSI
	Quantum	Bigfoot TX, 8.0G	IDE
	Quantum	Bigfoot TS, 6.4G, 12.7G	IDE
	Seagate	ST11200N (1.05G), ST11201N (1.05G), ST11900N (1.7G), ST11900W (1.7G), ST11950N (1.07G), ST12400N (2.15G), ST12400W (2.15G), ST14207N (4.29G), ST14207W (4.29G), ST15150WC (4.29G), ST15230N (4.29G), ST19101N (9.0G), ST19101W (9.0G)	SCSI
	Seagate	ST34311A (4.33G), ST36421A (6.45G), ST38422A (8.62G), ST310232A (10.24G), ST317242A (17.25G)	IDE, UDMA66
	Seagate	ST33221A (3.23G), ST34311A (4.33G), ST34520A (4.55G), ST35120A (5.12G), ST36422A (6.4G), ST36530A (6.51G), ST38420A (8.62G), ST39140A (9.12G), ST310240A (10.24G), ST313640A (13.6G), ST 31724A (17.25G)	IDE

Table 7. AMD Athlon™ Processor Component Compatibility List (Revised 08-15-99) (continued)

Component	Manufacturer	Model	Interface Style
Hard Disk Drives (continued)	Seagate	ST32112A (2.16G), ST3321A (3.25G), ST33223A (3.25G), ST34321A (4.3G), ST34520A (4.55G), ST36530A (6.51G), ST36531A (6.51G), ST38641A (8.61G), ST39140A (9.12G), ST310230A (10.24G), ST313030A (13.02G), ST317240A (17.25G)	IDE, ATA
	Western Digital	Caviar Series, 4.3G, 6.4G, 8.4G, 9.1G, 10.3G, 13.0G, 17.2G, 18.0G and 20.0G	IDE, UDMA33, UDMA66
	Western Digital	Caviar Series, 4.55G, 9.15G and 18.3G	SCSI
	Western Digital	Rebel Series, 6.4G, 13.6G, 20.5G	IDE, UDMA66
	Western Digital	WD Enterprise Series, 4.36G, 4.5G, 9.1G	SCSI
	Western Digital	Triton Series, 9.1G, 18.3G	SCSI
Mass Storage	Iomega	250Meg Zip Drive	Internal
	Iomega	100Meg Zip Drive	Internal
	Iomega	2Gig Jaz Drive	Internal
	Iomega	1Gig Jaz Drive	Internal
Tape Drives	Sony	DDS-4 SDT-10000B/M 4mm	SCSI
	OnStream, Inc.	30GB Internal IDE Digital Drive	IDE
	OnStream, Inc.	50GB Internal IDE Digital Drive	SCSI
Network Cards	3COM	10/100 Ethernet Adapter	PCI
	Intel	Pro/100+ Mgmt. Adapter	PCI
	Kingston	KNE-100TX Ethernet Adapter	PCI
SCSI Controllers	Adaptec	2940, 2940U, 2940UW, 2940U2W, AAA131CA, AAA131SA, AAA131U2	PCI
	DPT	2 Channel Ultra 2, 3 Channel Ultra 2	PCI
	Initio	Highway	PCI

Table 7. AMD Athlon™ Processor Component Compatibility List (Revised 08-15-99) (continued)

Component	Manufacturer	Model	Interface Style
Keyboards	Alps	104 Keyboard	
	Belkin	USB Keyboard	USB
	KeyTronic	EgroForce	
	KeyTronic	Windows 95	
	KeyTronic	104 Keyboard	
	KeyTronic	Lifetime Classic	
	Micro Innovations	Micro Rave	
	Micro Innovations	Micro 1000	
	Microsoft	Ergonomic Windows 95	
	NMB	The Right Touch	
Mice	Belkin	3-Button	USB
	Kensington	WebRacer	
	Kensington	Orbit	
	Kensington	Value 2-Button	
	Logitech	MouseMan Wheel Mouse	USB
	Logitech	Cordless Desktop	
	Micro Innovations	Micro Track Windows 98	
	Micro Innovations	Micro Precision 2-Button	
	Microsoft	Standard, AT and PS2	OEM and Retail
	Microsoft	Wheel Mouse, AT and PS2	OEM and Retail
Joysticks	Suncom	F-15 Talon	
	Suncom	SFS Strike Fighter	
	Suncom	SFX Plus	
	Suncom	SFS Strike Eagle	
	Logitech	Wingman	
	Microsoft	Sidewinder	
	CH Products	Force FX	Force Feedback
	CH Products	F-16 Fighter Stick	
	CH Products	GameStick	
	CH Products	GameStick 3D	USB
	CH Products	Flight Stick	
	CH Products	Flight Stick Pro	
	Thrustmaster	F-22	
	Thrustmaster	X-Fighter	

Table 7. AMD Athlon™ Processor Component Compatibility List (Revised 08-15-99) (continued)

Component	Manufacturer	Model	Interface Style
Joysticks (continued)	Thrustmaster	XL-USNF	
	Thrustmaster	Millennium 3D Joystick	
USB	Various	See throughout list	

The information provided herein is for informational purposes only and is not meant to be a representation or warranty of compatibility. It is not possible for AMD to test and evaluate the numerous possible combinations of these products and others which a user may install in a computer, nor does the listing of a particular product here imply that other products or other versions of these products from the same manufacturer, or similar products offered by other manufacturers have been tested or evaluated by or for AMD.

You should note that the information contained here may contain technical inaccuracies or typographical errors. In addition, this information may be changed or updated without notice, and AMD makes no guaranty that it will circulate such changes to recipients of this information.

Installation Checklist

Make sure the system you are about to build is made up of components from the recommended list and follow this checklist to build the World's Fastest PC's.

1. Ensure the selected motherboard is from the AMD-recommended AMD Athlon motherboard list at:
<http://www1.amd.com/athlon/config>
2. Ensure the selected case (chassis) is from the AMD-recommended chassis list at:
<http://www1.amd.com/athlon/config>
3. Ensure the selected power supply is from the AMD-recommended power supply list at:
(Or check that the one installed in your chassis is on the list.)
<http://www1.amd.com/athlon/config>
4. If necessary, install the recommended power supply in the chassis.
5. Ensure that you are properly grounded to protect delicate electronic components from static electricity damage.
6. Install the selected hard drives, floppy, DVD player, and other devices into the chassis.
Note: Check the hard drive model. If the hard drive supports UDMA-66 (Also known as ATA-66), then you MUST install a UDMA-66 cable.
7. Remove the motherboard from its protective packaging and install in the chassis as usual. Be sure to install standoffs as needed to support the board in the areas where cards will be inserted.
8. Check the motherboard for any jumper settings. (Most AMD Athlon systems do not require jumpers.)
9. Ensure selected memory (128 Mbytes are recommended for best performance) can be found on the AMD-recommended memory list at:
<http://www1.amd.com/athlon/config>
10. Install the recommended memory into the motherboard. Be sure to install memory in the sequence required for the motherboard. Make sure the memory DIMM is inserted all the way and locked in place.
11. Install a high-performance AGP video card for which you have access to the latest drivers. (You will need the drivers later.)
12. If other cards are to be installed, install them now. Check the device compatibility lists at:
<http://www1.amd.com/athlon/config>
13. Check all cards are properly installed (all the way in, front and back) and retention screws are in place.
14. Remove the AMD Athlon processor from its protective packaging and follow the Processor Installation Guide that comes with the Processor-in-a-Box.
15. Connect the power cables to the drives and motherboard.
16. Connect the hard drive, floppy, and DVD (CDROM) data cables as usual. Check proper orientation.
17. Connect the monitor data cable, keyboard cable, and mouse cable to the rear of the system.
18. Install the line power cord on the power supply.
19. Check the WWW for AMD, motherboard, and other vendor pages for the latest drivers and utilities.
Check your motherboard vendor's web site for the latest version of the AMD AGP miniport driver and bus mastering IDE driver. (AMD also has drivers at www1.amd.com/athlon/config)
Check the peripheral manufacturer's web site for the latest drivers for the video card, sound card, network interface card, etc.
20. Power up the system and begin loading software and drivers following the installation instructions.

