

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. For a minimally configured low power-consumption system, you can use any of the approved power supplies listed on our website. A 250-watt power supply is the minimum but you need to estimate the system configuration requirements to ensure system stability. Minimally configured means: 128-Mbyte RAM, 16-Mbyte AGP graphics, internal V.90 modem, 10/100 NIC, floppy drive, CD-ROM or DVD, and 5400-RPM hard disk.

If you are not certain of the final user-configuration, it is safer to install one of the approved 300-watt (or larger) power supplies listed on the recommended power supply listing. If the Athlon processor-based system will have more power-consuming accessories than the basic minimum, we recommend you build your system using 300-watt (or larger) power supplies. By using a larger power supply, the system is also robust enough to handle future enhancements.

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 1 outlines the PC-100 memory requirements.

Table 1. 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 at 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 2 shows the versions of these drivers as of August 6th, 1999.

Table 2. 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)	1.22	09-01-1999

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. Are there any BIOS settings that I need to make?

A. In most BIOS's, under a title like PNP/PCI Configuration, there is usually an option like PNP OS Installed Yes/No. If you are running Windows 95 or Windows 98, this option should be set to Yes or Enabled. If you are running Windows NT, this option should be set to No or Disabled.

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 1.22
(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

© 1999 Advanced Micro Devices, Inc. All rights reserved.

The contents of this document are provided in connection with Advanced Micro Devices, Inc. ("AMD") products. AMD makes no representations or warranties with respect to the accuracy or completeness of the contents of this publication and reserves the right to make changes to specifications and product descriptions at any time without notice. No license, whether express, implied, arising by estoppel or otherwise, to any intellectual property rights is granted by this publication. Except as set forth in AMD's Standard Terms and Conditions of Sale, AMD assumes no liability whatsoever, and disclaims any express or implied warranty, relating to its products including, but not limited to, the implied warranty of merchantability, fitness for a particular purpose, or infringement of any intellectual property right.

AMD's products are not designed, intended, authorized or warranted for use as components in systems intended for surgical implant into the body, or in other applications intended to support or sustain life, or in any other application in which the failure of AMD's product could create a situation where personal injury, death, or severe property or environmental damage may occur. AMD reserves the right to discontinue or make changes to its products at any time without notice.

Trademarks

AMD, the AMD logo, AMD Athlon, and combinations thereof AMD-756 and 3DNow! are trademarks and AMD-K6 is a registered trademark of Advanced Micro Devices, Inc.

Microsoft, Windows, and Windows NT are registered trademarks of Microsoft Corporation.

Other product names used in this publication are for identification purposes only and may be trademarks of their respective companies.

Pentium is a registered trademark of Intel Corporation.

3DMark is a trademark of Futuremark Ltd./Oy.

Winstone is a registered trademark of Ziff-Davis, Inc. Winstone scores are Business Winstone overall scores.

Benchmark tests were performed without independent verification by SPEC, Futuremark, or Ziff-Davis. These benchmark providers make no representations or warranties as to the results of the tests.