

# How to uninstall and install an AMD processor and processor cooler in a system

This article provides step-by-step instructions on the best method to uninstall and install an AMD processor and processor cooler to ensure proper function and prevent subsequent damage to the processor and cooler.

The article consists of the following sections:

- [What to consider before performing any work in the system](#)
- [How to remove / uninstall an AMD processor and processor cooler](#)
- [How to install an AMD processor and processor cooler](#)
- [Troubleshooting: Motherboard BIOS support requirements](#)

## **What to consider before performing any work in the system**

To prevent damage to the system when uninstalling or installing the processor and processor cooler, the following preparations need to be considered before any work is performed to the system:

1. Ensure that the place of work provides a stable surface to allow good access to the internal components of the system
2. Avoid working on a carpeted area, especially in cool, dry environments
3. Ensure that the system is completely turned off and unplugged from the wall outlet
4. Properly ground yourself to the case to protect against Electro Static Discharge (ESD), which can cause damage to the processor and other sensitive system components
  1. Ideally, ground yourself by using an anti-static wrist strap
    - i. An anti-static wrist strap or inexpensive temporary paper-type static wrist strap can be purchased from a PC component reseller



## **How to remove / uninstall an AMD processor and processor cooler:**

To remove a preinstalled AMD processor and a processor cooler, refer to the following instructions:

### **Note!**

*These instructions are only applicable for systems with a pre-installed AMD processor and processor cooler.*

If you do not feel comfortable with performing any of the instructions on your own, consult with an expert.

1. Remove the side panel or lid of the system's case
2. Remove the processor cooler:
  1. Disconnect the power cable of the processor cooler from the power (connector or header) connection on the motherboard
  2. Turn the cam lever of the processor cooler to release and relieve force on the clips of the processor cooler and motherboard processor cooler bracket
    - i. Ensure that the processor cooler clips are unhooked and clear from the processor cooler retention frame anchors of the motherboard
  3. Gently hold and twist the processor cooler to break the adhesion seal caused by the thermal interface material (TIM) between the processor and processor cooler base

**Note!** *Twist in a clock and anti-clockwise rotational direction, which creates a shear force in the thermal interface. Failure to break the adhesion seal between the processor cooler and the processor may result in pulling the processor out of the socket, possibly resulting in processor and / or socket damage.*

4. Gently lift the processor cooler up vertically away from the processor
3. Remove any thermal interface left on top of the processor:

Leave the processor in the motherboard socket during cleaning to prevent damage to the pins of the processor.

  1. Clean off the thermal interface material with a dry paper towel or tissue
  2. Mop or dab when cleaning off thermal material from the processor
  3. While cleaning the processor, ensure that no dried thermal material or other debris falls onto the motherboard or around the motherboard socket. If so, wipe or brush it off as best possible
  4. Avoid using wet organic solvents or chemicals such as acetone or alcohol as these chemicals can cause contaminants to flow into the socket. Look for any remaining thermal interface material on the processor edge and remove the material with a cotton bud or the folded edge of a cleaning wipe, paper towel or tissue
4. Remove the processor:



1. Unlatch and lift up the securing arm on the side of the processor socket on the motherboard to release the processor
  - . Ensure that the socket retention lever is fully vertical, which allows the processor to be fully released
2. Lift the processor up vertically by the edges
3. No force is required to lift the processor from the zero insertion force (ZIF) socket. If unable to easily remove the processor, ensure that the socket retention lever is fully vertical (and positioned 90° or perpendicular to the surface of the motherboard) which allows the processor to be fully released
4. Avoid contact with any of the pins on the bottom of the processor
5. Carefully place the processor into the plastic clam shell case that is provided with the new processor or originally included with the old processor



## **How to install an AMD processor and processor cooler unit:**

To install an AMD processor and a processor cooler, refer to the following instructions:

### **Note!**

- *If you do not feel comfortable with performing any of the instructions on your own, consult with an expert.*
- *Before installing the processor onto the motherboard, ensure that the processor and motherboard socket types are compatible. Failure to do so can cause damage to the processor's pins and / or motherboard's socket.*

#### 1. Insert the processor into the motherboard socket:

1. Ensure that the socket retention lever on the side of the processor socket of the motherboard is unlatched (in a fully vertical position) to allow the processor pins to easily fall into the socket
2. Ensure that pin 1 of the processor lines up with the pin 1 insert on the processor socket of the motherboard
  - i. Pin 1 of the processor is located underneath the gold colored trademark AMD Arrow logo of the processor
  - ii. The pin 1 insert on the motherboard's processor socket is marked in gold or by a white bold trademark AMD Arrow logo
3. After the processor is inserted, lock the processor in place by pushing down on the socket retention lever of the processor socket on the motherboard until locked in a horizontal position

#### 2. Add thermal interface material on top of the processor:

**Note!** *If installing a new retail-boxed AMD processor, the processor cooler supplied with the processor will already have thermal interface material pre-applied on the bottom surface of the processor cooler. Do not apply any additional thermal interface material*

#### 3. If using a previously installed processor cooler or a new processor cooler that does not have pre-applied thermal interface material, apply a 10mm diameter droplet of thermal material located in the center onto the top surface of the processor

1. For a list of AMD recommended thermal interface material, refer to [Article 0001](#)
2. Ensure that the thermal interface material is applied in a thin uniform layer on the top surface of the processor. AMD recommends that a 34-35mm square in a thin layer (approximately 0.06-0.08mm thick) will provide good coverage of the processor thermal material

#### 4. Install the processor cooler on top of the processor:

**Note!** If reusing a previously installed processor cooler, ensure that any used thermal material is completely removed from the bottom surface of the processor cooler before installation on top of the processor

Remove or clean off the thermal material with a paper towel or tissue:



1. Mop or dab off the thermal material from the bottom surface of the processor cooler
  2. If installing a new processor cooler with pre-applied thermal material, remove the protective plastic film that is placed on top of the thermal material, which is located on the bottom surface of the processor cooler, if applicable
  3. Place the heatsink on the processor with it centered in the retention frame of the motherboard and align the clips of the processor cooler with the retention frame anchors
  4. Ensure that the clips of the processor cooler rest over the retention frame anchors on the motherboard
  5. Check that the processor cooler is leveled and secured to the processor
  6. Turn the cam lever of the processor cooler until both sides of the clip are secured to the retention frame anchors. Some force may need to be applied
  7. Connect the (Molex) power cable of the processor cooler to the designated power (connector or header) connection on the motherboard
- i. Refer to the manual of the motherboard to determine the location of the power outlet (connector or header) connection of the processor cooler



## **Troubleshooting: Motherboard BIOS support requirements**

The Socket AM4 and sTR4 platforms are designed to be a fully featured, scalable solution with support for multiple processors, with varying capabilities. Since the release of 2000-series AMD Ryzen™ and Athlon™ desktop processors, however there have been several BIOS updates made available through our motherboard partners. These updates not only provide improved system performance but also expand support for newer processors as they become available.

One of the possible reasons for a boot up issue is running an early BIOS that does not have support for newer processors. This can be resolved by updating the motherboard BIOS to the latest version, which can be performed by temporarily using a processor supported with the currently installed BIOS, and swapping out the new processor after the BIOS has been updated. For a list of supported processors per BIOS version, please refer to the CPU Support List document available on your motherboard manufacturer's website:

- ASRock: <https://www.asrock.com/support/cpu.asp>
- ASUS: [https://www.asus.com/support/cpu\\_support](https://www.asus.com/support/cpu_support)
- Biostar: [http://www.biostar.com.tw/app/en/support/cpu\\_support.php](http://www.biostar.com.tw/app/en/support/cpu_support.php)
- Gigabyte: <https://www.gigabyte.com/us/Support/CPU-Support>
- MSI: <https://www.msi.com/support/motherboard/cpu-support>

On your motherboard manufacturer's website, make the appropriate selections to view the BIOS version required to support your CPU. BIOS download and installation instructions are also found on their website.

### **Workarounds**

The following workarounds may be feasible for affected users, depending on their individual circumstances, and should be considered before applying the boot kit solution detailed below:

#### **Update from Retailer**

1. If the motherboard was purchased through a computer parts retailer, check with the retailer to see if they can facilitate the BIOS update at their location. There may be a charge for this, or it may be offered at no cost.
2. If you have access to a processor supported on the current installed BIOS, use it to perform the BIOS update, then swap out the processors when the update process is complete.

For a list of supported processors per BIOS version, please refer to the CPU Support List document available on the motherboard manufacturer's website. BIOS download and installation instructions are also found on their website.

If these workarounds are not feasible, please see the sections below for a solution:



### Original Manufacturer Replacement

The Original Design Manufacturer (ODM) of the motherboard will support affected end users with an RMA exchange for a compatible motherboard, upon request. Affected end users are recommended to contact their local representative for the motherboard manufacturer to exchange their motherboard.

### Short Term Processor Loan "Boot Kit"

AMD will offer affected and qualified users (as described below) a AMD AM4 A-series processor including thermal solution for short term use ("boot kit") to perform the BIOS update on their motherboard.

This short-term processor loan or boot kit is offered through AMD warranty services and is available only for qualified users that have made a valid purchase of a 2<sup>nd</sup> Gen Ryzen™ Desktop Processor and are affected by this specific boot up issue.

This service is free of charge with the following condition:

Once you have submitted your claim for a processor loan boot kit, AMD will require pictures of your 2<sup>nd</sup> Gen Ryzen™ Desktop Processor and AMD Socket AM4 300-series motherboard, that clearly shows the model numbers and unique serial numbers as well as a copy of the purchase invoice(s) to authorize the request. Additionally, a summary or copy of communication with the motherboard manufacturer is requested to indicate why support from the Original Design Manufacturer (ODM) is not suitable.

Once the RMA request is approved, the AMD AM4 A-series processor will be sent with pre-paid return shipping. The processor is provided as a temporary loan to you for the sole purpose of updating the BIOS and must be returned within 10 business days of receipt. It is not necessary to return the provided thermal solution.

To obtain the boot kit, please carefully follow these instructions:

1. Go to the AMD online warranty claims page: <https://support.amd.com/en-us/warranty/rma>
2. Fill in your full contact and product details (2<sup>nd</sup> Gen Ryzen Processor OPN number and serial number)
3. In the Problem Description field enter "Boot kit Required" (without quotes)

**NOTE:** The product must be a valid AMD processor with authentic OPN and serial number.

Once the claim is received and approved, confirmation details and boot kit instructions will be provided in a follow up email.