



RAILGUN

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Terms

There are several terms which will explain how the Railgun G3 Processor Upgrade Card operates. Please read over this brief list to help familiarize yourself with the terminology used in this manual.

Bus Speed- This is the speed at which the processor reads and writes data and is expressed in Megahertz. The bus is considered the pipeline between the processor and the system.

CPU Speed- The CPU speed is the actual speed of the Processor. When using a Railgun ZIFF Processor Upgrade Card the CPU speed is equal to the Bus Speed x The Bus Ratio.

Bus Ratio- The Bus Ratio is the relationship between CPU speed and Bus speed. The Bus ratio \times Bus speed = the CPU speed. The Railgun G3 Processor Upgrade Card has many options of Bus Ratios, from 2:1 to 8:1 in 1/2 unit increments.

Backside Cache- Backside cache is the very high-speed memory which the Railgun ZIFF Processor Upgrade Card uses as a buffer to the other memory in the computer. Backside cache greatly increases the speed that the accelerator can get data, which significantly increases the speed of which your computer completes tasks.

Backside Cache Ratio- The backside cache ratio is the ratio between the speed of the backside cache and the CPU speed. If your CPU speed is 300 MHz and your cache is 300 MHz then the ratio is 1:1 if your CPU is 300 MHz and the cache is 200 MHz then the ration is 1.5:1 and if the CPU is 300 MHz and your cache is 150 MHz then your ratio is 2:1. The Backside Cache Ratio is set by your computer at a 2-1 ratio.

RailGun ZIFF Processor Card

We at BottomLine know you will be satisfied with our product and want to thank you for your purchase. After you have installed your new Railgun ZIFF Processor Upgrade Card you will have accessed a **New Dimension** in time that only added computational muscle can provide. Progress bars will zip across the screen. You have now entered the **G3 Zone**. This manual should provide you with all the information you will need to insure proper installation of your Railgun ZIFF Processor Upgrade Card.

WARNING! Back up your hard drive prior to installation.

The RailGun G3 Processor Upgrade Card, like all computer components, is static sensitive. It is susceptible to damage from static electricity. Please be sure you are properly grounded prior to removing the card from its static sensitive bag. We have provided a grounding strap with your RailGun ZIFF Processor Upgrade Card which we strongly suggest you use. For your computer to be grounded it must be plugged into the AC wall unit. Attach the strap to your wrist and your computer's chassis. Touch the computer's power supply unit; this will insure you have released any static build-up you might have acquired during your activities. You can now unplug your computer and install your RailGun ZIFF Processor Upgrade Card.

We suggest that you read through this installation guide that is included with the RailGun ZIFF Processor Upgrade Card **before** you begin installation; installation of the RailGun G3 Processor Upgrade Card should take no longer than a few minutes. If you decide the installation process is beyond your capabilities, please contact your local Apple Authorized Service Provider to install it for you.

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If you decide to do it yourself, please remember BottomLine can not be held responsible for any damage caused by end-user installation; including data loss or motherboard damage. In this manual we have included a few basic conceptual installation "roadmaps" to assist you in several different Apple models.

If you have any questions before you begin your installation please feel free to give our tech support professionals a call at 512-485-4602 to answer any questions or concerns you may have.

Overview

Installation of the Railgun ZIFF upgrade card is easy. The computer case must be opened, the existing CPU card must be removed and the Railgun ZIFF installed in its place. You must be running on OS 8.5 (or higher) for the G3 upgrade to work properly. No additional software is necessary for the computer to recognize the card and run the backside cache at the correct ratio. Be sure to read the section of this manual that outlines the installation procedure for your specific computer model in greater detail. Reviewing the owners manual for your computer is also recommended.

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Blue and White Apple G3

Please refer to your owner's manual before attempting installation.

1. Shut down the computer and make sure the power is off.
2. Place one hand behind your back and with the free hand touch the power supply in the area where the power cord meets the unit. This will ensure that you are grounded and all static electricity has been discharged.
3. Unplug the power cord from the computer's power supply so that no electricity can flow to the unit.
4. Facing the front of the computer, locate the release lever on the top right hand side and lift.
5. Gently lower the side panel and let it rest on a flat stable surface.
6. Locate the computer's CPU in the middle area of the board.
7. Using a small flat head screw driver, gently pry the heatsink's silver colored locking bracket loose and set aside.
8. Carefully remove the CPU heatsink from the processor and unscrew it from the logic board. As the Railgun ZIFF comes with a heatsink already attached, you no longer need the original heatsink.
9. Lift the ziff socket locking arm 90° so that it is vertical.
10. Gently lift the CPU out of the socket and store in a static proof container.

11. Remove the Railgun ZIFF Upgrade Card from it's static bag and set the dials according to which G3 you have purchased. Referring to the chart on page 10, select the ratio that you wish to run the Railgun ZIFF at. Remember that the Blue and White G3 has a 100mhz bus, so the ratio you choose will be multiplied by 100 for the processor speed.
12. Carefully insert the Railgun ZIFF into the motherboard's CPU ziff socket. The CPU should drop right into place with out much tension or resistance. **DO NOT FORCE THE CPU INTO PLACE.** If you have any trouble please call 1-512-485-4602 for technical assistance right away.
13. Once the G3 is in place, lower the locking arm back down 90° to it's horizontal position and lock into place.
14. Re-connect the power cord to the machine and start up the computer. While starting up the machine zap the PRAM by holding down the following keys: Option, Command, "R", and "P". You should let the "Start-up chime" cycle four times to ensure a full reset of the logic board's parameter settings.

Congratulations! You have just entered the next level in power!

Beige Apple G3 Desktop

Please refer to your owner's manual before attempting installation.

1. Shut down the computer and make sure the power is off.
2. Place one hand behind your back and with the free hand touch the power supply in the area where the power cord meets the unit. This will ensure that you are grounded and all static electricity has been discharged.
3. Unplug the power cord from the computer's power supply so that no electricity can flow to the unit.
4. Remove the top case by pressing up on the two release tabs just under the front bezel of the case. Pull the case off towards the front of the computer. Note: If you are unfamiliar with the machine we recommend referring to your Owner's Manual for an overview.
5. With the case off, you can see the plastic cover over the PCI slots. Gently lift the cover up so you can easily access the release tabs that hold the metal housing in place.
6. The drive bay and power supply are housed in a single unit. This section is opened by pressing the two release tabs toward the center of the computer and lifting the up on the metal housing. Once completed, the entire logic board is exposed. Note: When lifting this section notice a small "kick stand" slide into place to hold the unit up. This is important to remember when reversing the process so that you do not damage the stand.
7. Locate the computer's CPU in the middle area of the board.
8. Using a small flat head screw driver, gently pry the heatsink's locking bracket loose and set aside.

9. Carefully remove the CPU heatsink from the processor and unscrew it from the logic board. As the Railgun ZIFF comes with a heatsink already attached, you no longer need the original heatsink.
10. Lift the ziff socket locking arm 90° so that it is vertical.
11. Gently lift the CPU out of the socket and store in a static proof container.
12. Remove the Railgun ZIFF Upgrade Card from its static bag and set the dials according to which G3 you have purchased. Referring to the chart on page 10, select the ratio that you wish to run the Railgun ZIFF at. Remember that the Beige G3 has a 66.7mhz bus, so the ratio you choose will be multiplied by 66.7 for the processor speed.
13. Carefully insert the Railgun ZIFF into the motherboard's CPU ziff socket. The CPU should drop right into place with out ANY tension or resistance. DO NOT FORCE THE CPU INTO PLACE.
14. Once the G3 is in place, lower the locking arm back down 90° to its horizontal position and lock into place.
15. Close the computer by reversing steps #4 through #6. Note: Don't forget about the "kick stand".
16. Re-connect the power cord to the machine and start up the computer. While starting up the machine zap the PRAM by holding down the following keys: Option, Command, "R", and "P". You should let the "Start-up chime" cycle four times to ensure a full reset of the logic board's parameter settings.

Congratulations! You have just entered the next level in power!

Beige Apple G3 Minitower

Please refer to your owner's manual before attempting installation.

1. Shut down the computer and make sure the power is off.
2. Place one hand behind your back and with the free hand touch the power supply in the area where the power cord meets the unit. This will ensure that you are grounded and all static electricity has been discharged.
3. Unplug the power cord from the computer's power supply so that no electricity can flow to the unit.
4. Remove the side panel of the case by pushing on the release button on the top of the panel and pulling out. Now gently lay the computer on its side with the open side facing up.
5. With the cover off, you can see the PCI slots and well as part of the logic board. To get at the processor card, however, you must first swing out the drive and power supply bays. The drive bay and power supply are housed in a single unit. This section is opened by pressing the two aqua colored release tabs located in the front and back of the computer and lifting the up and out on the metal housing. Once completed, the entire logic board is exposed.
6. Locate the computer's CPU in the middle area of the board.
7. Using a small flat head screw driver, gently pry the heatsink's locking bracket loose and set aside.
8. Carefully remove the CPU heatsink from the processor and unscrew it from the logic board. As the Railgun ZIFF comes with a heatsink already attached, you no longer need the original heatsink.

10. Lift the ziff socket locking arm 90° so that it is vertical.
11. Gently lift the CPU out of the socket and store in a static proof container.
12. Remove the Railgun ZIFF Upgrade Card from its static bag and set the dials according to which G3 you have purchased. Referring to the chart on page 10, select the ratio that you wish to run the Railgun ZIFF at. Remember that the Beige G3 has a 66.7mhz bus, so the ratio you choose will be multiplied by 66.7 for the processor speed.
13. Carefully insert the Railgun ZIFF into the motherboard's CPU ziff socket. The CPU should drop right into place without ANY tension or resistance. DO NOT FORCE THE CPU INTO PLACE.
14. Once the G3 is in place, lower the locking arm back down 90° to its horizontal position and lock into place.
15. Close the computer by reversing steps #4 and #5. Note: Don't forget to close the two aqua tabs to secure the swing away bay.
16. Re-connect the power cord to the machine and start up the computer. While starting up the machine zap the PRAM by holding down the following keys: Option, Command, "R", and "P". You should let the "Start-up chime" cycle four times to ensure a full reset of the logic board's parameter settings.

Congratulations! You have just entered the next level in power!

Railgun ZIFF Switch Settings

Ratio	Dial	Beige G3 (66.7mhz)	Blue and White G3 (100mhz)
3:1	8	200mhz	300mhz
3.5:1	e	233mhz	350mhz
4:1	a	266mhz	400mhz
4.5:1	7	300mhz	450mhz
5:1	b	333mhz	500mhz
5.5:1	9	366mhz	550mhz
6:1	d	400mhz	600mhz
6.5:1	5	433mhz	650mhz
7:1	2	466mhz	700mhz
7.5:1	1	500mhz	750mhz
8:1	c	533mhz	800mhz

BottomLine's Two-Year Limited Warranty

BottomLine warrants this hardware product against defects in materials and workmanship for a period of Two (2) YEARS from the date of original retail purchase. Should this product fail to be in good working order during the warranty period, BottomLine, at its sole option, will repair or replace the defective product with an identical product or product having similar features and functionality as determined by BottomLine.

Before returning a product for repair or replacement, you must first obtain a Return Merchandise Authorization (RMA) number from BottomLine. The RMA number should be clearly displayed on the outside of the returned package. BottomLine will refuse any package without an RMA number. The customer is responsible for properly packing the defective product for shipment and for the cost of shipping the product back to BottomLine. BottomLine will ship the repaired or replaced product at no cost to the customer.

If the product has been modified without written approval from BottomLine, or failure is the result of misuse, abuse or misapplication as determined by BottomLine, the warranty is void and BottomLine has no obligation to repair or replace the product.

Under no circumstances will BottomLine be liable for any direct, indirect, consequential or incidental damages arising out of the use or inability limitation of liability for consequential or incidental damages, so the above limitations may not apply. BottomLine reserves the right to make modification in both hardware and software without prior notification

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