

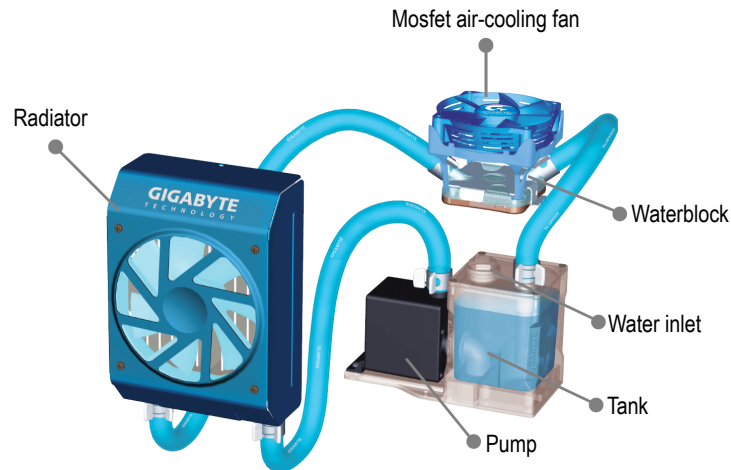
# **3D Galaxy series**

GH-WIU01

User's Manual

20050613-GHWIU01  
rev.1002

## Overview of 3D Galaxy Liquid cooling System



### Caution

1. Before refilling the tank with coolant for testing the Liquid cooling system, please make sure again that all water tube joints are securely fitted and the clips are correctively positioned.
2. The red light on the bottom PCB board will flash when the tank's water level switch is at low water level, alerting the users to the inadequate water volume in the tank (Please refill with Gigabyte Liquid Coolant).
3. When the water level switch reaches the lower limit of the water level, the system will shut down automatically within 4 seconds after detection of water inadequacy.
4. While removing water tubes for uninstallation, be sure to keep the device for removal of these tubes away from any electronic part. (Please refer to the procedures for uninstallation.)
5. Please refer to the English version for all pictures.

The following are not covered by the warranty:

1. Use the product incorrectly or in a manner other than the designed purpose.
2. Nonobservance of the proper operation provided. (e.g. over-clocking)
3. Malfunction due to interference from other devices.
4. Unapproved modification of the product.
5. Consequential damage to other objects due to the product's fault.
6. Malfunction arising from casualties (earthquake, thunder, fire, and flood).
7. The product's warranty label has been removed or damaged.
8. The devices inside, including power supply, hard disk, CD-ROM drive, motherboard, ventilator, etc, are not detached from the casing prior to the transportation of the computer product, resulting in damage to the casing or computer-related devices.
9. Any loss due caused by failure to follow the installation process contained in the user.
10. Any damage to the system arising from leakage of coolant due to improper installation is not covered by the warranty.
11. Use only Gigabyte Liquid Coolant. Any damage arising from the use of liquids other than Gigabyte Liquid Coolant is not covered by the warranty.

## Content

1	Checkout List for Attachments .....	4
2	Features .....	5
3	Specification Features .....	5
4	Procedures for Installing the Liquid cooling System.....	6
4-1	Preparation prior to installation .....	6
4-2	P4 LGA775 RM installation .....	6
4-3	Installation of PCI rear fan speed control panel .....	6
4-4	Installation of water tube .....	7
4-5	Installation of Water Tube from Radiator to Pump .....	8
4-6	Installation of Water Tube from Radiator to Waterblock .....	8
4-7	Installation of Water Tube from Waterblock to Water Tank .....	9
4-8	Installation of Intel® Pentium® 4 LGA775 Clips .....	9
4-9	Installation of Intel® Pentium® 4mPGA478 Clips.....	10
4-10	Installation of AMD K8 (754/939) Clips .....	10
4-11	Installation of Mosfet Air-Cooling Fan .....	10
4-12	Installation of Pump Power Cord .....	11
4-13	Introduction of Fan Speed Control Box and Power Cord Connector .....	12
4-14	Installation of Fan Speed Control Box .....	12
5	Installation and Test of liquid coolant.....	13
5-1	Installation and Test of Liquid Coolant .....	13
5-1	Installation of Radiator Rack .....	14
6	Uninstallation of Liquid cooling System .....	15

# 1 Checkout List for Attachments

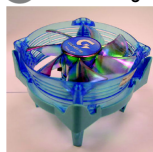
1 Radiator



2 Tank & Pump assembly



3 Mosfet air-cooling fan



4 Waterblock



5 Water Tube



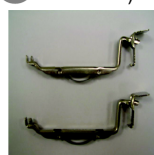
6 Clips x 6



7 Screws



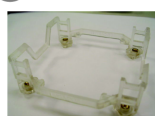
8 P4 Clips (LGA775/ mPGA478)



9 K8 Clips



10 P4 LGA775 RM



11 Fan speed control box



12 PCI rear fan speed control panel



13 Radiator rack



14 Pump power cable



15 Grease



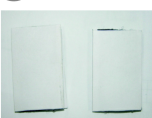
16 Fan speed control power cable



17 Gigabyte Liquid Coolant



18 Fastener strips



19 Installation Guide



**Screws in Item 7:** a -- Securing LGA775 RM x 4  
b -- Securing PCI rear fan speed control panel and water pump assembly x 3  
c -- Securing radiator rack x 3

## 2 Features

Mosfet cooling fan	Fan size	80 x 80 x 25 mm
	Fan speed	2000 RPM
	Fan Connector	3 pin
	Bearing	Ball Bearing
	Noise	19 dBA
Pump	Dimensions	61x 60 x 46 mm
	Maximum Capacity	400 L/hr
	Noise	20 dBA
	Bearing	Ceramic Bearing
	Life time	70000 hr (MTBF)
Radiator	Dimensions	125 x 197 x 64 mm
	Material	Aluminum
	Fan size	120 x 120 x 25 mm
	Fan speed	1200 ~ 2600RPM
	Fan Connector	3 pin
	Bearing	2 Ball
	Noise	19~39 dBA
Tank	Dimensions	75 x 75 x 92 mm
	Capacity	300cc.
Tube	Dimension	1/2 inch
	Material	PVC, UV sensitive
Coolant	Capacity	600cc.
	Color	Lite Blue
Compatible CPU	Intel® Pentium®4 Processor 870/670/570 (3.8GHz)	
	Intel® Pentium®4 Processor 478 (3.4GHz)	
	AMD Athlon™ FX 59 (939/754)	
	AMD Athlon™ 64 4800+ (939/754)	

## 3 Specification Features

1. Large, pure copper base employs unique water road design.
2. Long-life, quiet and powerful ceramic bearing pump: 400 L/hr (max)
3. Low water-level(LWP) and over-temperature protection(OTP) (Patent pending)
4. Clear blue LED tank for straightforward coolant refilling
5. Large aluminum radiator with 4-parts water road design
6. Special aluminum fan cover enhances thermal dissipation
7. Radiator installs easily onto most PC chassis
8. Multi-purpose Nano-scale GIGABYTE coolant
9. 1/2 inch special UV tubing material allows for extreme angling and flexing
10. Fully compliant with MOSFET thermal function (Patent pending)
11. Optional thermal partner: Gigabyte chassis 3D AURORA (GZ-FSCA1-AN / GZ-FSCA1-SN)

## 4

## Procedures for Installing the Liquid cooling System



Please follow the reference sections in order for installation.

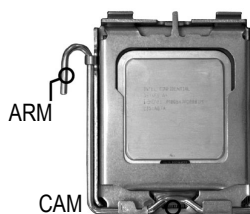
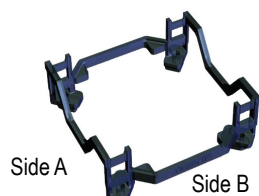
## 4-1

**Preparation prior to installation**

Ensure that the PC power is turned off.

Tools required: Scissors, Gigabyte Liquid Coolant, and grease.

## 4-2

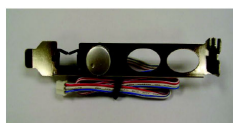
**P4 LGA775 RM installation**

4-2-1 Place LGA775 RM on the LGA775 motherboard and make side A parallel with the ARM of LGA775 RM and bring side B parallel with the CAM at the bottom of LGA775 RM.

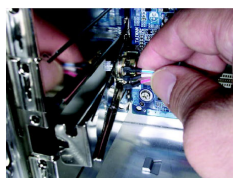


4-2-2 From the underside of the motherboard, use screws (4) and plastic washers (4) together to secure the LGA775RM into place.

## 4-3

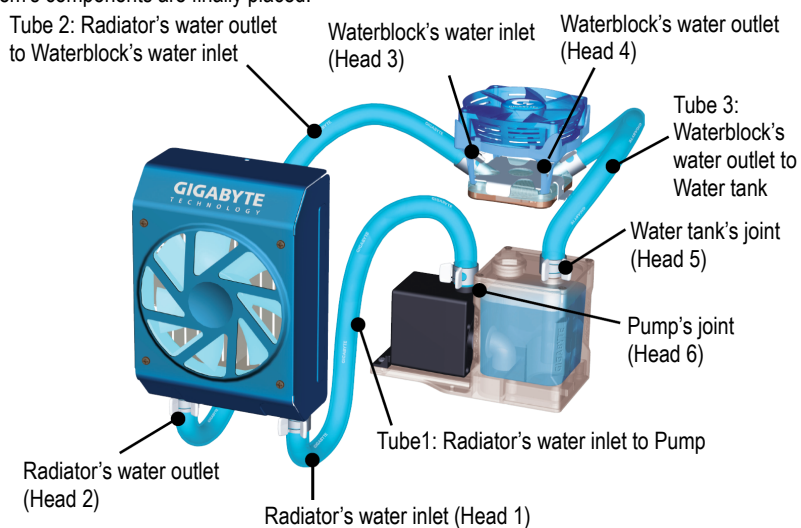
**Installation of PCI rear fan speed control panel**

4-3-1 Install the PCI rear fan speed control panel at the rear side of the casing (installation on the middle or lower layers of the PCI slot is recommended).

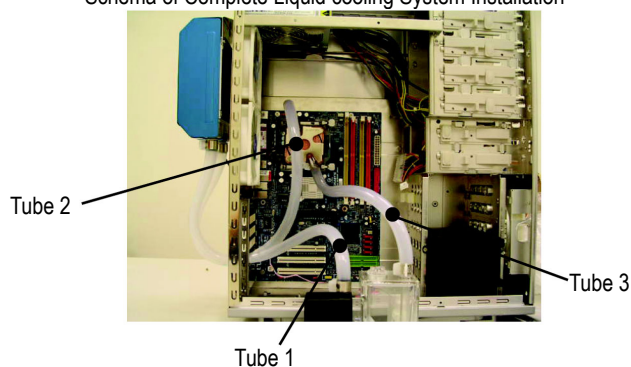


#### 4-4 Installation of water tube

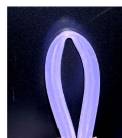
Cut the supplied water tube into 3 sections in proper length according to the distance that the system's components are finally placed.



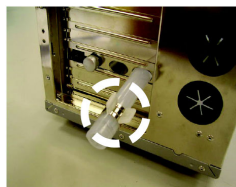
Schema of Complete Liquid cooling System Installation



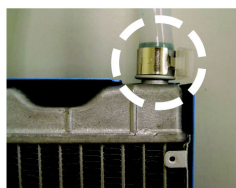
**Do not twist the tube (as shown in the right figure) during installation; otherwise the liquid will be blocked.**



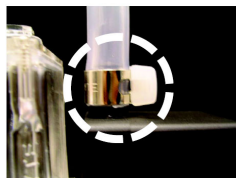
#### 4-5 Installation of Water Tube from Radiator to Pump



4-5-1 Thread Tube 1 through the hole of PCI rear panel as in the figure and fit the clips.



4-5-2 Connect an end of Tube 1 that has been threaded through the hole of the PCI rear panel to the radiator's water inlet and secure it firmly with the clips.



4-5-3 Connect the other end of Tube 1 to the pump's water outlet and secure it firmly with the clips.

#### 4-6 Installation of Water Tube from Radiator to Waterblock

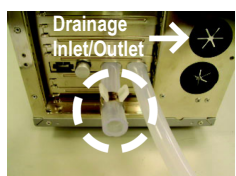


Figure a

4-6-1 Thread Tube 2 through the hole of the PCI rear panel as in the figure, fit the clips, connect the radiator's water outlet, and then secure it firmly with the clips (as shown in Figure a/b).



**If Gigabyte 3D AURORA casing is used, the water tube can be threaded through the drainage inlet/outlet on the casing (as shown in Figure a).**

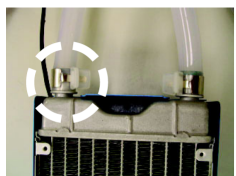


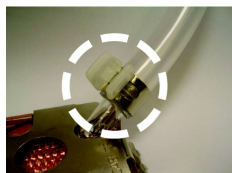
Figure b



4-6-2 Connect the other end of Tube 2 to the waterblock's water inlet and secure it firmly with the clips.



## 4-7 Installation of Water Tube from Waterblock to Water Tank



4-7-1 Connect an end of Tube 3 to the waterblock's water outlet and secure it firmly with the clips.



4-7-2 Connect the other end of Tube 3 to the tank's water inlet of the water tank and secure it firmly with the clips.

## 4-8 Installation of Intel® Pentium® 4 LGA775 Clips



Be sure to remove the "CAUTION" sticker from the waterblock.

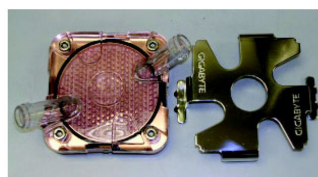


Figure a

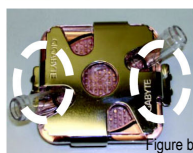


Figure b

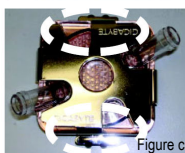


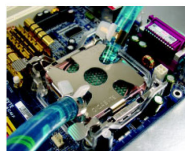
Figure c



The waterblock holder can be separated from the waterblock (Figure a) and the proper installation direction (Figure b/c) can be adjusted freely.

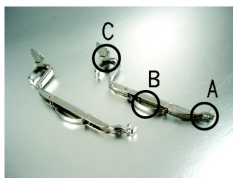


4-8-1 Apply the grease evenly to the surface of CPU.

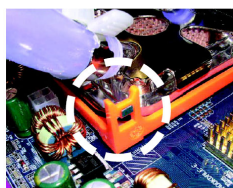


4-8-2 Place the waterblock on the Intel® Pentium® 4 LGA775 base.  
(For details about procedures for installing P4 LGA775 clips, please refer to "Intel® Pentium® 4 mPGA478 Clip Installation Procedures").

#### 4-9 Installation of Intel® Pentium® 4mPGA478 Clips



- 4-9-1 Part A: Secured to the retention mechanism hook.  
Part B: Stick tightly against the holder of waterblock.  
Part C: Secured to the retention mechanism hook.



- 4-9-2 Secure Parts A, B, and then C of the clip to the retention mechanism. Assure that Part C is secured to the retention mechanism hook on the same side as the heat pipes.

Figure a

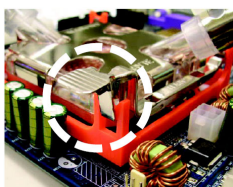
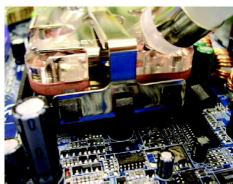
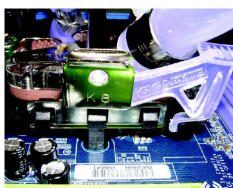


Figure b

#### 4-10 Installation of AMD K8 (754/939) Clips

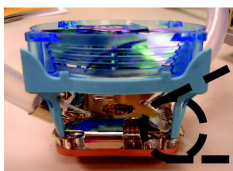


- 4-10-1 Align the radiator clips to the 3 convex points on the CPU base and apply force downward to press the clips.



- 4-10-2 Latch the radiator's pull-rod downward firmly on the clip point on the CPU base.

#### 4-11 Installation of Mosfet Air-Cooling Fan



- 4-11-1 Install the Mosfet air-cooling fan on top of the waterblock and make sure that the four feet of Mosfet air-cooling fan are firmly locked to the waterblock.

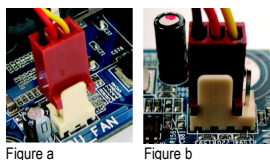


Figure a

Figure b

- 4-11-2 And plug the power cord of the air cooling fan into the socket of the CPU fan.  
(Figure a: 3-pin CPU fan socket / Figure b: 4-pin CPU fan socket (LGA775)).

## 4-12 Installation of Pump Power Cord

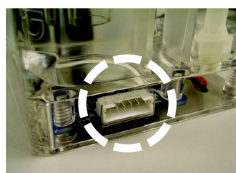
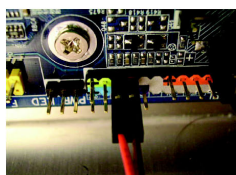
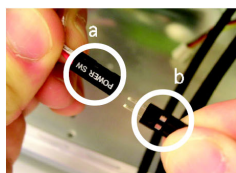
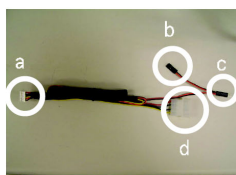


Figure a

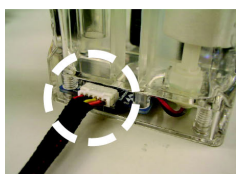
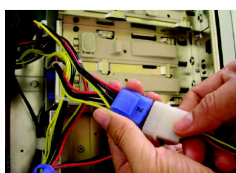
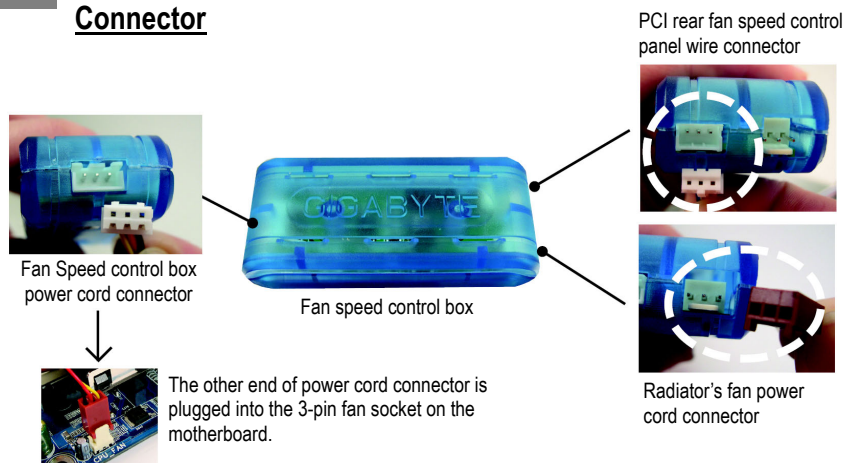


Figure b



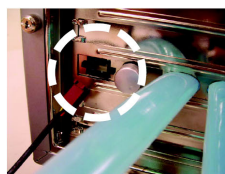
- 4-12-1 Prepare the pump power cord.  
a: 6-pin connector / b: 2-pin female connector  
c: 2-pin male connector / d: 4-pin connector
- 4-12-2 Connect Power SW (female 2-pin) on the chassis panel to the pump power cord 2-pin male connector.  
a: Power SW (female 2-pin) on the chassis panel (female 2-pin)  
b: Pump power cord 2-pin male connector
- 4-12-3 Plug the pump power cord 2-pin female connector into "+PW-" jumper on the motherboard.
- 4-12-4 Plug the 6-pin connector of the pump power cord into the 6-pin socket at the rear of the water tank (as shown in Figure a/b).
- 4-12-5 Connect the 4-pin power cord on the power supply to the pump power cord 4-pin connector.

#### 4-13 Introduction of Fan Speed Control Box and Power Cord Connector

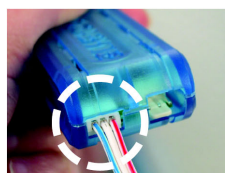


#### 4-14 Installation of Fan Speed Control Box

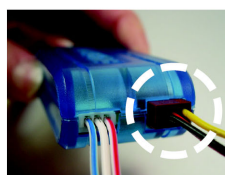
Tools required: Fan speed control box / fan speed control box connection wire.



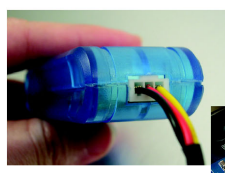
4-13-1 Thread the radiator fan connector through the line hole of the PCI rear fan speed control panel and insert it into the radiation power cord connector of the fan speed control box.



4-13-2 Plug the connection wire on the PCI rear fan speed control panel into the connector on the fan speed control box.



4-13-3 Plug the fan power cord on the radiator into the connector on the fan speed control box.



4-13-4 To accomplish the installation, connect the power cord of the supplied fan speed control box to the connector on the fan speed control box and insert the other end of the power cord into the 3-pin fan connector on the motherboard (as shown in Figure a).



Figure a

## 5

## Installation and Test of liquid coolant



When refilling with liquid coolant, please move the water tank out of the casing to prevent improper refilling of water from damaging other components. Prior to turning on the power, please make sure again that the 6 clips firmly secure the tubes; leakage of liquid coolant due to improper installation may damage the system that is not covered by the warranty (as in the figure below). Use only Gigabyte Liquid Coolant; any damage arising from the use of liquid other than Gigabyte Liquid Coolant is not covered by the warranty.

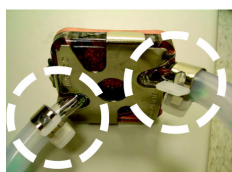


Figure a



Figure b

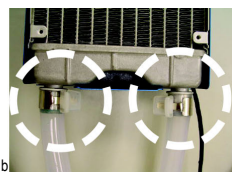
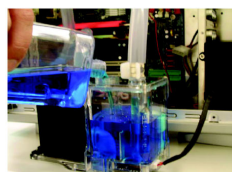


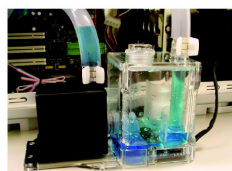
Figure c

## 5-1 Installation and Test of Liquid Coolant

Tools prepared: Liquid coolant



- 5-1-1 Open the lid of the water tank's refilling hole, fully refill the tank with liquid coolant and refit the lid.



- 5-1-2 Turn on the power until all liquid coolant inside the tank drains away; PC power will be turned off automatically 4 seconds later. (This is normal for initial refilling of liquid coolant, because the water tubes and radiator are not full of liquid).



- 5-1-3 Open the lid of the tank's refilling hole again, refill the tank with liquid coolant and refit the lid. After fully refilling with liquid coolant, turn on the power again. Repeat these procedures until the water level exceeds the low water level mark.

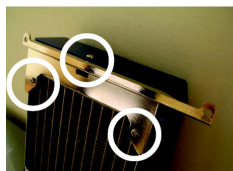


For the first time that liquid coolant is refilled, the radiator should be lay down flat to facilitate exhaust. Lower sound means that exhaust is completed, and then install the radiator in accordance with the following step (5-2).

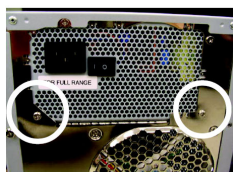


Be aware of whether there is abnormal leakage. If there's leakage even though the installation is correct and the water tubes are tightened by the clips, please turn off the power immediately and contact Gigabyte dealers or Gigabyte Service Center.

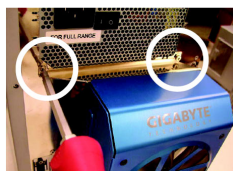
## 5-1 Installation of Radiator Rack



5-2-1 Attach the radiator rack lock to the radiator.



5-2-2 Remove the 2 screws on the fixed power supply at the rear of the casing.

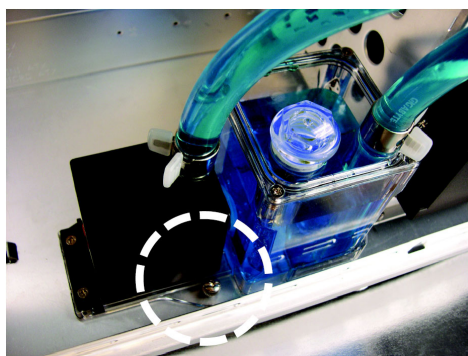


5-2-3 To accomplish procedures for installing the Liquid cooling system, align the 2 screw holes on the radiator rack to the 2 screw holes on the power supply again and lock them up.



NOTE

When using the Gigabyte 3D AURORA casing, we may lock the water tank pump assembly inside the casing (with two screws (code b), please refer to the section of checkout list for attachments, as shown in the figure below). For other casings, we may secure it in a proper position with the supplied fastener strips.





## 6

## Uninstallation of Liquid cooling System



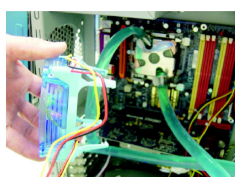
When uninstalling and removing the water tube, be sure to keep the device for removal of these tubes away from any electronic part and ensure that the PC power has been turned off.

Tools prepared: Barrel, screwdrivers

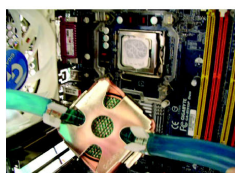
Preparations: Please place the host machine on a height desktop at first and prepare a barrel on the ground.



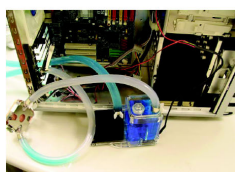
- 6-1-1 Remove the radiator from the rear of the host machine and lie it down flat on the desktop.  
(Caution: Do not remove the water tube at this moment).



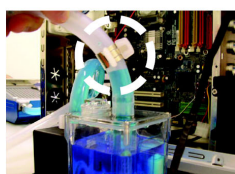
- 6-1-2 Remove the Mosfet air-cooling fan device from the waterblock.



- 6-1-3 Loosen the clips of the waterblock on CPU.  
(Caution: Do not remove the water tube at this moment).



- 6-1-4 Move the pump/water tank out of the host machine.  
Prepare a barrel and place the barrel at a height lower than that position of the host machine to store the liquid coolant for uninstallation.



- 6-1-5 Loosen the clips fitted on the tube of the tank's water inlet.



Figure a

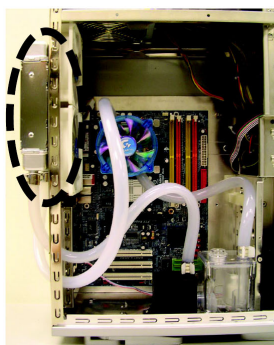


Figure b

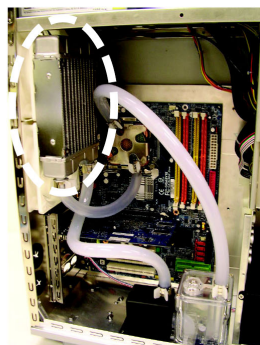
- 6-1-6 Bend the water tube and remove it (as shown in Figure a). Pull the water tube to a position lower than the desktop on which the host machine is placed (as shown in Figure b) to allow the liquid coolant flowing into the barrel until all liquid coolant drains away.



Various installation modes for the Gigabyte 3D AURORA casing are shown in the figures below (for details about the installation procedures, please visit Gigabyte website).



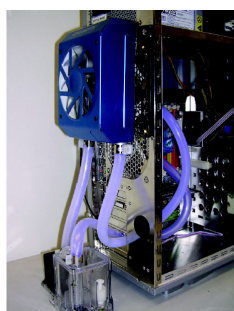
Mode 1  
Radiator placed outside the casing.



Mode 2  
Radiator placed inside the casing.



Another installation mode for other casings (when a smaller casing is used, the water tank assembly can be placed at the rear side of the casing).



Mode 3