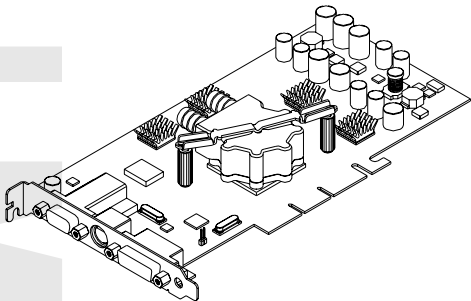# *User's Manual*

(English version)

VGA Water Block

Model : ZM-GWB2

Please visit our website and watch the ZM-GWB2 installation video for easy installation.

※ Please read this manual throughly before installation.

※ The specifications of this product and its components may change without prior notice to improve performance.

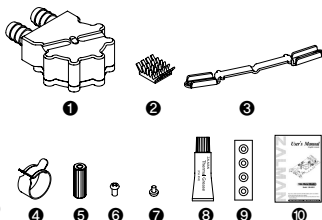**http://www.zalman.co.kr   http://www.zalmanusa.com**

1. Features

1) Pure aluminum base material is light-weight and ensures optimal heat dissipation.
2) Anodizing and surface coating prevents galvanic corrosion.
3) Included VGA RAM Heatsinks cool VGA RAM, complementing VGA chipset cooling.

2. Specifications

1) Weight : 60g (Water Block only)
2) Material : Pure Aluminum (Anodized)
3) Dimensions : 63(L) x 45(W) x 20(H)mm
4) Compatible Tubes (Outer x Inner) : 13 x 10 mm, 13 x 9 mm, 12 x 8 mm, 11 x 8 mm, 10 x 8 mm

3. Components

1) Water Block
2) Eight (8) RAM Heatsinks
3) One (1) Clip
4) Two (2) Tube Clamps
5) Two (2) Nipples
6) Two (2) Bolt A($\phi 3 \times 5$mm)
7) Two (2) Bolt B($\phi 2.3 \times 6$mm)
8) One (1) Thermal Grease
9) Four (4) Washers
10) User's Manual(in English and Korea)

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❹ ❺ ❻ ❼ ❽ ❾ ❿

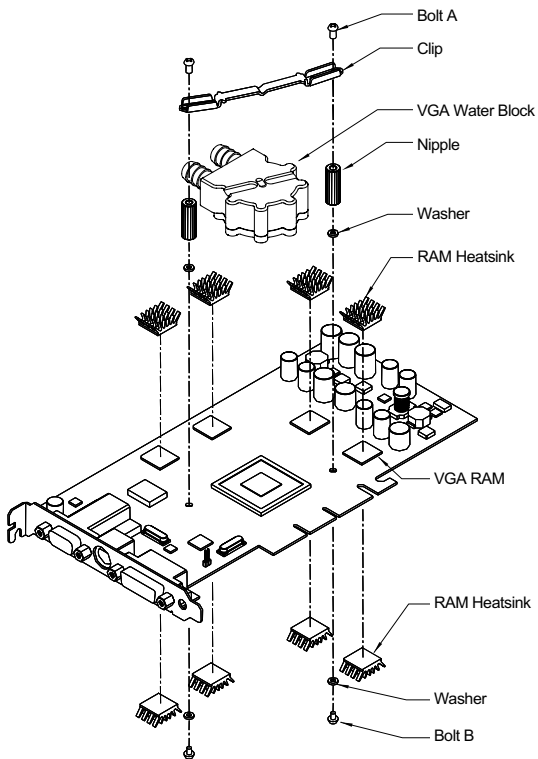## Precautions

1) Test the product for leakage before installation away from the system first.
   After no leakage is confirmed, proceed with installation and use.
2) To prevent corrosion, only use coolant that has been approved for computer water-cooling.
3) Only use coolant tubes with compatible specifications.
4) The exposed core of a VGA chipset can be damaged due to improper installation.
   Please read the "Installation Procedure" section thoroughly before installing.
5) If interference with components of the VGA card is encountered, do not install this product.
6) Keep this product and its associated system away from children.

Disclaimer

Zalman Tech Co., Ltd. is not responsible for any damages due to external causes, including
but not limited to, improper use, problems with electrical power, accident, neglect, alteration,
repair, improper installation, or improper testing.

Bolt A

Clip

VGA Water Block

Nipple

Washer

RAM Heatsink

VGA RAM

RAM Heatsink

Washer

Bolt B

5. Components

1) Attaching the VGA RAM Heatsinks

Remove the film from the Thermal Tapes on the bottom of the RAM Heatsinks and attach the Heatsinks on the VGA RAM.

Note 1) If thermal grease or other residue remains on the RAM, the Thermal Tapes will not stick.
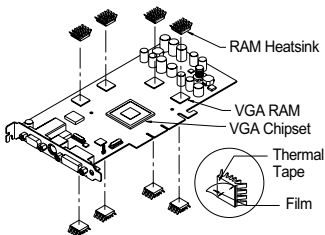Clean the surface of the RAM with acetone or alcohol before attaching.

Note 2) The bonding strength of the Thermal Tape reaches 90% after 24 hours of curing.
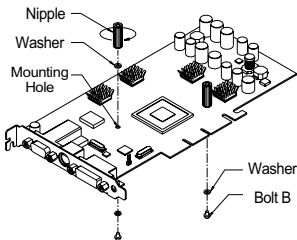Do not put excessive force on the RAM Heatsinks during this period.

Note 3) Thermal Tapes lose adhesiveness after it has been used for attachment once and cannot be reused.
Purchase Thermal Tapes separately for future reattachments.

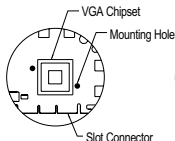RAM Heatsink

VGA RAM

VGA Chipset

Thermal Tape

Film

2) Installing the Nipples

As shown in the diagram, install the Nipple and Bolt B on the Mounting Hole with a Washer in between on both sides of the VGA card. Use only the supplied Washers. Make sure to check the VGA card's correct Nipple installation hole position to install properly.
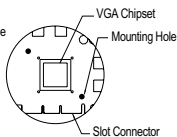
Nipple

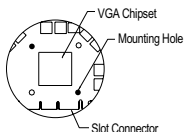Washer

Mounting Hole

Washer

Bolt B

The Nipples must be installed through the mounting holes indicated with black holes (●) as shown in the diagram.

ATI Radeon 9 ✳✳✳ Series
ATI Radeon X ✳✳✳ Series
NVIDIA Geforce4 MX Series
NVIDIA Geforce FX 5200
NVIDIA Geforce FX 5500
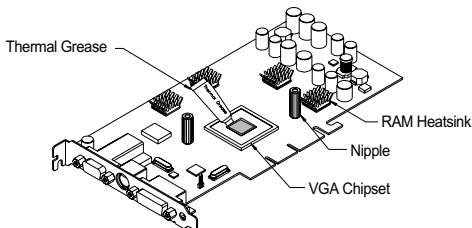NVIDIA Geforce FX 5600(FX 5700)

NVIDIA Geforce4 Ti 4 ✳✳✳ Series
NVIDIA Geforce FX 5700(Ultra) Series
NVIDIA Geforce FX 5800 Series
NVIDIA Geforce FX 5900 Series
NVIDIA Geforce FX 5950 Series
NVIDIA Geforce 6600 Series (PCIe)

NVIDIA Geforce 6800 LE Series
NVIDIA Geforce 6800 Series
NVIDIA Geforce 6800 GT Series
NVIDIA Geforce 6800 Ultra Series
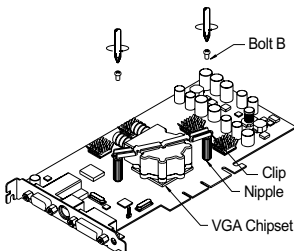NVIDIA Geforce 6800 Ultra Extreme

3) Applying Thermal Grease

Clean the contact surface of the VGA chipset. Apply thermal grease on the VGA chipset (for exposed core chipsets), only on the core that makes contact with the base of the VGA Water Block.
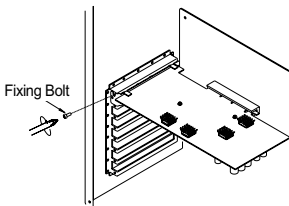
4) Installing the VGA Water Block

Place the VGA Water Block and the clip on the center of the VGA chipset. Screw each bolt B on each nipple slightly, and tighten each bolt B a few turns at a time while alternating between the two until the Clip ends are completely pressed against the Nipples.

Notes) Make sure that the Water Block's base and the VGA Chipset are completely in contact with each other.

Bolt B

Clip
Nipple

VGA Chipset

5) Installing the VGA Card

Insert the assembled VGA card into the motherboard's AGP (or PCIe) slot. Use the Fixing Bolt to fix the VGA card on to the computer case. If the VGA card has an on-board power connector, remember to plug in the power cable.
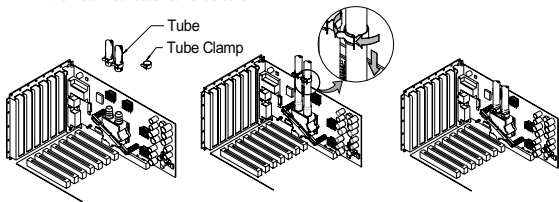
6) Installing the Tubes and the Tube Clamps

Plug the tubes over the VGA Water Block's fittings and install the Tube Clamps.

Note 1) Use a proper tool (e.g. cutting nipper) when installing the Tube Clamps.

Note 2) Hold the VGA Water Block with one hand while installing the Tube Clamps so that the Water Block does not move around.

Fixing Bolt

Tube
Tube Clamp

6. Zalman Noise Prevention System

When building a noiseless computer, use Zalman's CPU Water Block, Northbridge Water Block, Noiseless Power Supply, Noiseless Case Fan, Heatpipe HDD Cooler, and Fan Controller for stable performance and a noiseless Water-Cooled system.

CPU Water Block

Noiseless Power Supply

Heatpipe HDD Cooler

Northbridge Water Block

Noiseless Case Fan

Fan Controller

7. TNN (Totally No Noise) Computer Enclosure

The TNN 500AF is the world's first absolutely **noiseless, anti-dust computer case** for high-end systems that has been developed with Heatpipe Technology, HSC (Heat Source Contact) Power Technology, High Capacity Extrusion Technique, and FMS (Flexible Mounting Structure) Design Technology by ZALMAN Tech Co., Ltd.

The TNN 500AF package includes a high performance aluminum computer case with an absolutely noiseless cooling solution that does not require the use of a fan, making it ideal for:

1. **Digital Audio Workstations (DAW)** in broadcasting, recording, and postproduction studio control rooms.
2. **Multi Media & Storage Servers** for offices, educational facilities, and hotels.
3. **Home Theater and Multi-Media Systems** for living rooms.
4. **High Performance Noiseless Workstations & Servers** for SOHO (Small Office Home Office) systems.

For more information, please visit our website.