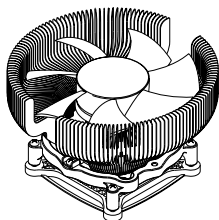


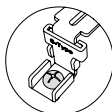
User's Manual

(English version)

CNPS7700

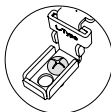


Intel Pentium 4
Socket 775 CPU

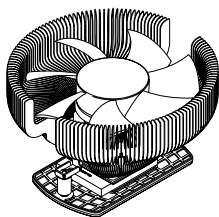
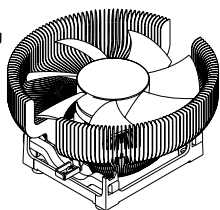


Grip (S-Type)

Intel Pentium 4
Socket 478 CPU



Grip (L-Type)
Inner Hole



AMD Sempron/AMD64 (Athlon 64/Opteron)
Socket 754/939/940 CPU



Grip (L-Type)
Outer Hole

* Applies to all versions of CNPS7700 LED.

* Please read before installation.

1. Features

- 1) Does not generate noise or vibration in Silent Mode.
- 2) Pure copper and/or pure aluminum base materials ensure excellent heat dissipation.
- 3) Intel Pentium 4 (Socket 775), Intel Pentium 4 (Socket 478), and AMD Sempron / AMD64 (Socket 754/939/940) compatible design for broad compatibility.
- 4) The large 120mm fan inside the FHS maximizes cooling performance by providing sufficient airflow even at slow rotation speeds.
- 5) The large 120mm fan provides air flow over a large area, cooling not only the CPU, but the VGA card, Northbridge, FET, and RAM.
- 6) The high intensity blue LEDs on CNPS7700 LED coolers stay bright even in Silent Mode.
- 7) The adjustable fan speed controller (FAM MATE 2) enables control of noise and fan performance.

2. Specifications

1) Flower Heatsink (FHS)

Spec.		Model	CNPS7700-AICu	CNPS7700-Cu
Weight (g)			600 ⁽¹⁾	918 ⁽¹⁾
T.R. (°C/W)	Silent Mode		0.28	0.24
	Normal Mode		0.21	0.19
Dimensions (mm)			136 (L) X 136 (W) X 67 (H)	
Dissipation Area (cm ²)			3,268	

2) Fan

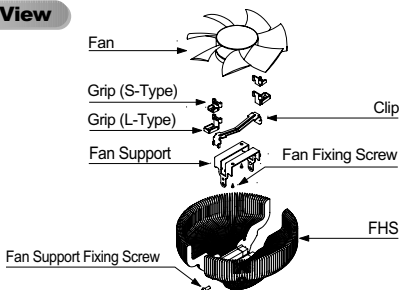
- Bearing Type : 2-Ball
- Rotation Speed : 1,000 ~ 1,400rpm \pm 10% (Silent Mode)
1,400 ~ 2,000rpm \pm 10% (Low-noise Mode)
- Noise Level : 20 ~ 25dB \pm 10% (Silent Mode) - measured at 1m distance from noise source
25 ~ 32dB \pm 10% (Low-noise Mode) - measured at 1m distance from noise source

3) FAN MATE 2

- Output Voltage : 5V ~ 11V \pm 2%
- Allowable Power : 6W or lower

Note 1) The maximum weight for a cooler is specified as 450g for Intel Socket 775/478 and AMD Socket 754/939/940. Special care should be taken when moving a computer equipped with a cooler which exceeds the relevant weight limit. Zalman is not responsible for any damage that occurs when moving a computer.

3. Exploded View



4. Patents

- ❖ Korean Patent Application No. 00-54635
- ❖ Korean Design Applications Nos. 04-16030 etc.
- ❖ Patent Applications pending in over 20 nations around the world, including USA, EU, and Japan

Precautions

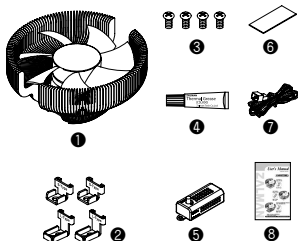
- 1) If excessive force is exerted on the fan, it may malfunction and result in damage to the product and/or the computer.
- 2) Do not put your finger in the fan while it is running.
- 3) Keep the product away from children.
- 4) Check the components list and condition of the product before installing. If there is any problem, contact the shop where you purchased it and get a replacement or refund.

NOTICE) 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.

5. Components

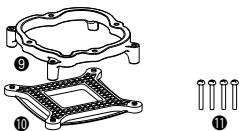
1) Common Components

- 1 FHS Assembly (CNPS7700-AICu/Cu)
- 2 Four (4) Grips (2 each for S-Type and L-Type)
- 3 Four (4) Bolts (for installing the FHS)
- 4 Thermal Grease
- 5 Fan Speed Controller (FAN MATE 2)
- 6 Double - sided Tape (for installing FAN MATE 2)
- 7 Cable for FAN MATE 2
- 8 User's Manual (in English and Korean)



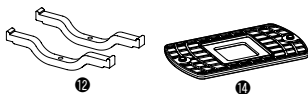
2) Components for Intel Pentium 4 (Socket 775)

- 9 One (1) Clip Support for Socket 775
- 10 One (1) Backplate for Socket 775
- 11 Four (4) Clip Support Fixing Bolts



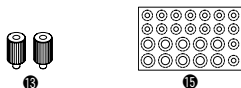
3) Components for Intel Pentium 4 (Socket 478)

- 12 Two (2) Clip Supports for Socket 478



4) Components for AMD Sempron / AMD64 (Socket 754/939/940)

- 13 Two (2) Nipples
- 14 One (1) Backplate for AMD64
- 15 One (1) set of Washers



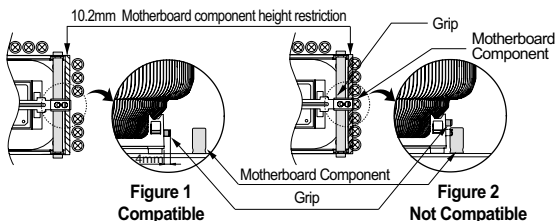
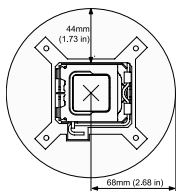
6. Compatible CPUs

1) Intel Pentium 4 - Socket 775/478

All CPUs conforming to Socket 775/478 platform

Cautions)

- ① No components higher than 39mm (possible examples : PSU, graphics card, RAM etc.) should be present within a 68mm radius from the center of the CPU.
- ② For Socket 478, as shown in Figure 2, a motherboard that is not compliant with the "10.2mm Motherboard component height restriction" standard, introduced by Intel, may create interference between components and the grip of CNPS7700. Please do not install the CNPS7700 if this interference is observed.



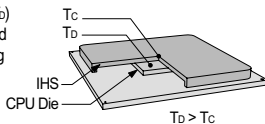
- ③ For more information, please visit the Zalman website (<http://www.zalman.co.kr>) and click on the links of "CNPS7700 Compatible Socket 775 Motherboards List" and "Compatibility between CNPS7700 and Socket 478 Pentium 4 Motherboards".

Notes)

3.4GHz Northwood, Prescott-478 of 2.8A/E GHz or higher, and Prescott-775 of up to model 560 dissipate an exorbitant amount of heat (84W ~ 115W). Refer to the table below and adjust the fan speed so that the CPU-Case temperature (T_c) is lower than the maximum CPU-Case temperature (T_{c_MAX}).

CPU	Northwood	Prescott - 478		Prescott - 775	
	3.4	2.8A/E, 3.0E	3.2E, 3.4E	520, 530, 540	550, 560
T_{c_MAX}	68 °C	69.1 °C	73.2 °C	67.7 °C	72.7 °C

- ※ Hardware monitoring programs report CPU-Die temperature (T_D) as the CPU temperature. CPU-Die temperature (T_D) is measured about 4 ~ 10 °C higher than CPU-Case temperature (T_c) depending on the motherboard and/or BIOS. Refer to the Zalman website for more information.

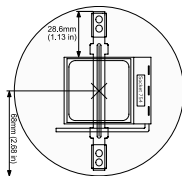


2) AMD Sempron / AMD64 - Socket 754/939/940

All CPUs conforming to Socket 754/939/940 platform

Cautions)

- ① No components higher than 39mm (possible examples: PSU, graphics card, RAM etc.) should be present within a 68mm radius from the center of the CPU.
- ② For more information, please visit the Zalman website (<http://www.zalman.co.kr>) and refer to "CNPS7700 Compatible Socket 754/939/940 Motherboards List" link.



7. Installation

- ※ CNPS7700 must be used with a grip specific to each CPU socket. Refer to the table on the right to choose the correct grip for use.

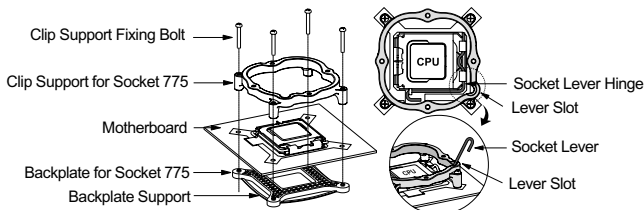
Socket	Grip	Hole
775	S - Type	Hole
478	L - Type	Inner Hole
754/939/940	L - Type	Outer Hole

1) Intel Pentium 4 - Socket 775

① Install Clip Support for Socket 775

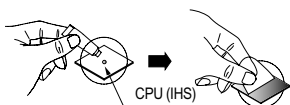
Align the clip support for socket 775 and the backplate for socket 775 with the mounting holes on the motherboard and fasten them together using the clip support fixing bolts. The lever slot on the clip support should be properly oriented on the hinged side of the socket lever when installing.

- * The backplate support is used for the convenience of installation. You can remove it if it is not deemed necessary.



② Apply Thermal Grease

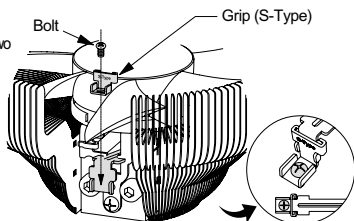
Clean off particles and residue from the top of the CPU then spread a generous amount of the included thermal grease thoroughly on top of the CPU.



- ※ Unlike the flat-milled base of the FHS, the top surface of the LGA775 CPU may have minute dips and peaks causing pockets of non-contact between the FHS and CPU. Please apply a generous amount of thermal grease on the top of the CPU.

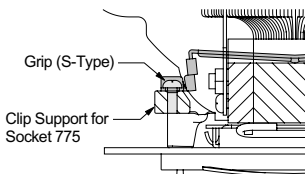
③ Install Grips and Bolts

Interlock the S-type grips with the clip. Insert the two bolts into the holes of the grips.



④ Place FHS

Set the FHS at the center of the CPU. Screw the bolts in slightly, then tighten each bolt a few turns at a time while alternating between the two until the clip support is completely pressed against the grips.



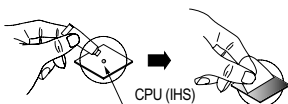
⑤ Connect Power (How to use FAN MATE 2)

- ◆ Please refer to FAN MATE 2 Installation and Usage on page 7.

2) Intel Pentium 4 - 478

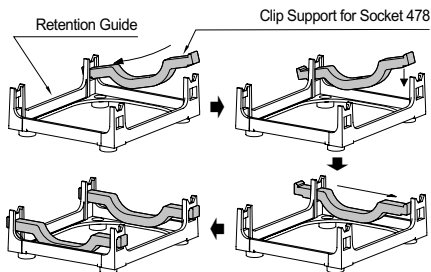
① Apply Thermal Grease

Clean off particles and residue from the top of the CPU then spread a thin layer of the included thermal grease thoroughly on top of the CPU.



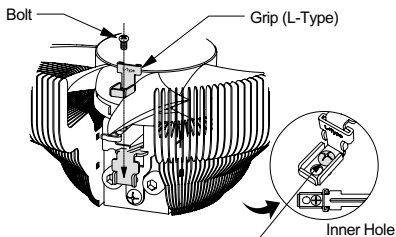
② Install Clip Supports for Socket 478

Install the clip supports for socket 478 on both sides of the retention guide as shown in the diagram.



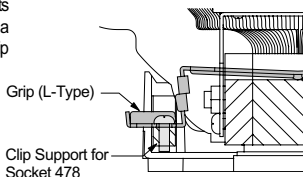
③ Install Grips and Bolts

Interlock the L-type grips with the clip. Insert the two bolts into the inner holes of the grips.



④ Place FHS

Set the FHS at the center of the CPU. Screw the bolts in slightly, and then tighten each bolt a few turns at a time while alternating between the two until the clip supports are completely pressed against the grips.



⑤ Connect Power (How to use FAN MATE 2)

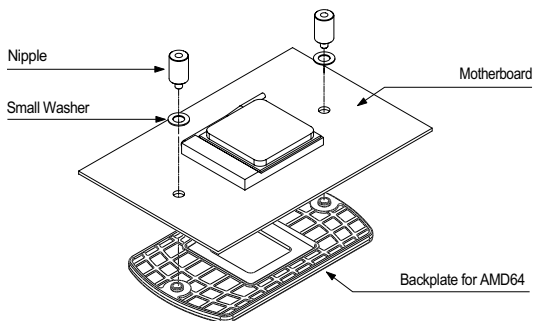
◆ Please refer to FAN MATE 2 Installation and Usage on page 7.

3) AMD Sempron/AMD64 - 754/939/940

① Fasten Nipples

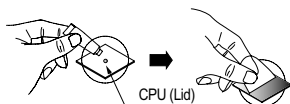
Place a small washer on the motherboard. Then, put a nipple over it and fasten the nipple until the Backplate for AMD64 is firmly attached to the motherboard on the opposite side of the CPU.

* A Retention Guide is not necessary for installing CNPS7700 on Socket 754/939/940.



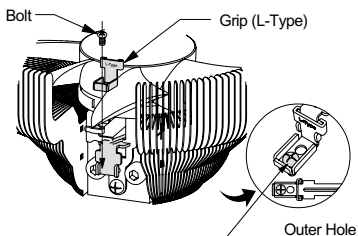
② Apply Thermal Grease

Clean off particles and residue from the top of the CPU then spread a thin layer of the included thermal grease thoroughly on top of the CPU.



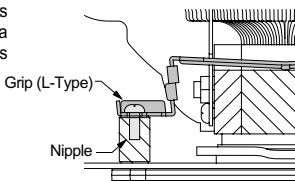
③ Install Grips and Bolts

Interlock the L-Type grips with the clip. Insert the two bolts into the outer holes of the grips.



④ Place FHS

Set the FHS at the center of the CPU. Screw the bolts in slightly, and then tighten each bolt a few turns at a time while alternating between the two until the nipples are completely pressed against the grips.

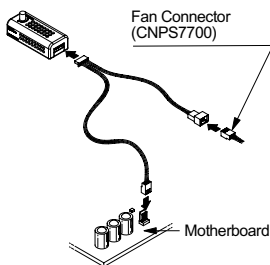


⑤ Connect Power (How to use FAN MATE 2)

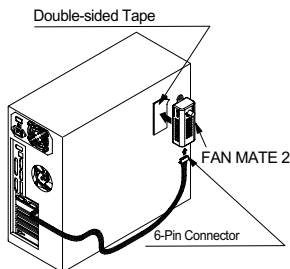
◆ Please refer to FAN MATE 2 Installation and Usage on page 7.

※ FAN MATE 2 Installation and Usage

- 1) Installing FAN MATE 2 on the Inside of the System 2) Installing FAN MATE 2 on the Outside of the System



Connect the appropriate 3-pin connector on the cable to the motherboard fan header and the CNPS7700's fan connector.



Pull the 6-pin connector out of the system through the back and connect it to FAN MATE 2, which should be installed on the case using the included double-sided tape.

- ◆ When the speed control knob on FAN MATE 2 is turned fully counter-clockwise, the fan operates in Silent Mode. Turned fully clockwise, it operates in Normal Mode. You can select the desired fan speed by turning the knob.

Note) FAN MATE 2 has been specifically designed for the fan of this product. Zalman Tech Co., Ltd. is not responsible for any damage to systems or CPUs caused by using it with other types of fans.

8. Notes on Usage

1) Checking CPU Compatibility

Please refer to "Compatible CPUs" on page 3 to confirm that your CPU is compatible before using the CPU cooler.

2) Cautions During Booting

When booting the computer, it may automatically power down after an alarm sound by a system monitoring program to indicate that the CPU fan is rotating slowly. If this happens, turn the speed control knob fully clockwise to increase the fan speed. Then set 'CPU Fan Detected' to 'Disabled' in BIOS settings, or set the slowest rotational speed of the CPU fan in the system monitoring program to less than or equal to 900rpm.

Note) Some motherboards do not boot if the rotational speed of the CPU fan is below a certain rpm. If the BIOS settings are updated, Silent Mode can be used. For more information on updating your BIOS, please refer to your motherboard manufacturer's website. Disabling CPU fan speed detection in BIOS settings does not affect computer performance.

3) OVERCLOCKING

The fan should be set to Normal Mode if OVERCLOCKING.

(Zalman Tech Co., Ltd. is not responsible for any damage resulting from CPU OVERCLOCKING.)

9. Zalman Noise Prevention System

When building a noiseless computer, use Zalman's Noiseless Power Supply, Noiseless Case Fan, Fanless Northbridge Cooler, Heatpipe HDD Cooler, Heatpipe VGA Cooler, and Fan Controller to achieve stable performance and maintain a noiseless environment.



Noiseless Power Supply



Fanless Northbridge Cooler



Heatpipe HDD Cooler



Noiseless Case Fan



Heatpipe VGA Cooler



Fan Controller

10. TNN (Totally No Noise) Computer Case



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 the Zalman website at www.zalman.co.kr