

HOME THEATRE PC ENCLOSURE HD135

User's Manual



Ver. 1.0



ZALMAN

English

- ◆ Please read this manual thoroughly before installation.
- ◆ Visit our website and watch the HD135 installation video first to assist you in the installation process.

E-mail: zalman@zalman.co.kr

www.zalman.co.kr

www.zalmanusa.com

■ **Introduction**

Congratulations on your purchase of Zalman's HD135 Home Theatre PC Enclosure! You are now about to experience Zalman's world of silent computing. The HD135 is designed for ultra quiet home theatre PC operation, utilizing optimized ventilation and anti-vibration reinforcements, making it ideal for environments that require silence such as living rooms, bedrooms, educational facilities, and offices.

■ **Contents**

1. Safety Notices	3
2. Design	3
3. Components	4
4. Features	5
5. Specifications	7
6. Installation Guide	8
7. Recommended Use	16
8. Technical Information	18
9. Zalman Enclosures	19
10. Trademarks and Copyright Notice	19

1. Safety Notices

- 1) Avoid inserting finger or any objects into the system while the power is ON. It may harm the user or cause product damage.
- 2) Make sure to check the manual when connecting the cable. Improper connection can cause fire resulting from short circuit.
- 3) Always shut down the operating system and switch the power to OFF before disassembling.
- 4) The air vents on four sides of the unit must not be blocked.
- 5) Use in a flat, stable, and well-ventilated area.
- 6) Keep this unit away from heat sources and direct sunlight.
- 7) If this unit is to be transported a long distance, then place it in the original packaging box or a custom made hard case.
- 8) Do not drop or expose this unit to shock while it is in transit.
- 9) Check the condition of the unit and its components before installation. If there is a problem with the unit and/or its components, please contact the retailer for a replacement.

◆ 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.

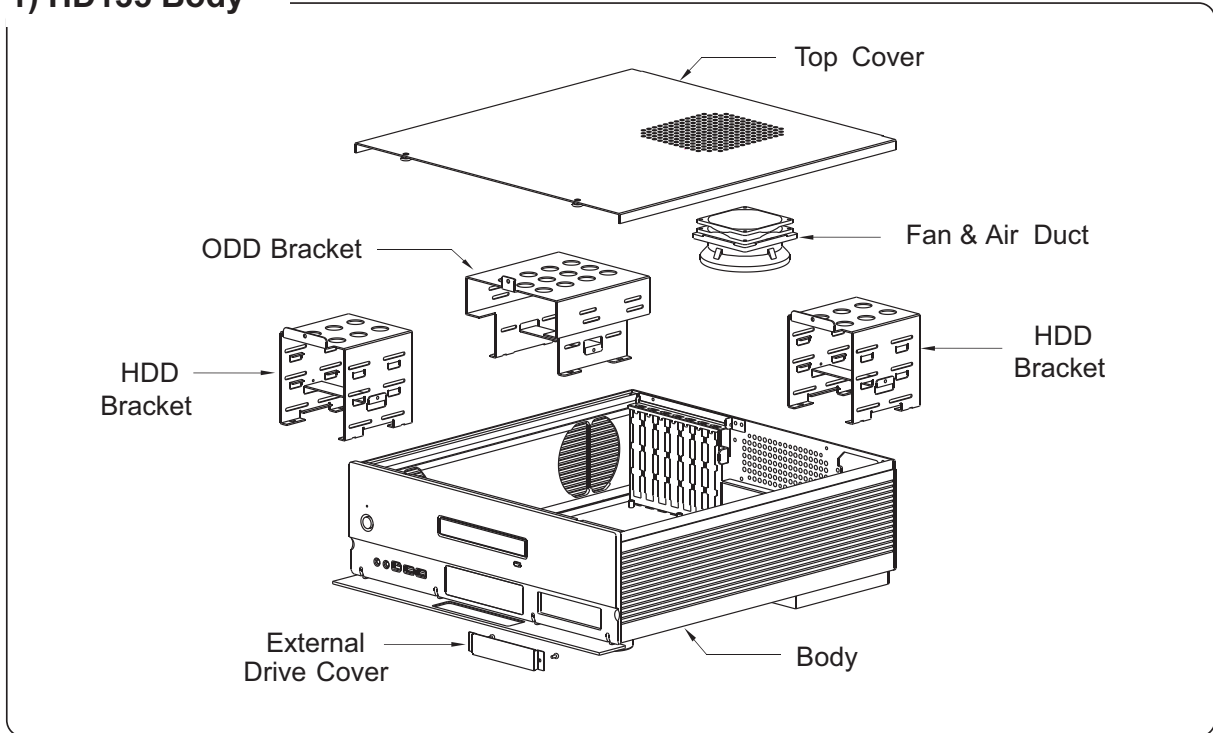
2. Design

Korean Design Application No. 06-0020894

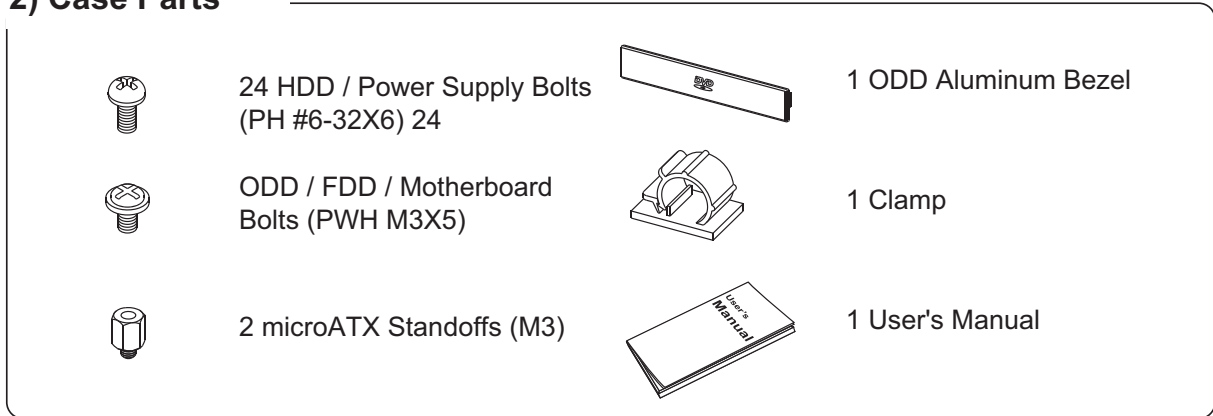
International design applications pending in the EU, USA, Japan, and 30+ other countries.

3. Components

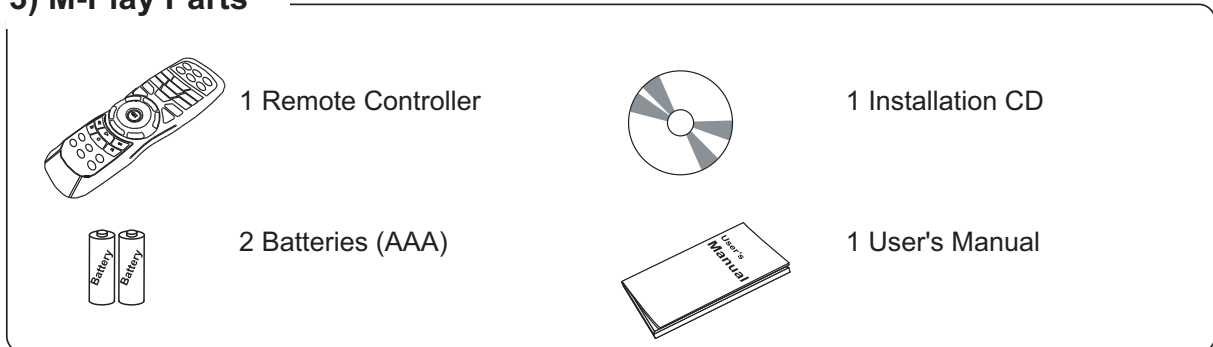
1) HD135 Body



2) Case Parts

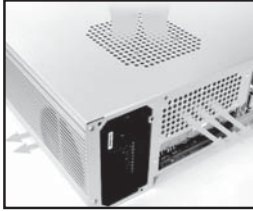


3) M-Play Parts



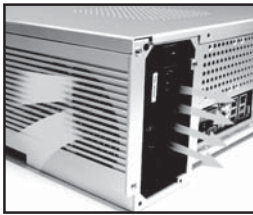
4. Features

1) Optimized Design for Silence



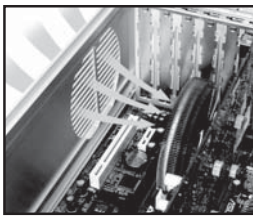
A. Designed for High TDP Processors:

Air Duct and two Fans allow quiet cooling of up to 130W TDP CPU processors (Intel Pentium D 830, 840, 940, 950, 960 etc.).



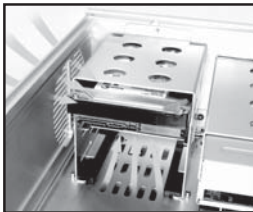
B. Designed for High Performance Power Supply:

Air Vents allow cold air intake from outside the PC directly into the Power Supply to minimize its noise level and to achieve highest possible efficiency.



C. Designed for VGA Cards:

Air Vents around the VGA card allow optimal operation of VGA card by offering maximum cooling capability.



D. Designed for Hard Disks:

Air Vents located on the bottom and sides of the HDD Bracket allow efficient release of heat generated by the hard disks.

2) Elegant Design



A. Pure aluminum surface provides an elegant addition to other Home Theatre and A/V equipments.



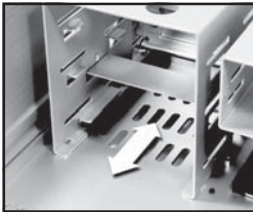
B. VFD installed on the front panel of the enclosure provides the user with various information such as the operating software status, time display when the power is OFF, and fan speed.

3) Diverse Functions and Accommodations

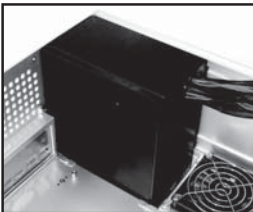
A. Microsoft MCE-compatible remote control and multimedia software are provided. This enables the user to easily control the PC and execute various multimedia software.



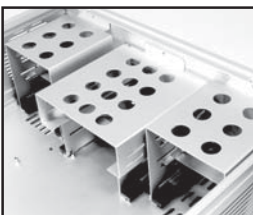
B. USB2.0 ports on the front panel and the IEEE1394 (Firewire) I/O Port allows easy access to connections. A headphone and microphone can also be conveniently connected to the audio ports in the front.



C. Sliding-type HDD and ODD Brackets provide easy installation/removal.

4) Excellent Expandability

A. Six 3.5" bays and one 5.25" bay provide the user with maximum expandability compared to other enclosures of identical size.



B. Accommodation for ATX/ATX 12V power supplies despite the unit's height being identical to that of a common audio device.

5) Ideal Home Theatre PC

A quiet and stable Home Theatre PC can be assembled when used with Zalman's CPU Cooler, VGA Cooler, Power Supply, and Northbridge Cooler (CNPS8000, VF700, VF900, ZM460B-APS, ZM-NBF47 etc.).

5. Specifications

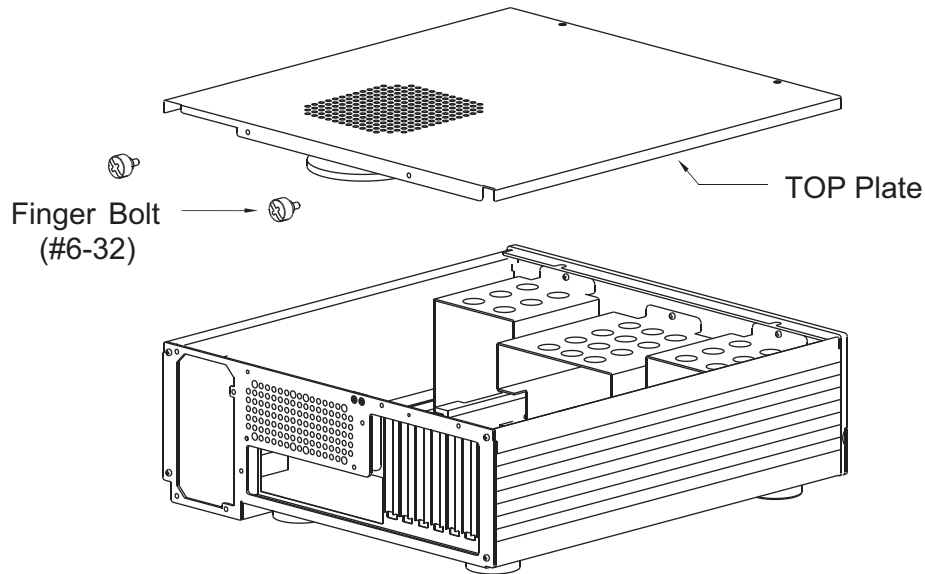


- Enclosure Type - Desktop
- Dimensions (LXWXH) - 435mm X 425mm X 135mm
(17.1inch X 16.7inch X 5.31inch)
- Weight - 5.2kg (11.5lb)
- Material - Aluminum
- Motherboard Compatibility - ATX / microATX
- Power Supply Support - ATX / ATX 12V
- PCI/AGP Card Support - Full Size
- Drive Bays - 5 X 3.5" Internal Drive Bays
- 1 X 3.5" External Drive Bay
- 1 X 5.25" External Drive Bay
- Cooling Components - 1 X 80mm Exhaust Fan
- 1 X 80mm Inflow Fan and Air Duct
- Expansion Slots - 7 Slots
- Front I/O Ports - 2 X USB Ports
- 1 X IEEE1394(Firewire) Port
- 1 X MIC
- 1 X Headphone
- Available Colors - Silver / Black
- Display Type - VFD (Vacuum Fluorescent Display)

6. Installation Guide

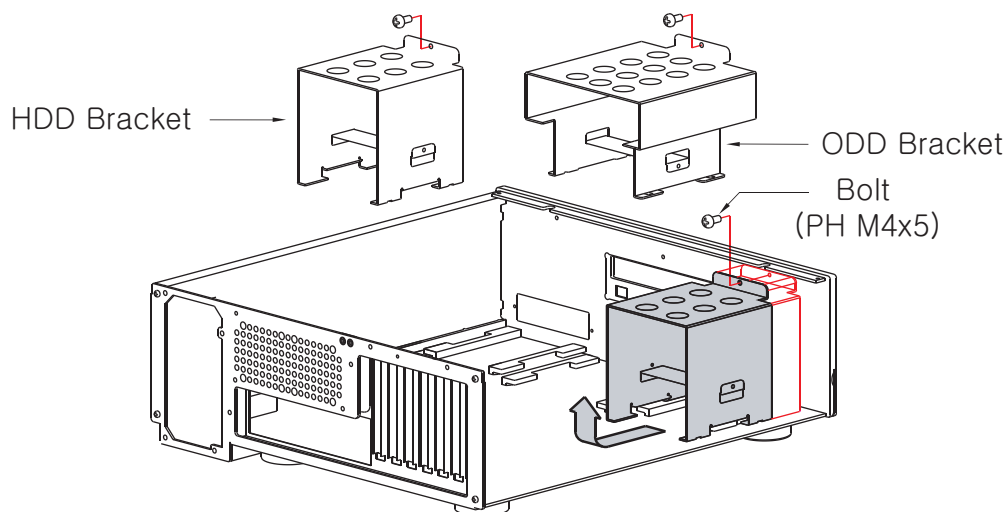
1) Opening the Enclosure

To remove the lid of the enclosure, unscrew the two Bolts (Finger Bolt, #6-32) and slide backwards and lift the Top Plate as shown in the figure below.



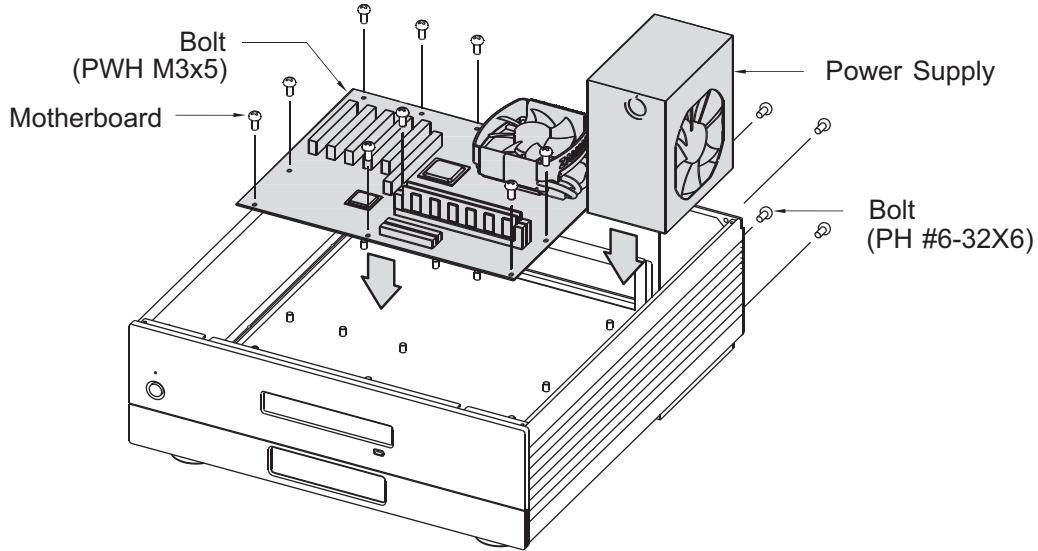
2) Removing the ODD and HDD Brackets

Remove the Fixing Bolts (Bolt, PH M4x5), and push the ODD and HDD Brackets towards the back of the enclosure by approximately 15mm(0.6inch). Now lift the Brackets.



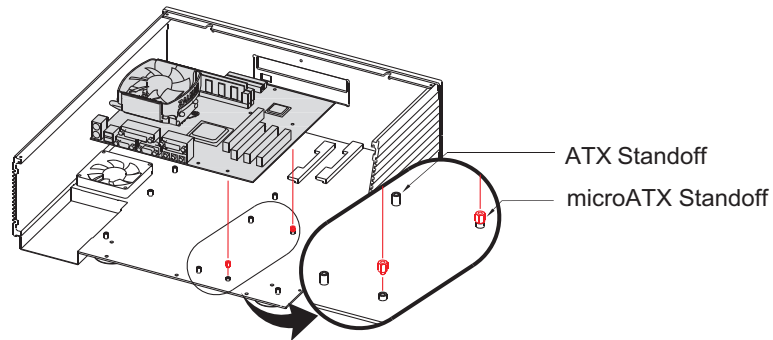
3) Assembling the Motherboard and Power Supply

Mount the motherboard and power supply by using appropriate bolts. Mount the computer components (CPU, VGA, RAM etc.) onto the motherboard.

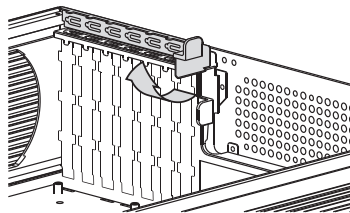


Note)

1. To mount a microATX motherboard, first attach the two provided microATX Standoffs and align them with the height of the ATX Standoffs.

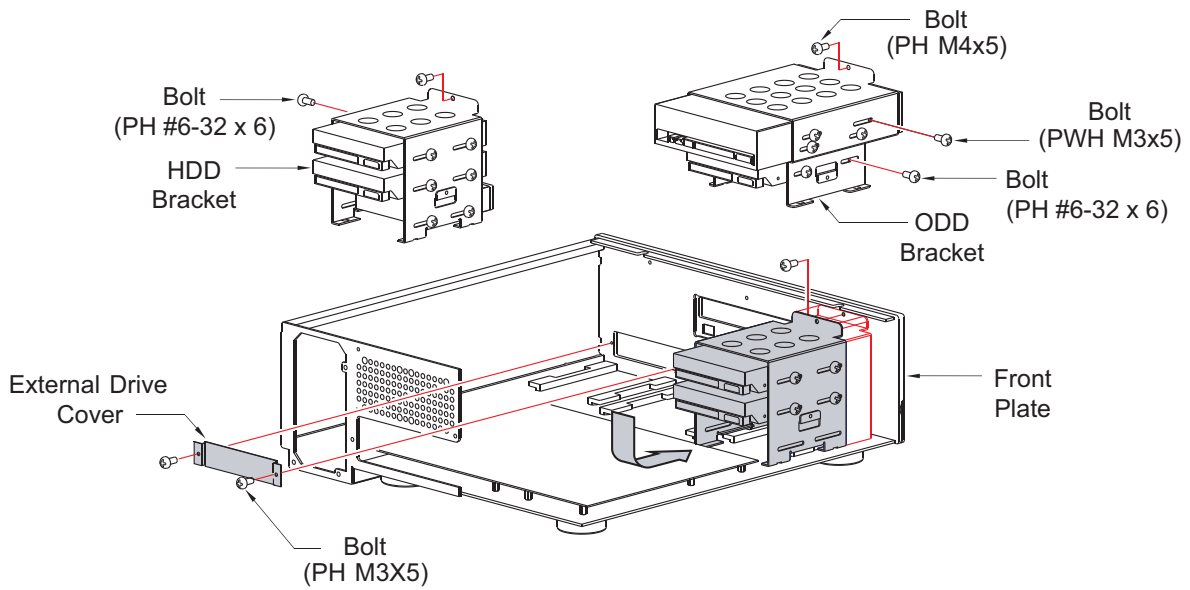


2. Rotational direction of the PCI Card Fixing Bracket



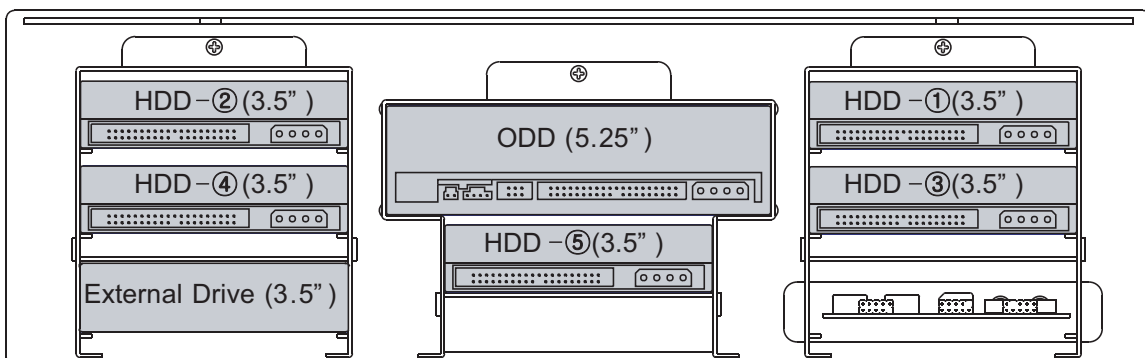
4) Installing 5.25" and 3.5" Drives

- (1) To install the FDD and Card Reader onto HDD Bracket, the External Drive Cover assembled on the Front Plate must first be removed.
- (2) Attach the 5.25" drive (ODD) and 3.5" drive (HDD, FDD, Card Reader) onto the ODD and HDD Brackets with the use of appropriate Bolts.
- (3) Push the ODD and HDD Brackets into the enclosure, and install them onto the Front Plate with the use of Fixing Bolts (Bolt, M4x5).



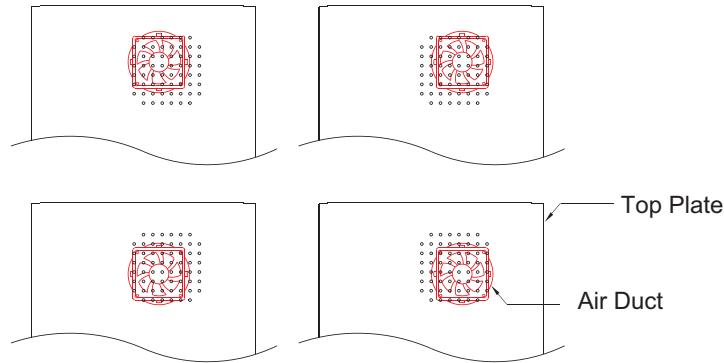
Note)

This product is provided with one 5.25' bay and six 3.5' bays.
 For optimal HDD cooling, install in the order mentioned in the diagram below.



5) Deciding on Air Duct Location

Install the Air Duct connected to the Top Plate right above the CPU cooler for optimal CPU cooling.



Note)

CPU cooler performance will drastically decrease if the installation is made without the Air Duct. Also minimize the distance between the Air Duct and the CPU cooler by adjusting the length of the Air Duct.

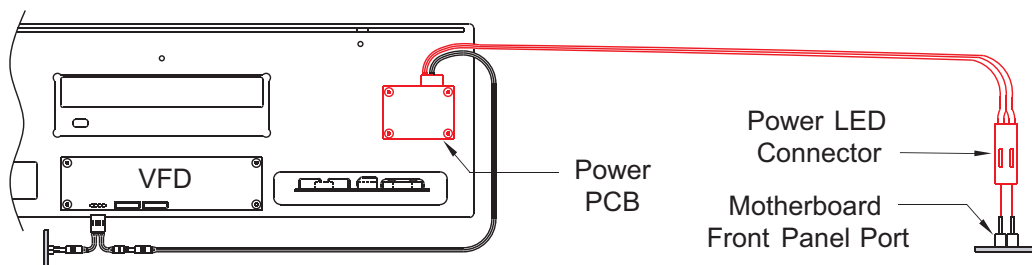
6) Connecting the Cables

(1) Power and Data Transmission Cables

Connect the Power and Data Transmission cables (IDE or SATA) required for the HDD, ODD, FDD, VGA etc.

(2) Power LED Cable

Connect the Power LED Connector (2-Pin or 3-Pin) connected to the Power PCB to the motherboard's Front Panel Port (refer to the motherboard manual).

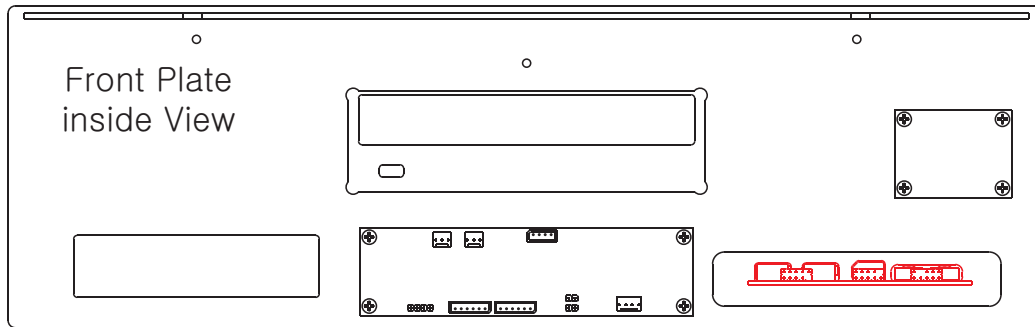


Note)

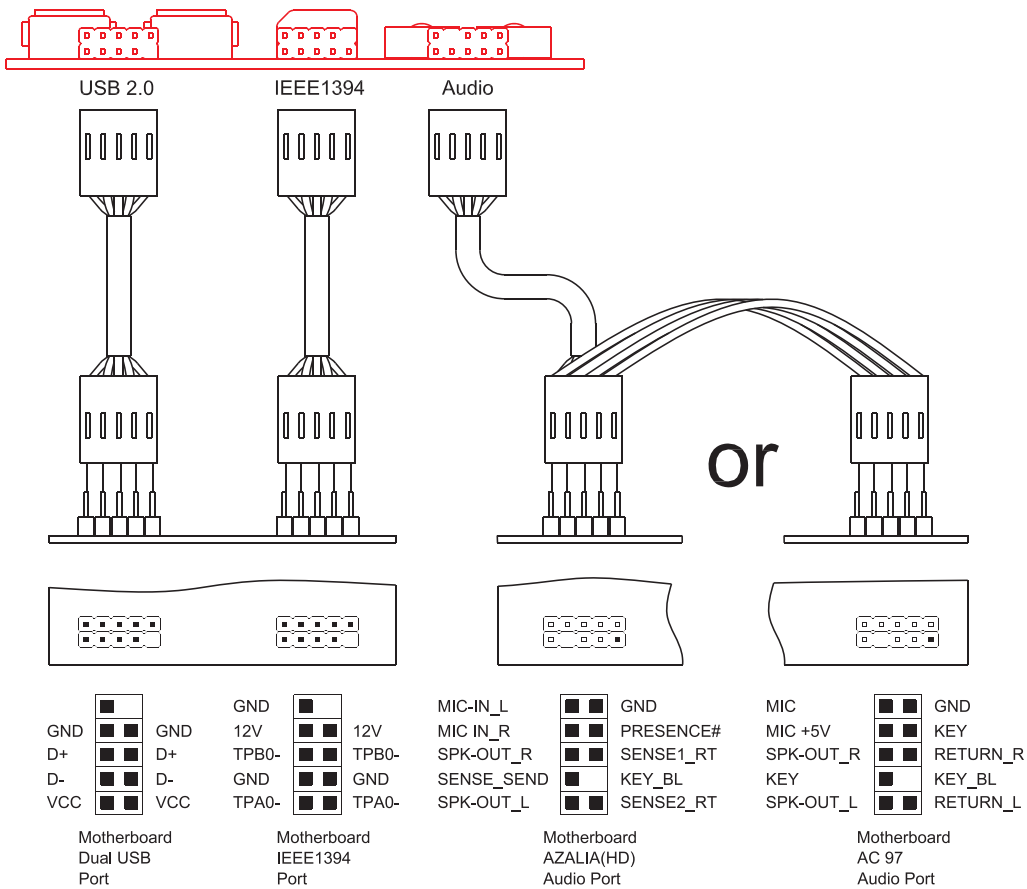
The Case Power SW Connector of the Power PCB is already connected to the VFD as shown in the picture.

(3) Front I/O Cable

Connect the USB Cable, 1394(Fire Wire) Cable, and Audio Cable to the motherboard as explained in the motherboard manual.

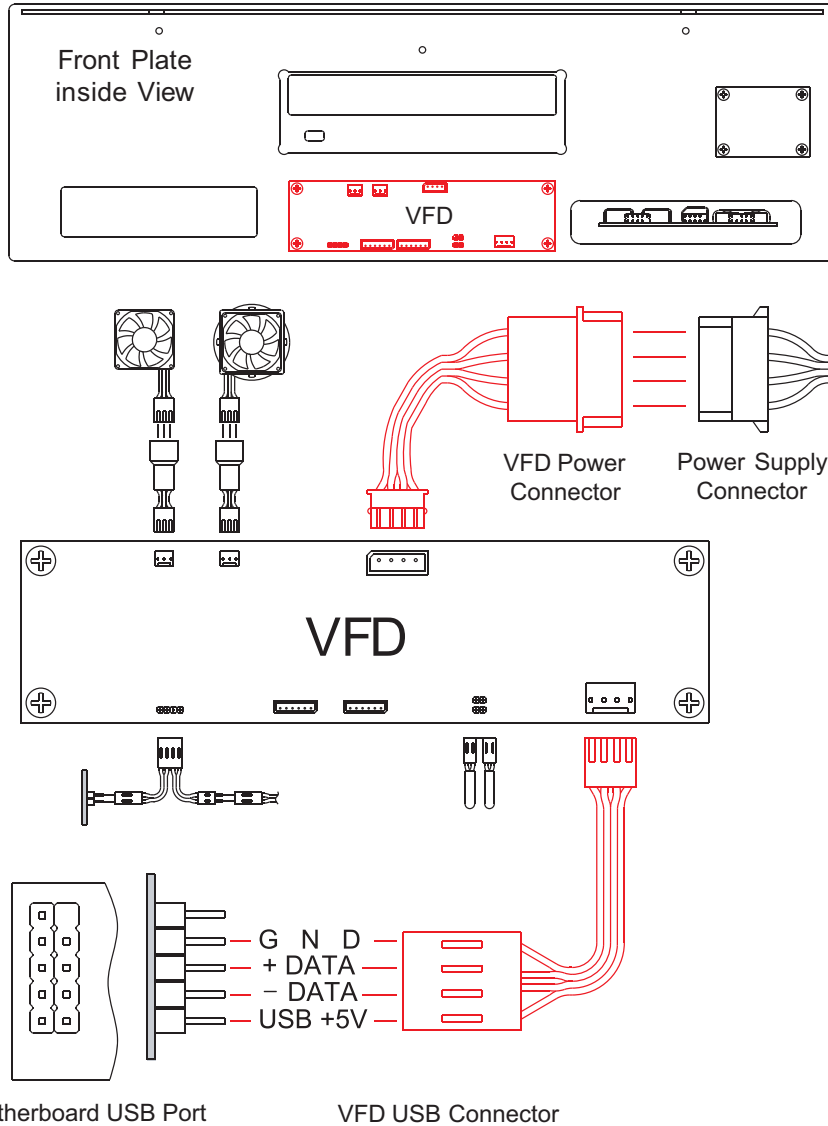


Front I/O Port



(4) VFD Multi-Cable

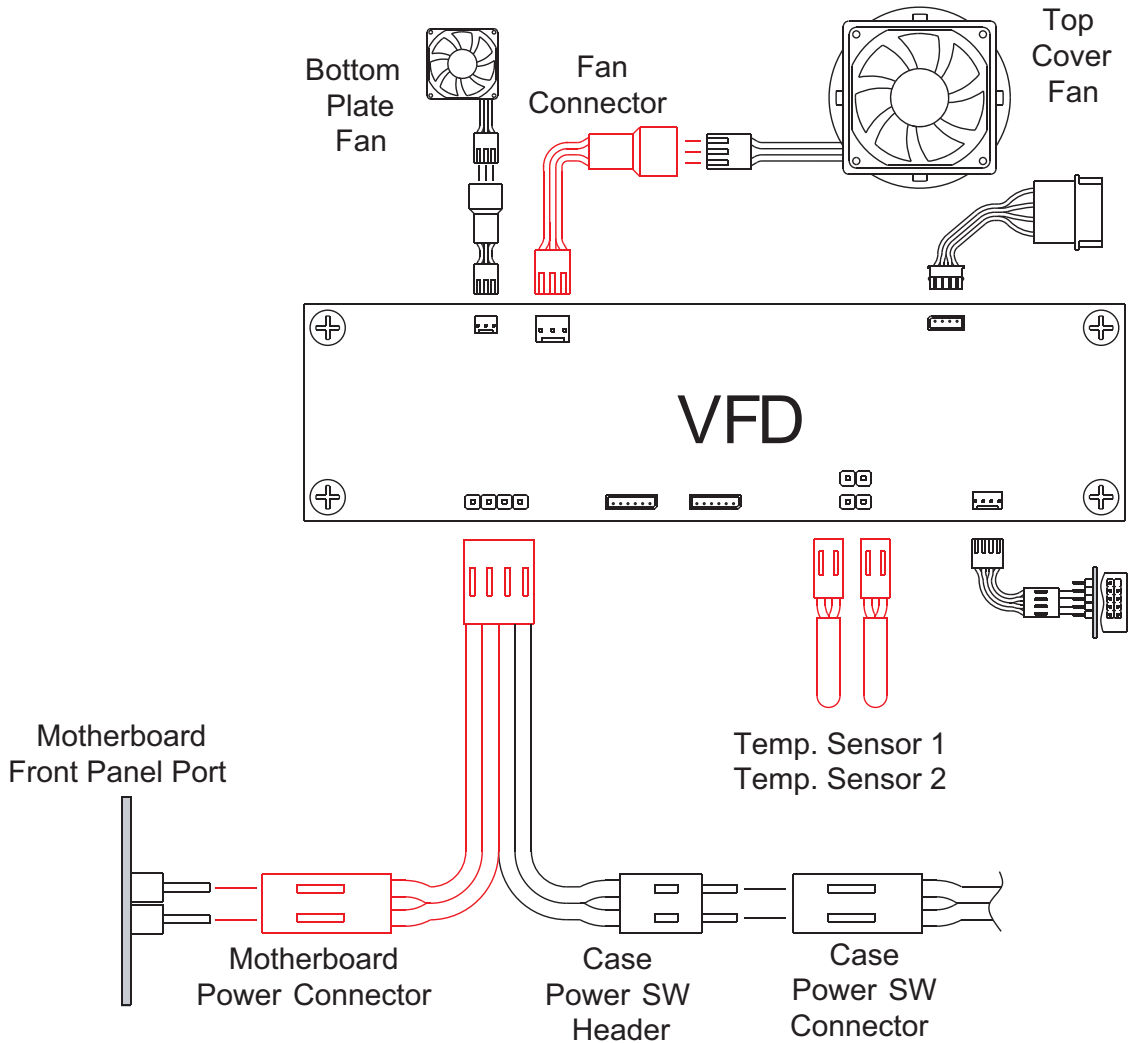
- ① Connect the VFD Power Connector to the Power Supply Connector.
- ② Connect the VFD USB Connector to the motherboard's USB Port.



Note)

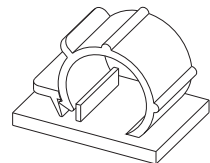
1. Must refer to the motherboard manual for the USB Port Pin arrangement when connecting the VFD USB cable. Incorrect connection can cause damage to the VFD resulting from a short circuit.
2. VFD USB Cable Colors
 GND : Black, +DATA : Green, -DATA : Blue, USB +5V : Red

- ③ Place the Temperature Sensor on a place of preference inside the Enclosure.
- ④ Connect the Motherboard Power Connector to the motherboard's Front Panel Port (refer to the motherboard manual).
- ⑤ Connect the Fan Connector to the Fan installed on the Top Cover, and assemble the Top Cover.



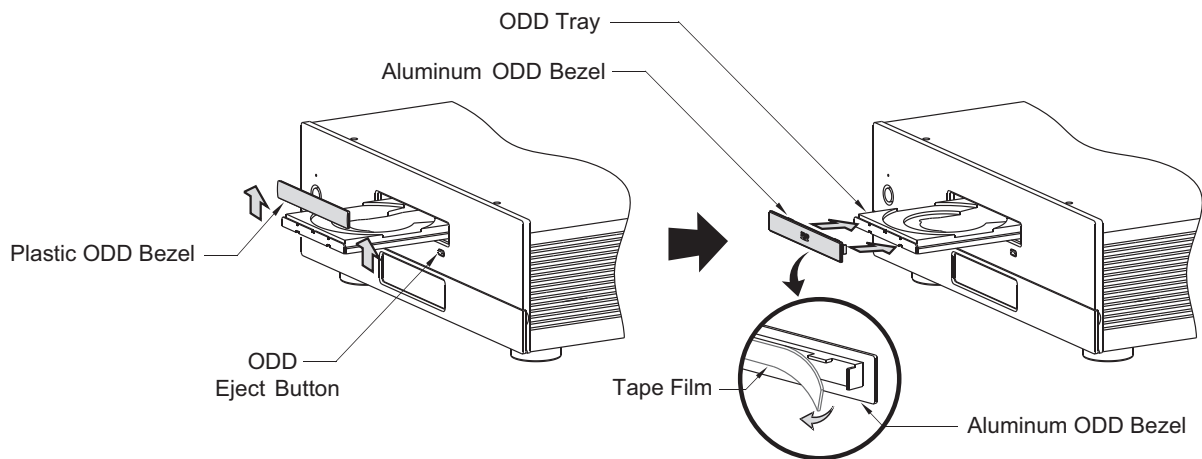
Note)

Tie the VFD multi-cables with the enclosed Clipper, and fix them on to the Bottom Plate with the use of a Clipper to ensure that the cables are not disconnected from the VFD.



7) Attaching the Aluminum ODD Bezel

- (1) Connect power to the assembled system. Press the ODD Eject button to eject the ODD Tray.
- (2) Remove the plastic ODD Bezel.
- (3) Expose the Tape Film on the inside of the aluminum ODD bezel, and stick the aluminum ODD bezel to the ODD tray.

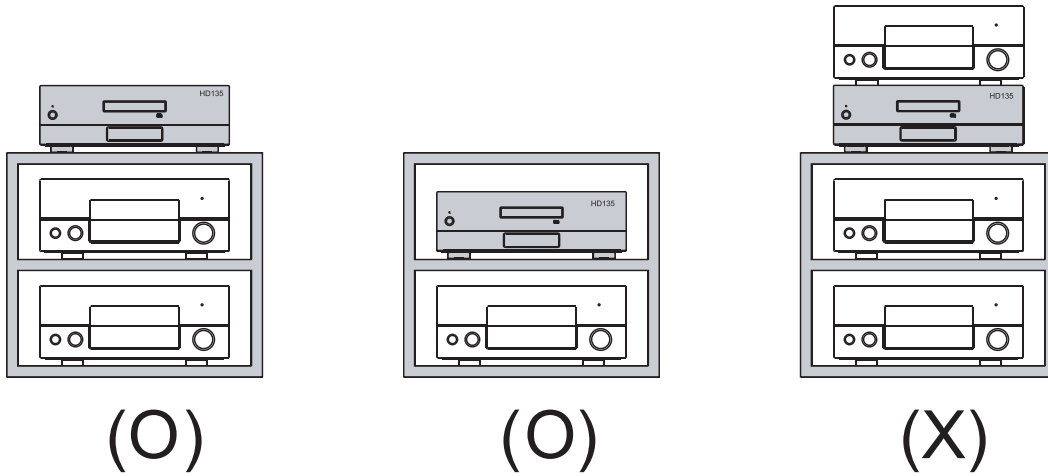
**Note)**

If you are facing difficulties in removing the plastic ODD bezel, then please contact the place of purchase or the ODD manufacturer.

8) Installing the Multimedia Software

Refer to the enclosed M-Play Quick Guide manual to install the software.

7. Recommended Use



1) Recommended Placement for the HD135

Placement of this system on a well-ventilated area (good intake of cold air and release of hot air) allows efficient cooling of computer components even in low RPM mode, which is the quietest operation. The noise level of the power supply (main factor of noise emission) will also significantly decrease due to better cooling efficiency.

There must be good airflow on the front and back side of the HD135 when placing it inside a cabinet.

Any other AV components or products must not be placed on top of the HD135.

2) Arrangement of System's Internal Cables

The internal airflow of the system makes a significant impact on the cooling of the computer components. Even though the ergonomic design of the case itself is very important, tying all the cables in a neat manner is the best method for creating great internal airflow. Pay special attention to make sure that the air vents, and intake and exhaust fans are not blocked by the cables.

3) Optimal Fan Speed Control with M-Play Fan Control

Cooling performance and noise level can be set to user preference by controlling the fan speed in M-Play's A.F.C mode.

Use the Temperature Sensor and the M-Play Fan Control to maintain the internal temperature of the unit to be no greater than 40°C.

4) Recommended Computer Components for a Silent Home Theatre PC

- CPU : Any CPU in the market
- CPU Cooler : Silent CPU cooler with great cooling performance and height of less than 69cm(2.7inch)
- VGA : VGA card equipped with a silent VGA cooler
- VGA Cooler : Silent VGA cooler
- Power Supply : Power Supply equipped with a 120mm fan(HD135 is provided with an Air Vent for power supplies equipped with a 120mm Fan).
- Motherboard : Standard Full-ATX (with great distance between the internal heat-generating components) motherboard with no fan.
- Northbridge Cooler : Fanless Northbridge cooler.

Note)

HD135 is designed to have the same height as standard AV equipments. The SLI Connector prevents the closing of the Top Plate when installing two nVidia VGA cards.

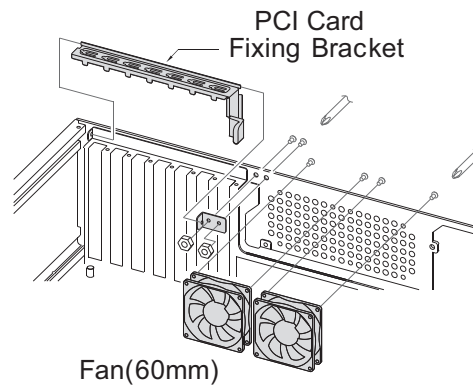
Note)

1. Recommended Zalman products for the HD135



2. If the PCI Card Fixing Bracket is removed, then the PCI Card can be fixated with the use of Bolts.

3. Installing two 60mm fans on the Rear Plate will reduce internal temperature, but might cause more noise.



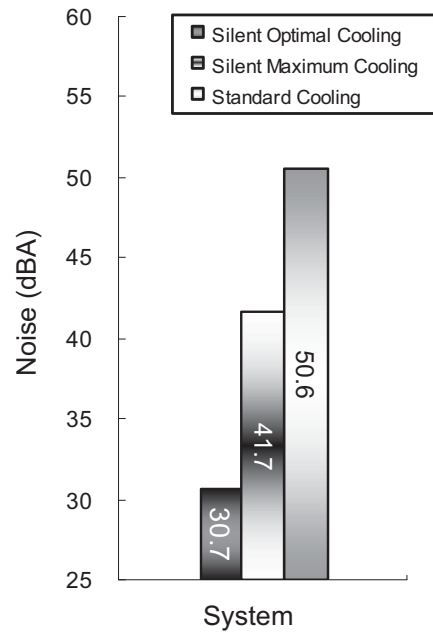
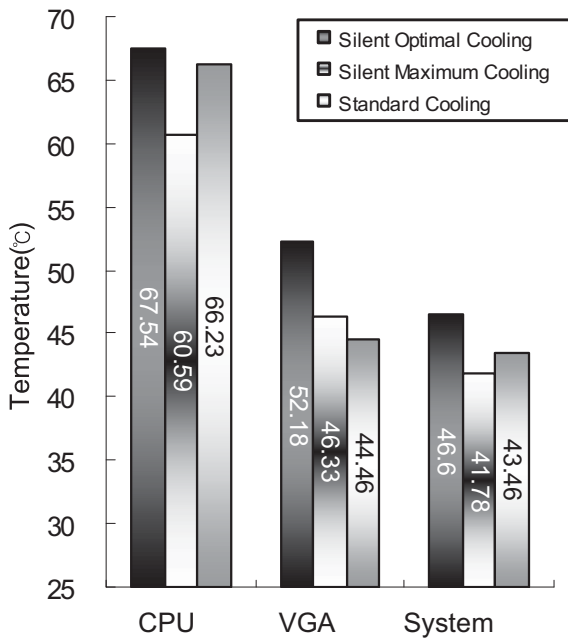
8. Technical Information : Performance Test Results

The following is the temperature for each component and system noise measurements with maximum CPU load for a system equipped with Intel Pentium D 830 with TDP of 130W.

① Performance Test Results

Amb. 30.0(°C)

System	Component Temperature (°C)			System Noise (dBA)	Test Condition		
	CPU	VGA	System		CPU Cooler	VGA Cooler	Intake/Exhaust Fan
Silent Optimal Cooling	67.54	52.18	46.60	30.70	CNPS8000 (5V)	VF700-CU (5V)	80mm (5V)
Silent Maximum Cooling	60.59	46.33	41.78	41.70	CNPS8000 (12V)	VF700-CU (12V)	80mm (12V)
Standard Cooling	66.23	44.46	43.46	50.6	Intel Stock Cooler	Stock Cooler	80mm (12V)



② Test System

- ▣ CPU : Intel Pentium D 830 (TDP of 130W)
- ▣ Motherboard : ASUS PSLD2 (i945P)
- ▣ VGA Card : Evertop Geforce7800GT 256MB
- ▣ Power Supply : ZM460-APS

This information is for reference purpose only. Zalman is not guaranteeing any performance result with the setup of the Test System.

9. Zalman Enclosures

Home Theare Computer Enclosure



< HD160 >

Gaming Computer Enclosure



< FC-ZE1 >

TNN (Totally No Noise) Computer Enclosure



< TNN300 >



< TNN500AF >

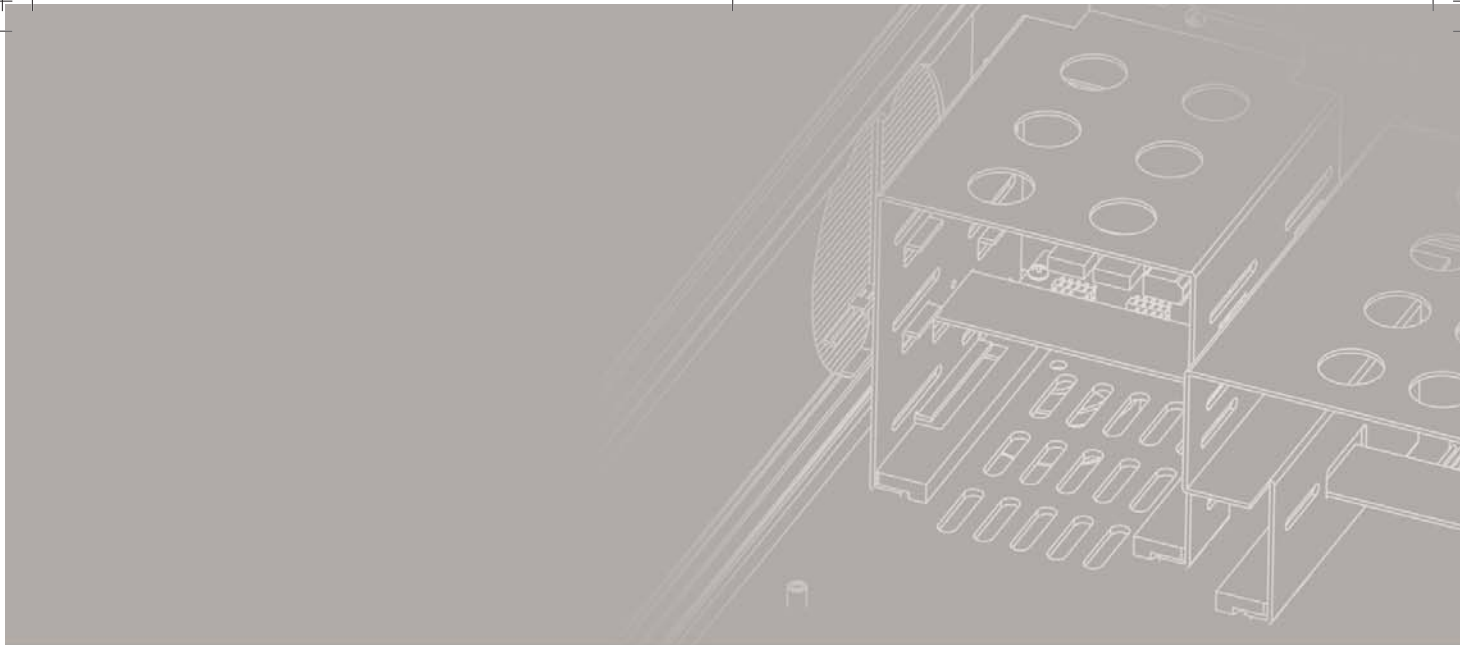
10. Trademarks and Copyright Notice

- All trademarks mentioned in this manual are properties of their respective owners.

- ZALMAN and HD135 are registered trademarks of ZALMAN Tech Co., Ltd.
- Intel and Pentium D are registered trademarks of Intel Corp.
- VGA are registered trademarks of International Business Machines Corporation (IBM).
- ASUS and PSLD2 are registered trademarks of Asustek Computer Inc.
- Evertop is a registered trademark of Evertop. Co., Ltd.
- NVIDIA, GeForce are registered trademarks of NVIDIA Corp.

- 2006 by Zalman Tech Co., Ltd.

Copying or publishing this user's manual without the consent of Zalman Tech Co., Ltd. is prohibited.



ZALMAN

www.zalman.co.kr / www.zalmanusa.com

Zalman Tech Co., Ltd.

#1007 daeryung Techno Town 3th, 448 Gasan-dong, Gumchun-gu Seoul, Korea
Tel: +82-2-2107-3232 / Fax: +82-2-2107-3322 / Homepage: www.zalman.co.kr / e-mail: zalman@zalman.co.kr

Zalman USA, Inc.

10531 Garden Grove Blvd., Garden Grove, CA 92843, U.S.A.
Tel: +1-714-530-0700 / Fax: +1-714-530-0707 / Homepage: www.zalmanusa.com / e-mail: zalman@zalmanusa.com