FWA-6500 Multi-Core x86 Intel® Dual Xeon® processor 5500 series 2U Network Application Platform
Startup Manual

Packing List

Before you begin installing your card, please make sure that the following items have been shipped:

- One FWA-6500 Internet Security Platform
- One box of accessories
- One warranty certificate

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

Note 1: Acrobat Reader is required to view any PDF file.Acrobat Reader can be downloaded at: www.adobe.com/Products/acrobat/readstep2.html (Acrobat is a trademark of Adobe)

Specifications

Main Board Functions

- **CPU:** Intel® Xeon® 5500 series Dual/Quad core processor
- **Chipset:** Intel® 5520 (Tylersburg-EP) and ICH10R
- **BIOS:** AMI™
- **QPI:** up to 6.4 GT/s
- **Memory:** DDR3 1066/1333 ECC registered memory, up to 96 GB memory capacity.
- **PCIe Bus:**
  - 4 x Gen 2, PCIe x8 connected to express module
  - 1 x Gen 1, PCIe x4 connected to management board
  - 1 x Gen 1, PCIe x4 slot (for riser card)
  - 1 x Gen 2, PCIe x4 slot (for riser card)
- **CF Interface:** JMicron (SATA to IDE bridge) 1 x CF socket
- **Storage:** 2 x 2.5” removable SATA HDD docks (2 x 3.5” removable SATA HDD docks for option)
- **Remote Management:** Supportc Hitachi H8 BMC, compliant with IPMI 2.0
- **Peripherals:**
  - USB: 2 x USB 2.0 ports on front panel
  - Serial: 1 x front console port RJ45
  - LCD module: 1
- **Dimensions (W x H x D):** 430 x 80 x 547.6 mm
- **Weight:** 18Kg (40lb)
- **Environment:**

	Operating	Non-Operating
Temperature:	0° C ~ 40° C (32° F ~ 104° F)	-20° C ~ 75° C (-4° F ~ 167° F)
Humidity:	5~85%@40° C (104° F)	5~95%

For more information on this and other Advantech products, please visit our website at:

http://www.advantech.com.tw/support

http://www.advantech.com

For technical support and service, please visit our support website at:

http://www.advantech.com/support

This manual is for the FWA-6500 series Rev. B

Part No. 2002650001 2nd Edition,
Print in China April 2010

Specifications

Express Modules

- **Interface:**
  - GE Express Module:

    Supports 4 x 10/100/1000 Base-T ports via RJ45 or SFP interface
  - 10GE Express Module:

    Supports 2 x 10GE ports by SFP+ interface
- **Controller:**
  - GE Express Module:

    2 x Intel 82576 Dual Ports GE controllers
  - 10GE Express Module:

    1 x Intel 82599ES Dual Ports 10GE controller
- **LAN Bypass:**
  - GE Express Module:

    Supports 2 segment LAN bypass by RJ45 interface version only
- **Dimensions (W x D):** 72 x 172 mm

Figure 1A: NAEM-0101 4 ports RJ45 Module

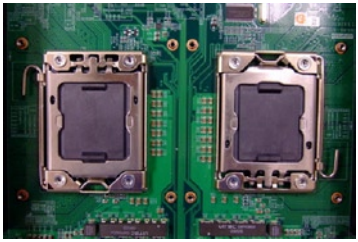
Figure 2A: NAEM-0102 4 ports SFP Module

Figure 3A: NAEM-1001 2 ports SFP Module

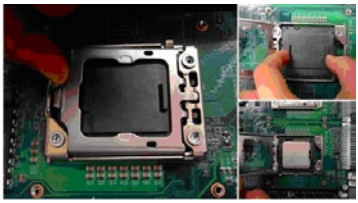
Installation

Installing the CPUs

1. Locate the CPU sockets on the board.



2. Taking one CPU at a time, remove the protective shield, if present, and press the load lever and move it until it is clear of the retention tab, and raise it.



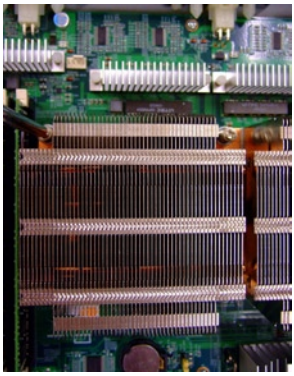
3. Make sure that the alignment triangle on the CPU lines up with correct corner on the socket, and ease the CPU into place.

4. Close the load plate and push the load lever back down until it engages the retention tab.

Installing the Heat sinks

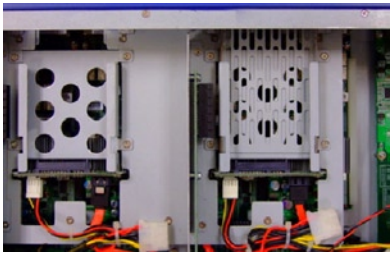
1. Taking one heat sink at one time, apply a small dab of heat transfer compound to the top of the installed CPU, and then align it and carefully lower the heat sink into place.

2. Insert and loosely engage each heat sink screw. Then screw them in carefully to secure the heat sink.

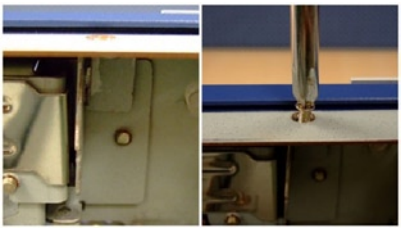


Installing the Riser Cards

1. There are two screws on the base chassis.

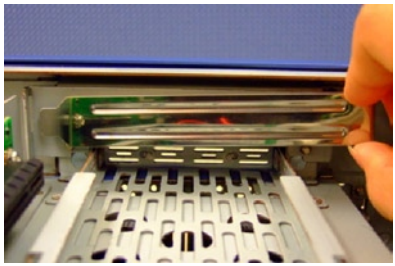


2. Please release the screw and remove the bracket.

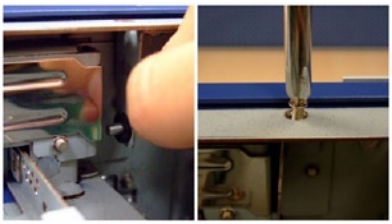


3. Remove the bracket.

4. Remove the dummy IO bracket and install the add-on card.



5. Put the bracket back and screw it in firmly.



Installation

Installing the Memory

The FWA-6500 system provides 12 x DDR3 DIMMs which can support up to DDR3 1333MHz 96GB.

1. To install the memory, please start to install the memory from CPU0 with DIMMA1.

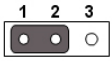
Jumpers and Connectors

The board has a number of jumpers that allow you to configure your system to suit your application. The table below lists the function of each of the jumpers and connectors.

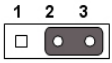
Connector / Jumper List	
LR_CMOS	Clear COMS
SW-BMC	Update and Reset BMC firmware
CN1	System FAN
CN2	System FAN
CN3	System FAN
CN10	Compact Flash socket 50 PIN
CN12	Front Panel Header
CN13	GPIO Connector
CN15	PS2 Header
CN16	USB Pin Header
CN18	COM Header
HD_LED	Front Panel LED
CASE_OPEN	Case Open
SW-PCIE-IOH	PCIe Switch (From IOH)
CN-IPMB0	Power Supply ACPI function

Jumpers and Connectors

LR_COMS: CMOS clear function	
Pins	Result
1-2	Keep CMOS data*
2-3	Clear CMOS data
*: Default	

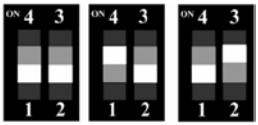


Keep CMOS data*



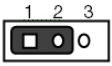
Clear CMOS data

SW-BMC: Update and Reset BMC firmware	
Pins	Result
1-4	Update BMC
2-3	Reset BMC
*: Default	

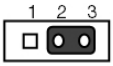


Default* Update BMC Reset BMC

JP-WDT: Watchdog Header	
Pins	Result
1-2	Ignore WDT for LAN bypass enable
2-3	Normal WDT function*
*: Default	



Ignore WDT for LAN Bypass

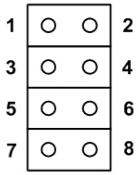


Normal WDT function*

JP-WDT: System Reset Header	
Pins	Result
1-2	Ignore WDT for LAN bypass enable
2-3	Normal WDT function*
*: Default	

Jumpers and Connectors

CN12 : Front Panel Header	
Pins	Result
1	VCC
2	GND
3	JP_PWRBTN#
4	FP_SYS_RST#
5	SMB_PWRCLK
6	SMB_PWRDAT
7	VCC3
8	SATA_LED_C

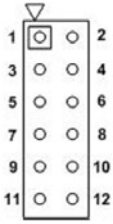


HD_LED : Front Panel LED	
Pins	Result
1	VCC
2	SATA_LED_C

CASE_OPEN : CASE OPEN	
Pins	Result
1	BMC_CASEOP#
2	GND

Jumpers and Connectors

CN13 : GPIO	
Pins	Result
1	VCC
2	GND
3	9554_GPIO_0
4	9554_GPIO_1
5	9554_GPIO_2
6	9554_GPIO_3
7	9554_GPIO_4
8	9554_GPIO_5
9	9554_GPIO_6
10	9554_GPIO_7
11	GND
12	VCC3



CN-IPMB0 : Power Supply ACPI function	
Pins	Result
1	IPMB0_SMBCLK
2	IPMB0_SMBDAT
3	IPMB0_ALERT#
4	GND
5	BMC_3VSB

Jumpers and Connectors

SW-PCIe-IOH : IOH PCIe Strapping	
Pins	Result
1-12	PEWIDTH5
2-11	PEWIDTH4
3-10	PEWIDTH3
4-9	PEWIDTH2
5-8	PEWIDTH1
6-7	PEWIDTH0

Software Installation

Software tested list:

1. Linux Debian 2.6.18 kernel
2. Linux Redhat 5.0

Recommend customer to use Linux kernel 2.6.18 to develop their own S/W

Specifications

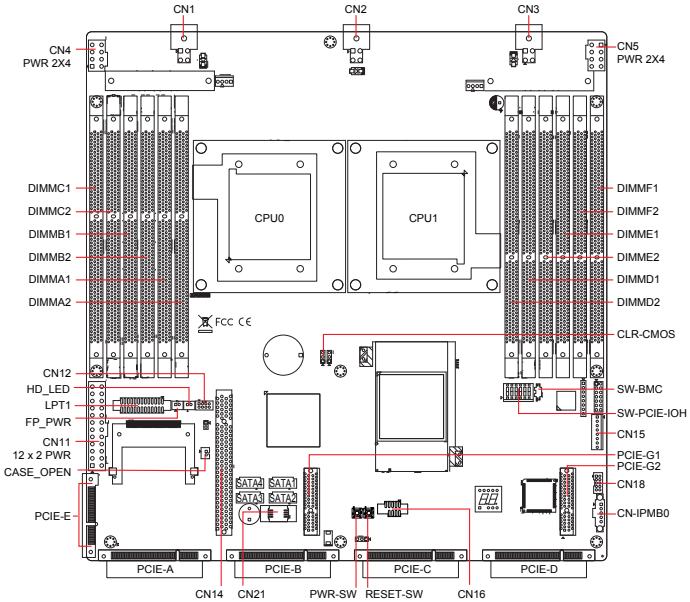
This device complies with the requirements in Part 15 of the FCC rules. Operation is subject to the following two conditions:

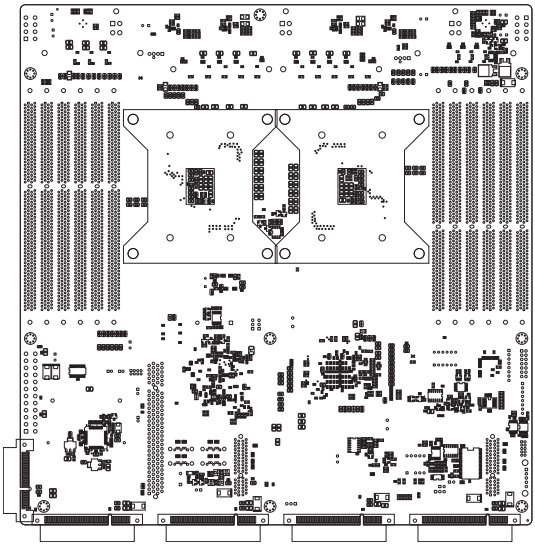
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

PCIe Switch from IOH (SW-PCIe-IOH)

PEWIDTH[5:0]						PCIe-A		PCIe-B		PCIe-C		PCIe-D	
SW-1-12	SW-2-11	SW-3-10	SW-4-9	SW-5-8	SW-6-7								
ON*	ON*	ON*	ON*	ON*	ON*	x4	x4	x4	x4	x4	x4	x4	x4
ON	ON	OFF	OFF	OFF	OFF	x8		x8		x8		x8	
OFF	OFF	OFF	OFF	OFF	OFF	Wait on BIOS							
ON	ON	ON	ON	ON	OFF	x4	x4	x4	x4	x8		x4	x4
ON	ON	ON	ON	OFF	ON	x4	x4	x4	x4	x4	x4	x8	
ON	ON	ON	ON	OFF	OFF	x4	x4	x4	x4	x8		x8	
ON	ON	ON	OFF	ON	ON	x8		x4	x4	x4	x4	x4	x4
ON	ON	ON	OFF	ON	OFF	x8		x4	x4	x8		x4	x4
ON	ON	ON	OFF	OFF	ON	x8		x4	x4	x4	x4	x8	
ON	ON	ON	OFF	OFF	OFF	x8		x4	x4	x8		x8	
ON	ON	OFF	ON	ON	ON	x4	x4	x8		x4	x4	x4	x4
ON	ON	OFF	ON	ON	OFF	x4	x4	x8		x8		x4	x4
ON	ON	OFF	ON	OFF	ON	x4	x4	x8		x4	x4	x8	
ON	ON	OFF	ON	OFF	OFF	x4	x4	x8		x8		x8	
ON	ON	OFF	OFF	ON	ON	x8		x8		x4	x4	x4	x4
ON	ON	OFF	OFF	ON	OFF	x8		x8		x8		x4	x4
ON	ON	OFF	OFF	OFF	ON	x8		x8		x4	x4	x8	

Board Placement





Jumpers and Connectors

1. Read these safety instructions carefully.
2. Keep this user manual for later reference.
3. Disconnect this equipment from AC outlet before cleaning. Do not use liquid or spray detergents for cleaning.
4. For pluggable equipment, the power outlet shall be installed near the equipment and shall be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
7. Do not leave this equipment in an environment unconditioned where the storage temperature under 0 C (32 F) or above 40 C (104 F), it may damage the equipment.
8. The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.
9. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
10. Place the power cord such a way that people can not step on it. Do not place anything over the power cord. The voltage and current rating of the cord should be greater than the voltage and current rating marked on the product.
11. All cautions and warnings on the equipment should be noted.
12. If the equipment is not used for long time, disconnect it from the power source to avoid being damaged by transient over-voltage.
13. Never pour any liquid into ventilation openings. This could cause fire or electrical shock.
14. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
15. If any of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well or you cannot get it to work according to user manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.
16. CAUTION: The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacture. Discard used batteries according to the manufacturer's instructions.
17. THE COMPUTER IS PROVIDED WITH CD DRIVES COMPLY WITH APPROPRIATE SAFETY STANDARDS INCLUDING IEC 60825.

CLASS 1 LASER PRODUCT
KLASSE 1 LASER PRODUKT

18. This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
    (1) this device may not cause harmful interference, and
    (2) this device must accept any interference received, including interference that may cause undesired operation.
19. CAUTION: Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges.
20. CAUTION: Always ground yourself to remove any static charge before touching the motherboard, backplane, or add-on cards. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.
21. CAUTION: Any unverified component could cause unexpected damage. To ensure the correct installation, please always use the components (ex. screws) provided with the accessory box.
22. Caution text concerning lithium batteries:

ADVARSEL!
Lithiumbatteri - Eksplosionsfare ved fejlagtig handspring.
- Udskiftning må kun ske med batteri af samme fabrikat og type.
Lever det brugte batteri tilbage tilleverandøren.

23. "Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions:
    A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
    B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
    C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
    D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
    E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."