FWA6304-D25
Network Appliance

User s Manual

Version 1.0

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Foreword

To prevent damage to the system board, please handle it with care and follow the measures below, which are generally sufficient to protect your equipment from static electricity discharge:

When handling the board, use a grounded wrist strap designed for static discharge elimination grounded to a metal object before removing the board from the antistatic bag. Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.

When handling processor chips or memory modules, avoid touching their pins or gold edge fingers. Return the Network Appliance system board and peripherals back into the antistatic bag when not in use or not installed in the chassis.

Some circuitry on the system board can continue to operate even though the power is switched off. Under no circumstances should the Lithium battery cell used to power the real-time clock be allowed to be shorted. The battery cell may heat up under these conditions and present a burn hazard.

WARNING!

1. "CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED.

   REPLACE ONLY WITH SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS"
2. This guide is for technically qualified personnel who have experience installing and configuring system boards. Disconnect the system board power supply from its power source before you connect/disconnect cables or install/remove any system board components. Failure to do this can result in personnel injury or equipment damage.
3. Avoid short-circuiting the lithium battery; this can cause it to superheat and cause burns if touched.
4. Do not operate the processor without a thermal solution. Damage to the processor can occur in seconds.
5. Do not block air vents at least minimum 1/2-inch clearance required.
6. In case explosion, you should change battery with same specification.

Chapter 1 Introduction

The FWA6304-D25 series was specifically designed for the network security & management market.

Network Security Applications:
- **Firewall**
- **Virtual Private Network**
- **Proxy Server**
- **Caching Server**

Network Management Applications:
- **Load balancing**
- **Quality of Service**
- **Remote Access Service**

The FWA network appliance product line covers the spectrum from offering platforms designed for :

- **SOHO**
- **SMB**
- **Enterprise**

Each product is designed to address the distinctive requirements of its respective market segment from cost effective entry-level solutions to high throughput and performance-bound systems for the Enterprise level.

Chapter 2 System Specification

Product Description

FWA6304-D25 incorporates Intel® NM10 chipset. Currently, it is available in the following model:

Model	Intel® Atom Dual Core CPU		Watchdog Timer
FWA6304-D25	Atom D2550	1.86 GHz	Yes

FWA6304-D25 Features

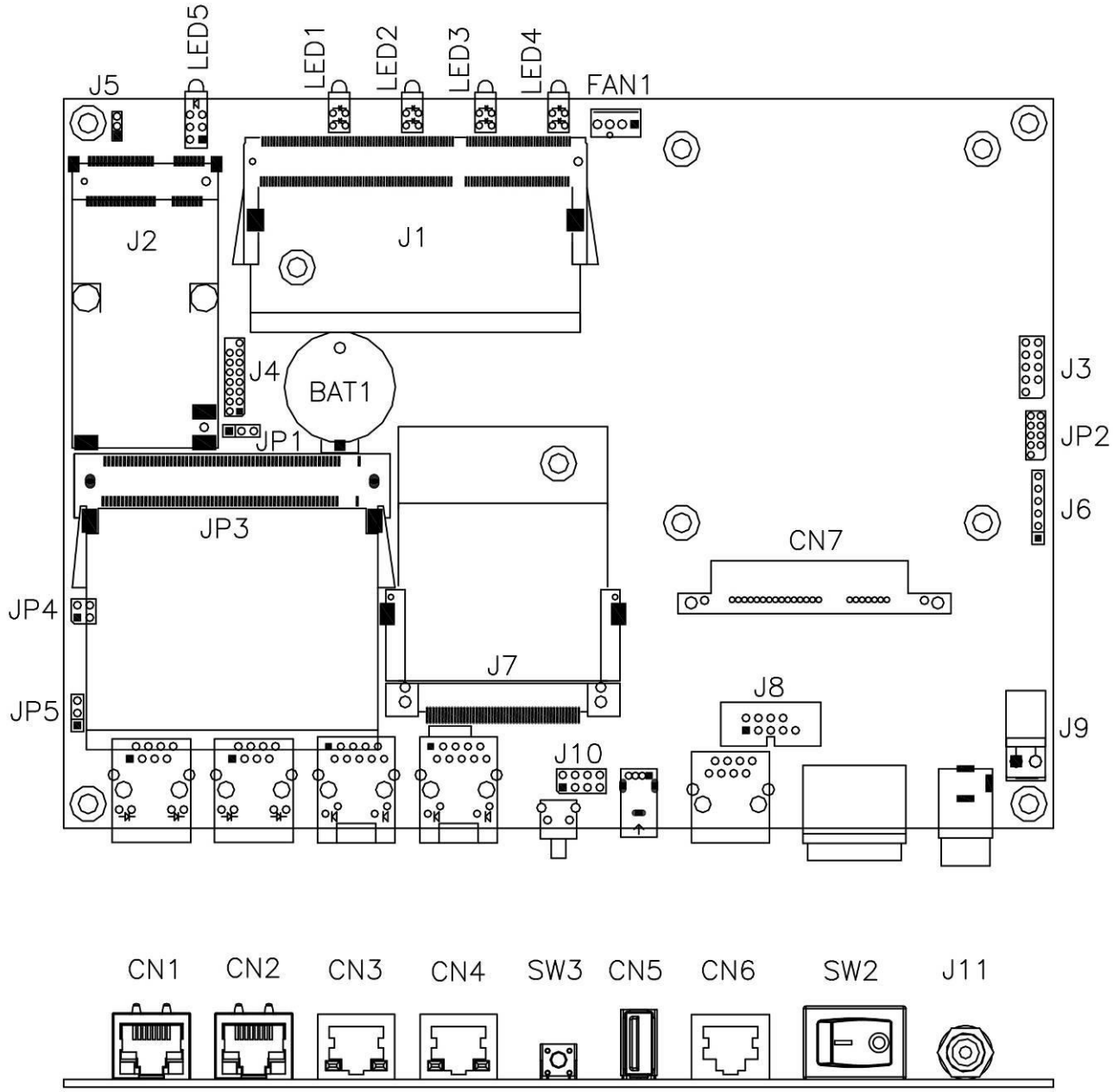
Supports four intel® 10/100/1000 LAN ports
DDR3 SO-DIMM x 1, up to 4GB
Mini PCI-e (USB Signal) slot, Mini PCI slot & Compact Flash socket
LAN bypass Enable / Disable pre-setting by BIOS when power on / off

FWA6304-D25 Specifications

Form Factor	5.25" Disk Size SBC
CPU Type Operating Frequency	Intel "Cedar view" Processor, 32nm Bulk Atom D2550 = 1.86 GHz [TDP= 10W], Cores = Dual Core
Chipset	Intel "Tiger Point" PCH, CG82NM10 [TDP = 2.1W, 130 nm]
BIOS	AMI BIOS w/ACPI
Ethernet controller	Intel 82583V PCI Express Gigabit ethernet controller x4
Memory	CPU on-die memory controller supporting up to 4GB One DDR3-1066 SO-DIMM socket, Non-ECC, unbuffered, 1.5V
LAN	● Console: RS-232 @ RJ45 ● Eth1, 2, 3 & 4: Intel 82583V @ RJ45 with LED
Network Bypass	One segment hardware Bypass (Eth1 & 2, Optional) Control by GPIO / Watchdog / Electrical Disconnect (Power Off)
Watchdog Timer	Yes (256 segments, 0, 1, 2…255 sec/min)
Storage	● Onboard CF Socket x1 ● 22-pin SATA Right Angle Connector Onboard for 2.5"SSD x1
Rear Panel	● Cylindrical (Tip) Connector DC +12V inlet with Screw Lock ● Factory Mode Restore Reset Switch (GPIO control) ● Power On / Off Switch ● Optional opening for Wireless LAN antenna ● RJ45 x1 for Console ● RJ45 with LED x4 for Gigabit LAN ● USB 2.0 x1
Front Panel	● LED: Power (Green) / Alarm (Red) / Status (Yellow) ● LAN Speed LED (Yellow / Green) x4 ● LAN Link / Act LED (Green) x4
USB 2.0	USB 2.0 x4 ● External x1 ● [2x4] Pin header Onboard x1 ● Mini PCI-e Socket x1 (USB Signal Only)
Video	VGA pin header on board
Internal I/O Headers	● 4-pin Smart Fan Connector x1 ● 2-pin header for DC-in (12V) x1 ● Keyboard + Mouse ([1x6] Pin Header) x1
Expansion Interface	● Mini PCI Socket, Mini PCI-e Socket x1 (USB Signal Only)
Power Supply	Full range 40W Adapter / 12V
Dimensions	255(W) x 156(D) x 36(H) mm
Operation Temperature	0 ~ 45 °C (32 ~ 113 °F)
Storage Temperature	-20 ~ 70 °C (-4 ~ 158 °F)

Chapter 3 Hardware Configuration

Motherboard (MB837-D25 Series) Layout



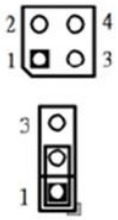
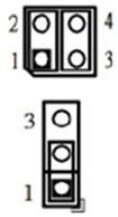
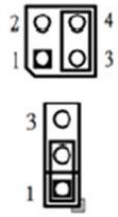
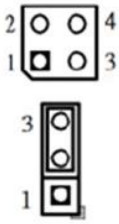
JP1: Clear CMOS Contents

Use JP1 to clear the CMOS contents.

Note that the power connector or jack should be disconnected from the board before clearing CMOS.

JP1	Setting	Function
	Pin 1-2 Short/Closed	Normal
	Pin 2-3 Short/Closed	Clear CMOS

JP4, JP5: LAN Bypass & WDT Reboot Setting

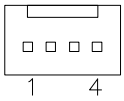
JP4 JP5	Setting	Function	Power OFF		Power ON		Power ON OS run software	
			Normal	Bypass	Normal	Bypass	Normal	Bypass
	JP4 1-2 & 3-4 Open JP5 1-2 Closed	LAN bypass upon the time out of WDT.	✓		✓			✓
	JP4 1-2 & 3-4 Closed JP5 1-2 Closed	System will reboot upon the time out of WDT.		✓		✓	LAN Always Bypass	
		System will reboot upon the time out of WDT.					WDT Reboot System	
	JP4 3-4 Closed 1-2 Open JP5 1-2 Closed	LAN bypass & system reboot upon the time out of WDT.	✓		✓		LAN Always Normal	
							WDT Reboot System	
	JP4 1-2 & 3-4 Open JP5 2-3 Closed	LAN bypass controlled by Super IO GP54 or setting in BIOS.	BIOS Setting ** GP54 Active: Low: Bypass High: Normal					

Default Setting

** Note that the Bypass setting in BIOS is only working when JP4 & JP5 are set as this configuration.

FAN1: System Fan Power Connector

FAN1 is 4-pin header for System fan power. The fan must be a 12V fan.



Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection
4	Control

CN1, CN2, CN3, CN4: 10 / 100 / 1000 LAN Ports

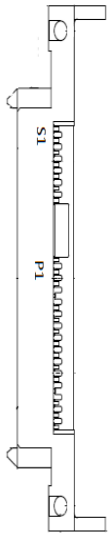
CN5: USB Connector

CN6: COM1 RJ45 Connector

Pin #	Signal Name (RS-232)
1	RTS, Request to send
2	DTR, Data terminal ready
3	TXD, Transmit data
4	Ground
5	Ground
6	RXD, Receive data
7	DSR, Data set ready
8	CTS, Clear to send

CN7: SATA SSD Dock

The SATA SSD dock combines a SATA power connector and a SATA interface connector.



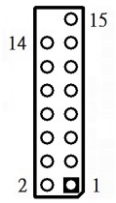
Signal Name	Pin #	Pin #	Signal Name
GND	S1	P1	+3.3V
A+	S2	P2	+3.3V
A-	S3	P3	+3.3V
GND	S4	P4	GND
B+	S5	P5	GND
B-	S6	P6	GND
GND	S7	P7	+5V
		P8	+5V
		P9	+5V
		P10	GND
		P11	GND
		P12	GND
		P13	+12V
		P14	+12V
		P15	+12V

J1: SO-DIMM DDR3 Socket

J2: Mini PCI-e Connector (USB signal only)

J3: SPI Debug Port (Factory use only)

J4: VGA Header



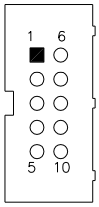
Signal Name	Pin #	Pin #	Signal Name
DACR	1	2	+5VCRT
DACG	3	4	GND
DACB	5	6	NC
NC	7	8	CRT_SPD
GND	9	10	HSYNC_C
+5VCRT	11	12	VSYNC_C
GND	13	14	CRT_SPCLK
GND	15		

J6:PS2 KB/MS Header

Pin #	Signal Name
1	KBDATA
2	KBCLK
3	MSDATA
4	MSCLK
5	GND
6	+5V

J7: Slim Type II Compact Flash Connector

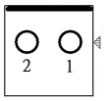
J8: COM2 Serial Port



Pin #	Signal Name (RS-232)
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	Ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator
10	No Connect.

J9: AT_12V Connector

J9 is a DC-in internal connector supporting +12V.



Pin #	Signal Name
1	+12V
2	Ground

Note: Do not connect J9 and J11 at the same time.

J10: USB Header

Signal Name	Pin #	Pin #	Signal Name
VCC	1	2	Ground
USB1-	3	4	USB2+
USB1+	5	6	USB2-
Ground	7	8	VCC

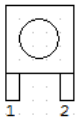
J11: DC Power Jack (+12V only)
Note: Do not connect J9 and J11 at the same time.

LED1, LED2, LED3 & LED4: LAN Port Link, Active LEDs

LED5: Power, Alarm & Status LEDs

Signal Name	Pin #	Pin #	Signal Name
PWR LED+	A1	C1	PWR LED-
ALARM LED+	A2	C2	SIO GPIO55
STATUS LED+	A3	C3	SIO GPIO56

SW3: Software Reset Button



Signal Name	Pin #	Pin #	Signal Name
GND	1	2	PCH GPIO7

Note: SW3 is controlled by GPIO only.

SW2: Power Switch

JP3: Mini-PCI Connector

Chapter 4 Console Mode Information

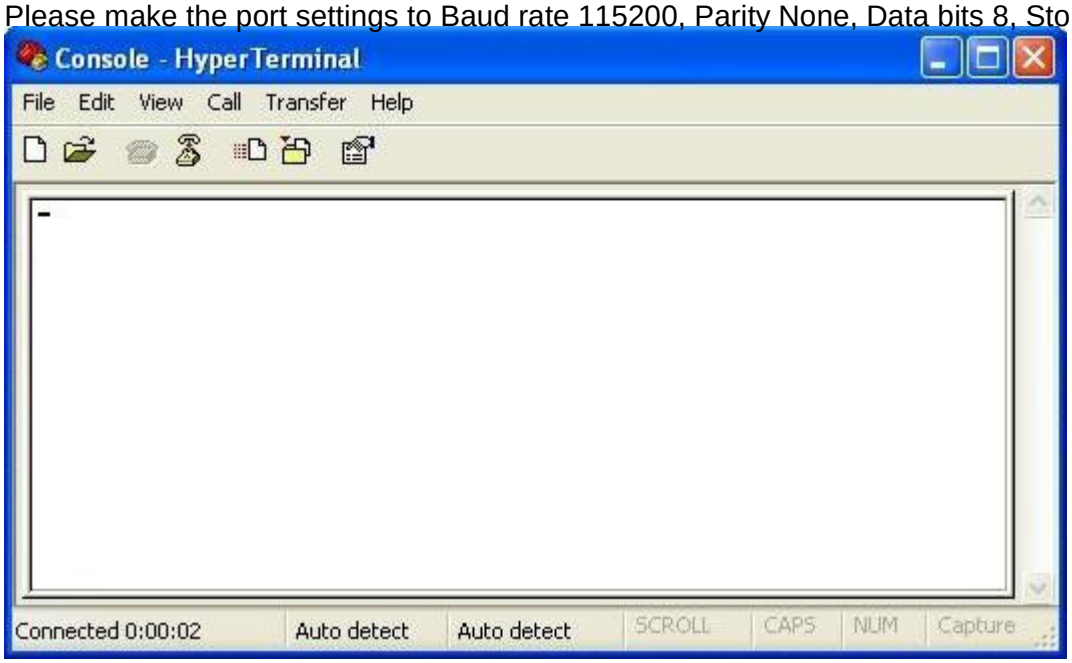
FWA6304-D25 supports output information via Console in BIOS level.

Prepare a computer as client loaded with an existing OS such Windows XP.
Connect client computer and FWA6304-D25 with NULL Modem cable.
Follow the steps below to configure the Windows Hyper Terminal application setting:

1. For executing the Hyper Terminal, issue command "hypertrm".
2. Customize your name for the new connection.

3. Choose the COM port on the client computer for the connection.

4. Please make the port settings to Baud rate 115200, Parity None, Data bits 8, Stop bits 1



5. Power up FWA6304-D25 and the screen will display the BIOS information.

6. Press <**Tab**> key to enter BIOS setup screen in **Console mode**.
   Press <**Del**> key to enter BIOS setup screen in **VGA mode**.

Chapter 5 Opening the Chassis

Fig. 5-1 Loosen three screws on back

Fig. 5-2 Loosen three screws on front

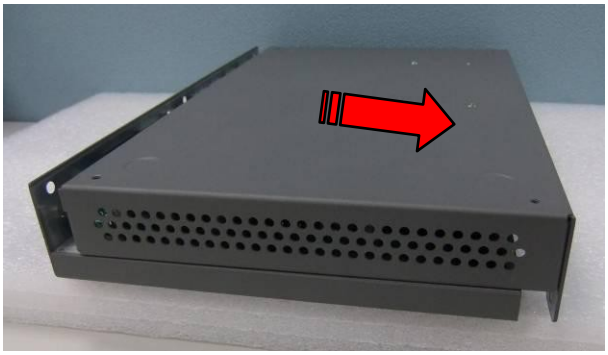


Fig. 5-3 Remove the base

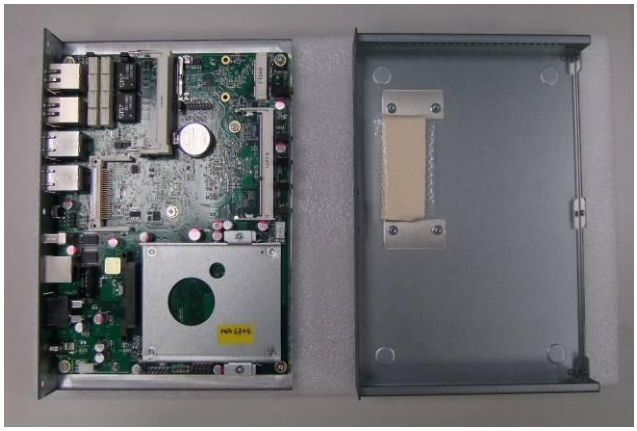


Fig. 5-4 The system

Chapter 6 Installing CompactFlash Card

Fig. 6-1 Insert Compact Flash Card

Fig. 6-2 Push Compact Flash Card into the CF interface

Chapter 7 Installing Memory Module

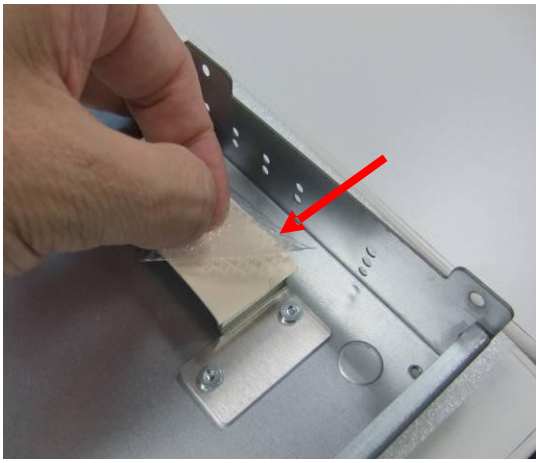


Fig. 7-1 **Remove the film on thermal pad**

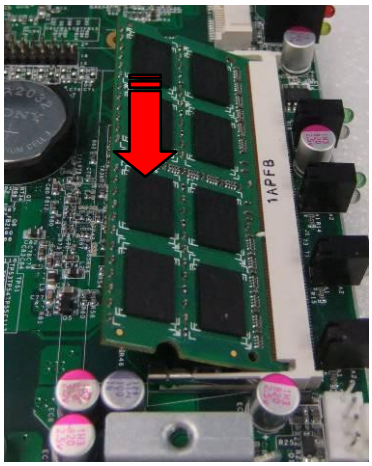


Fig. 7-2 Insert DDR3 SO-DIMM memory module

Fig. 7-3 Press down the memory module into socket

Chapter 8 Installing 2.5” SSD

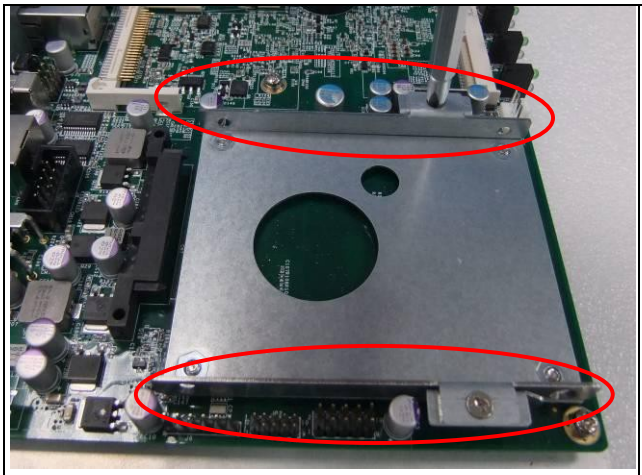


Fig. 8-1 Loosen two screws to remove left & right side brackets

Fig. 8-2 Fasten brackets on SSD with four screws

Fig. 8-3 Fasten both brackets on SSD with four screws

Fig. 8-4 Insert SSD into onboard SATA connector.

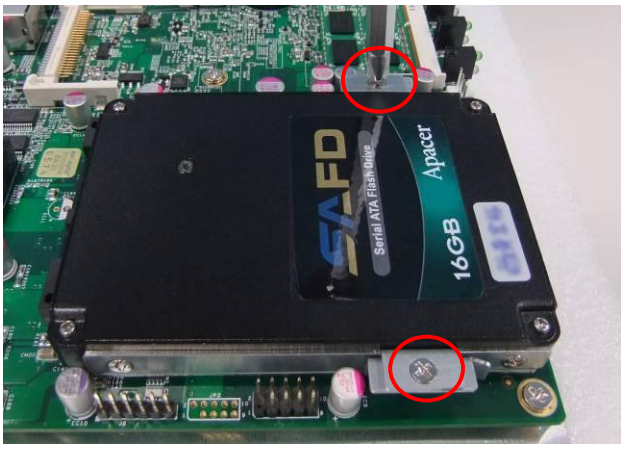


Fig. 8-5 Fix SSD & brackets with two screws

Chapter 9 Installing Mini PCI-e Module

Fig. 9-1 Insert Mini PCI-e module (Supports USB signal only)

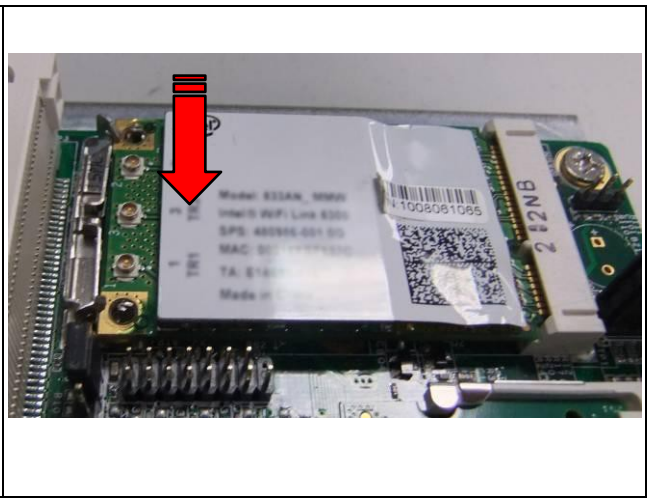


Fig. 9-2 Push down the module into socket

Fig. 9-3 Release two clips to remove module

Chapter 10 Lock Power Connector

Fig. 10-1 Plug power connector into power jack