FWA6504

1U

19”

Network Appliance

User′s Manual

Version 1.0

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Foreword

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Every effort has been made to ensure that the contents of this manual are correct and up to date. However, the manufacturer makes no guarantee regarding the accuracy of its contents, and reserves the right to make changes without prior notice.

Safety Information

FWA6504 is designed and tested to meet the latest standards of safety for information technology equipment. However, to ensure your safety, it is important that you read the following safety instructions.

Setting up your system

- Read and follow all instructions in the documentation before you operate your system.
- Do not use this product near water.
- Set up the system on a stable surface or secure on wall with the provided rail. Do not secure the system on any unstable plane or without the rail.
- Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- Slots and openings on the chassis are for ventilation. Do not block or cover these openings. Make sure you leave plenty of space around the system for ventilation. Never insert objects of any kind into the ventilation openings.
- This system should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- Use this product in environments with ambient temperatures between 0˚C and 45˚C.
- If you use an extension cord, make sure that the total ampere rating of the devices plugged into the extension cord does not exceed its ampere rating.

Care during use

- Do not walk on the power cable or allow anything to rest on it.
- Do not spill water or any other liquids on your system.
- When the system is turned off, a small amount of electrical current still flows.
- Always unplug all power, and network cables from the power outlets before cleaning the system.
- If you encounter the following technical problems with the product, unplug the power cord and contact a qualified service technician or your retailer.
  - The power cable or plug is damaged.
  - Liquid has been spilled into the system.
  - The system does not function properly even if you follow the operating instructions.
  - The system was dropped or the cabinet is damaged.

Lithium-Ion Battery Warning

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

NO DISASSEMBLY

The warranty does not apply to the products that have been disassembled by users

Federal Communications Commission Statement

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

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

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

CE Mark Warning

This is a Class A product, in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Chapter 1 Introduction

The FWA6504 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

FWA6504 incorporates Intel® NM10 chipset. Currently, it is available in the following model:

Model	Intel® Atom Dual Core CPU		Watchdog Timer
FWA6504	Atom D2550	1.86 GHz	Yes

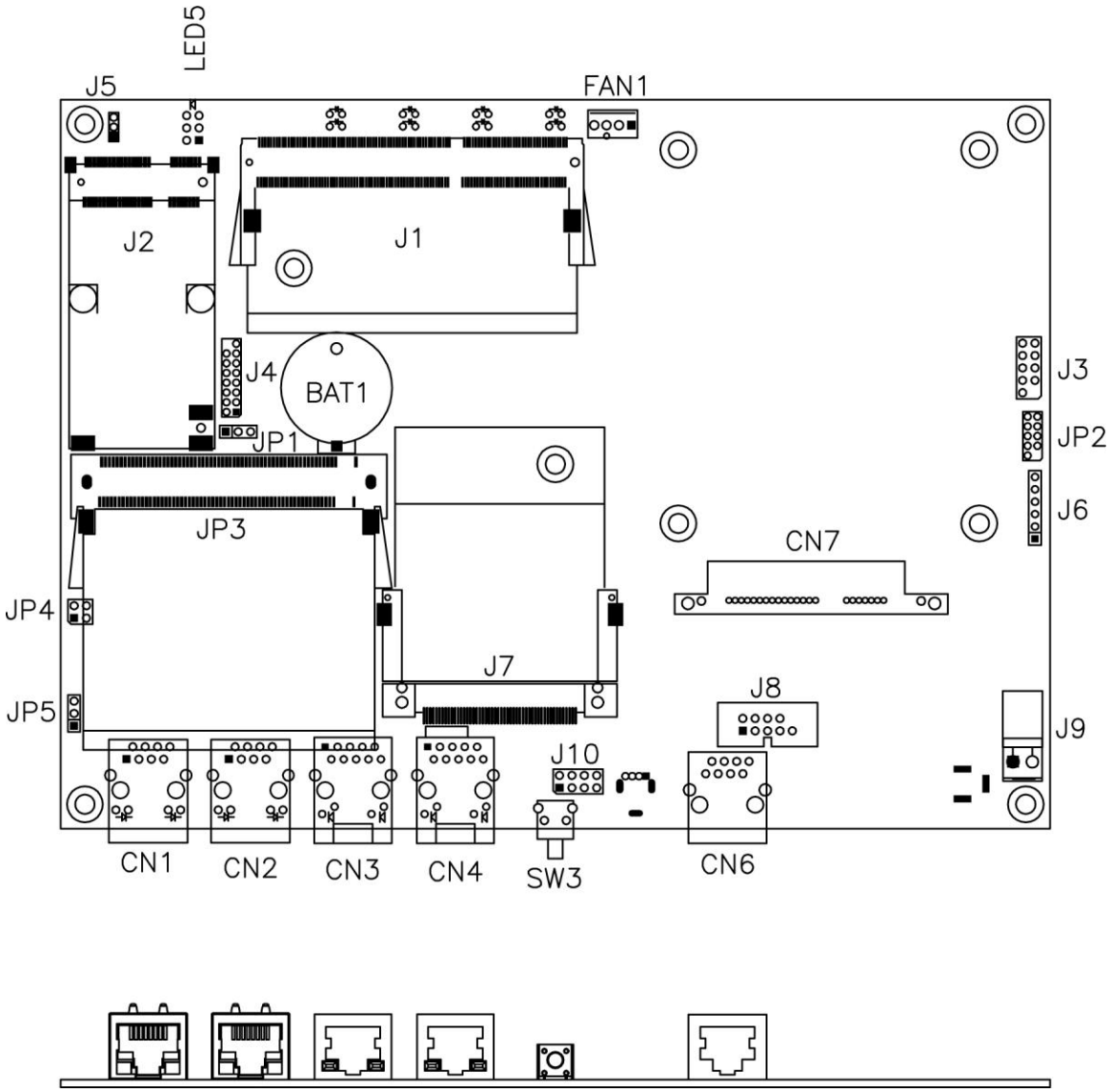
FWA6504 Features

- 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

FWA6504 Specifications

Form Factor	1U 19” rackmount
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
Front Panel	● Factory Mode Restore Reset Switch (GPIO control) ● RJ45 x1 for Console ● RJ45 with LED x4 for Gigabit LAN Ports ● USB 2.0 x2 ● LED: Power (Green) / Alarm (Red) / Status (Yellow)
Rear Panel	● AC Inlet
Video	Optional VGA Port on Front Panel
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 supply / 12V
Dimensions	430(W) x 216(D) x 44(H) mm
Operation Temperature	0 ~ 45 ˚C (32 ~ 113 ˚F)
Storage Temperature	-20 ~ 70 ˚C (-4 ~ 158 ˚F)

Motherboard (MB837-1U) Layout



The Jumpers

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
1 2 3	Pin 1-2 Short/Closed	Normal
1 2 3	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 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					

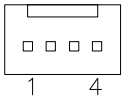
Default Setting

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

The Connectors

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

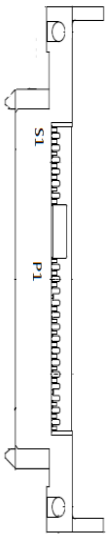
CN1, CN2, CN3, CN4: 10 / 100 / 1000 LAN Ports

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.



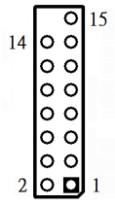
Signal Name	Pin #	Pin #	Signal Name
GND	S1	P1	+3.3V
A+	S2	P2	+3.3V
A-	S3	P3	+3.3V
GND	S4	P4	GND
B+	S5	P5	GND
B-	S6	P6	GND
GND	S7	P7	+5V
		P8	+5V
		P9	+5V
		P10	GND
		P11	GND
		P12	GND
		P13	+12V
		P14	+12V
		P15	+12V

J1: SO-DIMM DDR3 Socket

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

J3: SPI Debug Port (Factory use only)

J4: VGA Header



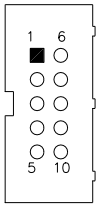
Signal Name	Pin #	Pin #	Signal Name
DACR	1	2	+5VCRT
DACG	3	4	GND
DACB	5	6	NC
NC	7	8	CRT_SPD
GND	9	10	HSYNC_C
+5VCRT	11	12	VSYNC_C
GND	13	14	CRT_SPCLK
GND	15		

J6: PS2 Keyboard / Mouse Header

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

J7: Slim Type II Compact Flash Connector

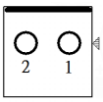
J8: COM2 Serial Port



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.

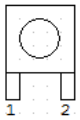
J10: USB Header

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

LED5: Power, Alarm & Status LED Pin Header

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.

JP3: Mini-PCI Connector

Chapter 4 Console Mode Information

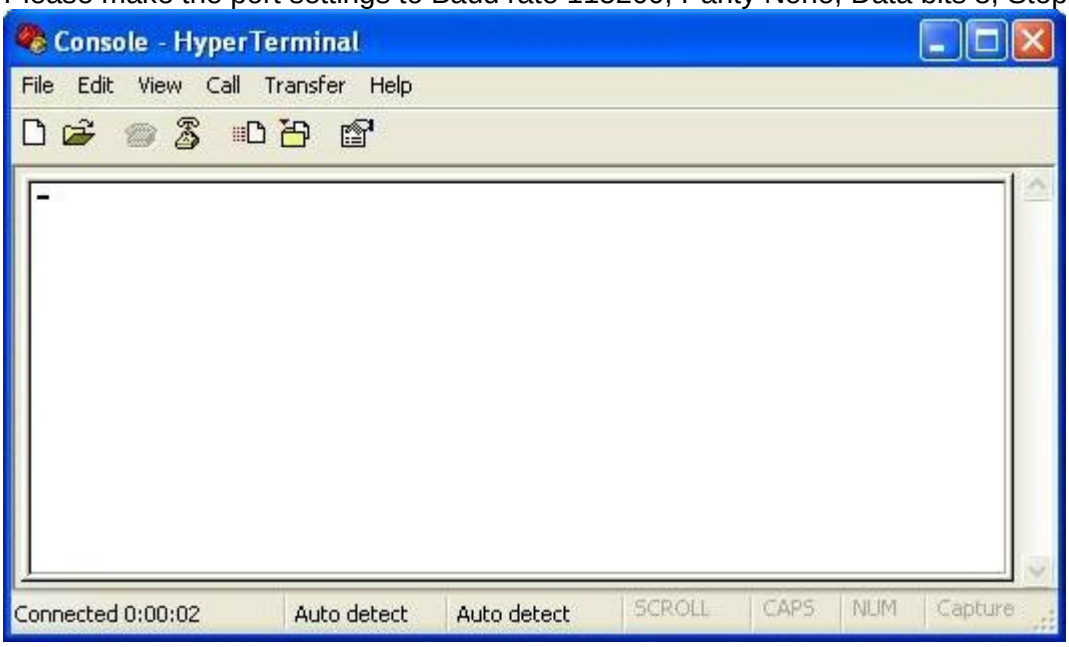
FWA6504 supports output information via Console in BIOS level.

Prepare a computer as client loaded with an existing OS such Windows XP.
Connect client computer and FWA6504 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 FWA6504 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 Loosen6 screws on back, left and right sides

Fig. 5-2 The system

Chapter 6 Installing CompactFlash Card

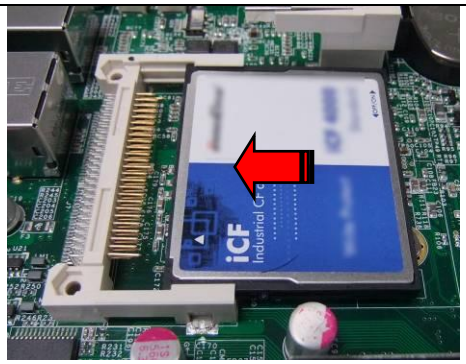


Fig. 6-1 *Insert Compact Flash Card*

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

Chapter 7 Installing Memory Module

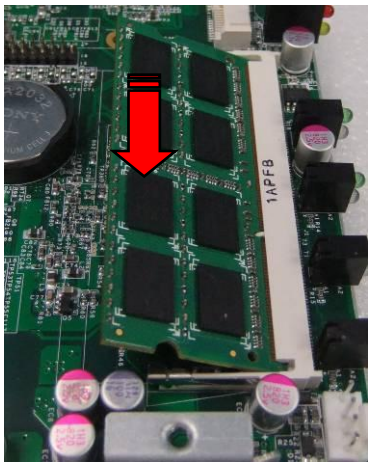


Fig. 7-1 Insert DDR3 SO-DIMM memory module

Fig. 7-2 Press down the memory module into socket

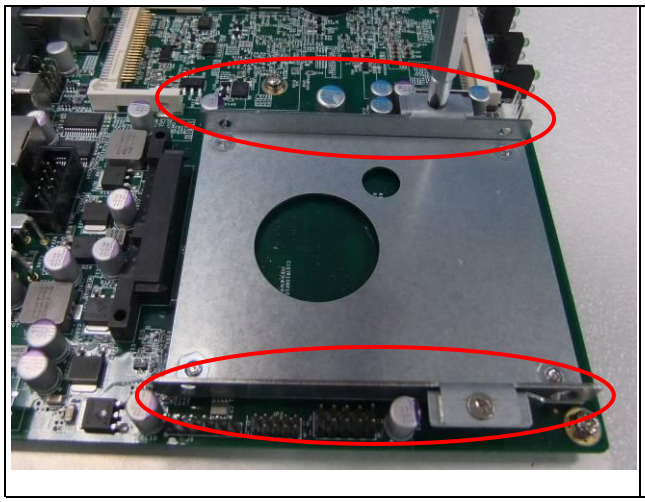


Fig. 8-1 *Loosen two screws to remove left & right side brackets*

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

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

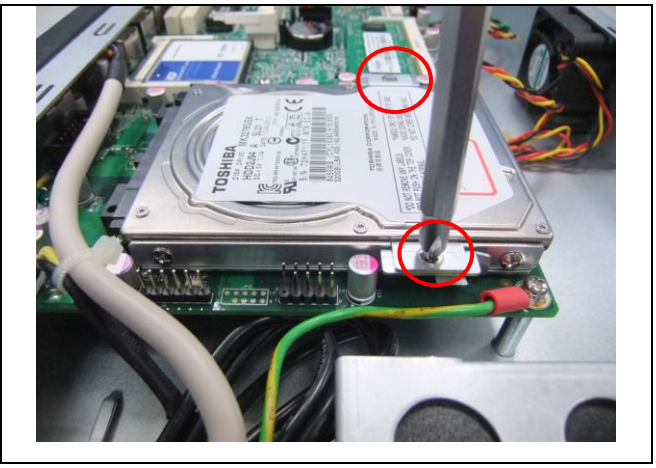


Fig. 8-4 *Fix SSD & brackets with two screws*

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

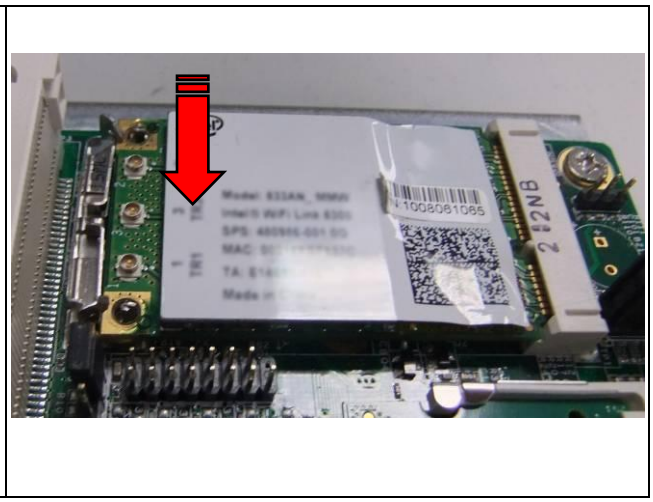


Fig. 9-2 Push down the module into socket

Fig. 9-3 Release two clips to remove module