ADVANTECH

AIMB-212 (Intel® Atom™ N450/D510 1.66 GHz Mini-ITX with VGA/LVDS, 6 COM, Dual LAN, 8 USB, Mini PCIe)
Startup Manual

Packing List

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

1. AIMB-212 Intel® Atom™ N450/D510 Mini-ITX motherboard
2. SATA HDD cable x 2
3. SATA Power cable x 2
4. Serial port cable **x 3**
5. I/O port bracket x 1
6. Startup manual x 1
7. Driver CD x 1
8. Warranty card x 1
9. CPU cooler (for Atom D510 only)

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

Note: Acrobat Reader is required to view any PDF file.

Acrobat Reader can be downloaded at:

www.adobe.com/Prodindex/acrobat/readstep.html (Acrobat is a trademark of Adobe).

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

http://www.advantech.com

http://www.advantech.com/eplatform

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

http://www.advantech.com/support

This manual is for the AIMB-212 series Rev.A1.

Specifications

Standard SBC functions

- **CPU:** Intel® Atom™ processor N450/D510 1.66 GHz
- **BIOS:** Award 16 Mbit SPI
- **Chipset:** ICH8M
- **System Memory:** Up to 2 GB; 200-pin SODIMM x 1, Single-channel 667 MHz DDR2
- **SATA2 Interface:** Two onboard Serial ATA connectors and data transfers up to 300 MB/s
- **CF interface:** Supports compact flash Type II
- **Serial ports:** Six serial ports, COM1, COM3, COM4, COM5 and COM6 are RS-232; COM2 is RS-232/422/485
- **Keyboard/mouse connector:** Supports one standard PS/2 keyboard, one standard PS/2 mouse(On board 6pin wafer box)
- **Watchdog timer:** 1~255 level timer intervals
- **USB 2.0:** Supports up to eight USB 2.0 ports, four external ports and four onboard pin headers
- **GPIO:** 8-bit general purpose Input/Output

Graphic Interface

- **Controller:** Embedded Gen3.5+ GFX Core, 200/400 MHz render clock frequency for N450/D510
- **Display memory:** Dynamically shared system memory up to 224 MB
- **VGA:** Supports resolution up to SXGA 1400 x 1050 pixels, 32bits, 60Hz refresh rate for Atom N450, supports resolutions up to 2048 x 1536 @ 60 Hz for Atom D510
- **LVDS interface:** Supports 18-bit single channel and up to WXGA 1366 x 768
- **LVDS port:** Supports Single LVDS connector

Ethernet Interface

- **LAN1:** 10/100/1000 Mbps GbE LAN Intel 82567V
- **LAN2:** 10/100/1000 Mbps GbE LAN Intel 82583V

Mechanical and Environmental

- **Dimensions (L x W):** 170 x 170 mm
- **Power supply voltage:** 12 V
- **Power requirements:**
  AIMB-212N sku +12 V @ 1.78 A
  AIMB-212D sku +12 V @ 1.99 A
  (Maximum measured current values with system under maximum load)
- **Operating temperature:** 0 ~ 60° C
- **Weight:** 0.365 kg (weight of board)

Jumpers and Connectors

The board has a number of connectors and jumpers that help configure the system to suit your application requirements. The tables below list the function of each of the connectors and jumpers.

Label	Function
JFP1	Power LED and Keyboard lock
JFP1+JFP2	Power switch/HDD LED/SMBus/Speaker
CMOS1	CMOS clear (Default 1-2)
J1	LVDS1 LCD power 3.3V/5V selection Default (1-2 , 3.3V)
PSON1	AT(1-2) / ATX(2-3) (Default 2-3)
JSETCOM2	COM2 RS232/422/485 Jumper Setting
JWDT1	Watchdog Reset
JOBS1	OBS Alarm
USB56	USB port 5, 6 (on board)
USB78	USB port 7, 8 (on board)
VGA1	VGA connector
COM12	Serial port: COM1 (RS232) and COM2 (RS232, RS422 and RS485)
COM3	Serial port: COM3 (RS232)
COM4	Serial port connector(RS232)
COM5	Serial port connector(RS232)
COM6	Serial port connector(RS232)
KBMS1	Internal PS/2 Keyboard and Mouse connector
CPUFAN1	CPU FAN connector(3-pin)
SYSFAN1	System FAN connector(3-pin)
LAN1_USB12	LAN1 / USB port 1, 2
LAN2_USB34	LAN2 / USB port 3, 4
CF1	CF Socket
AUDIO1	Audio connector
HD1	HD Audio Front Panel Pin Header
GPIO1	GPIO Header
DC_JACK1	DC 12V connector
VP1	LVDS1 Inverter Power
LVDS1	LVDS1 connector (Internal)
PCI1	PCI Slot
SATA1	Serial ATA data connector 1
SATA2	Serial ATA data connector 2

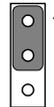## Jumpers and Connectors

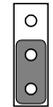|	
SATA_PWR_CN1	Serial ATA power connector 1
SATA_PWR_CN2	Serial ATA power connector 2
DIMMA1	Memory connector channel.
SPI_CN1	SPI flash update connector.
MINIPCIE2	Mini PCI express connector
ATX12V	ATX 12V connector

CMOS1: Clear CMOS

Pins	Result
1-2*	Keep CMOS data*
2-3	Clear CMOS data

* Default

Keep CMOS data   Clear CMOS

JLV1: LCD Power 3.3 V/5.5 V Selector
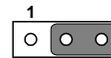
Closed Pins	Result
1-2*	3.3 V*
2-3	5 V

* Default

3.3 V   5 V
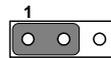
1-2 **closed**   **2-3 closed**

JPSON1: ATX, AT Mode Selector

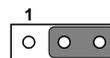| Closed Pins	Result
1-2	AT Mode
2-3*	ATX Mode*

* Default

AT Mode   ATX Mode

1-2 closed   2-3 closed

Jumpers and Connectors

JWDT1: Watchdog Timer Output Option
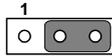
Closed Pins	Result
1-2	NC (Watchdog Timer Disabled)
2-3*	System reset* (Reset System when Watch-dog Timer Triggered)

* Default
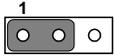
NC 1-2 Closed   System Reset 2-3 Closed

LVDS Connector: LVDS1

```
VDDSAFE_1  ☐ ○  VDDSAFE_2
    GND_1  ○ ○  GND_7
VDDSAFE_3  ○ ○  VDDSAFE_4
     OD0-  ○ ○  ED0-
     OD0+  ○ ○  ED0+
    GND_2  ○ ○  GND_8
     OD1-  ○ ○  ED1-
     OD1+  ○ ○  ED1+
    GND_3  ○ ○  GND_9
     OD2-  ○ ○  ED2-
     OD2+  ○ ○  ED2+
    GND_4  ○ ○  GND_10
     OCK-  ○ ○  ECK-
     OCK+  ○ ○  ECK+
    GND_5  ○ ○  GND_11
  DDC_CLK  ○ ○  DDC_DAT
    GND_6  ○ ○  GND_12
       NC  ○ ○  NC
       NC  ○ ○  NC
     HPLG  ○ ○  VCON
```

Installation Note

JFP1+JFP2	3	6	9	12
	2	5	8	11
	1	4	7	10

JFP1	1	2	3	4	5

JFP1+JFP2	
Pin.3	#PWR_SW
Pin.6	GND
Pin.9	#RST_SW
Pin.12	GND

*Power button pin is located in Pin 3 & 6 of front panel connector.

Declaration of Conformity

The 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.

Software Installation

The CD disc contains a driver installer program that will lead you through the installation as various device drivers are needed to take full advantage of your motherboard.

CAUTION

The computer is supplied with a battery-powered real-time clock circuit. There is a danger of explosion if the battery is incorrectly replaced. Replace only wih same or equivalent type recommended by the manufaturer. Discard used batteries according to manufaturer's instructions.

Board Diagram