

AIMB-213 (Intel® Atom™ N455/D525 1.66/1.8 GHz Mini-ITX with VGA/DVI/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-213 Intel® Atom™ N455/D525 Mini-ITX motherboard
2. SATA HDD cable x 3
3. SATA Power cable x 3
4. Serial port cable (1 to 4) x 1
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™ D525 only)

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

Note: Acrobat Reader may be used to view any PDF file on the CD. 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-213 series Rev.A1.

Part No. 2002021310

1st Edition,

Printed in Taiwan

April, 2011

Specifications

Standard SBC functions

- **CPU:** Intel® Atom™ processor N455/D525 1.66/1.8 GHz
- **BIOS:** Award 16 Mbit SPI
- **Chipset:** ICH8M
- **System Memory:** Up to 2 GB/4 GB; 204-pin SODIMM x 2, Single-channel 800 MHz DDR3
- **SATA2 Interface:** Three 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 N455/D525
- **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 N455, supports resolutions up to 2048 x 1536 @ 60 Hz for Atom D525
- **DVI:** Supports up to UXGA 1600 x 1200 @ 60Hz
- **LVDS interface:** Supports 18/24-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-213N SKU +12 V @ 3.09 A
 - AIMB-213D SKU +12 V @ 3.43 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/Reset switch/HDD LED/SMBus/Speaker
CMOS1	CMOS clear (Default 1-2)
JLVDS1	Voltage 3.3 V / 5 V selector for LVDS1 connector(Default 1-2, 3.3 V)
JLVDS2	Voltage 12 V selector for LVDS1 and LVDS2 connector
PERSON1	AT(1-2) / ATX(2-3) (Default 2-3)
JSETCOM2	COM2 RS232/422/485 Jumper Setting
JSETCOM6	COM6 support 5V/12V Jumper Setting
JWDT1	Watchdog Reset
JOBS1	H/W Monitor Alarm
JVBR1	Brightness control selector for Analog or Digital (Default 1-2, Analog)
USB56	USB port 5, 6 (on board)
USB78	USB port 7, 8 (on board)
VGA1+DVI1	VGA/DVI connector
COM12	Serial port: COM1 (RS232) and COM2 (RS232, RS422 and RS485)
COM3456	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
INV1	LVDS1 Inverter Power
LVDS1	LVDS1 connector (Internal)
PCI1	PCI Slot

Jumpers and Connectors

SATA1	Serial ATA data connector 1
SATA2	Serial ATA data connector 2
SATA3	Serial ATA data connector 3
SATA_PWR_CN1	Serial ATA power connector 1
SATA_PWR_CN2	Serial ATA power connector 2
SATA_PWR_CN3	Serial ATA power connector 3
DIMM1	Memory connector channel
DIMM2	Memory connector channel
SPI_CN1	SPI flash update connector.
MINIPICIE2	Mini PCI express connector
ATX12V_1	ATX 12V connector

CMOS1: Clear CMOS

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

* Default



Keep CMOS data



Clear CMOS

JLVDS1 and JLVDS2: Voltage 3.3 V / 5 V / 12 V selector connector

Closed Pins	Result
JLVDS1	
1-2*	For 3.3 V LVDS Panel
2-3	For 5 V LVDS Panel
JLVDS1 and JLVDS2	
2-2	For 12 V LVDS Panel

* Default

JLVDS2  for 3.3V LVDS panel
 JLVDS1 

JLVDS2  for 5V LVDS panel
 JLVDS1 

JLVDS2  for 12V LVDS panel
 JLVDS1 

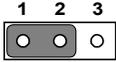
Jumpers and Connectors

JPSO1: ATX, AT Mode Selector

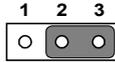
Closed Pins Result

1-2	AT Mode
2-3*	ATX Mode*

* Default



AT Mode
1-2 closed



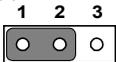
ATX Mode
2-3 closed

JWDT1: Watchdog Timer Output Option

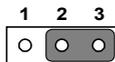
Closed Pins Result

1-2	NC (Watchdog Timer Disabled)
2-3*	System reset* (Reset System when Watchdog Timer Triggered)

* Default



NC 1-2 Closed



System Reset 2-3 Closed

LVDS Connector: LVDS1

DDSAFE_1	<input type="checkbox"/>	VDDSAFE_2
GND_1	<input type="checkbox"/>	GND_7
DDSAFE_3	<input type="checkbox"/>	VDDSAFE_4
OD0-	<input type="checkbox"/>	NC
OD0+	<input type="checkbox"/>	NC
GND_2	<input type="checkbox"/>	GND_8
OD1-	<input type="checkbox"/>	NC
OD1+	<input type="checkbox"/>	NC
GND_3	<input type="checkbox"/>	GND_9
OD2-	<input type="checkbox"/>	NC
OD2+	<input type="checkbox"/>	NC
GND_4	<input type="checkbox"/>	GND_10
OCK-	<input type="checkbox"/>	NC
OCK+	<input type="checkbox"/>	NC
GND_5	<input type="checkbox"/>	GND_11
DDC_CLK	<input type="checkbox"/>	DDC_DAT
GND_6	<input type="checkbox"/>	GND_12
OD3-	<input type="checkbox"/>	NC
OD3+	<input type="checkbox"/>	NC
HPLG	<input type="checkbox"/>	VCON

Installation Note

	3	6	9	12	
JFP1+JFP2	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 function is located in pins 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 with same or equivalent type recommended by the manufacturer. Discard used batteries according to manufacturer's instructions.

Board Diagram

