## AIMB-212

### Features
- Support Intel® Atom N450 and D510 dual core processor
- One 200-pin SODIMM up to 2 GB DDR2 667 MHz SDRAM
- Support 1 PCI and 1 Mini-PCIe expansion, 6 serial ports, 8 USB, and CF
- Lower total cost of ownership with DC12V support
- Supports Embedded Software API and Utility

### Specifications

**Processor System**

- **CPU (45 nm):** Intel Atom N450 1.67 GHz (single core), Intel Atom N510 1.67 GHz (dual core)
- **L3 Cache:** 512 KB, 1 MB
- **Chipset:** ICH8M
- **BIOS:** AMI 16 Mbit PSI

**Expansion Slot**

- **PCI:** 32-bit/33 MHz, 1 slot
- **Mini-PCIe:** 1

**Memory**

- **Technology:** Single channel DDR2 667 MHz
- **Max. Capacity:** 2 GB
- **Socket:** 1 x 200-pin SODIMM

**Graphics**

- **Controller:** Embedded Gen3.5+ GFX Core
- **VRAM:** Shared system memory up to 224 MB SDRAM
- **VGA:** Supports up to SXGA 1400 x 1050 @ 60Hz for Atom N450, up to 2048 x 1536 for Atom D510
- **LVDS:** Supports 18-bit single channel and up to WXGA 1366 x 768
- **TV-out:** None
- **Dual Display:** CRT + LVDS, support extended mode and clone mode

**Ethernet**

- **Interface:** 10/100/1000 Mbps
- **Controller:** GbE LAN1: Intel 82567V; GbE LAN2: Intel 82583V
- **Connector:** RJ-45 x 2

**SATA**

- **Max Data Transfer Rate:** 300 MB/s
- **Channel:** 2

**EIDE**

- **Mode:** EIDE (Ultra DMA 100)
- **Channel:** None

**SSD**

- **CompactFlash:** Supports CompactFlash Type I/II

**Rear I/O**

- **VGA:** 1
- **Ethernet:** 2
- **USB:** 4 (USB 2.0 compliant)
- **Audio:** 3 (Mic-in, Line-out, Line-in)
- **Serial:** 3 (2 of RS-232, 1 of RS-232/422/485)
- **Parallel:** -
- **DC jack:** 1 (2.5 mm)

**Internal Connector**

- **LVDS & Inverter:** 1
- **USB:** 4 (USB 2.0 compliant)
- **Serial:** 3 (RS-232)
- **IDE:** none
- **SATA:** 2
- **SATA PWR connector:** 2
- **CompactFlash:** 1
- **Parallel:** 1
- **DIO:** 8-bit GPIO

**Watchdog Timer**

- **Output:** System reset
- **Interval:** Programmable 1 ~ 255 sec/min

**Power Requirement**

- **Typical:** 18W
- **Operating:** Non-Operating

**Environment**

- **Temperature:** 0 ~ 60° C (32 ~ 140° F)
- **Non-Operating:** -40 ~ 85° C (-40 ~ 185° F)

**Physical Characteristics**

- **Dimensions:** 170 mm x 170 mm (6.69” x 6.69”)
# AIMB-212

## Board Diagram

![Board Diagram](image)

## Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>CPU</th>
<th>SC/DC</th>
<th>GbE</th>
<th>COM</th>
<th>LVDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIMB-212G2-S6A1E</td>
<td>Atom N450</td>
<td>Single core</td>
<td>2</td>
<td>6</td>
<td>1, 18-bit</td>
</tr>
<tr>
<td>AIMB-212FG2-S6A1E</td>
<td>Atom D510</td>
<td>Dual core</td>
<td>2</td>
<td>6</td>
<td>1, 18-bit</td>
</tr>
</tbody>
</table>

## Packing List

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIMB-212 SBC</td>
<td>x 1</td>
</tr>
<tr>
<td>SATA HDD cable</td>
<td>x 2</td>
</tr>
<tr>
<td>SATA power cable</td>
<td>x 2</td>
</tr>
<tr>
<td>Serial port cable</td>
<td>x 3</td>
</tr>
<tr>
<td>CPU cooler</td>
<td>x 1</td>
</tr>
<tr>
<td>I/O port bracket</td>
<td>x 1</td>
</tr>
<tr>
<td>Startup manual</td>
<td>x 1</td>
</tr>
<tr>
<td>Driver CD</td>
<td>x 1</td>
</tr>
</tbody>
</table>

## Accessories

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1700003195</td>
<td>USB cable with four ports, 17.5 cm</td>
</tr>
<tr>
<td>1700002204</td>
<td>USB cable with four ports, 27 cm</td>
</tr>
<tr>
<td>1700002314</td>
<td>USB cable with four ports, 30.5 cm</td>
</tr>
</tbody>
</table>

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[www.advantech.com/products](www.advantech.com/products)
Value-Added Software Services

Software API: An interface that defines the ways by which an application program may request services from libraries and/or operating systems. Provides not only the underlying drivers required but also a rich set of user-friendly, intelligent and integrated interfaces, which speeds development, enhances security and offers add-on value for Advantech platforms. It plays the role of catalyst between developer and solution, and makes Advantech embedded platforms easier and simpler to adopt and operate with customer applications.

Software API

<table>
<thead>
<tr>
<th>Control</th>
<th>Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPIO</td>
<td>A watchdog timer (WDT) is a device that performs a specific operation after a certain period of time if something goes wrong and the system does not recover on its own. A watchdog timer can be programmed to perform a warm boot (restarting the system) after a certain number of seconds.</td>
</tr>
<tr>
<td>SMBus</td>
<td>The Hardware Monitor (HWM) API is a system health supervision API that inspects certain condition indexes, such as fan speed, temperature and voltage.</td>
</tr>
<tr>
<td>I²C</td>
<td>The Hardware Control API allows developers to set the PWM (Pulse Width Modulation) value to adjust Fan Speed or other devices; can also be used to adjust the LCD brightness.</td>
</tr>
</tbody>
</table>

Display

| Brightness Control API allows a developer to interface a device to easily control brightness. |
| Backlight API allows a developer to control the backlight (screen) on/off in Embedded Device. |

Power Saving

| CPU Speed | Make use of Intel SpeedStep technology to save the power consumption. The system will automatically adjust the CPU Speed depend on the system loading. |
| System Throttling | Refers to a series of methods for reducing power consumption in computers by lowering the clock frequency. These API allow user to lower the clock from 87.5% to 12.5%. |

Software Utility

| BIOS Flash | The BIOS Flash utility allows customers to update the flash ROM BIOS version, or use it to back up current BIOS by copying it from the flash chip to a file on customers’ disk. The BIOS Flash utility also provides a command line version and API for fast implementation into customized applications. |
| Software Protection | The embedded application is the most important property of a system integrator. It contains valuable intellectual property, design knowledge and innovation, but it is easy to be copied! Software Protection utility which provides reliable security functions for customers to secure their application data within embedded BIOS. |
| Monitoring | The Monitoring is a utility for customer to monitor the system health, like Voltage, CPU and System temperature and FAN speed. These items are important to a device, if the critical errors happen and not be solved immediately, a permanent damage may be caused. |
| eSOS | The eSOS is a small OS stored in BIOS ROM. It will boot up in case of main OS crash. It will diagnose the hardware status, and then send an e-mail to administrator. The eSOS also provide Remote Connection: Telnet server and FTP server for administrator to rescue the system. |
| Flash Lock | Flash Lock is a mechanism to bind the Board and CF card (SQFlash) together. User can “Lock” SQFlash via Flash Lock function and “Unlock” by BIOS while booting. A locked SQFlash cannot be read by any card reader or boot from other platforms without a BIOS with “Unlock” feature. |