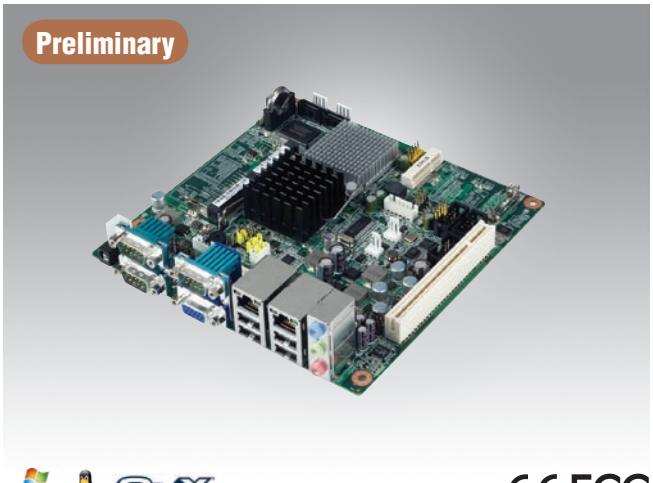
AIMB-212

Intel® N450/D510 Mini-ITX with VGA/LVDS, 6 COM, and Dual LAN



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

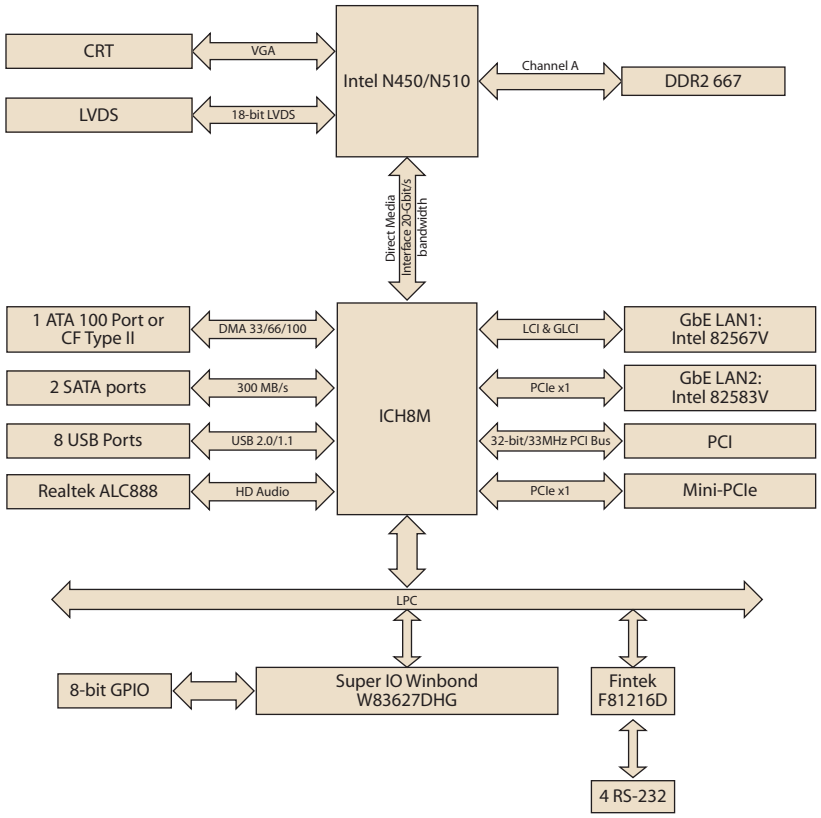
Software API: SMBus, H/W Monitor, Brightness, Watchdog, GPIO

Utility: BIOS flash, eSOS, Monitoring, Flash Lock, S/W Protection

Specifications

Processor System	CPU (45 nm)	Intel Atom N450	Intel AtomN510
	Max. Speed	1.67 GHz (single core)	1.67 GHz (dual core)
	L2 Cache	512 KB	1 MB
	Chipset	ICH8M	
	BIOS	AMI 16 Mbit PSI	
Expansion Slot	PCI	32-bit/33 MHz, 1 slot	
	Mini-PCIe	1	
	PCIe	-	
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	TBD	
Environment		Operating	Non-Operating
	Temperature	0 ~ 60° C (32 ~ 140° F)	-40 ~ 85° C (-40 ~ 185° F)
Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")	

Board Diagram



Ordering Information

Part Number	CPU	SC/DC	GbE	COM	LVDS
AIMB-212G2-S6A1E	Atom N450	Single core	2	6	1, 18-bit
AIMB-212FG2-S6A1E	Atom D510	Dual core	2	6	1, 18-bit

Bracket View

Packing List

Description	Quantity
AIMB-212 SBC	x 1
SATA HDD cable	x 2
SATA power cable	x 2
Serial port cable	x 3
CPU cooler	x 1
I/O port bracket	x 1
Startup manual	x 1
Driver CD	x 1

Accessories

Part Number	Description
1700003195	USB cable with four ports, 17.5 cm
1700002204	USB cable with four ports, 27 cm
1700002314	USB cable with four ports, 30.5 cm

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

Control

GPIO

General Purpose Input/Output is a flexible parallel interface that allows a variety of custom connections. allows users to monitor the level of signal input or set the output status to switch on/off the device. Our API also provide Programmable GPIO, allows developers to dynamically set the GPIO input or output status

SMBus

SMBus is the System Management Bus defined by Intel® Corporation in 1995. It is used in personal computers and servers for low-speed system management communications. The SMBus API allows a developer to interface a embedded system environment and transfer serial messages using the SMBus protocols, allowing multiple simultaneous device control.

I²C

I²C is a bi-directional two wire bus that was developed by Philips for use in their televisions in the 1980s.
The I2C API allows a developer to interface a embedded system environment and transfer serial messages using the I²C protocols, allowing multiple simultaneous device control.

Monitor

Watchdog

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.

Hardware Monitor

The Hardware Monitor (HWM) API is a system health supervision API that inspects certain condition indexes, such as fan speed, temperature and voltage.

Hardware Control

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.

Display

Brightness Control

The Brightness Control API allows a developer to interface Embedded device to easily control brightness.

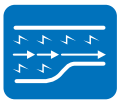
Backlight

The Backlight API allows a developer to control the backlight (screen) on/off in Embedded Device.

Power Saving

CPU Speed

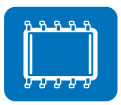
Make use of Intel SpeedStep technology to save the power consumption. The system will automatically adjust the CPU Speed depend on the system loading.



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.

Last updated : 05-Aug-2009