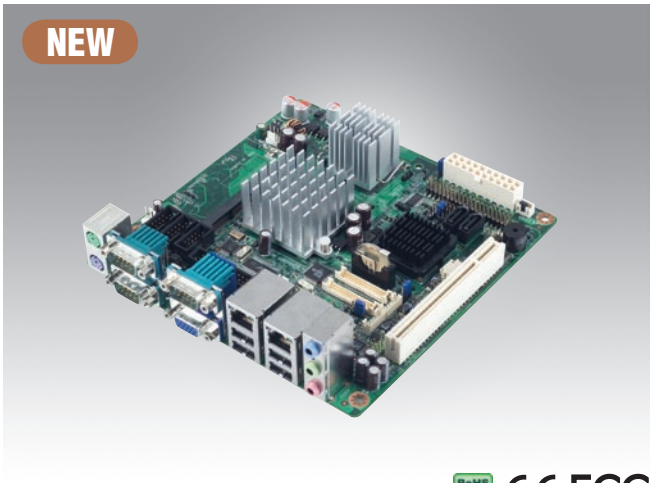
AIMB-210

Intel® ATOM™ Mini-ITX with VGA/LVDS, 6 COM, and Dual LAN



Features

- Intel® ATOM Mini-ITX motherboard supports N270 1.6 GHz processor
- One 200-pin SODIMM up to 2 GB DDR2 533 SDRAM
- Supports dual display for VGA, LVDS, and TV-Out
- Built with 6 serial ports, 8 USB, CF, 2LAN and TPM1.2 (optional)
- Supports Embedded Software API and Utlity

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

Utility: BIOS flash, Monitoring

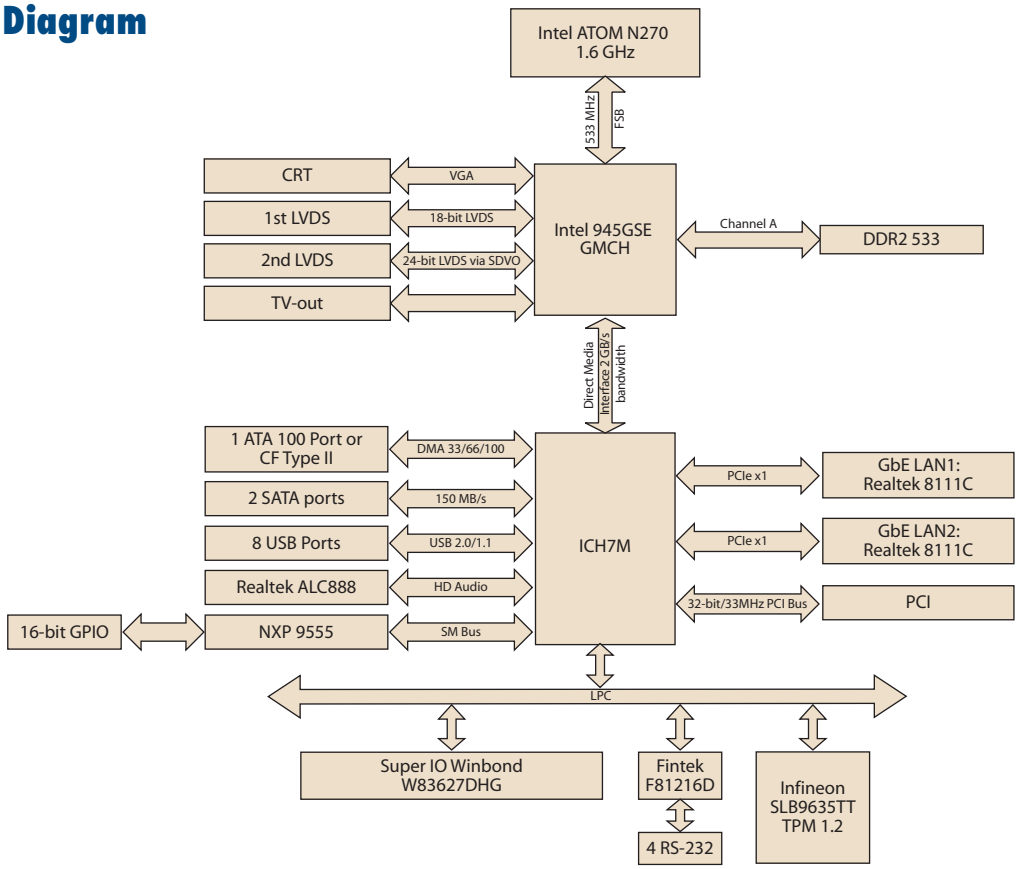
Specifications

Processor System	CPU (45 nm)	Intel ATOM N270				
	Max. Speed	1.6 GHz				
	Front Side Bus	533 MHz				
	L2 Cache	512 KB				
	Chipset	Intel 945GSE + ICH7M				
	BIOS	Award 16 Mbit, SPI				
Expansion Slot	PCI	32-bit/33 MHz, 1 slot				
	Mini-PCI	-				
	PCIe	-				
Memory	Technology	Single channel DDR2 533 MHz				
	Max. Capacity	2 GB				
	Socket	1 x 200-pin SODIMM				
Graphics	Controller	Intel 945GSE GMCH integrated Graphic Media Accelerator 950				
	VRAM	Shared system memory up to 224 MB SDRAM				
	1st LVDS	Single channel 18-bit/Dual channel 36-bit LVDS				
	2nd LVDS	Single channel 18/24-bit/Dual channel 36/48-bit LVDS, via Chrontel 7308B SDVO transmitter (F version)				
	TV-Out	Supports both S-video and composite video (TV-Out function is not supported during POST stage)				
	Dual Display	CRT + LVDS, CRT + TV-Out, LVDS + TV-Out				
Ethernet	Interface	10/100/1000 Mbps				
	Controller	GbE LAN1: Realtek 8111C; GbE LAN2: Realtek 8111C				
	Connector	RJ-45 x 2				
SATA	Max Data Transfer Rate	150 MB/s				
	Channel	2				
EIDE	Mode	EIDE (Ultra DMA 100)				
	Channel	1				
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	-				
	PS/2	2 (1 x keyboard and 1 x mouse)				
Internal Connector	LVDS & Inverter	1				
	USB	4 (USB 2.0 compliant)				
	Serial	3 (RS-232)				
	IDE	1				
	SATA	2				
	CompactFlash	1				
	Parallel	1				
	DIO	16-bit GPIO				
Watchdog Timer	Output	System reset				
	Interval	Programmable 1 ~ 255 sec/min				
Power Requirement	Power On	1.6 GHz ATOM processor, 2 GB DDR2 SDRAM				
		+5 V	+3.3 V	+12 V	-12 V	+5 VSB
		1.96 A	1.21 A	0.19 A	0.06 A	0.28 A
Environment		Operating		Non-Operating		
	Temperature	0 ~ 60° C (32 ~ 140° F)		-20 ~ 70° C (-4 ~ 158° F)		
Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")				

* Minimum order quantity is required.

Last updated : 09-Nov-2009

Board Diagram



Ordering Information

Part Number	CPU	Chipset	GbE	COM	LVDS	TV-out	TPM
AIMB-210G2-S6A1E	ATOM 1.6 GHz	945GSE	2	6	1, 18-bit	Yes	None
AIMB-210F-S6A1E	ATOM 1.6 GHz	945GSE	2	6	2, 18/24-bit	Yes	Yes

Riser Card

Part Number	Description
AIMB-RP30P-03A1E	2U riser card with 3 PCI slot expansion

Bracket View

Packing List

Description	Quantity
AIMB-210 SBC	x 1
IDE HDD cable (40-pin)	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
1700008809	Printer port cable, 25 cm, w/bracket
1700002331	TV-out cable

Value-Added Software Services

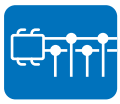
Software API: An interface that defines the ways by which an application program may request services from libraries and/or operating systems. Provides not only the underlying drivers required but also a rich set of user-friendly, intelligent and integrated interfaces, which speeds development, enhances 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 APIs

Control

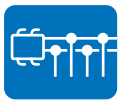
GPIO

General Purpose Input/Output is a flexible parallel interface that allows a variety of custom connections. It allows users to monitor the level of signal input or set the output status to switch on/off a device. Our API also provides Programmable GPIO, which 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 with an 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; it can also be used to adjust the LCD brightness.

Display

Brightness Control

The Brightness Control API allows a developer to interface with an embedded device to easily control brightness.

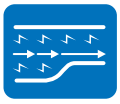
Backlight

The Backlight API allows a developer to control the backlight (screen) on/off in an embedded device.

Power Saving

CPU Speed

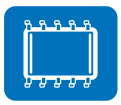
Make use of Intel SpeedStep technology to reduce power power consumption. The system will automatically adjust the CPU Speed depending on system loading.



System Throttling

Refers to a series of methods for reducing power consumption in computers by lowering the clock frequency. These APIs allow the user to lower the clock from 87.5% to 12.5%.

Software Utilities



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.

Embedded Security ID

The embedded application is the most important property of a system integrator. It contains valuable intellectual property, design knowledge and innovation, but it is easily copied! The Embedded Security ID utility provides reliable security functions for customers to secure their application data within embedded BIOS.

Monitoring

The Monitoring utility allows the customer to monitor system health, including voltage, CPU and system temperature and fan speed. These items are important to a device; if critical errors happen and are not solved immediately, permanent damage may be caused.

eSOS

The eSOS is a small OS stored in BIOS ROM. It will boot up in case of a main OS crash. It will diagnose the hardware status, and then send an e-mail to a designated administrator. The eSOS also provides remote connection: Telnet server and FTP server, allowing the administrator to rescue the system.

Flash Lock

Flash Lock is a mechanism that binds the board and CF card (SQFlash) together. The user can "Lock" SQFlash via the Flash Lock function and "Unlock" it via BIOS while booting. A locked SQFlash cannot be read by any card reader or boot from other platforms without a BIOS with the "Unlock" feature.