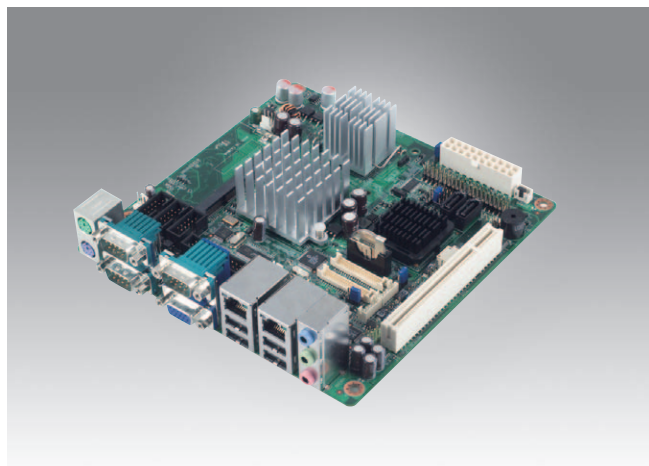


AIMB-210

Intel® Atom™ N270 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 MHz SDRAM
- Supports dual display for VGA, LVDS, and TV-Out
- Built with 6 serial ports, 8 USB ports, CF, 2 LAN ports and TPM1.2 (optional)
- Supports embedded software APIs and utilities

Software APIs:



Utilities:

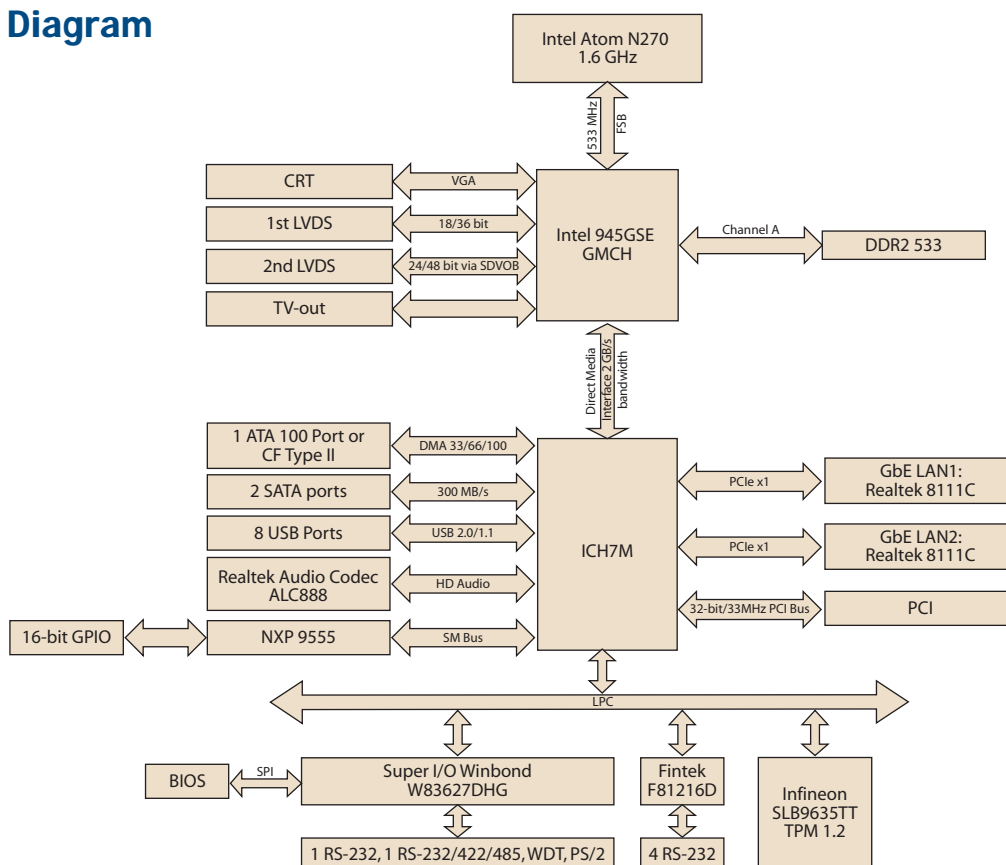


Specifications

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 SDRAM			
	Max. Capacity	2 GB			
	Socket	1 x 200-pin SODIMM			
Graphics	Controller	Intel 945GSE GMCH integrated GMA 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 Chronitel 7308B SDVO transmitter (F version)			
	TV-Out	Supports both S-video and composite video (TV-Out function is not supported during POST stage)			
Ethernet	Dual Display	CRT + LVDS, CRT + TV-Out, LVDS + TV-Out			
	Interface	10/100/1000 Mbps			
	Controller	GbE LAN1: Realtek 8111C; GbE LAN2: Realtek 8111C			
SATA	Connector	RJ-45 x 2			
	Max Data Transfer Rate	300MB/S			
EIDE	Channel	2			
	Mode	EIDE (Ultra DMA 100)			
SSD	Channel	1			
	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 x RS-232, 1 x 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 Requirements	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.

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

Packing List

Description	Quantity
AIMB-210 SBC	1
IDE HDD cable (40-pin)	1
SATA HDD cable	2
SATA power cable	2
Serial port cable	3
CPU cooler	1
I/O port bracket	1
Startup manual	1
Driver CD	1

Optional Accessories

Part Number	Description
1700003195	USB cable with four ports, 17.5 cm
1700002204	USB cable with four ports, 27 cm
1700008461	USB cable with four ports, 30.5 cm
1700008809	Printer port cable, 25 cm, w/bracket

Embedded OS/API

OS/API	Part No.	Description
Win XPE	2070009632	XPE WES2009 AIMB-210 V4.0 ENG
	2070007914	XPE WES2009 AIMB-210 V4.0 24MUI
	2070009651	CE 5.0 Pro AIMB-210 V1.4 ENG
Win CE	2070006271	CE 6.0 Pro AIMB-210 V1.1 ENG (Need ODM BIOS)
QNX	2070006272	IMG QNX V6.4 AIMB-210 V1.0 ENG (Audio is not supported)

I/O View



AIMB-210G2-S6A1E
AIMB-210F-S6A1E

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.

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.

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.

Power Saving



CPU Speed

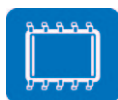
Make use of Intel SpeedStep technology to reduce power consumption. The system will automatically adjust the CPU Speed depending on system loading.



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.