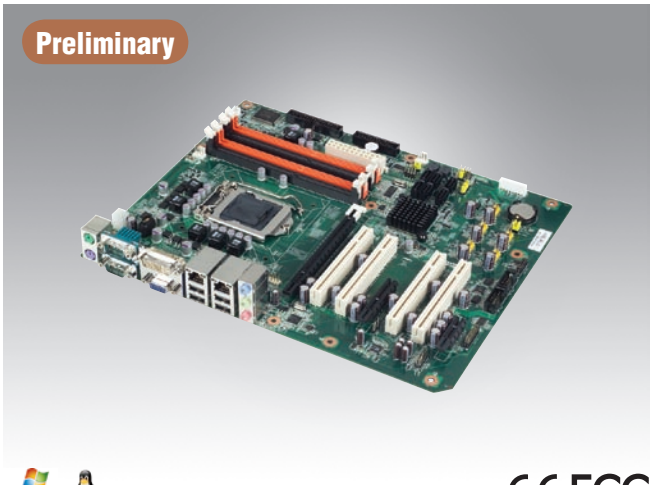
AIMB-780

Intel® i7/ i5/Core i5/Core i3 with DVI/VGA, 4 COM, Dual LAN, DDR3

Preliminary



Features

- Supports Intel i7/i5/Core i5/Core i3 processor with Q57 chipset
- Four Long DIMM socket support up to 16 GB DDR3 800/1066/1333
- Supports dual display of VGA and DVI and dual GbE LAN
- Supports SATA RAID 0, 1, 5, 10, AMT6.0, TPM1.2 (optional)
- Supports Embedded Software API and Utility

Software APIs: SMBus, H/W Monitor, Watchdog

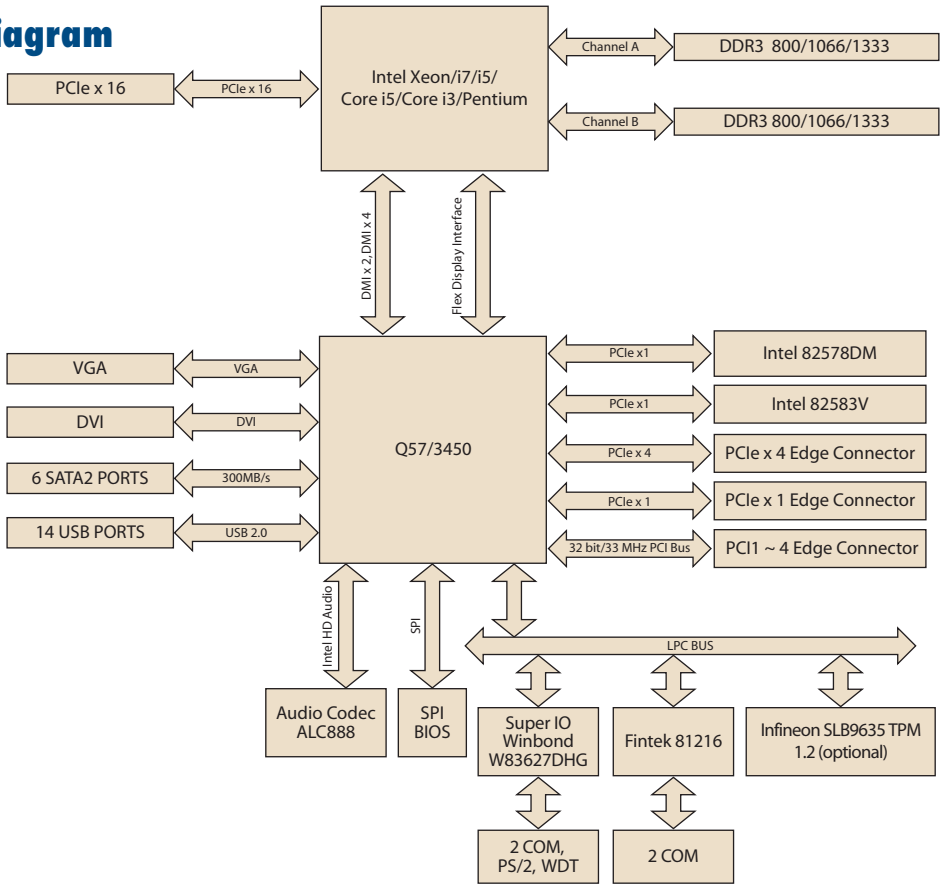
Utility: BIOS flash, eSOS, Monitoring, Flash Lock, Embedded Security ID

Specifications

Processor System	CPU	X3450	Intel i7	i5	Core i5	Core i3	Pentium
	Max. Speed	2.67 GHz	2.8 GHz	2.66 GHz	3.33 GHz	3.06 GHz	2.8 GHz
	Integrated Graphic	Only Intel Core i5/i3/Pentium are embedded with integrated graphics					
	L2 Cache	8 MB	8 MB	8 MB	4 MB	4 MB	3 MB
	Chipset	Intel® Q57 and 3450(WS version) Chipset					
	BIOS	AMI 64 Mbit SPI					
Expansion Slot	PCI	32-bit/33 MHz, 4 slots					
	PCIe x1	250 MB/s per direction, 1 slot					
	PCIe x 4	1.0 GB/s per direction, 1 slot					
	PCIe x16 (Gen2)	8 GB/s per direction, 1 slot					
Memory	Technology	Dual Channel DDR3 800/1066/1333					
	Max. Capacity	16 GB					
	Socket	4 x 240-pin DIMM					
Graphics	Controller	Intel GFX (only Clarkdale)					
	VRAM	TBD					
Ethernet	Interface	10/100/1000 Mbps					
	Controller	GbE LAN1: Intel 82578DM, GbE LAN2: Intel 82583V					
	Connector	RJ-45 x 2					
SATA	Max Data Transfer Rate	300 MB/s					
	Channel	6					
Rear I/O	VGA	1					
	DVI	1					
	Ethernet	2					
	USB	4 (USB 2.0 compliant)					
	Audio	2 (Mic-in, Line-out)					
	Serial	2 (RS-232)					
	PS/2	2 (1 x keyboard and 1 x mouse)					
Internal Connector	USB	10 (USB 2.0 compliant)					
	Serial	2 (1 of RS-232, 1 of RS-232/422/485 for support auto flow control)					
	IDE	-					
	SATA	6					
	FDD	1					
	Parallel	1					
	IrDA	-					
	DIO	-					
Watchdog Timer	Output	System reset					
	Interval	Programmable 1 ~ 255 sec/min					
Power Requirement	Power On	5 V	3.3 V	12 V	5 Vsb	-12 V	
		TBD	TBD	TBD	TBD	TBD	
Environment		Operating			Non-Operating		
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU speed and cooler solution			-40 ~ 85° C (-40 ~ 185° F)		
Physical Characteristics	Dimensions	304.8 x 244 mm (12" x 9.6")					

Last updated : 09-Nov-2009

Board Diagram



Ordering Information

Part Number	Chipset	Memory	USB	COM	GbE LAN	TPM
AIMB-780QG2-00A1E	Q57	Non-ECC	14	4	2	None
AIMB-780WG2-00A1E	3450	ECC	14	4	2	Yes

Riser Card

Part Number	Description
AIMB-RP10P-01A1E	1U riser card with 1 PCI expansion
AIMB-RP30P-03A1E	2U riser card with 3 PCI expansion
AIMB-RP3PF-21A1E	2U riser card with 1PCIe x 16 & 2PCI slot expansion

Bracket View

Packing List

Description	Quantity
FDD cable	x 1
SATA HDD cable	x 2
SATA Power cable	x 2
I/O port bracket	x 1
Startup manual	x 1
Driver CD	x 1

Accessories

Part Number	Description
1700002204	Dual port USB cable (27 cm) with bracket
TBD	LGA1156 CPU cooler for 2U and wallmount chassis

Value-Added Software Services

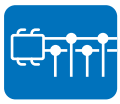
Software API: An interface that defines the ways by which an application program may request services from libraries and/or operating systems. Provides not only the underlying drivers required but also a rich set of user-friendly, intelligent and integrated interfaces, which speeds development, enhances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

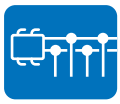
GPIO

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.

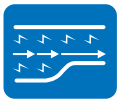
Backlight

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

Power Saving

CPU Speed

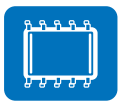
Make use of Intel SpeedStep technology to reduce power power consumption. The system will automatically adjust the CPU Speed depending on system loading.



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.