AIMB-780

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

NEW

Features

- Supports Intel® Core™ i7/i5/i3/Pentium®/Xeon® processor with Q57/3450 chipset
- Four DIMM sockets support up to 16 GB DDR3 800/1066/1333
- Supports dual display VGA and DVI and dual GbE LAN
- Supports SATA RAID 0, 1, 5, 10, AMT6.0, TPM1.2 (optional)
- Supports embedded software APIs and utilities

**Software APIs:** SMBus   H/W Monitor   Watchdog

Utilities: Monitoring   Embedded Security ID   eSOS

Note: eSOS need ODM BIOS by request

CE FCC

Specifications

Processor System	CPU	Xeon 34xx	Core i7 8xx	Core i5 7xx	Core i5 6xx	Core i3 5xx	Pentium G69xx
	Core Number	4	4	4	2	2	2
	Speed	2.93 Ghz	2.93 Ghz	2.66 Ghz	3.3 GHz	3.06 GHz	2.8 GHz
	Integrated Graphics	-	-	-	Yes	Yes	Yes
	L3 Cache	8 MB	8 MB	8 MB	4 MB	4 MB	3 MB
	Support Model	WG2	QG2	QG2	WG2/QG2	WG2/QG2	WG2/QG2
	Socket	LGA1156					
	Chipset	Q57 for QG2 version; 3450 for WG2 version (WG2 only supports Xeon 34xx, Core i5 6xx, Core i3 5xx, and Pentium G69XX CPUs)					
	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 (Only WG2 SKU supports ECC memory)					
	Max. Capacity	16 GB					
	Socket	4 x 240-pin DIMM					
Graphics	Controller	Intel HD Graphics (Only the Core i5 6xx, Core i3 and Pentium CPUs with dual core are embedded with integrated graphics)					
	VRAM	1 GB maximum shared memory with 2 GB and above system memory installed					
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 Connectors	USB	10 (USB 2.0 compliant)					
	Serial	2 (1 x RS-232, 1 x 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	Intel Core i5-660 processor and disable C state ; DDR3 2 GB x 4					
		5 V	3.3 V	12 V	5 Vsb	-12 V	
		4.23 A	0.96 A	3.93 A	1.18 A	0.01A	
Environment	Temperature	Operating			Non-Operating		
		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")					

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Board Diagram
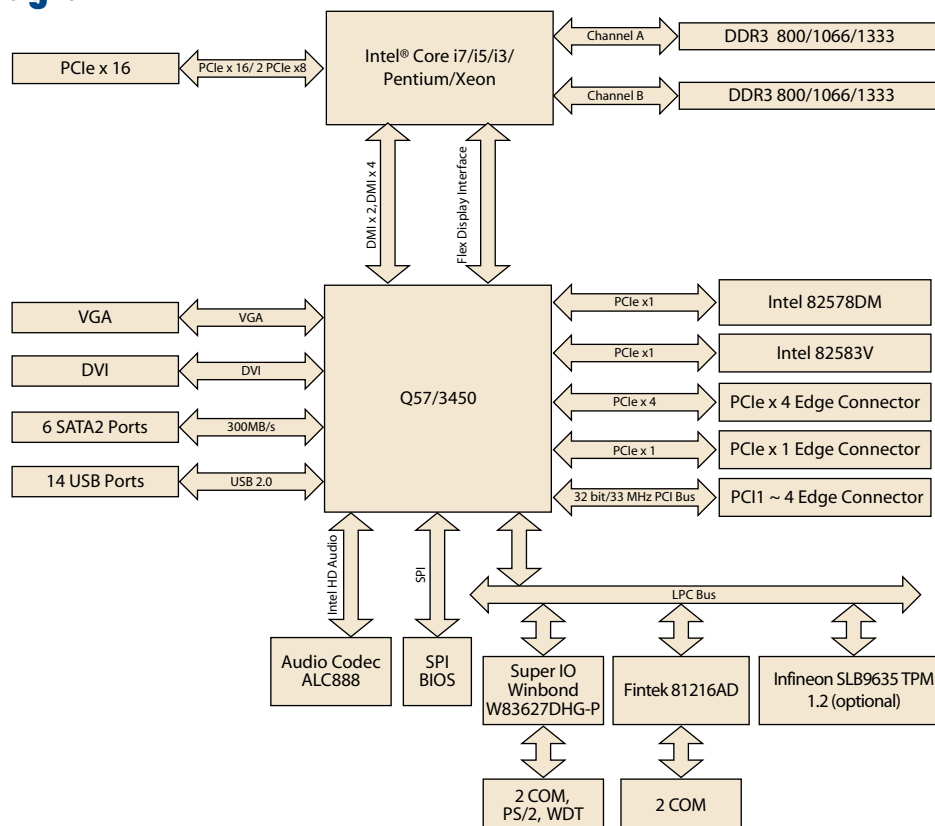
Ordering Information

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

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 x16 & 2 PCI slot expansion
AIMB-RP3P8-12A1E	2U riser card with 2PCIe x8 & 1 PCI slot expansion (only for WG2 Sku)

Bracket View

AIMB-780QG2-00A1E
AIMB-780WG2-00A1E

Packing List

Part Number	Description	Quantity
1700003194	SATA HDD cable	x2
1703150102	SATA power cable	x2
1701092300	COM port cable kit	x1
1960019193T000	I/O port bracket	x1
2002078010	Startup manual	x1
2062078000	Driver CD	x1

Optional Accessories

Part Number	Description
1700002204	Dual port USB cable (27 cm) with bracket
1960047669N001	LGA1156 CPU cooler for 4U and wallmount chassis
1700008809	Printer port cable kit

Note: Purchasing AIMB-780's proprietary CPU cooler from Advantech is a must. Other brands' CPU coolers are NOT compatible with AIMB-780.

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
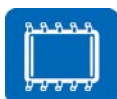
BIOS Flash

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.

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All product specifications are subject to change without notice.   Last updated : 16-Jul-2010