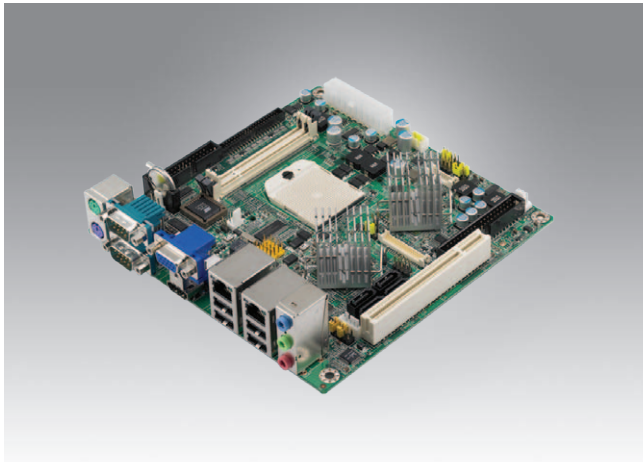


AIMB-221

AMD Turion™ and Sempron™ Mini-ITX with VGA/LVDS/HDMI, 6 COM, and Dual LAN Port



Features

- Supports AMD Turion™ 64 X2 and Sempron™ mobile processor-AMD M690E and SB600
- Two 200-pin SODIMMs, up to 4 GB DDR2 533/667/800 MHz SDRAM
- Supports dual display for VGA, HDMI, LVDS
- Supports 6 serial ports, 4 SATA 2.0 ports and TPM (optional)
- Supports embedded software APIs and utilities

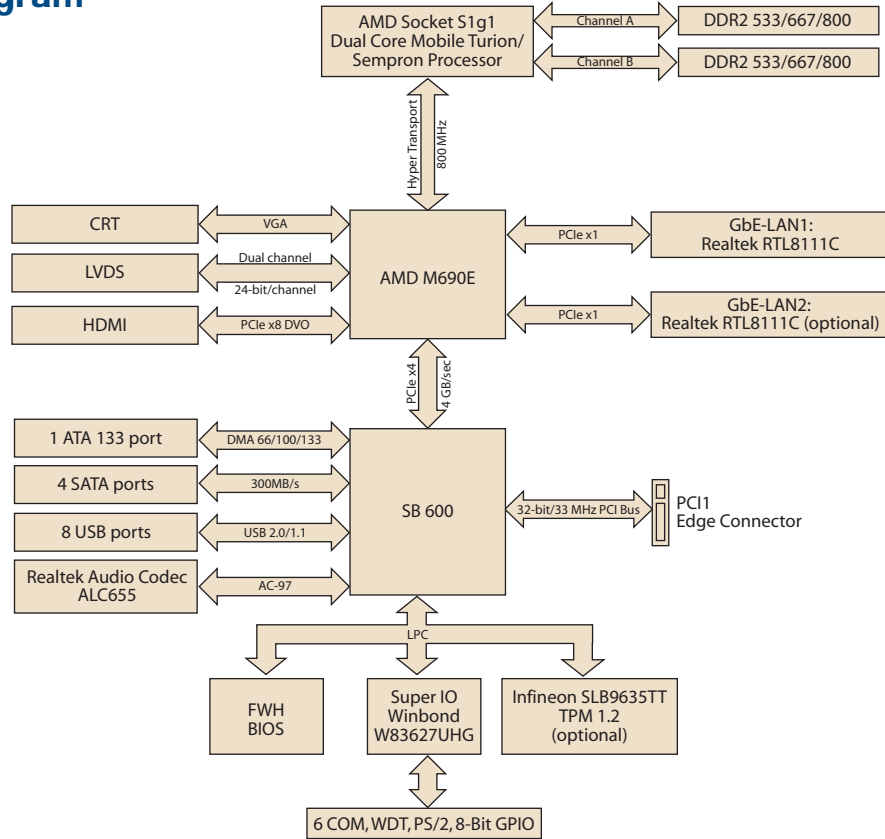
Software APIs:   

Utilities:  

Specifications

| | | | | | |
|--------------------------|------------------------|--|------------------------|-------------------|---------------------------|
| Processor System | CPU (65 nm S1g1) | AMD Turion 64 X2 TL-62 | AMD Turion 64 X2 TL-56 | AMD Sempron 3700+ | AMD Sempron 2100+ |
| | Max. Speed | 2.1 GHz (dual core) | 1.8 GHz (dual core) | 2.0 GHz | 1.0 GHz |
| | Hyper Transport Speed | 800 MHz | 800 MHz | 800 MHz | 800 MHz |
| | L2 Cache | 1 MB | 1 MB | 512 KB | 256 KB |
| | Chipset | AMD M690E and SB 600 | | | |
| | BIOS | Award 4 Mbit via LPC, FWH | | | |
| Expansion Slot | PCI | 32-bit/33 MHz, 1 slot | | | |
| | Mini-PCI | 32-bit/33 MHz, 1 slot | | | |
| | PCIe | - | | | |
| Memory | Technology | Dual channel DDR2 533/667/800 MHz SDRAM | | | |
| | Max. Capacity | 4 GB | | | |
| | Socket | 2 x 200-pin SODIMMs | | | |
| Graphics | Controller | AMD M690E Integrated ATI Radeon X1250-based graphic engine | | | |
| | VRAM | Shared system memory up to 512 MB video memory | | | |
| | LVDS | Single channel 18/24-bit Dual channel 36/48-bit LVDS | | | |
| | HDMI | Supports HDMI 1.2, 1650 Mbps/channel with 165 MHz | | | |
| | DVI | - | | | |
| | Dual Display | CRT + LVDS, CRT + HDMI, HDMI + LVDS | | | |
| Ethernet | Interface | 10/100/1000 Mbps | | | |
| | Controller | GbE LAN1: Realtek RTL8111C; GbE LAN2: Realtek RTL8111C | | | |
| | Connector | RJ-45 x 2 | | | |
| SATA | Max Data Transfer Rate | 300 MB/s | | | |
| | Channel | 4 (supports software RAID 0 and 1) | | | |
| EIDE | Mode | EIDE (Ultra DMA 133) | | | |
| | Channel | 1 | | | |
| SSD | CompactFlash | Supports CompactFlash Type I/II | | | |
| | VGA | 1 | | | |
| Rear I/O | HDMI | 1 | | | |
| | Ethernet | 2 | | | |
| | USB | 4 (USB 2.0 compliant) | | | |
| | Audio | 3 (Mic-in, Line-out, Line-in) | | | |
| | Serial | 2 (COM 1: RS-232; COM 2: RS-232/422/485) | | | |
| | PS/2 | 2 (1 x keyboard and 1 x mouse) | | | |
| | LVDS | 1 | | | |
| | DVI | - | | | |
| Internal Connector | USB | 4 (USB 2.0 compliant) | | | |
| | Serial | 4 (RS-232) | | | |
| | IDE | 1 | | | |
| | SATA | 4 | | | |
| | CompactFlash | 1 | | | |
| | Parallel | 1 | | | |
| | IrDA | - | | | |
| | FDD | - | | | |
| | DIO | 8-bit General Purpose I/O for DI and DO | | | |
| | Watchdog Timer | Output | System reset | | |
| Interval | | Programmable 1 ~ 255 sec/min | | | |
| Power Requirements | Power On | Turion 64 X2 TL-62 2.1GHz HT 800 MHz, 4GB DDR2 SDRAM | | | |
| | | +5 V | +3.3 V | +12 V | |
| | | 3.45 A | 0.72 A | 2.45 A | |
| Environment | Operating | 0 ~ 60° C (32 ~ 140° F) | | | Non-Operating |
| | Temperature | | | | -20 ~ 70° C (-4 ~ 158° F) |
| Physical Characteristics | Dimensions | 170 mm x 170 mm (6.69" x 6.69") | | | |

Board Diagram



Ordering Information

| Part Number | GbE | Mini PCI | CF | COM |
|------------------|-----|----------|----|-----|
| AIMB-221G2-00A1E | 2 | 1 | 1 | 6 |

Optional Accessories

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

Packing List

| Part number | Description | Quantity |
|----------------|------------------------|----------|
| 1701400452 | IDE HDD cable (40-pin) | 1 |
| 1700003194 | SATA HDD cable | 2 |
| 1700017461 | SATA power cable | 2 |
| 1750001620 | CPU cooler | 1 |
| 1960019192T100 | I/O port bracket | 1 |
| 2006022110 | Startup manual | 1 |
| 2066022100 | Driver CD | 1 |

Embedded OS/API

| OS/API | Part No. | Description |
|--------------|------------|------------------------------------|
| Win XPE | 2070004329 | XPE SP2 FP2007AIMB-221 V3.5 ENG |
| | 2070005291 | XPE FP2007 AIMB-221 V3.5.0 JPN_ENG |
| Software API | 205E000021 | SUSI 3.0 SW API for AIMB-221 XP |

I/O View



AIMB-221G2-00A1E

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

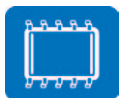
Make use of Intel SpeedStep technology to reduce power consumption. The system will automatically adjust the CPU Speed depending on system loading.



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.