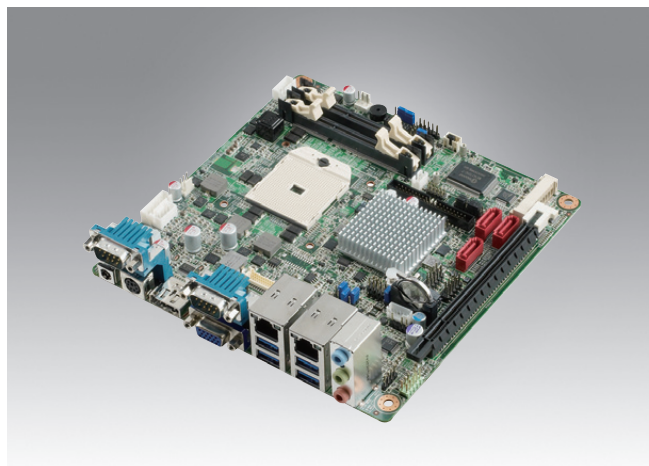


AIMB-224

Mobile AMD R-series Quad Core/Dual Core Mini-ITX
with VGA/LVDS/HDMI/DP/eDP, 6COM and Dual LAN



susAccess



CE FCC

Features

- Support AMD Mobile eTrinity Quad core/Dual Core processor
- Two 204-pin SODIMM up to 16 GB DDR3 1066/1333/1600 MHz SDRAM
- Supports VGA/LVDS/HDMI/DP/eDP
- Dual LANs, 6COM, 2Mini PCIe
- Supports embedded software APIs and Utilities

Software APIs:



SMBus



H/W Monitor



Watchdog



GPIO



Brightness

Utilities:



BIOS flash

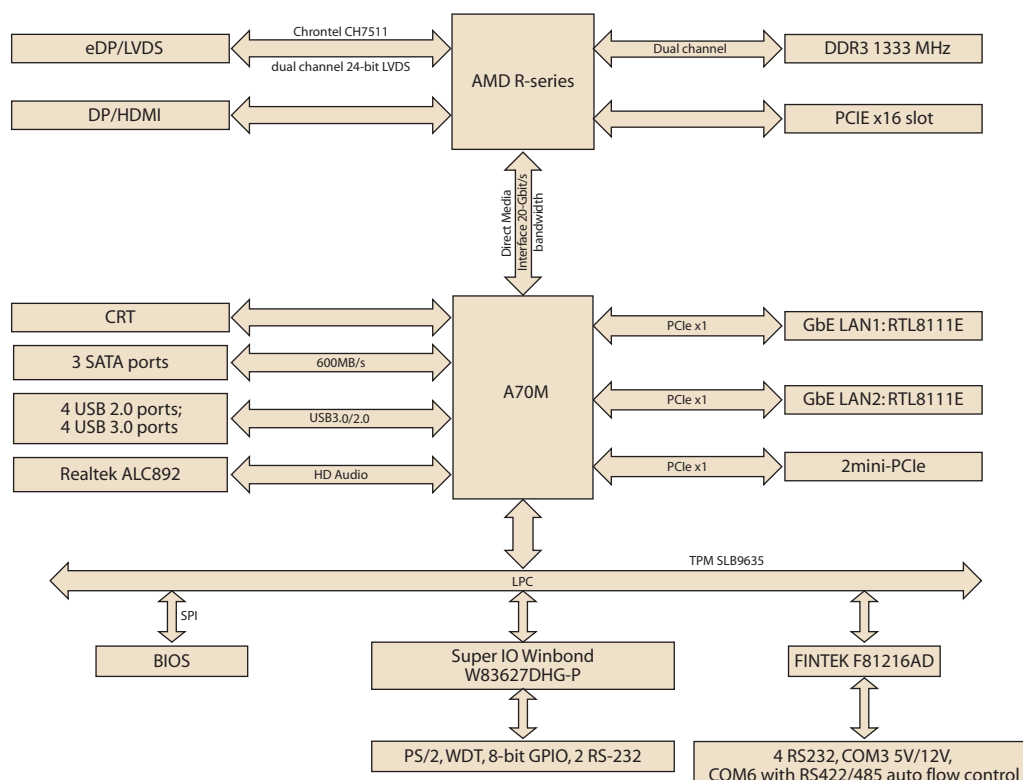


Monitoring

Specifications

Processor System	CPU	AMD Quad Core R-464L	AMD Quad Core R-460H	AMD Dual Core R-272F
	Max. Speed	2.3 GHz (quad core 35W)	2.1 GHz (quad core 35W)	2.6 GHz (dual core 35W)
	L2 Cache	1M/per core		
	Chipset	AMD R-series+A70M		
	BIOS	AMI 32 Mbit SPI		
Expansion Slot	PCI	None		
	Mini-PCIe	2		
	PCIe	PClex16		
Memory	Technology	Dual Channel DDR3 1066/1333/1600 MHz		
	Max. Capacity	16 GB		
	Socket	2 x 204 pin SODIMM		
Graphics	Controller	AMD Radeon™ GPUs, support DX11, UVD3		
	VRAM	None		
	VGA	Supports up to 4096 x 2400 @ 60 Hz		
	LVDS	Supports 24-bit dual channel up to 1920 x 1200. co-lay eDP (by BOM option).		
	HDMI	1920 x 1200 @ 60 MHz co-lay Display port (by BOM option)		
Ethernet	Triple Display	Support triple display of any three display device (CRT, LVDS or eDP, HDMI or DP)		
	Interface	10/100/1000 Mbps		
	Controller	GbE LAN1: Realtek 8111E; GbE LAN2: Realtek 8111E		
SATA	Connector	RJ-45 x 2		
	Max Data Transfer Rate	600 MB/s		
EIDE	Channel	3		
	Mode	None		
Rear I/O	Channel	None		
	VGA	1		
	HDMI	1 colay DP (by BOM option)		
	Ethernet	2		
	USB	4 (four USB 3.0)		
	Audio	3 (Mic-in, Line-out, Line-in)		
	Serial	2 (2 RS-232)		
	DCjack	1 (2.5 mm)		
Internal Connector	KB/MB	1		
	LVDS & Inverter	1		
	USB	4 (USB2.0)		
	Serial	4 (3 RS-232; 1 RS-232/422/485; COM3 support 5v/12V by jumper selection)		
	IDE	None		
	SATA	4		
	Parallel	None		
Watchdog Timer	GPIO	8 bit		
	Output	System reset		
Power Requirement	Interval	Programmable 1 ~ 255 sec/min		
	Typical	Single Voltage 12V DC input by 1x External DC phone Jack or 1x Internal 2x2-pin Power Connector; AT/ATX Supported by Jumper		
Environment		max power consumption: 90W(R-464L/R-460H+16G DDR3 RAM)		
	Operating		Non-Operating	
Physical Characteristics	Temperature	0 ~ 60° C (32 ~ 140° F)	-40 ~ 85° C (-40 ~ 185° F)	
	Dimensions	170 mm x 170 mm (6.69" x 6.69")		

Block Diagram



Ordering Information

Part Number	Display	LAN	COM	TPM
AIMB-224G2-00A1E	VGA/LVDS/DP	2	6	Yes
AIMB-224G2-01A1E	VGA/eDP/HDMI	2	6	Yes

Packing List

Part Number	Quantity
AIMB-224 SBC	1
SATA HDD cable	2
Serial port cable	1
I/O port bracket	1
Startup manual	1
Driver CD	1
CPU cooler	1

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
1757003064	Adapter AC100-240V, 84W, +12V/ 7A FSP

Embedded OS/API

OS/API	Description
Win XPE	WES 2009
Software API	SUSI V3.0
WES7E	WIN 7 Embedded

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.

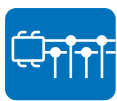
Software APIs

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

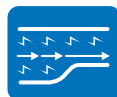
The Backlight API allows a developer to control the backlight (screen) on/off in an embedded device.

Power Saving



CPU Speed

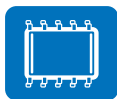
Make use of Intel SpeedStep technology to reduce power consumption. The system will automatically adjust the CPU Speed depending on system loading.



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.