PCM-9362

3.5" SBC with Intel® Atom™ N450/D510, VGA, LVDS, 2 LAN, Mini PCIe, SSD

Features

- Embedded Intel® Atom™ N450 1.67 GHz single core processor/Atom D510 1.67 GHz dual core processor + ICH8M
- Intel Gen 3.5 DX9, MPEG2 Decode in HW, multiple display: VGA, 18-bit LVDS
- Supports 12V input power for PCM-9362N, 5V input power for PCM-9362NC
- 2 Intel Giga Ethernet support, Rich I/O interface with4 COM, 2 SATA, 6 USB and GPIO
- Supports embedded software APIs and Utilities

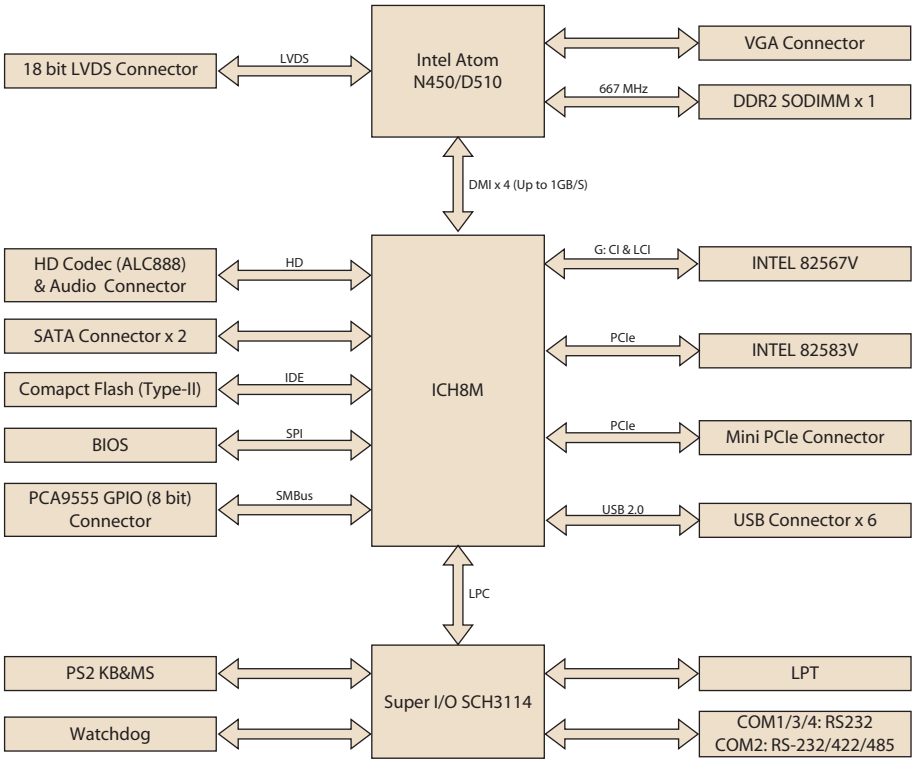
Software APIs: Watchdog, I²C, SMBus, Brightness, H/W Monitor, GPIO, Backlight On/Off

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

Specifications

Processor System	CPU	Intel Atom N450	Intel Atom D510
	Max. Speed	1.67 GHz	1.67 GHz
	L2 Cache	512 KB	1 MB
	Chipset	ICH8M	ICH8M
	BIOS	AMI 16 Mbit	AMI 16 Mbit
Memory	Technology	DDR2 667	
	Max. Capacity	2 GB	
	Socket	1 x 200-pin SODIMM	
SSD	CompactFlash	Card Type I, Type II	
Coastline I/O	VGA	1	
	COM	1	
	RJ-45	2	
	USB	2	
Internal I/O	LPT	1	
	FDD	-	
	RS-232	2	
	RS-232/422/485	1	
	K/B & Mouse	1	
	USB	4 x USB 2.0	
	Audio	HD Audio, ALC888 Codec, Line-in, Line-out, Mic-in	
	GPIO	8-bit GPIO	
SATA	Max. Data Transfer Rate	300 MB/s	
	Channel	2	
Expansion Slot	Mini-PCIe	1	
	MIO160	1 (Optional by request)	
Ethernet	Speed	10/100/1000 Mbps	
	Controller	LAN1 Intel 82567, LAN2 Intel 82583V	
	Interface	2 x RJ-45	
Display	Controller	Embedded Gen3.5+ GFX Core	
	Graphic Engine	Intel Gen 3.5 DX9, MPEG2 Decode in HW	
	VRAM	Optimized Shared Memory Architecture up to 224 MB system memory	
	LVDS LCD	Single channel 18-bit LVDS up to WXGA 1366 x 768	
	VGA	Intel Atom N450 Single Core up to 1400 x 1050 (SXGA) Intel Atom D510 Dual Core up to 2048 x 1536	
	Dual Independent Display	CRT+ LVDS	
Environment	Operating Temperature	0 ~ 60° C (32 ~ 140° F)	
	Operating Humidity	40° @ 85% RH Non-Condensing	
Power	Power Type	AT / ATX	
	Power Supply Voltage	AT: 5V or 12V, ATX: 5 V, 5 V sb (12V is optional for LCD inverter and add on card) AT: 12 V, ATX: 12 V, 5 V sb	
	Power Consumption Typical (XP)	PCM-9362NC-S6A1E: 5V:2.31A PCM-9362N-S6A1E: 12V:0.87A PCM-9362D-S6A1E: 12V:0.91A	
	Power Consumption Max, Test in HCT	PCM-9362NC-S6A1E: 5V:2.36A PCM-9362N-S6A1E: 12V:1.01A PCM-9362D-S6A1E: 12V:1.17A	
	Power Management	APM, ACPI	
	Battery	Lithium 3 V/220 mAH	
Watchdog Timer	Output	System reset	
	Interval	Programmable 1 ~ 255 sec/min	
Physical Characteristics	Dimensions (L x W)	146 x 102 mm (5.7" x 4")	
	Weight	0.85 kg (1.87 lb) (with Heatsink)	

Board Diagram



Ordering Information

Model	CPU	Power Input	CRT	LVDS	Giga LAN1	Giga LAN2	Audio	SATAII	USB 2.0	Mini-PCIe	CF	LPT	RS-232	RS-232/422/485	Thermal Solution	Operating Temperature
PCM-9362NC-S6A1E	Atom N450	5 V	1	1	Yes	Yes	HD	2	6	1	1	1	3	1	Passive	0 ~ 60° C
PCM-9362N-S6A1E	Atom N450	12 V	1	1	Yes	Yes	HD	2	6	1	1	1	3	1	Passive	0 ~ 60° C
PCM-9362D-S6A1E	Atom D510	12 V	1	1	Yes	Yes	HD	2	6	1	1	1	3	1	Active	0 ~ 60° C

Packing List

Part No.	Description	Quantity
	PCM-9362 SBC	1
9689000002	Mini jumper pack	1
	Startup Manual	1
	Utility CD	1
1700000265	ATX Power Cable	1
1700006291	SATA Cable	1
1703060191	PS/2 Cable	1
1701140201	Second Serial Port Cable	1
1703100121	USB 2 Port Cable	2
1703100152	Audio Cable	1
1700260250	LPT cable	1

Optional Accessories

Part No.	Description
MIO-6251	MIO module w/2 x Mini PCI, Audio
MIO-6253	MIO module with 4 COM ports
MIO-6254	MIO module w/DVI, S-Video, Audio
MIO-6255	MIO module w/2 x Cardbus
MIO-6260	MIO module w/4 x USB, 2 x COM, 1 x LAN

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

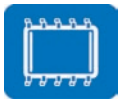
CPU Speed

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.