# PCM-9362

## Intel® Atom™ N450/ D510 3.5" SBC, LVDS, CRT, 2 Giga LAN, Mini PCIe, 4 COM

**NEW**



Audio, SATA, GPIO, COM3/COM4, MIO expansion (option), PS2, SMBUS, USB, USB, LAN, COM1, LPT, VGA, 12V power (PCM-9362N/D), 5V power (PCM-9362NC), COM2, LVDS
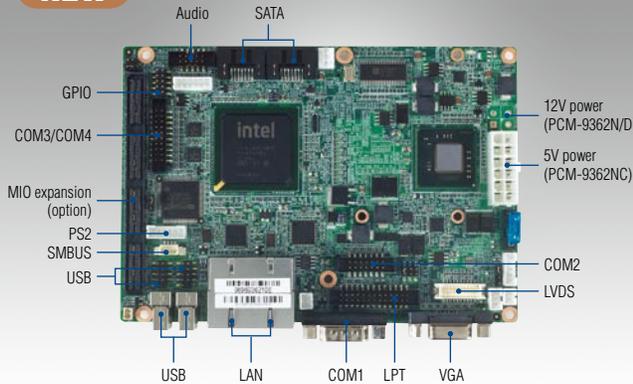
## Features

- Embedded Intel® Atom™ processor N450 Single Core/ D510 Dual Core 1.66 GHz + ICH8M
- Intel Gen 3.5 DX9, MPEG2 Decode in HW, multiple display: CRT, 18-bit LVDS
- Supports 12 V input power for PCM-9362N/D, 5V input power for PCM-9362NC
- Supports 2 Intel Giga Ethernet ports; Rich I/O interfaces with 4 COM, 2 SATA, 6 USB and GPIO
- Supports embedded software APIs and utilities

**Software APIs:** GPIO, H/W Monitor, Brightness, Watchdog, Backlight On/Off, SMBus, CPU Speed, System Throttling

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

CE FCC

## Specifications

| Category | | Value |
|---|---|---|
| Processor System | CPU | Intel Atom Processor, N450 Single Core 1.66 GHz<br>Intel Atom Processor, D510 Dual Core 1.66 GHz |
| | Front Side Bus | 667 MHz |
| | Frequency | 1.66 GHz |
| | L2 Cache | 512 KB/1 MB |
| | System Chipset | Intel N450/D510 + ICH8M |
| | BIOS | AMI 16 Mbit Flash BIOS |
| Memory | Technology | DDR2 667 MHz |
| | Max. Capacity | 2 GB |
| | Socket | 1 x 200-pin SODIMM |
| Display | Chipset | Intel Atom N450/D510 1.66 GHz |
| | VRAM | Optimized Shared Memory Architecture up to 224 MB system memory |
| | Graphics Engine | Intel Gen 3.5 DX9, MPEG2 Decode in HW<br>Embedded Gen3.5+ GFX Core |
| | LVDS | LVDS: Single channel 18-bit LVDS up to WXGA 1366 x 768 |
| | VGA | Intel Atom N450 Single Core up to 1400 x 1050 (SXGA)<br>Intel Atom D510 Dual Core up to 2048 x 1536 |
| | Dual Display | CRT+LVDS |
| Ethernet | Speed | 10/100/1000 Mbps |
| | Controller | LAN1 Intel 82567V Giga LAN<br>LAN2 Intel 82583V Giga LAN |
| | Connector | RJ-45 on LAN1,LAN2 |
| Audio | Chipset | Realtek ALC888, High Definition Audio(HD),Line-in, Line out, Mic-in |
| WatchDog Timer | | Output System reset, Programmable 1 ~ 255 sec |
| Storage | CompactFlash | Supports CompactFlash Card TYPE I/II (Primary Master IDE Channel) |
| | SATA | 2 |
| Rear I/O | Serial | 1 (COM1 supports RS-232) |
| | Ethernet | 2 (10/100/1000 Mbps) |
| | VGA | 1 |
| | USB | 2 |
| Internal I/O | USB | 4 x USB 2.0 ports |
| | Serial | 3 x COM ports<br>COM3/COM4 supports RS-232<br>COM2 supports RS-232/422/485 |
| | Parallel (LPT) | 1 |
| | SMBUS | 1 |
| | KB/Mouse | 1 |
| | GPIO | 8-bit GPIO |
| | I²C | 1 |
| Expansion | Mini PCI Express | 1 |
| | MIO 160 | 1 (Optional by request) |
| Power | Power Type | AT/ATX |
| | Power Supply Voltage | AT: 5 V or 12 V, ATX: 5 V, 5 V sb (12 V is optional for LCD inverter and add on card)<br>AT: 12 V, ATX: 12 V, 5 V sb |
| | Power Consumption (Typical) | PCM-9362NC-S6A1E: 5 V : 2.31 A<br>PCM-9362N-S6A1E: 12 V : 0.87 A<br>PCM-9362D-S6A1E: 12 V : 0.91 A |
| | Power Consumption (Max, test in HCT) | PCM-9362NC-S6A1E: 5 V : 2.36 A<br>PCM-9362N-S6A1E: 12 V : 1.01 A<br>PCM-9362D-S6A1E: 12 V : 1.17 A |
| | Power Management | APM, ACPI |
| | Battery | Lithium 3 V/210 mAH |
| Environment | Operational | 0 ~ 60° C (32 ~ 140° F) |
| | Non-Operational | Operating: 0 ~ 60° C (32 ~ 140° F) (Operating humidity: 40° C @ 85% RH non-condensing)<br>Non-Operating: -40° C ~ 85° C and 60° C @ 95% RH non-condensing |
| Physical Characteristics | Dimensions (L x W) | 146 x 102 mm (5.7" x 4") |
| | Weight | 0.85 kg (1.87 lb), weight of total package |

## Board Diagram
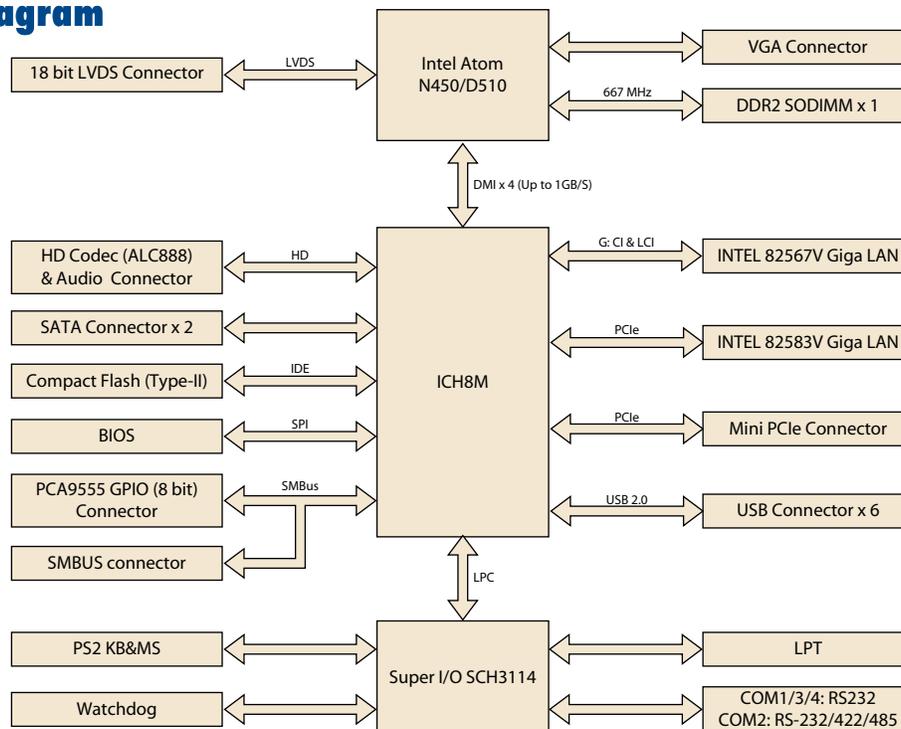


## Ordering Information

| 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 |
| PCM-9362NZ-1GS6A1E | Atom N450 | 12 V | 1 | 1 | Yes | Yes | HD | 2 | 6 | 1 | 1 | 1 | 3 | 1 | Passive | -20 ~ 80° C |
| PCM-9362NZ21GS6A1E | Atom N450 | 12 V | 1 | 1 | Yes | Yes | HD | 2 | 6 | 1 | 1 | 1 | 3 | 1 | Passive | -40 ~ 85° C |

## Packing List

| Part No. | Description | Quantity |
|----------|-------------|----------|
| | PCM-9362 SBC | |
| | Startup Manual | |
| | Utility CD | |
| 9689000002 | mini Jumper pack | x 1 |
| 1700000265 | ATX power cable (PCM-9362NC series only) | x 1 |
| 1700006291 | SATA cable | x 1 |
| 1703060191 | PS/2 cable | x 1 |
| 1701140201 | COM2 IDE D-SUB 20 cm cable | x 1 |
| 1703100121 | USB 2 x 5P-2.0 12 cm W/BKT cable | x 2 |
| 1703100152 | Audio cable | x 1 |
| 1700260250 | LPT IDE 26P D-SUB 25 cm cable | x 1 |
| 1703150102 | SATA 10 cm Power cable | x 1 |

## Optional Accessories

**(MIO interface is optional by request)**

| Part No. | Description |
|----------|-------------|
| 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 |
| 1700016161 | AT Power cable, 2 x 6P to 3 x 4P 10 cm |
| 1700016141 | AT power cable, 2 x 6P to 2 x 10P 10 cm |
| 1960047470N001 | Heat spreader(97 x 75 x 18.5 mm) |

## Embedded OS/API

| Embedded OS/API | Part No. | Description |
|-----------------|----------|-------------|
| Win XPE | 2070009030 | XPE WES2009 Luna Pier V4.0 ENG |
| | 2070009031 | XPE WES2009 Luna Pier V4.0 MUI24 |
| WinCE 6.0 Pro | 2070009693 | CE 6.0 Pro PCM-9362 V1.3 ENG |
| Software API | 205E362010 | SUSI 3.0 SW API for PCM-9362 B: 20091117 XP |

# 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 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
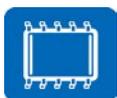
**BIOS Flash**

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.