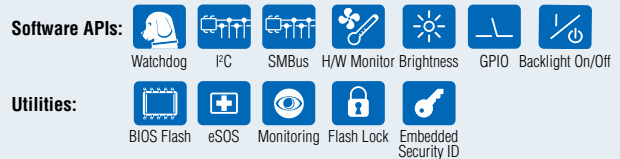# PCM-9562

Intel® Atom™ N450/D510 EBX SBC with 3 LAN, 6 COM, 3 SATA, 8 USB 2.0, 2 Watch Dog
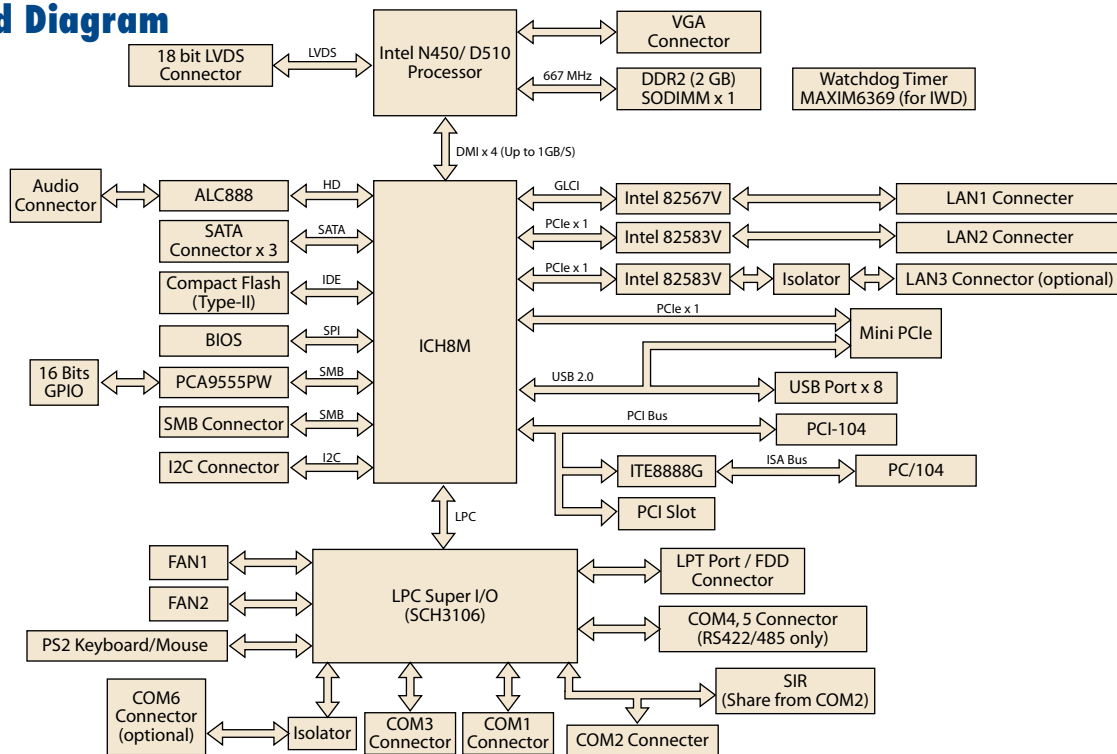
NEW

Features

- Embedded Intel® Atom™ processor N450 Single Core/D510 Dual Core 1.66 GHz + ICH8M
- Supports up to 3 Intel GbE Ethernet, 2 Watchdog timer support
- Design complies with UL60601 on LAN3 and COM6 port isolation
- Power off protection and Software I²C API support
- Supports embedded software APIs and Utilities

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

Utilities: BIOS Flash | eSOS | Monitoring | Flash Lock | Embedded Security ID

CE FCC

Specifications

Processor System	CPU	Intel Atom N450/D510 1.66 GHz
	Front Side Bus	667MHz
	Frequency	Atom N450/D510 1.66 GHz
	L2 Cache	512 KB/1 MB
	System Chipset	N450/D510 + ICH8M
	BIOS	AMI 16 Mbit
Memory	Technology	DDR2 667
	Max. Capacity	2 GB
	Socket	1 x 200-pin SODIMM
Display	Chipset	N450/D510
	VRAM	Optimized Shared Memory Architecture up to 224 MB
	Graphics Engine	Embedded Gen3.5+ GFX Core, HW MPEG2 decoder
	LVDS	Single channel 18-bit LVDS up to WXGA 1366 x 768
	VGA	N450: Up to SXGA 1400 x 1050 @ 60 Hz (SXGA) D510: up to 2048 x 1536 (QXGA)
	Dual Display	CRT+ LVDS
Ethernet	Interface	3 (RJ-45 connector through the cable and LAN3 is optional)
	Controller	LAN1 Intel 82567, LAN2 Intel 82583V, Optional LAN3 Intel 82583V (UL60601 Compliant) 10/100/1000 Mbps
	Connector	Box header
Audio	Chipset	ALC888 HD Codec, Speaker out, CD-input, Line-in, Line-out, Mic-in
	Amplifier	APA4863RI-TRG (Support)
WatchDog Timer	Output	System reset
	Interval	Watchdog timer1 (IWT): monitor the system status before OS is ready (programmable 10ms, disable, 1s, 60s) Watchdog timer2 (PWT): monitor the application status after OS is ready (programmable 1 - 255 sec/min)
Storage	CompactFlash	Card Type I, Type II
	SATA	3 SATA (Max. Data Transfer Rate 300 MB/s)
	Floppy	Share with LPT (Optional)
	SPI Flash	16 Mbit
Internal I/O	Serial	RS-232 x4 (optional COM6 is with isolation), RS-232/422/485 x2 (Default RS-422/485, RS-232 by optional request)
	Ethernet	Giga LAN x 3 (RJ-45 connector through the cable and LAN3 is optional)
	KB/Mouse	1
	CRT	1
	Reset Button	1
	USB	8 x USB 2.0
	Parallel (LPT)	1
	FDD	Share with LPT (Optional)
	GPIO	16-bit GPIO
	SMBUS	1
	I²C	1
Expansion	PC/104-Plus slot	1
	Mini PCI Express	1
	PCI Slot	1
Power	Power Type	AT / ATX (Both AT/ATX can support ACPI)
	Power Supply Voltage	ATX: 12V ±10%, 5VSB ±5% (5V stand-by power is only for auto power off function) AT: 12V ±10% only
	Power Consumption (Typical)	PCM-9562N-S6A1E: 10.8W (893 mA @ 12V, 8 mA @ 5 VSB) PCM-9562D-S6A1E: 13.6W (1130 mA @ 12V, 10 mA @ 5 VSB)
	Power Consumption (Max, test in HCT)	PCM-9562N-S6A1E: 13.9W (1159 mA @ 12V, 6 mA @ 5 VSB) PCM-9562D-S6A1E: 16.9W (1404 mA @ 12V, 8 mA @ 5 VSB)
Environment	Operating	0 ~ 60° C (32 ~ 140° F)
	Non-Operating	95% @ 60° C Relative Humidity
Physical Characteristics	Dimensions (L x W)	203 x 146 mm (8" x 5.75")
	Weight	0.85 kg (1.87 lb) (with Heatsink)

Board Diagram

Ordering Information

Model	CPU	CRT	LVDS	Giga LAN1	Giga LAN2	Giga LAN3 UL60601	HD Audio	USB 2.0	SATAII	RS-232	RS-422/485	PC/104-Plus	Mini PCIe	CF	Thermal	Operating Temperature
PCM-9562N-S6A1E	Atom N450	1	18-bit	1	1	Optional	Yes	8	3	3	2	Yes	1	1	Passive	0 ~ 60° C
PCM-9562D-S6A1E	Atom D510	1	18-bit	1	1	Optional	Yes	8	3	3	2	Yes	1	1	Active	0 ~ 60° C
PCM-9562NZ-1GS6A1E	Atom N450	1	18-bit	1	1	Optional	Yes	8	3	3	2	Yes	1	1	Passive	-20 ~ 80° C
PCM-9562Z2-1GS6A1E	Atom N450	1	18-bit	1	1	Optional	Yes	8	3	3	2	Yes	1	1	Passive	-40 ~ 85° C

* For PCM-9562 with 3 LAN and 6 COM sku, pls contact with field sales rep. Minimum Order quantity is required.
(PCM-9562 has 3 LAN and 6 COM sku with LAN3 and COM6 designed in for UL60601.)
* Wide temperature will use 1960002379 (50 x 50 x 30 mm) heatsink instead of 1960020569S000 (50 x 50 x 10mm)

Packing List

Part No.	Description	Quantity
	PCM-9562 SBC	1
9689000002	Mini Jumper Pack	1
2006956200	Startup Manual	1
2066956200	Utility CD	1
1700015741	ATX 5VSB cable	1

Optional Accessories

Part No.	Description
PCM-10586-9562E	Wiring kit for PCM-9562
1703100260	USB cable
CF-HDD-ADP	CompactFlash 50-pin to IDE 44-pin adapter
170304015K	AT cable 4P x 2/4200-H-4P 15 cm

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
Software API	205E956000	SUSI 3.0 SW API for PCM-9562 B:20091009 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
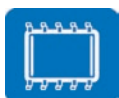
BIOS Flash

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.