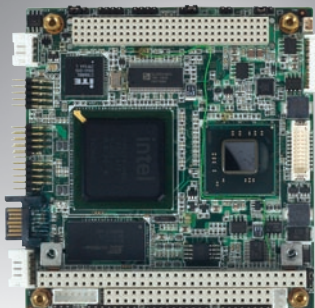# PCM-3362

Intel® Atom N450 PC/104-Plus CPU Module

Preliminary

Features

- Intel® Atom N450 1.67 GHz Processor
- Supports DDR2 667 memory
- On board 2 GB flash (4 GB optional)
- Standard 96 x 90 mm dimension and support PC/104-Plus expansion connector
- Supports Embedded Software API and Utility

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

Utility: BIOS flash | Monitoring | eSOS | S/W Protection

Specifications

Processor System	CPU	Intel Atom N450 1.67 GHz
	L2 Cache	512 KB
	Chipset	ICH8M
	BIOS	AMI 16-Mbit
Memory	Technology	DDR 667 MHz
	Max. Capacity	1 GB
	Socket	1 x 200-pin SODIMM
SSD	CompactFlash	-
I/O Interface	LPT	-
	RS-232	2
	RS-422/485	1
	K/B	1
	Mouse	1
	USB	4 x USB 2.0
	I2C	1
	GPIO	8-bit general purpose Input/Output
Serial ATA	Max. Data Transfer Rate	300MB/s
	Ports	1 SATA2
Expansion Slot	PCI/104-Plus	1
Ethernet	Speed	10/100/1000 Mbps
	Controller	Intel 82567V
	Interface	1 x RJ-45 by cable
Display	Controller	Embedded Gen3.5+ GFX Core
	VRAM	Shared system memory up to 224 MB
	VGA	Supports up to SXGA 1400 x 1060 @ 60 Hz
	LVDS LCD	Singe channel 18-bit LVDS up to WXGA 1366 x 768
	Dual Simultaneous Display	CRT + LVDS
Environment	Operating Temperature	0 ~ 60° C (32 ~ 140° F)
	Operating Humidity	40° @ 85% RH Non-Condensing
Power	Power Type	AT
	Power Supply Voltage	5V only to boot up (12 V is optional for LCD inverter and add on card)
	Power Consumption Typical (WinXP Idle Mode)	+5 V @ 2.13 A, +12 V @ 12mA
	Power Consumption Max, Test in HCT	+5 V @ 2.84 A, +12 V @ 3mA
	Battery	Lithium 3 V / 210 mAH
Watchdog Timer	Output	System reset
	Interval	Programmable 1 ~ 255 sec
Physical Characteristics	Dimensions (L x W)	96 x 90 mm (3.8" x 3.5")
	Weight	0.162 kg (0.357 lb)) (with heat-sink)

Board Diagram
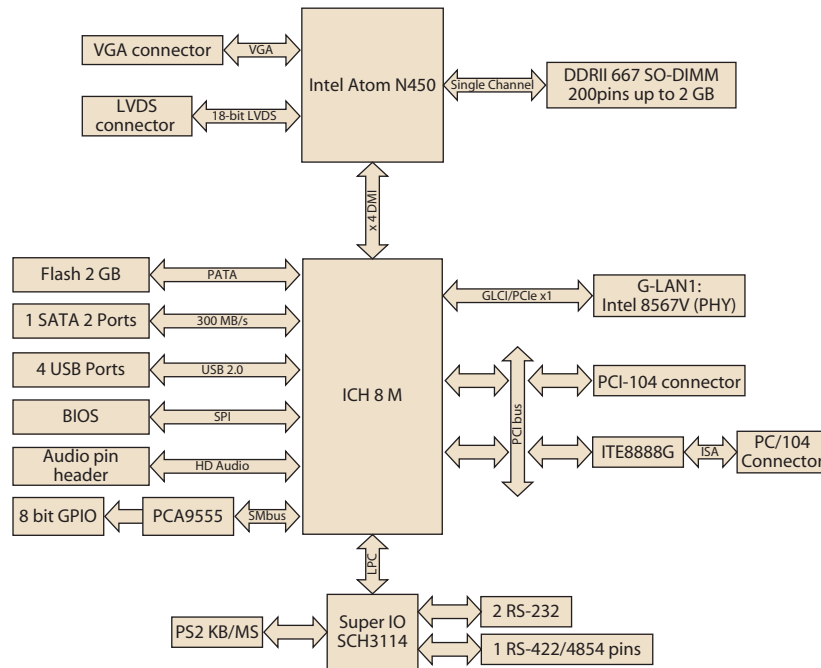
Ordering Information

Part No.	CPU	Chipset	CRT	TTL	LVDS	LAN	USB2.0	RS-232	RS-422/485	Operating Temp.	Embedded OS
PCM-3362G-S6A1E	Atom N450	ICH8M	Yes	-	18-bit	1 GbE	4	2	1	0 ~ 60° C	Optional

Note: For wide temperature, please contact sales rep.

Packing List

Part No.	Description	Quantity
	PCM-3353 SBC	1
1700002142	LAN cable	1
1700000898	VGA cable	1
1703100260	2 port USB cable	1
1700071000	SATA cable	1
1701200220	2 ports RS-232 COM cable	1
1703040157	RS-422/485 cable	1
1703060053	PS2 Keyboard/Mouse cable	1
1700002332	ATX power cable	1
1700003491	AT power cable	1
	Startup manual	1
	CD-ROM (Manual, Driver, Utility)	1

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 API

Control

GPIO

General Purpose Input/Output is a flexible parallel interface that allows a variety of custom connections. allows users to monitor the level of signal input or set the output status to switch on/off the device. Our API also provide Programmable GPIO, 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 a 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; can also be used to adjust the LCD brightness.

Display

Brightness Control

The Brightness Control API allows a developer to interface Embedded device to easily control brightness.

Backlight

The Backlight API allows a developer to control the backlight (screen) on/off in Embedded Device.

Power Saving

CPU Speed

Make use of Intel SpeedStep technology to save the power consumption. The system will automatically adjust the CPU Speed depend on the system loading.
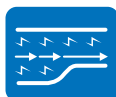
System Throttling

Refers to a series of methods for reducing power consumption in computers by lowering the clock frequency. These API allow user to lower the clock from 87.5% to 12.5%.

Software Utility
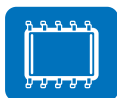
BIOS Flash

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.

Software Protection

The embedded application is the most important property of a system integrator. It contains valuable intellectual property, design knowledge and innovation, but it is easy to be copied! Software Protection utility which provides reliable security functions for customers to secure their application data within embedded BIOS.

Monitoring

The Monitoring is a utility for customer to monitor the system health, like Voltage, CPU and System temperature and FAN speed. These items are important to a device, if the critical errors happen and not be solved immediately, a permanent damage may be caused.

eSOS

The eSOS is a small OS stored in BIOS ROM. It will boot up in case of main OS crash. It will diagnose the hardware status, and then send an e-mail to administrator. The eSOS also provide Remote Connection: Telnet server and FTP server for administrator to rescue the system.

Flash Lock

Flash Lock is a mechanism to bind the Board and CF card (SQFlash) together. User can "Lock" SQFlash via Flash Lock function and "Unlock" by BIOS while booting. A locked SQFlash cannot be read by any card reader or boot from other platforms without a BIOS with "Unlock" feature.