PCM-9363

Intel Atom N455/D525 3.5" SBC, DDR3, 24-bit LVDS, CRT or HDMI, 2 Giga LAN, Mini PCIe, 3 COM

Features

- Embedded Intel® Atom™ N455 Single Core/ D525 Dual Core processor + ICH8M, DDR3 memory support
- Intel Gen 3.5 DX9, MPEG2 Decode in HW, multiple display: 24-bit LVDS, CRT or HDMI
- Supports 12V input power for PCM-9363, easy for power integration
- 2 Intel Giga Ethernet support, Rich I/O interface with 3COM, 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

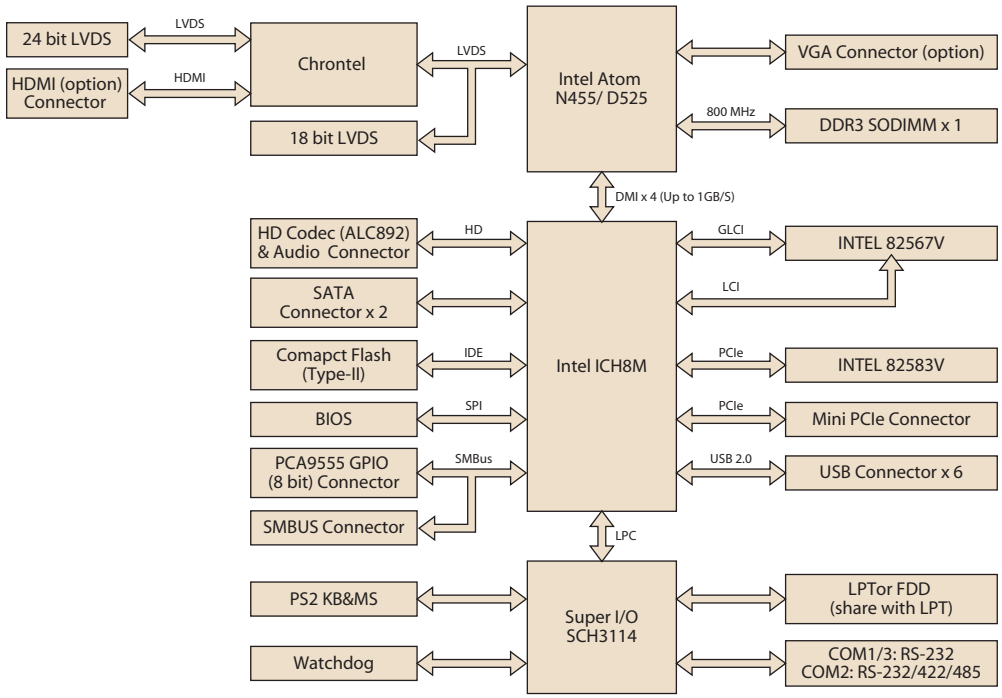
Utilities: BIOS flash, Monitoring, eSOS, Flash Lock, Embedded Security ID

Specifications

Processor System	CPU	Intel® Atom™ N455 Single Core 1.66 GHz Processor Intel® Atom™ D525 Dual Core 1.8 GHz Processor
	Front Side Bus	667 MHz for N455, 800 MHz for D525
	Frequency	1.66 GHz on N455, 1.8 GHz on D525
	L2 Cache	512 KB/1 MB
	System Chipset	Intel N455/D525 + ICH8M
	BIOS	AMI 16 Mbit Flash BIOS
Memory	Technology	DDR3 800 MHz
	Max. Capacity	2GB for D525, N455
	Socket	1 x 204-pin SODIMM
Display	Chipset	Intel® Atom™ Processor N455 1.66GHz/D525 1.8GHz
	VRAM	Optimized Shared Memory Architecture up to 224 MB system memory
	Graphic Engine	Intel Gen 3.5 DX9, MPEG2 Decode in HW Embedded Gen3.5+ GFX Core
	LVDS	LVDS: Single channel 24-bit LVDS up to WXGA 1366 x 768
	CRT	Intel Atom N455 Single Core up to 1400 x 1050 (SXGA), Intel Atom D525 Dual Core up to 2048 x 1536
	HDMI	Supported by request. Support 1080P and scale function Supports Hot Plug Detection (HPD) for HDMI
	Dual Display	CRT+LVDS
Ethernet	Speed	10/100/1000 Mbps
	Controller	LAN1 Intel 82567V Giga LAN, LAN2 Intel 82583V Giga LAN
	Connector	RJ45 on LAN1,LAN2
Audio	Chipset	Realtek ALC892 High Definition Audio (HD), Line-in, Line out, Mic-in
WatchDog Timer		Output System reset Programmable 1 ~ 255 sec
Storage	Compact Flash	Supports CompactFlach Card TYPE I/II (Primary Master IDE Channel)
	SATA	2 SATA connector, 1 SATA power connector
Rear I/O	Seriel	1 (COM1 supports RS-232)
	Ethernet	2 (10/100/1000Mbps)
	CRT	1
	HDMI	1 (only on PCM-9363DH)
	USB	2
Internal I/O	USB	4 x USB 2.0
	Seriel	2 x COM COM3 supports RS-232, 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
Power	Power Type	AT/ATX
	Power Supply Voltage	Support single 12V input
	Power Consumption (Typical)	0.98 A @ 12 V (N455/ DDR3 1 GB) 1.25 A @ 12 V (D525/ DDR3 1 GB)
	Power Consumption (Max, test in HCT)	1.08 A @ 12 V (N455/ DDR3 1 GB) 1.48 A @ 12 V (D525/ DDR3 1 GB)
	Power Management	APM, ACPI
	Battery	Lithium 3 V/220 mAH

Last updated : 22-Nov-2010

Board Diagram



Environment	Operation	0 ~ 60° C (32 ~ 140° F)
	Non-Operation	Operating: 0 ~ 60° C (32 ~ 140° F) (operation humidity: 40° C @ 85% RH Non-Condensing) 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

Ordering Information

Part No.	CPU	L2 Cache	Power Input	LVDS	HDMI	CRT	Giga LAN1	Giga LAN2	Audio	RS-232	RS-232/ 422/485	USB 2.0	SATAII	GPIO	LPT	CF	miniPCIe	Thermal Solution	Operation Temp.
PCM-9363N-S6A1E	Intel Atom N455	512 KB L2	12V	24-bit	By request	V	1	1	V	2	1	6	2	8-bit	1	1	1	Passive	0 ~ 60° C
PCM-9363D-S8A1E	Intel Atom D525	1 MB L2	12V	24-bit	By request	V	1	1	V	2	1	6	2	8-bit	1	1	1	Active	0 ~ 60° C
PCM-9363DH-S8A1E	Intel Atom D525	1 MB L2	12V	24-bit	1	-	1	1	V	2	1	6	2	8-bit	1	1	1	Active	0 ~ 60° C

Packing List

Part No.	Description	Quantity
	PCM-9363 SBC	
	Startup Manual	
	Utility CD	
9689000002	mini Jumper pack	
1700006291	SATA Cable	x1
1703060191	PS/2 cable	x1
1701140201	COM2 IDE D-SUB 20 cm cable	x1
1703100121	USB 2 x 5P-2.0 12 cm W/BKT cable	x2
1703100152	Audio Cable	x1
1700260250	LPT IDE 26P D-SUB 25 cm cable	x1
1703150102	SATA 10 cm Power cable	x1
1700100250	COM3 Cable IDE#2 10P-2.0/D-SUB 9P(M) 25 cm	x1

Optional Accessories

Part No.	Description
1960047470N001	Heat spreader (97 x 75 x 18.5 mm)

Embedded OS/API

Embedded OS/API	Part No.	Description
Win XPE		TBD
		TBD
WinCE 6.0 Pro		TBD
Software API		TBD

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

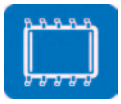
CPU Speed

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.