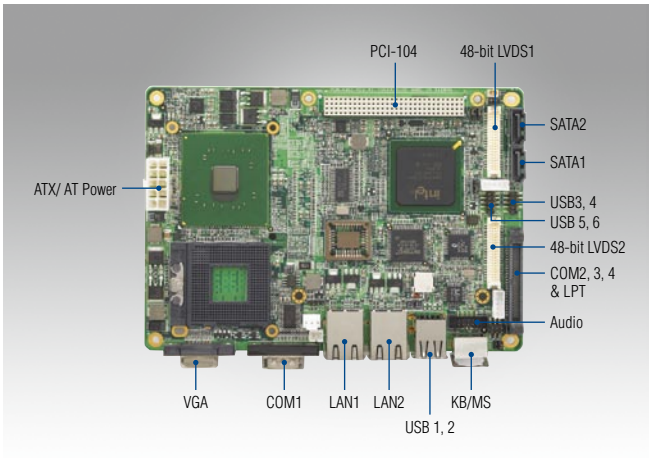
PCM-4381

Intel® Pentium® M EPIC SBC with CRT, 2 LVDS, Dual Giga LAN, PCI-104



Features

- Intel® Pentium® M/ Celeron® M Processor on board/ Socket type
- Display combination: 48-bit LVDS1 + 48-bit LVDS2, CRT + 48-bit LVDS
- Dual 10/100/1000 Mbps Ethernet
- 16-bit GPIO, 4 COM (Supports Auto flow control), 2 SATA, 6 USB 2.0
- Supports embedded software APIs and utilities

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

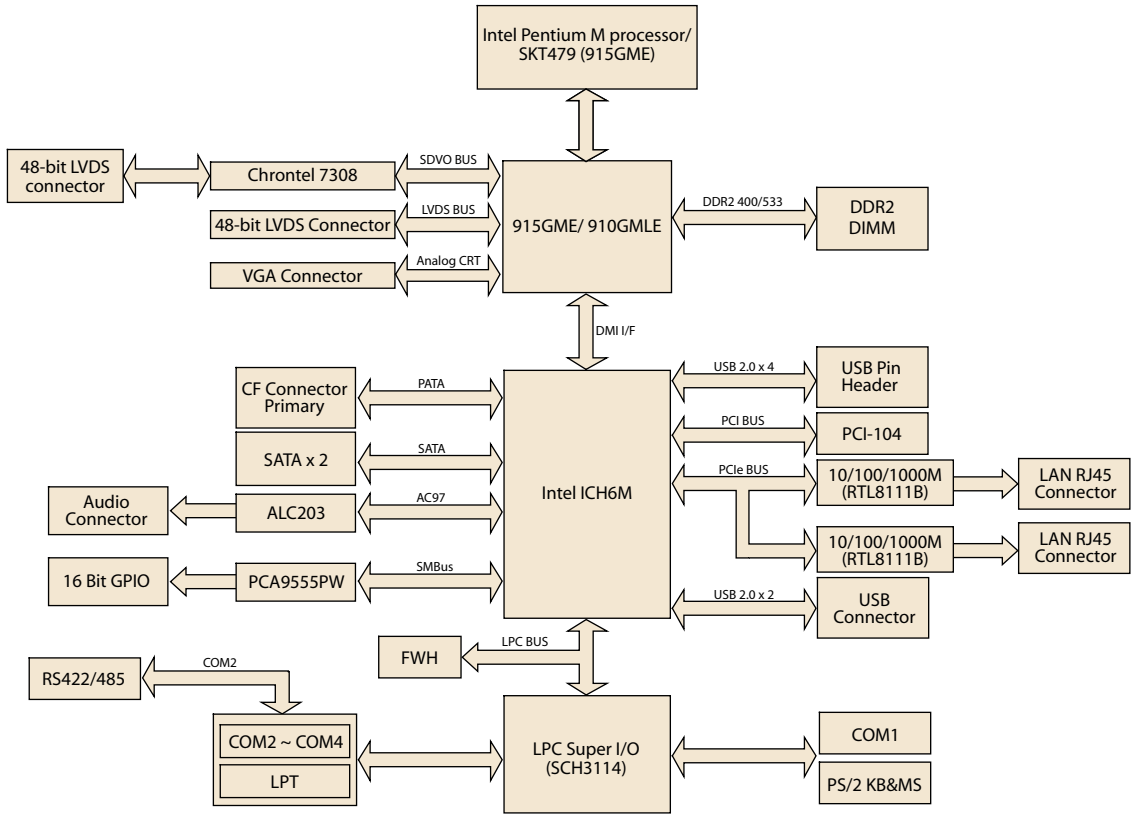
Utilities: BIOS Flash, Monitoring

Specifications

Processor System	CPU	Celeron M 600 MHz	Celeron M 1.0 GHz	Pentium M Socket type 479
	Front Side Bus	400 MHz	400 MHz	400/533 MHz
	L2 Cache	512 KB	0 KB	depends on CPU
	Chipset	Intel 910GMLE + ICH6M	Intel 910GMLE + ICH6M	Intel 915GME + ICH6M
	BIOS	Award 4-Mbit		
Memory	Technology	DDR2 400 MHz (910GMLE), 400/533 MHz (915GME)		
	Max. Capacity	2 GB		
	Socket	1 x 200-pin SODIMM		
Display	Chipset	Intel 910GMLE/ 915GME		
	VRAM	DVMT 3.0 supports up to 128 MB		
	Graphics Engine	Mobile Intel GMA 900 3D/2D engine		
	LVDS	1 x 48-bit LVDS1, 1 x 48-bit LVDS2 (optional)		
	CRT	Up to QXGA (2048 x 1536)		
	Dual Display	CRT + LVDS, LVDS1 + LVDS2		
Ethernet	Speed	10/100/1000 Mbps on LAN1, LAN2		
	Controller	2 x Realtek RTL8111B-GR		
	Connector	RJ-45		
Audio	Chipset	AC97, Line-in, Line-out, Mic-in		
WatchDog Timer		255-level interval timer, Programmable 1 ~ 255 sec, setup by software, jumperless selection, generates system reset		
Storage	CompactFlash	Card Type I, Type II		
	SATA	2		
	Floppy	1 x FDD (Optional)		
Rear I/O	Serial	1 x RS-232		
	Ethernet	2		
	KB/Mouse	1		
	CRT	1		
	USB	2		
Internal I/O	USB	4 x USB 2.0 (2 via USB DOM connector)		
	Serial	2 x RS-232, 1 x RS-232/422/485		
	Parallel(LPT)	1		
	FDD	Share with LPT (Optional)		
	GPIO	16-bit GPIO		
Expansion	PCI-104 slot	1		
Power	Power Type	AT / ATX		
	Power Supply Voltage	ATX: +5 V ± 5%, ±12 V ± 5% AT: 5 V only to boot up, 12 V optional for LCD Inverter and PC/104+		
	Power Consumption (Typical)	2.59 A @ 5 V, 0.01 A @ 12 V (Celeron M 1G with DDR2 256 MB)		
	Power Consumption (Max, test in HCT)	3.22 A @ 5 V, 0.01 A @ 12 V (Celeron M 1G with DDR2 256 MB)		
	Power Management	APM, ACPI		
	Battery	Lithium 3 V 196 mAH		
Environment	Operating	0 ~ 60° C (32 ~ 140° F)		
	Non-Operating	95% @ 60° C Relative Humidity		
Physical Characteristics	Dimensions (L x W)	115 x 165 mm (4.5" x 6.5")		
	Weight	0.35 kg (0.77 lb) (with Heatsink)		

Last updated : 22-April-2010

Board Diagram



Ordering Information

Number	CPU	L2 Cache	Chipset	Memory	Giga LAN	LVDS1	LVDS2	VGA	USB 2.0	COM	GPIO	LPT	CF	SATA	Audio	PCI-104	Thermal Solution	Operating Temp.
PCM-4381L-M0A1E	Celeron M 600 MHz	512 KB	910 GMLE	SODIMM	1	48-bit	-	1	6	4	16	1	Yes	2	Yes	Yes	Passive	0 ~ 60° C
PCM-4381F-S0A1E	Celeron M 1.0 GHz	0 KB	910 GMLE	SODIMM	2	48-bit	48-bit	1	6	4	16	1	Yes	2	Yes	Yes	Passive	0 ~ 60° C
PCM-4381F-00A1E	SKT 479	-	915GME	SODIMM	2	48-bit	48-bit	1	6	4	16	1	Yes	2	Yes	Yes	Active	0 ~ 60° C
PCM-4381Z-1GS0A1E	Celeron M 1 GHz	0 KB	910 GMLE	1G bundle	2	48-bit	48-bit	1	6	4	16	1	Yes	2	Yes	Yes	Passive	-20 ~ 80° C
PCM-4381Z2-1GS0A1E	Celeron M 1 GHz	0 KB	910 GMLE	1G bundle	2	48-bit	48-bit	1	6	4	16	1	Yes	2	Yes	Yes	Passive	-40 ~ 85° C

Note: For wide temperature, please contact sales rep.

Packing List

Part No.	Description	Quantity
	PCM-4381 SBC	1
9689000002	Mini Jumper Pack	1
2006438100	Startup Manual	1
2066438101	Utility CD	1
1700002034	3 COM ports and LPT cable	1
1700002055	ATX power cable	1
1700060202	6P-6P-6P PS/2 KB/MS	1
1700004891	USB cable 2 port/20-pin	1
1700001267	USB cable 2 port/10-pin	1
1700003931	AT power cable	1
1700008902	Audio cable 10P 2.0 mm 15 cm	1
1700008894	SATA cable 7P/7P 30 cm	1

Optional Accessories

Part No.	Description
PCM-410C-00A1E	COM/LPT daughter board for EPIC
1700004891	USB cable 20 Pin TO 2 Port L= 30 cm PCM-43 series
1700090301	Cable ASSY COM Port 30 cm D-SUB 9P TO 4P 2.0 mm

Embedded OS

Embedded OS	Part No.	Description
WinCE	2070004209	CE60 Pro PCM-4381 V3.01 ENG
Win XPE	2070006749	XPE FP2007 PCM-4381 V3.01 ENG (621.19 MB)

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

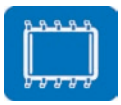
CPU Speed

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.