PCM-9386

3.5" SBC with Intel® ULV Celeron® M, VGA, LVDS, LAN, USB, MIO

Audio LVDS
ATX Power
MIO Interface
CF (Solder side)
FDD
SODIMM (Solder side)
USB
GPIO
Primary IDE
LPT
LCD converter
HDD LED
LAN SIR FAN
COM1 COM2 KB/Mouse CRT USB
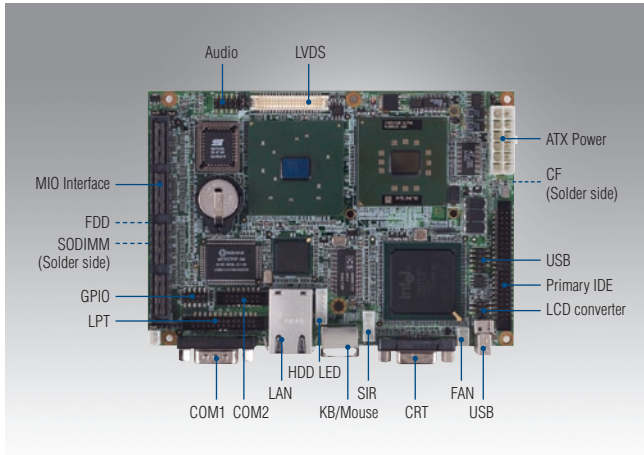
Features

- Embedded Intel® ULV Celeron® M 600 MHz and 1.0 GHz processor
- Supports 36-bit LVDS (48-bit LVDS optional)/VGA
- 100 Mbps Ethernet; Gigabit Ethernet (optional)
- +5 V and +12 V power; or single +5 V power
- Supports Embedded Software API and Utility

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

Utility:
BIOS flash Monitoring

CE FCC

Specifications

Processor System	CPU	Intel Celeron M 600 MHz	Intel Celeron M 1 GHz
	Front Side Bus	400 MHz	400 MHz
	L2 Cache	512 KB	-
	Chipset	Intel 852GM + ICH4	Intel 852GM + ICH4
	BIOS	Award 4 Mbit	Award 4 Mbit
Memory	Technology	DDR 200/266 MHz	
	Max. Capacity	1 GB	
	Socket	200-pin SODIMM	
SSD	CompactFlash	Card Type I/II	
Coastline I/O	VGA	1	
	COM	1	
	RJ-45	1	
	USB	1	
	K/B, Mouse	1	
Internal I/O	LPT	1	
	RS-232	-	
	RS-232/422/485	1	
	K/B	-	
	Mouse	-	
	USB	2 x USB 2.0	
	Audio	AC97, Line-in, Line-out, Mic-in	
	IrDA	115 kbps, SIR, IrDA 1.0 complaint (optional)	
	GPIO	8-bit general purpose Input/Output	
	SMBus	Supported	
EIDE	Mode	UDMA33	
	Channel	1	
Expansion Slot	MIO 160	1	
Ethernet	Speed	10/100 Mbps 10/100/1000 Mbps (optional)	
	Controller	Intel 82551QM (with Wake on LAN) Intel 82541PI (Gigabit, Optional)	
	Interface	1 x RJ-45	
Display	Controller	Intel 852GM	
	VRAM	Optimized Shared Memory Architecture up to 64 MB system memory	
	LVDS LCD	1 x 36-bit LVDS (48-bit LVDS optional), Panel 16:9 wide screen panel supported	
	TV-Out	Optional, by MIO-6254 module	
	Dual Independent Display	CRT + LVDS CRT + DVI / LVDS+ DVI (w/MIO-6254)	
Environment	Operating Temperature	0 ~ 60° C (32 ~ 140° F)	
	Operating Humidity	10% ~ 90% relative humidity, non-condensing	
Power	Power Type	AT / ATX	
	Power Supply Voltage	ATX: +5 V ± 5%, ±12 V ± 5% AT: 5V only to boot up (12 V is optional for LCD inverter and add on card)	
	Power Consumption	Max (Test in HCT): +5 V @ 2.0 A +12 V @ 0.02 A (Celeron M 600)	
	Power Management	APM1.2, ACPI2.0, wake on LAN, and modem ring-in functions	
	Battery	Lithium 3 V / 196 mAH	
Watchdog Timer	Output	System reset	
	Interval	Programmable 1 ~ 255 sec	
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	

ADVANTECH **Embedded Single Board Computers**

Board Diagram
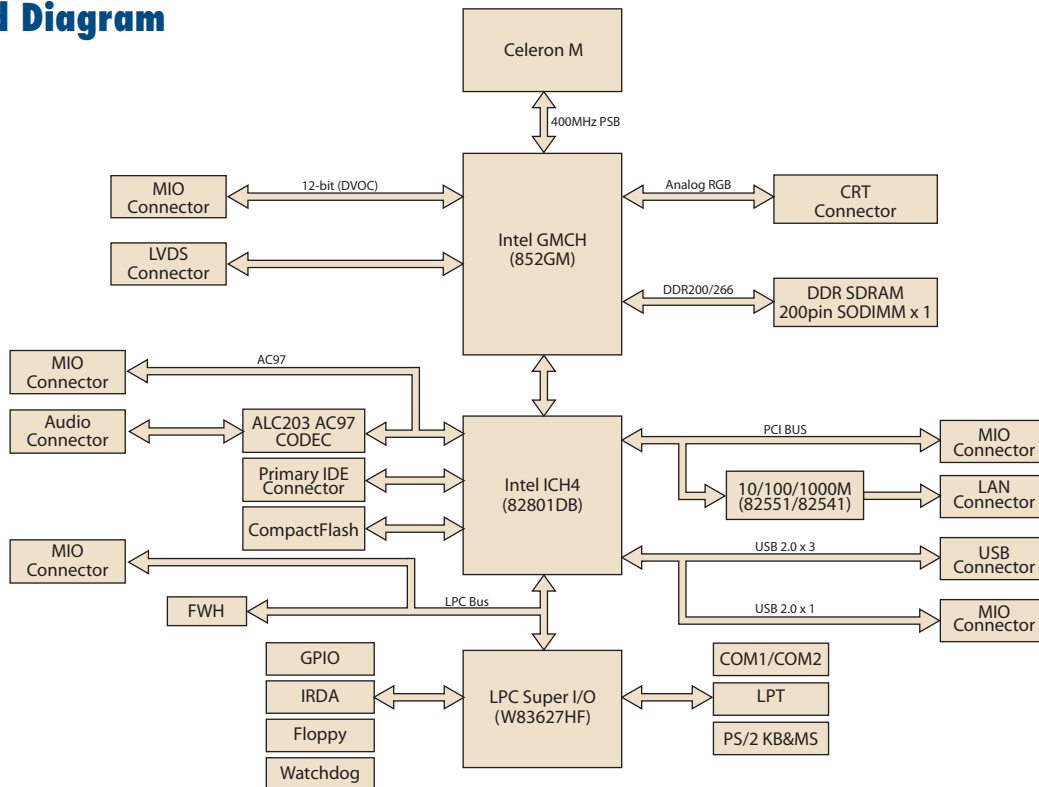
Ordering Information

Part No.	CPU	CRT	LVDS	DVI	LAN	Giga	USB	RS-232	RS-232/422/485	LPT	GPIO	IrDA	CF	MIO
PCM-9386F-M0A2E	Celeron M 600 MHz (512 KB)	1	1	-	1 FE	optional	3	1	1	1	4 in, 4 out	optional	1	1
PCM-9386F-S0A2E	Celeron M 1 GHz (0 KB)	1	1	-	1 FE	optional	3	1	1	1	4 in, 4 out	optional	1	1

Packing List

Part No.	Description	Quantity
	PCM-9386 SBC	1
9689000002	Mini jumper pack	1
	Startup manual	1
	Utility CD	1
1703100152	Audio cable	1
1701440351	IDE 44 pin	1
1703100121	USB 2 port cable	1
1700260250	Parallel port cable	1
1700060202	Keyboard/mouse cable	1
9681000044	26-34 pin FDD adapter	1
1701260125	FDD cable for slim FDD	1
1701340700	Flat cable 34 pins for FDD	1
1701140201	Second serial port cable	1
1700000265	ATX power cable 20P-12P cable	1

Optional Accessories

Part No.	Description
MIO-6251	MIO module w/2 x Mini PCI, Audio
MIO-6253	MIO module with 4 COM ports
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

Embedded OS

Part No.	Description
2070000584	Win CE 4.2 P-M Core Image, PCM-938x, 2 COM, English, V 1.10 (17.2 MB) (Optional)
2070000585	Win CE 4.2 P-M Pro Image, PCM-938x, 2 COM, English, V 1.10 (29.1 MB) (Optional)
2070000586	Win CE 4.2 P-M Plus Image, PCM-938x, 2 COM, English, V 1.10 (29.9 MB) (Optional)
2070000765	Image CE 5.0 Pro Plus English for P-M, 2COM (Optional)
2070000605	Win XPE SP2 Image, PCM-938x, English, V2.10 (440 MB) (Optional)

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.