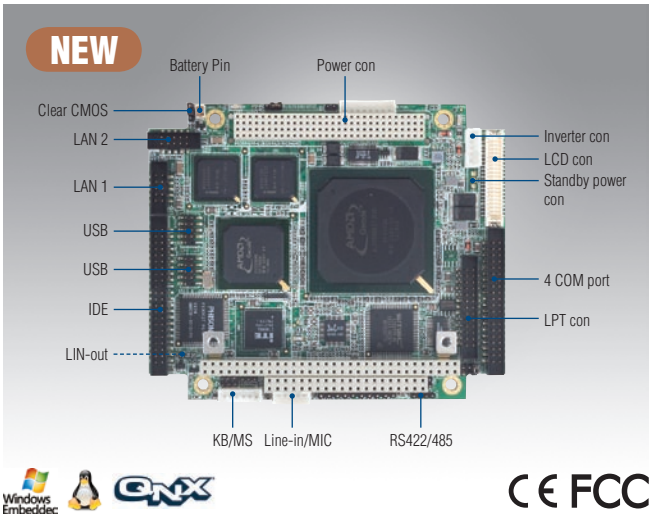
PC/104 CPU Modules

PCM-4153

AMD LX800 PC/104-Plus Module, w/ Onboard Memory/Flash and Wide Temperature Range



Features

- AMD low power LX800/500 MHz Processor
- Supports dual 10/100 Mbps Ethernet
- 1 GB Flash & 512MB DDR memory onboard
- Supports three RS-232, one RS-232/422/485, and four USB 2.0 ports
- Supports Embedded Software API and Utility

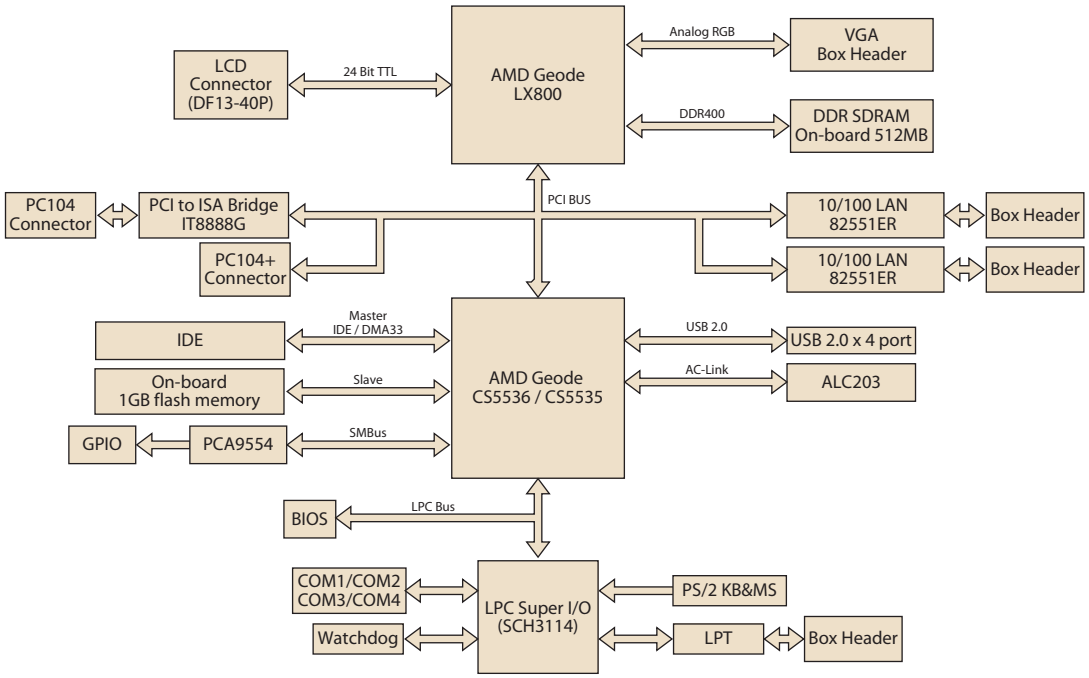
Software APIs: SMBus, H/W Monitor, Brightness, Watchdog, GPIO, Backlight On/Off

Utility: BIOS flash, Monitoring

Specifications

General	CPU	AMD Geode™ LX800, 500 MHz
	2nd Cache Memory	128 KB on processor
	System Chipset	AMD Geode LX800
	BIOS	AWARD® 4-Mbit Flash BIOS
	System Memory	512 MB DDR333 SDRAM onboard
	Power Management	APM 1.2
	SSD	-
	Flash	1 GB Flash Onboard
	Watchdog Timer	255-level interval timer, setup by software.
	Expansion Interface	104-pin 16-bit PC/104 module connector and 120-pin PCI PC/104-Plus module connector
	Battery	Lithium 3 V/196 mAH
I/O	I/O Interface	1 x EIDE, 1 x LPT, 1 x RS-232/422/485, 3 x RS232, 1 x K/B, 1 x Mouse
	USB	4 x USB 2.0
	Audio	Supports AC97 audio stereo sound
	GPIO	8-bit general purpose Input/Output
Ethernet	Chipset	Intel 82551ER
	Speed	10/100 Mbps
	Interface	2 x internal box header
Display	Chipset	AMD Geode LX800
	Memory Size	Optimized Shared Memory Architecture, supports 64 MB frame buffer using system memory
	Resolution	CRT display mode: pixel resolution up to 1920 x 1440 x 32 bpp at 85 Hz, 1600 x 1200 x 16 bpp at 100 Hz and up to 1024 x 768 x 32 bpp at 60 Hz for TFT LCD LCD Interface: 18/24 bit TTL interface Dual simultaneous display: CRT + LCD
Mechanical and Environmental	Dimensions (L x W)	96 mm x 115 mm
	Weight	0.162 kg (with heat sink)
	Operating Temperature	0 ~ 60° C (32 ~ 140° F)
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Power	Power Supply Voltage	AT: 5V only to boot up (12 V is optional for LCD inverter and add on card)
	Power Consumption	(Geode LX800, 256 MB DDR333) Max (Test in HCT): +5 V @ 1.51 A, +12 V @ 0.1 A Typical (WinXP Idle Mode): +5 V @ 1.35 A, +12 V @ 0.1 A

Board Diagram



Ordering Information

Part No.	CPU	Chipset	Onboard Memory	CRT	TTL	LVDS	LAN	USB2.0	RS-232	RS-232/ 422/485	LPT/ KB/MS	Onboard Flash	Audio	PC/104+ connector	Thermal Solution	Operating Temp.	ETT Service	Embedded OS
PCM-4153F-L0A2E	AMD LX800	CS5536	512 MB	Yes	18/24 bit	-	2 FE	4	3	1	Yes	1 GB	Yes	Yes	Passive	0 ~ 60° C	-	WinCE (optional)
PCM-4153FZ-L0A2E	AMD LX800	CS5536	512 MB	Yes	18/24 bit	-	2 FE	4	3	1	Yes	1 GB	Yes	Yes	Passive	-20 ~ 80° C	-	WinCE (optional)
PCM-4153FZ2-L0A2E	AMD LX800	CS5536	512 MB	Yes	18/24 bit	-	2 FE	4	3	1	Yes	1 GB	Yes	Yes	Passive	-40 ~ 85° C	-	WinCE (optional)

Packing List

Part No.	Description
	1 x PCM-4153 SBC
1700003491	1 x Wire AT Power cable
1700000918	1 x Audio cable
1701400181	1 x Four COM cable
1703040157	1 x RS-422/485 COM cable
1703060053	1 x Keyboard/Mouse cable
1700060202	1 x Y cable (for KB/MS extension)
1700005158	2 x Ethernet RJ-45 Conn. conversion cable
1700260250	1 x LPT port cable
1701440350	1 x IDE cable
1700000898	1 x VGA cable
1703100121	2 x USB cable (bracket type with two USB ports)
	1 x Startup manual
	1 x CD-ROM (Manual, Driver, Utility)

Value-Added Software Services

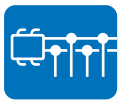
Software API: An interface that defines the ways by which an application program may request services from libraries and/or operating systems. Provides not only the underlying drivers required but also a rich set of user-friendly, intelligent and integrated interfaces, which speeds development, enhances 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

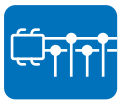
GPIO

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.

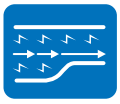
Backlight

The Backlight API allows a developer to control the backlight (screen) on/off in an embedded device.

Power Saving

CPU Speed

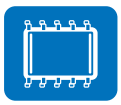
Make use of Intel SpeedStep technology to reduce power power consumption. The system will automatically adjust the CPU Speed depending on system loading.



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.