NEW EMBEDDED PENTIUM®-LEVEL PALM-SIZE SBC IS HASSLE-FREE

PCM-5820 Cyrix GXM SBC with Processor, Audio, VGA/LCD and Ethernet

Audio, 100Base-T Ethernet, and a Compact Flash Card socket. This board, which is Y2K ready and can be sold with a customized Windows® CE option, provides a feature-packed, Pentium®-level, hassle-free solution for space critical applications.

Worry-free, Fan-less Pentium®-level SBC is Here

With this board, system engineers will now be able to upgrade their 486-based systems to Pentium®-level without as many additional worries, partially because a Pentium®-level Cyrix GXM-233 processor is mounted directly on board. Mounting CPUs directly on board eases the configuration and

Advantech's new palm-size SBC, the PCM-5820, is a 3.5" HDD-size SBC with an on-board, embedded Pentium®-class Cyrix GXM-233 processor. Other on-board features include VGA/LCD, LVDS,

installation process because there is no need to set any jumpers for speed or voltage differences between various CPUs. In addition to this ease of

Special Guide for CeBit'99

This issue highlights some of the special products which may be on display **(Booth C47-1, Hall 19)**.

configuration, this CPU has been specially designed to work well in environments with temperatures of up to 60° C without need of a fan. Eliminating the CPU fan from a system significantly reduces mean-time-between-failure worries.

Other On-board Features

This new card is definitely feature packed. Besides an on-board CPU, it also has 100Base-T Ethernet, AC97 Version 2.0 compliant audio and VGA/LCD interface. UMA architecture supports VGA memory sharing of up to 4 MB. 18-bit TFT LCD's are also supported, as is LVDS. Special expansion features include one SO DIMM socket (up to 128 MB), 2 USB ports and 1 infrared port, among others. Lastly, this card features an SSD socket for Compact Flash Disks ranging from 4 - 40 MB. An option which Advantech offers includes the PCM-5820 and a 10 MB Compact Flash Disk preloaded with Windows® CE 2.1. For a more economical solution, one may consider the PCM-5820L, which offers no on-board Ethernet support. David Lai, Sales Director of Advantech's Embedded PC Group, says that "the PCM-5820 is an ideal board for intensive applications in compact spaces."

A Total Solution

To provide a more complete system solution for our customers, Advantech is currently modifying its compact MBPC-200 chassis to accommodate the extra connectors and functions featured on the PCM-5820. To further expand the options and increase the convenience for our customers, an additional power supply (PS-25D) is being developed which would accept DC input of between 9 to 36 volts. Currently, the PS-50A power supply accepts AC input of between 110 to 220 volts.

Availability

Sample orders and pricing information can be obtained from your local Advantech representative. If a hassle-free, compact Pentium®-level solution is what you're looking for, then call Advantech or check out our web site at **http://www.advantech.com/epc** for more information.

New Advantech CPU Card Part of "Intel Platform Provider" Program

Advantech's new half-size Pentium® MMX CPU card, the PCA-6751, is part of Intel's new "Intel Platform Provider" program, which has been launched by Intel's Embedded Microprocessor Division (EMD). In fact, Advantech is Intel's most important partner in this program in the Asia-Pacific region.

About the Program

With this program, Intel guarantees the supply of its embedded chips for several years (typically 5 to 7 years). This means that the customer need not worry that their current product will be suddenly phased out due to lack of supply. Intel also pledges to provide technical support for its full set of chips and components. This program reinforces the idea that Intel stands for high quality, reliability and compatibility.

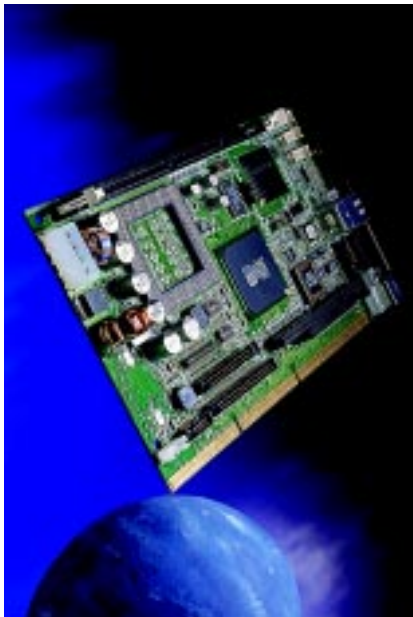*PCA-6751 All-Intel Half-size Pentium® MMX CPU Card*

About the Card

The card itself is definitely feature packed. A low power consumption Intel embedded solution Pentium® MMX CPU is mounted directly on board, with a frequency choice of either 166 MHz or 266 MHz. Mounting CPUs directly on-board eases the configuration and installation process because there is no need to set any jumpers. Also on board is an all-Intel set of support chips. These include an Intel 430TX chipset, an Intel 100Base-T Ethernet chip, and an Intel VGA/LCD chip with 2 MB video RAM on chip (C&T 69000). In addition, this chip combination, as well as the entire card itself, has been specially designed for embedded use, which means low power consumption. Lastly, this card features an SSD socket for Compact Flash Disks ranging from 4 - 40 MB. An option which Advantech offers includes the PCA-6751 and a 10 MB Compact Flash Disk preloaded with Windows CE ver. 2.1.

Advantech's Complete NLX Product Line Offers PCI and ISA Support

Advantech is pleased to introduce its PCI solution for a complete line of products, ranging from a half-size CPU card (which supports both PCI and ISA-bus cards) to NLX backplanes and chassis. The core of this NLX product line is the PCN-6351, an NLX form factor-based Pentium® MMX CPU card with on-board features which include Ethernet, VGA/LCD, and an SSD socket.

PCN-6351 NLX Half-size Pentium® MMX CPU Card

Industry-wide Migration Towards PCI

For the past few years, the industry trend for both SBC's and CPU cards, in both the consumer and industrial fields, is to phase in PCI-bus cards, while gradually phasing out ISA-bus cards. A 1997 Embedded PC survey reported that in 1997, 17% of IPC used PCI-bus, whereas 37% of IPC's would use PCI-bus by 1999. In addition, Intel and Microsoft's PC'98 standard for desktops and notebooks no longer supports the ISA bus. This is happening because PCI is higher performance (32-bits at 33 MHz, vs. 8-/16-bits at 8 MHz for ISA), has a smaller size slot than ISA, and now is nearly the same price as ISA.
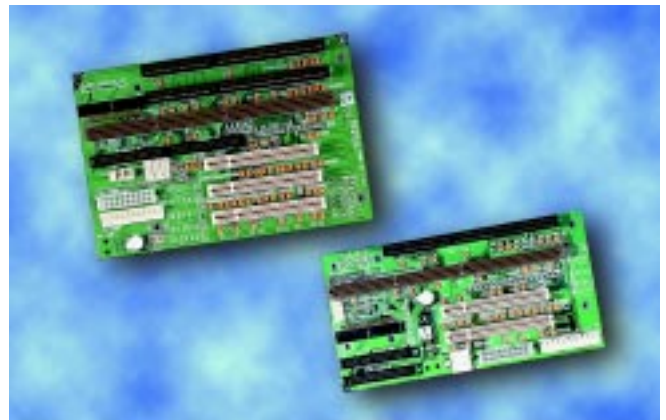
NLX: Advantech's PCI-ISA Solution

Advantech already provides a full-size CPU card solution that supports both ISA and PCI by employing the PICMG standard. But for half-size CPU cards, Advantech employs NLX form factor cards, on which ISA and PCI-buses are both supported and physically separated. This reduces signal interference more than PISA (another PCI-ISA solution). NLX is also an alliance standard supported by Intel and IBM. Fur-

thermore, as David Lai, Sales Director of Advantech's Embedded PC Group notes, "supporting both PCI and ISA is better than a PCI-only solution because this ISA-to-PCI transition phase will last several years. NLX form factor boards can also preserve your previous ISA investments and provide one with the upward growth potential made possible with a PCI bus."

New NLX Product Line Now Available

Advantech now has begun to offer its new PCN-6351 NLX Half-size Pentium® MMX-based CPU Card. This card, besides fitting half-size CPU card dimensions, will also include several features on board, such as 100Base-T Ethernet, VGA and LCD interfaces, as well as a socket for a Compact Flash card of up to 40 MB. Besides this high-powered, compact CPU card, Advantech also offers NLX backplanes in two sizes: 4 slot (1 NLX, 2 PCI, 1 ISA) and 6 slot (1 NLX, 3 PCI, 2 ISA). The 4-slot backplane is the PCN-6106NP2, while the 6-slot backplane is the PCN-6106NP3.

Other NLX Products

Advantech's Complete NLX System Solution

Besides selling both full- and half-size CPU cards and NLX-based backplanes, Advantech also provides chassis in which to install everything. Our MBPC-641 is perfect for our 4-slot card, while the IPC-6806/S nicely accommodates all of our 6-slot CPU cards.

Don't Delay, Contact Us Today!

If any of these components or combination of components interest you, please don't hesitate to call your nearest Advantech sales or check out our EPC web site at **http://www.advantech.com/epc/** for more information.

Advantech's True Multimedia Solution with Video-in & TV-out

Advantech is pleased to announce its newest and most advanced 5.25" Biscuit PC, the PCM-5864 Pentium® MMX SBC with Video, Audio, VGA/LCD and Ethernet. It is an all-in-one true multimedia Pentium® processor-based single board computer (SBC) with a 32-bit audio controller and video input/output (PCM-5864 only), a PCI SVGA controller, a 18-bit LVDS interface, a PCI Ethernet interface and one PCI expansion slot. When using an Intel Pentium® MMX processor, the PCM-5864/5864L achieves outstanding performance that surpasses any other SBC in its class. This compact (only 5.75" x 8") unit offers all the functions of a single board industrial computer, but still fits in the space of a 5.25" floppy drive.

PCM-5864 True Multimedia SBC

What's On-board?

On-board features include an SSD socket for Compact Flash memory, 512 KB 2nd level cache, four serial ports (three RS-232, one RS-232/422/485), one multi-mode parallel (ECP/EPP/SPP) port, two USB (Universal Serial Bus) ports, an FIR (IrDA), a floppy drive controller and a keyboard/PS/2 mouse interface. The built-in high speed PCI IDE controller supports both PIO and Ultra DMA/33 modes. Up to two IDE devices can be connected, including large hard disks, CD-ROM drives and tape backup drives.

Communication and Video Features

The PCM-5864/5864L features 100/10Base-T Ethernet and supports 36-bit XGA LCD panels. A standard 2

MB of VGA memory is included on the C & T LCD controller 69000 chip option. 4 MB VGA memory is included on the C & T 69030 chip, which will soon be available. The PCM-5864/5864L also supports 18-bit LVDS interface for long distance data transmission with good EMI safeguards.

True Multimedia SBC

The PCM-5864 is a highly integrated multimedia SBC that combines audio, video-in and TV-out, and network functions on a single computer board the size of a 5.25" floppy drive. It provides PCI 32-bit full-duplex, integrated 3D surround audio which complies with the AC97 standard, video capture that supports connectors via an optional cable kit, and video-out

PCM-5864

function which supports NTSC and PAL formats. To help system integrators who wish to upgrade their PCM-5862 series SBCs, the PCM-5864/L has been designed with the connectors in the exact same locations as the PCM-5862 series SBCs, which means that one only needs to substitute the SBC without having to change the chassis or connector backplates.

Contact Advantech Today

If your application demands the power and flexibility of an industrial-strength, Pentium®-class SBC, then the PCM-5864 or PCM-5864L (minus video-in/out and audio) may be the board that you're looking for. For sample ordering and pricing information, feel free to contact your nearest Advantech representative or visit our web site at **www.advantech.com/epc** for more detailed and updated information. Let Advantech be your embedded application solution provider.
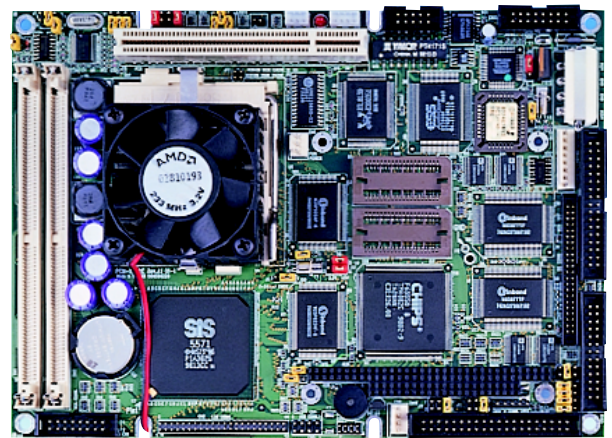
More Advantech Products Now Windows® CE Ready

The cover story of Advantech *EPC World*'s previous volume (vol.11) highlighted the numerous Advantech products that were then ready to run Microsoft Windows® CE. Since that time, several more products have been added to that list. The table below compares all Advantech EPC products which currently have Windows® CE solutions. They include CPU boards, cards and total system solutions. These products also vary in shape, size, and function. With a choice of either 486 or Pentium®-level power, these products come with such on-board features as Ethernet, VGA/LCD, Audio, and solid state disk, as well as the standard ports and connectors you would expect.

Advantech's range of Windows® CE-ready products provide that power and flexibility to handle almost any of your embedding computing application needs. In the near future, additional, more powerful products will be available from Advantech with their own, custom designed Windows® CE preinstalled. Feel free to consult the comparison table below, or visit our website at **www.advantech.com/epc** for more detailed and up-to-date information.

Multimedia Biscuit PC Now Supports ATX Power

In Advantech's continuing quest to bring our customers more functionality and reliability, Advantech has improved its new Pentium®-level multimedia SBC so that it now can support ATX power. The revised A102 version's ATX power allows the user to remotely power-on one's computer, as well as support a monitor with the same power supply. The board itself features a choice of Pentium® MMX-level CPUs and on-board 100Base-T Ethernet, VGA/LCD, and Audio.

PCM-5862E

Advantech EPC's Windows® CE-ready Product Comparison Table

Model	MBPC-200/4823CE	MBPC-200/4825CE	PCM-4823CE-12D	PCM-4825CE-12D	PCA-6145BCE-12D	PCA-6154CE-12D	PCM-4862CE-12D	PCM-5862ECE-16S	POS-460CE-12D	POS-560CE-12D
Windows® CE ver	V2.1	V2.1	V2.1	V2.1	V2.1	V2.1	V2.1	V2.1	V2.1	V2.1
On-board storage	12 MB DOC 2000	12 MB DOC 2000	12 MB DOC 2000	12 MB DOC 2000	12 MB DOC 2000	12 MB DOC 2000	12 MB DOC 2000	16 MB IDE Flash	12 MB DOC 2000	12 MB DOC 2000
On-board DRAM	16 MB EDO SIMM	16 MB EDO SIMM	none	none	none	none	none	none	none	none
Chassis	MBPC-200	MBPC-200	none	none	none	none	none	none	none	none
VGA/LCD res., color	320 x 200, 640 x 480, 800 x 600, 1024 x 768, each at 256 colors	320 x 200, 640 x 480, 800 x 600, 1024 x 768, each at 256 colors	320 x 200, 640 x 480, 800 x 600, 1024 x 768, each at 256 colors	320 x 200, 640 x 480, 800 x 600, 1024 x 768, each at 256 colors	320 x 200, 640 x 480, 800 x 600, 1024 x 768, each at 256 colors	320 x 200, 640 x 480, 800 x 600, 1024 x 768, each at 256 colors	320 x 200, 640 x 480, 800 x 600, 1024 x 768, each at 256 colors	320 x 200, 640 x 480, 800 x 600, 1024 x 768, each at 256 colors	320 x 200, 640 x 480, 800 x 600, 1024 x 768, each at 256 colors	320 x 200, 640 x 480, 800 x 600, 1024 x 768, each at 256 colors
Ethernet	10Base-T	none	10Base-T	none	10Base-T	10/100Base-T	10Base-T	10/100Base-T	10Base-T	10Base-T
Audio	none	16-bit	none	16-bit	none	none	none	16-bit	none	none
HDD support	max. 2 HDDs	max. 2 HDDs	max. 2 HDDs	max. 2 HDDs	max. 2 HDDs	max. 2 HDDs	max. 2 HDDs	max. 2 HDDs	max. 2 HDDs	max. 4 HDDs
FDD support	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Parallel port	SPP	SPP	SPP	SPP	SPP	SPP	SPP	SPP	SPP	SPP
PS/2	mouse & keyboard	mouse & keyboard	mouse & keyboard	mouse & keyboard	mouse & keyboard	mouse & keyboard	mouse & keyboard	mouse & keyboard	mouse & keyboard	mouse & keyboard
Serial port	2 COM ports	2 COM ports	2 COM ports	2 COM ports	2 COM ports	2 COM ports	4 COM ports	4 COM ports	4 COM ports	4 COM ports

What's the major difference between Windows 95/98/NT and Windows® CE?

1. Small footprint & cross platform: Windows 95/98/NT can occupy several hundred Mbytes of storage space while Windows® CE is a modularized, cross-platform operating system supporting RISC, ARM, MIPS, SHx and x86 CPUs. It takes only 2 - 6 MB, making it a good solution for embedded operations with SSD.

2. Customized, Modularized: Windows 95/98/NT is a completed, ready-to-use OS for almost any x86 platforms. On the contrary, Windows® CE is hardware dependent, modularized OS only for the target platform. In fact, the Windows® CE released by Microsoft is a "Embedded Tool Kit (ETK)" rather than an OS. The ETK comprises of Windows CE kernel, a limited list of device drivers and tools for users to "build" a customized Windows® CE (image) for the target platform. As you can see several problems happened here : A. Many devices have not yet supported Windows® CE yet. It depends on hardware supplier to convert their current device driver on Windows95/98/NT into CE's. Otherwise, users have to develop their own. B. Devices driver can not be "installed" from media (FD, title) to Windows® CE directly. Add/remove any device driver needs to "rebuild" the customized Windows® CE image.

3. License: Users get the license from Microsoft to use Windows 95/98/NT at purchase. However, it is not the story for Windows® CE. Customers still do not own the Window CE license after buying ETK. The license will be authorized by MS in the following two models : MS licenses to OEM's specific products such as PDA, H/PC or Advantech's MBPC-200/4823CE. Windows® CE license is included at hardware purchase because OEMs already have their product hardware and application certified by Microsoft. Or customers can build their own Windows® CE on Advantech's hardware and submit their application details to Microsoft for license.

4. Application software and device driver are different: All of Windows CE application need be complied by Microsoft Visual C++ for Windows® CE because the set of Object class of in Microsoft Visual C++ for Windows® CE is different from normal Microsoft Visual C++. Windows® CE device driver is not compatible with either Windows NT or Windows 95/98. They need to be built from Windows CE ETK.

Does Windows® CE provide a shell?

The shell issue has been a very sore subject, and Microsoft has been feeling the pain for removing the shell. We try to summarize the situation and show other possibilities. ETK 2.0 provided the Explorer shell that is similar to the H/PC shell and Windows 95/NT4.0 as an example. OEMs were not allowed to use the shell in their product unless they were an H/PC manufacturer or got special permission from Microsoft (which is very rare). There were two reasons for this. The first was that the shell was designed for small screen formats (i.e. H/PCs). If you try the shell with a larger screen resolution, some of the menu items and control panels get cut off. The second reason was to limit the number of H/PC vendors to those that Microsoft is working very closely with to improve the OS and the H/PC devices.

It is well understood that the biggest draw to Windows® CE for Embedded developers was that it looked like its big brothers 95 and NT. Microsoft will continue to allow the H/PC and Palm-size PC manufacturers to use the Windows 95/NT 4.0 lookalike shell. Microsoft may in the future provide example shells and possibly bring back a new shell in future ETK releases for Embedded OEMs. When this will happen is unknown. There are third parties offering kits, but if you know how to write a Win32 application, you know how to write a shell.

Fingerprint ID System

A Taiwanese systems integration company has used one of Advantech's 486-based palm-size SBCs to create a fingerprint ID system that can be used in conjunction with locks for doors, gates or safes, as well as for employee check-in/check-out at the workplace.

How it Works

This fingerprint ID system uses 8 MB of on-board Flash memory (which can be expanded) to store the fingerprints of up to 100-300 individuals. The maximum number of fingerprints that can be stored depends on the amount of detail one desires. The amount of detail in turn influences accuracy as well as processing time. This information storing and processing is done by a master device, while up to 4 slave devices can be attached via an RS-232 con-

nection. This device can be used for applications in which security and/or automated identity checks are crucial, such as door/gate locks, bank or business safes, workplace employee time management, etc.

Why Advantech?

Advantech's PCM-4825 486-base palm-size SBC was chosen for several reasons. This tiny board comes with on-board DX5-133 CPU, VGA/LCD, and audio, as well as connectors and sockets for SSD, PC/104 modules, and a RS-232 serial port. Because they are industrial quality, they can be operated in harsh environments for 24 hours a day. Also, Advantech's quality, reliability, and local technical support were important factors in this company's decision to chose Advantech. In the future, this company plans to use Advantech's new PCM-5820 (see cover story) Pentium-level palm-size SBC to further increase this device's fingerprint recognition speed.

Anti-snoring Device

By utilizing one of Advantech's embedded CPU cards, an Australian company has designed an interesting medical device which helps with the diagnosis and treatment of people suffering from accute snoring problems.

Rest Easily with Advantech

Those people suffering from accute snoring problems disturb not only others within earshot, but also themselves, as it affects the quality of their sleep. There is an operation which cures the problem, but most people do not like the risk, pain and cost of an operation. Now there is another option. This anti-snoring device does not require the patient to have an operation. Rather, it consists of a pump, a mask, and a monitoring/regulating device. For the first few nights, a patient would wear the mask (at home, on an outpatient basis) during sleep while the machine monitors when and how the patient breaths and snores. After analysis and diagnosis of the data by a doctor, the machine would next be used in its therapy mode by providing enough air to the patient just before he/she would normally snore.

Why Advantech?

Advantech's PCA-6143P and, later, PCA-6144P half-size 486 CPU card with SSD was chosen by this company because it was small, lightweight (no need for an HDD) and reliable. Advantech worked closely with them during their two years of development time. Many OEM/ODM changes were also made to the original model, including writing a customized BIOS and modifying connector positions on the board itself. Advantech's reputation relies not only on the quality and variety of its embedded and automation products, but also on its commitment to both pre- and post-sales technical service and assistance. Call today and let Advantech be your embedded application solution.

New Barcode System Developed

Advantech's EPC Group has developed a bar code system to be used on all of its new products. This new standardized barcode identifies which division 'owns' the product, it's manufacturing year and month, it's revision code, and it's serial number. The internationally recognized 'Code 128' ASCII set encoding system is used. This new barcode system should help automate production and inventory management, as well as simplify and facilitate warrantee issues, because this number allows one to easily trace each individual product back to Advantech. This system can also be used by Advantech's distributors if they do not yet currently have a barcode system of their own. This system should increase overall efficiency and reduce delays and complaints.

New EPC Posters Available

PCN-6351

Windows® CE Solution*

PCM-5864

PCM-5820

EPC E-commerce Coming Soon

Advantech's Embedded PC Group is in the midst of developing an e-commerce web site which can be used for the ordering of sample products. The main objective is to help sales close sample orders speedily and, thereafter, forward the closed sample sales leads to the responsible territories. The maximum quantity for on-line shopping will be 2 pieces. No quantity discounts and no negotiation will be possible on this site. Over 50 of EPC's hottest products will be highlighted and available to order. It will be located at Yahoo Stores, and also accessible through Advantech EPC's internet web site at **www.advantech.com/epc**. Feel free to visit our site for the latest progress updates.

New Windows® CE Solution Brochure Now Available

Advantech's Embedded PC Group has put the finishing touches on its new Windows® CE Solution Brochure. This brochure details Advantech's system-level, board-level, and Panel PC-level solutions.

1999 Q2 EPC Global Trade Show Scheduling

Region	Place	Trade Name	Date
Europe			
ooUnited Kingdom	London	Embedded System Show	May
		NetCom (Co-op).	April
America			
ooUnited States	Chicago	Comdex/Spring'99	Apr.19-22
Asia			
ooTaiwan	Taipei	Computex'99	Jun.1-5
	Taipei	Computer Application & IC	Jun.4-8
ooJapan		Board Computer	Apr.14-16