

Prime News



[Advantech Selected Windows® Embedded Partner of the Year](#)

Advantech Co. Ltd., was honored and delighted to receive the Windows® Embedded Partner of the Year Award at the Windows® Embedded Partner Summit in Las Vegas on November 27th, 2001. Advantech captured the award from a field of over a thousand Windows® Embedded Partners.... ([read more...](#))

Tel: 886-2-2792-7818
Fax: 886-2-2794-7304
[Contact the editor](#)

Recent News

Prime News

■ [Advantech Joins Windows® Embedded Partner Program at Gold Level](#)

Prime News

■ [Advantech x86-based SBC Uses Micron's SyncFlash® Memory for Instant-on Microsoft® Windows CE](#)

Announcement

■ [Phoenix Operation Gets Webpage](#)

Announcement

■ [Quality You Can See: New P/C104 Pin Connectors](#)

RECENT ISSUES

[November 15, 2001](#)
[November 1, 2001](#)
[October 15, 2001](#)
[October 1, 2001](#)
[September 1, 2001](#)

Technical Information

[RAID: Who Needs It?](#)



Not a bug spray? Not a sudden swift attack? RAID systems address one or both of two basic data storage problems: data safety, and read/write performance. ([read more...](#))

Announcements



[PCM-9550L Phase In](#)

The PCM-9550L (L for Light) will begin its phase-in with samples ready on December 10, 2001. The PCM-9550L is like the PCM-9550F, but field-stripped of several functionalities. ([read more...](#))



[PCM-9370 Supports Windows®XP](#)

The latest version of [PCM-9370](#) supports the Windows XP OS. This new version of PCM-9370 has an updated BIOS, v1.13, and is bundled with the updated PCM-200 memory module. ([read more...](#))

Problems, comments, suggestions? Please contact the [editor](#)

[EPC World](#)

[Advantech Home](#)

[EPC Homepage](#)

[News Archive](#)

[Contact Us](#)

Prime News

Microsoft Selects Advantech for Windows® Embedded Partner of the Year Award



Advantech Co. Ltd., was honored and delighted to receive the Windows® Embedded Partner of the Year Award at the Windows® Embedded Partner Summit in Las Vegas on November 27th, 2001. Advantech captured the award from a field of over a thousand Windows® Embedded Partners by demonstrating outstanding technical innovation and aptitude with the Windows® Embedded platform.

A Committed Partner

For over 8 years, Advantech has been dedicated to providing Windows Embedded software support to our customers. Advantech was the first company to sell a Microsoft Windows CE operating system (OS) and Single Board Computer (SBC) together as one package, and now offers over thirty standard products with Windows Embedded solutions. Our Embedded Software Service (ESS) group has focused on developing end user applications utilizing Windows embedded software, and has also provided development and integration support for a wide range of embedded products for both OEMs/ODMs and various mission-critical applications. The ESS group is continuously making breakthroughs based on Windows Embedded technologies. Examples include, among others, direct video capture, VOIP, and x86 instant-on capability, all of which are based on the Windows Embedded OS. Advantech also provides customers with integration and development service, as well as hands-on software development training that can jump start projects and ideas. Advantech firmly believes Microsoft Windows® Embedded solutions will continue to make gains in mobile, consumer, and industrial settings.

Find Out More Today

Advantech is continuously developing solutions using the industry's most reliable OS like Microsoft's newest Windows CE .NET, Windows NT embedded, Windows XP embedded or Windows 2000 SAK on our most revolutionized platform

Tel: 886-2-2792-7818
Fax: 886-2-2794-7304

[Contact the editor](#)

Other News

Prime News

■ [Advantech Selected Windows® Embedded Partner of the Year](#)

Technical Information

■ [RAID: Who Needs It?](#)

Announcement

■ [PCM-9550L Phase In](#)

Announcement

■ [PCM-9370 Supports WindowsXP](#)

RECENT ISSUES

[November 15, 2001](#)
[November 1, 2001](#)
[October 15, 2001](#)
[October 1, 2001](#)
[September 1, 2001](#)

solutions. To find out more, please call your local Advantech sales office at 1-800-866-6008 or visit our website at <http://www.advantech.com>

[TOP](#)

Problems, comments, suggestions? Please contact the [editor](#)

EPC World	Advantech Home	EPC Homepage	News Archive	Contact Us
---------------------------	--------------------------------	------------------------------	------------------------------	----------------------------

Technical Information

RAID: Who Needs It?

Not a bug spray? Not a sudden swift attack? RAID originally stood for Redundant Array of Inexpensive Disks. Current usage often reads Redundant Array of Independent Disks (or Drives). Now, both the "I words"—independent, and, especially with IDE drives, inexpensive—are appropriate. A RAID *controller* manages an array of physical hard drives into a simple scheme of logical drives which the system sees.

Basics

RAID systems address one or both of two basic data storage problems: data safety, and read/write performance (speed).

First, safety. Data stored on magnetic disks is, as most of us know only too well, subject to loss. As some say, it is not a question of *if* your hard drive will fail, it is only a question of *when*. And though IDE drives have improved astonishingly in physical size (smaller is better), in capacity (larger is better), and in reliability (longer MTBF is, of course, better) since their introduction, it is still a question of *when*. At the simplest level, you can have two IDE drives in a RAID array, with exactly the same data on each. If either drive fails, the other takes over. Of course, in the event of a disk failure, in addition to managing the reconstruction of data, the RAID controller sends an alert, so that steps may be taken to replace the failed hardware.

Second, speed. If you have a ton of data coming in (or going out) every second, such as with streaming uncompressed, full-screen, hi-res video, with stereo sound, it is still a challenge for a hard drive to keep up. Dropouts, or worse, do happen. But, again at the simplest level, if you have two hard drives sharing the load (you could think of it as splitting the stream), they *can* keep up. It's another case where two heads are better than one, or (with four read/write heads in a typical IDE drive) eight are better than four.



Tel: 886-2-2792-7818
Fax: 886-2-2794-7304
[Contact the editor](#)

Other News

Prime News

- [Advantech Selected Windows Embedded Partner of the Year](#)

Technical Information

- [RAID: Who Needs It?](#)

Announcement

- [PCM-9550L Phase In](#)

Announcement

- [PCM-9370 Supports WindowsXP](#)

RECENT ISSUES

[November 15, 2001](#)
[November 1, 2001](#)
[October 15, 2001](#)
[October 1, 2001](#)
[September 1, 2001](#)

[TOP](#)

Problems, comments, suggestions? Please contact the [editor](#)

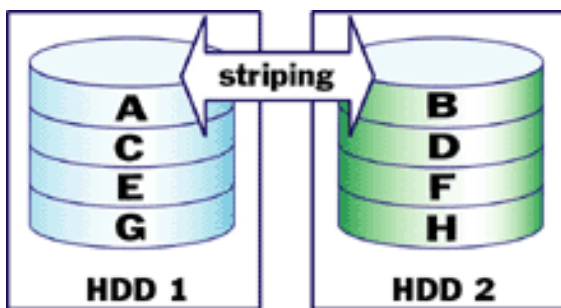
[EPC World](#)
[Advantech Home](#)
[EPC Homepage](#)
[News Archive](#)
[Contact Us](#)

Technical Information

RAID by the Levels

RAID Level 0

So, the RAID answer to huge data streams is: make the disks take turns writing, or reading. This is called striping, and it is one of the most basic RAID functions. Graphically, it looks like this:



And to the system, it looks like one big drive. Striping provides fast performance,* but nothing in the way of fault protection; if an HDD has a problem, tough luck. Data storage is *not* redundant. This is designated RAID level 0.

*You might think that you'd approach double the performance of a single, unRAIDed disk (i.e., the file that took 10 seconds to read or write, now takes 5.2), but such is not the case. The best you get, using a hardware RAID controller, is around a 30 percent improvement. (I.e., The file now takes 7 seconds. Or maybe 8.)



Other News

Prime News

- [Advantech Selected Windows Embedded Partner of the Year](#)

Technical Information

- [RAID: Who Needs It?](#)

Announcement

- [PCM-9550L Phase In](#)

Announcement

- [PCM-9370 Supports WindowsXP](#)

RECENT ISSUES

[November 15, 2001](#)
[November 1, 2001](#)
[October 15, 2001](#)
[October 1, 2001](#)
[September 1, 2001](#)

[TOP](#)

Problems, comments, suggestions? Please contact the [editor](#)

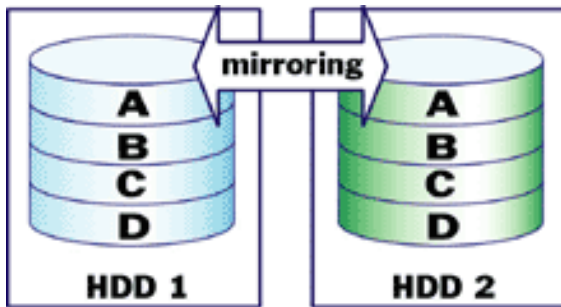
[EPC World](#)
[Advantech Home](#)
[EPC Homepage](#)
[News Archive](#)
[Contact Us](#)

Technical Information

RAID (p.3)

RAID Level 1

The simple RAID answer to disk faults or failures is: same data on two disks. This is called mirroring. It looks like one drive to the system.



This offers 100% redundancy, which means good data safety, and performance somewhat better than with a single drive.



Other News

Prime News

- [Advantech Selected Windows Embedded Partner of the Year](#)

Technical Information

- [RAID: Who Needs It?](#)

Announcement

- [PCM-9550L Phase In](#)

Announcement

- [PCM-9370 Supports WindowsXP](#)

RECENT ISSUES

[November 15, 2001](#)
[November 1, 2001](#)
[October 15, 2001](#)
[October 1, 2001](#)
[September 1, 2001](#)

[TOP](#)

Problems, comments, suggestions? Please contact the [editor](#)

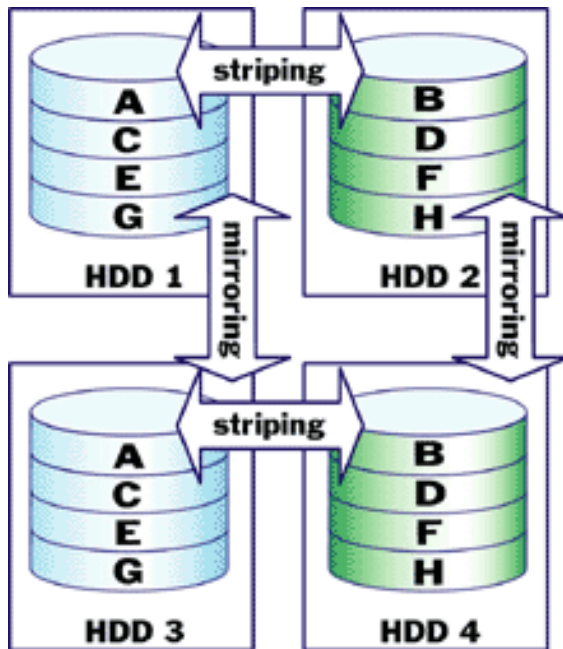
[EPC World](#)
[Advantech Home](#)
[EPC Homepage](#)
[News Archive](#)
[Contact Us](#)

Technical Information

RAID (p.4)

RAID Level 0+1

Logically enough, RAID level 0+1 combines both the striping and the mirroring functions. To the system, it still looks like one drive.



This offers improved performance, from the striping, *and* 100% redundancy. But it isn't the most efficient use of storage space.



[TOP](#)

Problems, comments, suggestions? Please contact the [editor](#)

[EPC World](#)
[Advantech Home](#)
[EPC Homepage](#)
[News Archive](#)
[Contact Us](#)

Other News

Prime News

- [Advantech Selected Windows Embedded Partner of the Year](#)

Technical Information

- [RAID: Who Needs It?](#)

Announcement

- [PCM-9550L Phase In](#)

Announcement

- [PCM-9370 Supports WindowsXP](#)

RECENT ISSUES

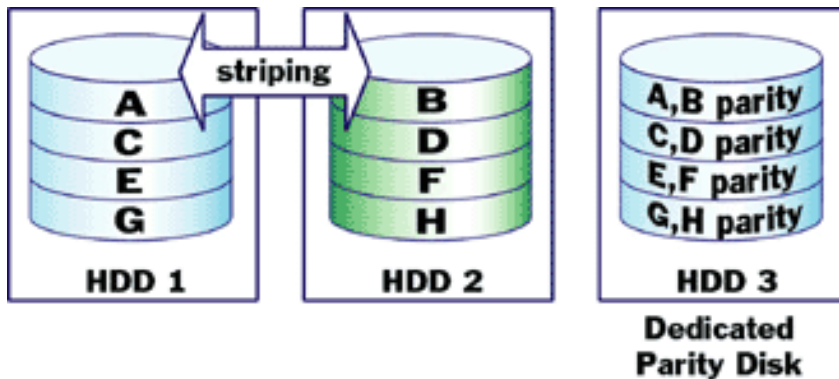
[November 15, 2001](#)
[November 1, 2001](#)
[October 15, 2001](#)
[October 1, 2001](#)
[September 1, 2001](#)

Technical Information

RAID (p.5)

RAID Level 3

Level 3 represents a more sophisticated approach. Data can be recovered in the event of the failure of any disk, but the overall efficiency of disk use is better than in simple mirroring (Level 1).



In level 1 RAID (mirroring), data capacity is $N/2$, where N is the total number of disks. Don't be misled by the diagram above; parity bits for HDDs 1 and 2 would not actually fill up HDD 3. Since parity bits take up very little storage, with level 3 RAID, data capacity is $N-1$. The more disks in the array, the better the efficiency.



[TOP](#)

Problems, comments, suggestions? Please contact the [editor](#)

[EPC World](#)
[Advantech Home](#)
[EPC Homepage](#)
[News Archive](#)
[Contact Us](#)

Other News

Prime News

- [Advantech Selected Windows Embedded Partner of the Year](#)

Technical Information

- [RAID: Who Needs It?](#)

Announcement

- [PCM-9550L Phase In](#)

Announcement

- [PCM-9370 Supports WindowsXP](#)

RECENT ISSUES

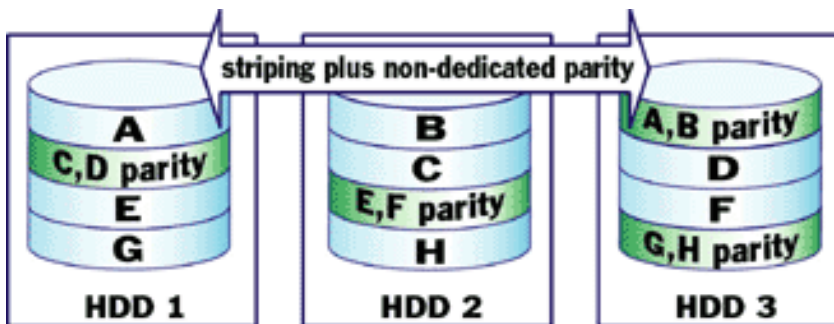
[November 15, 2001](#)
[November 1, 2001](#)
[October 15, 2001](#)
[October 1, 2001](#)
[September 1, 2001](#)

Technical Information

RAID (p.6)

Level 5

This is similar to RAID 3, but instead of one HDD dedicated to parity, parity is distributed across all drives involved. If there is a fault or a failure, the RAID controller uses the remaining drives to reconstruct the lost data.



Other News

Prime News

- [Advantech Selected Windows Embedded Partner of the Year](#)

Technical Information

- [RAID: Who Needs It?](#)

Announcement

- [PCM-9550L Phase In](#)

Announcement

- [PCM-9370 Supports WindowsXP](#)

RECENT ISSUES

[November 15, 2001](#)
[November 1, 2001](#)
[October 15, 2001](#)
[October 1, 2001](#)
[September 1, 2001](#)

[TOP](#)

Problems, comments, suggestions? Please contact the [editor](#)

[EPC World](#)
[Advantech Home](#)
[EPC Homepage](#)
[News Archive](#)
[Contact Us](#)

Technical Information

RAID (p.7)

RAID Wrapup

So the RAID levels are protocols for managing an assortment of hard disks and presenting them to the system as one drive. Advantages offered are increased data safety, increased read/write performance, and increased size of contiguous space. Of course the main tradeoff in those schemes using mirroring or parity, or both, is space for safety. Some storage space is sacrificed to insure the survival of the data as a whole. This general table summarizes the relationships.

RAID level	minimum number of HDDs	storage capacity (N=total number of equal HDDs)	features
RAID 0	2	N	Fast read/write, but no fault tolerance.
RAID 1	2	N/2	Good safety.
RAID 0+1	4	N/2	Good safety. Fast read/write.
RAID 3	3	N-1	Good safety. Improved storage efficiency. Fast read/slow write.
RAID 5	3	N-1	Good safety. Even better storage efficiency. Slow read/fast write.

You may be wondering what happened to RAID 2 and 4. What we have covered here are the levels in most common use. RAID 2 is intended for drives which do not have built-in error detection. RAID 4 is much like RAID 3, with a dedicated parity drive and data striped across more than one drive. The difference is that RAID 4 stripes data in larger blocks, rather than at byte level. Reads are quite fast, but writes are slow.

Link

For an excellent article about RAID and RAID systems, see:

<http://www.systemlogic.net/articles/01/1/raid/>

More to Come

Watch this EPC Newsletter! More cost-effective IDE RAID solutions are slated to join Advantech's [PCM-3900 IDE RAID controller](#) in the first quarter of 2002.

Tel: 886-2-2792-7818

Fax: 886-2-2794-7304

[Contact the editor](#)

Other News

Prime News

- [Advantech Selected Windows Embedded Partner of the Year](#)

Technical Information

- [RAID: Who Needs It?](#)

Announcement

- [PCM-9550L Phase In](#)

Announcement

- [PCM-9370 Supports WindowsXP](#)

RECENT ISSUES

[November 15, 2001](#)
[November 1, 2001](#)
[October 15, 2001](#)
[October 1, 2001](#)
[September 1, 2001](#)

[TOP](#)

Problems, comments, suggestions? Please contact the [editor](#)

EPC World	Advantech Home	EPC Homepage	News Archive	Contact Us
---------------------------	--------------------------------	------------------------------	------------------------------	----------------------------

December 1, 2001 Vol.60

Announcement

PCM-9550L Phase In



The PCM-9550L (L for Light) will begin its phase-in with samples ready on December 10, 2001. The PCM-9550L is like the [PCM-9550F](#), but trimmed of several functionalities. Unlike the PCM-9550F, it doesn't include audio capability, or LPTC2, CFC, digital I/Os, Mini PCI, PC/104 +(PCI), or shared IRQ functions. But like the PCM-9550F, the PCM-9550L is CE certified.

Availability

The Startup Manual and Users Manual for the PCM-9550L are already ready to go, and product samples can be ordered now, and will be available by December 10th, 2001.

Ordering

- PCM-9550L-F0A1: Pentium Biscuit SBC w/Pentium-266 CPU, 2MB VGA/LCD, LAN, w/o Audio
- PCM-10586-5L00: Wiring kit for PCM-9550L

Find Out More

Advantech is continuously developing leading technology solutions to put embedded computers to work. To find out more, please call your local Advantech sales office at 1-800-866-6008 or visit our website at <http://www.advantech.com>

Tel: 886-2-2792-7818
Fax: 886-2-2794-7304
[Contact the editor](#)

Other News

Prime News

- [Advantech Selected Windows Embedded Partner of the Year](#)

Technical Information

- [RAID: Who Needs It?](#)

Announcement

- [PCM-9550L Phase In](#)

Announcement

- [PCM-9370 Supports WindowsXP](#)

RECENT ISSUES

[November 15, 2001](#)
[November 1, 2001](#)
[October 15, 2001](#)
[October 1, 2001](#)
[September 1, 2001](#)

TOP

Problems, comments, suggestions? Please contact the [editor](#)

[EPC World](#)
[Advantech Home](#)
[EPC Homepage](#)
[News Archive](#)
[Contact Us](#)

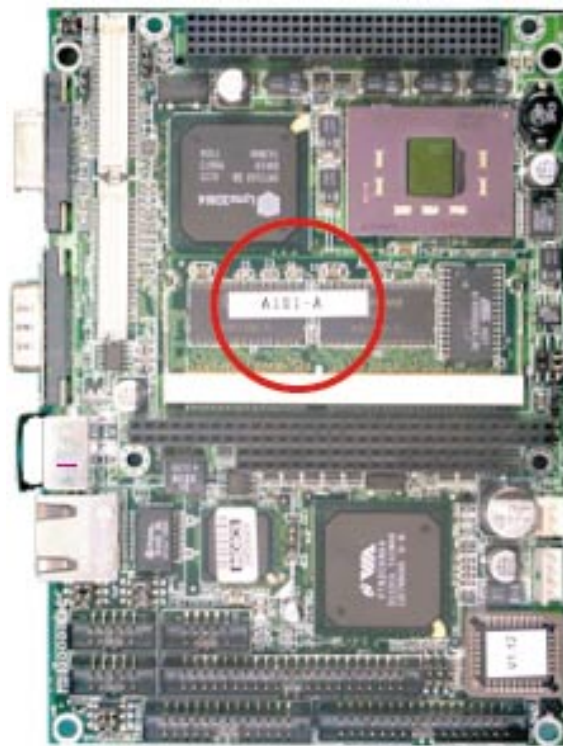
Announcement

PCM-9370 Now Supports Windows®XP

The latest version of [PCM-9370](#) supports the Windows XP OS. This new version of PCM-9370 has an updated BIOS, v1.13, and is bundled with the updated PCM-200 memory module (ver A101-A).

Details

PCM-9370 BIOS version 1.13 and higher support Windows® XP. The most visible clues are the memory module stickers. One appears on each side of the board. A101-A and later (e.g., A102) support the Windows® XP OS.



component side



solder side

For Windows XP support:

- PCM-9370 with BIOS v 1.13 or higher, and
- PCM-200 memory module (64MB) A101-A or higher

Find Out More

Advantech is continuously developing leading solutions with cutting edge embedded computers. To find out more, please call your local Advantech sales office at 1-800-866-6008 or visit our website at <http://www.advantech.com>

Tel: 886-2-2792-7818

Fax: 886-2-2794-7304

[Contact the editor](#)

Other News

Prime News

- [Advantech Selected Windows Embedded Partner of the Year](#)

Technical Information

- [RAID: Who Needs It?](#)

Announcement

- [PCM-9550L Phase In](#)

Announcement

- [PCM-9370 Supports WindowsXP](#)

RECENT ISSUES

[November 15, 2001](#)

[November 1, 2001](#)

[October 15, 2001](#)

[October 1, 2001](#)

[September 1, 2001](#)

[TOP](#)

Problems, comments, suggestions? Please contact the [editor](#)

EPC World	Advantech Home	EPC Homepage	News Archive	Contact Us
---------------------------	--------------------------------	------------------------------	------------------------------	----------------------------