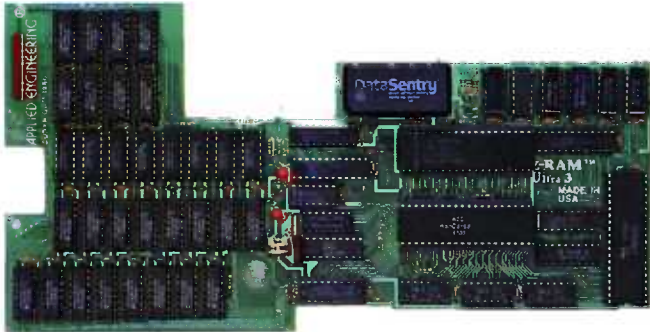


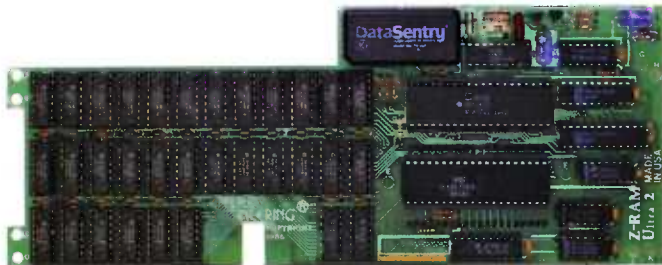
Z-RAM Ultra fits neatly inside any IIc, new or old. Installation is easy, clear instructions show you how. You'll need a screwdriver and about 20 minutes.



Z-RAM Ultra 3:

Memory to 1 MEG, Clock and CP/M

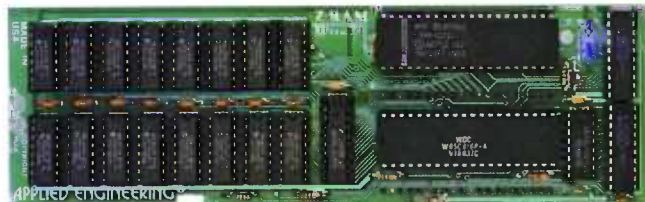
256K **\$329** 512K **\$379** 1 MEG **\$459**



Z-RAM Ultra 2:

Memory to 1 MEG, Clock

256K **\$269** 512K **\$319** 1 MEG **\$399**



Z-RAM Ultra 1:

Memory to 512K

256K **\$199** 512K **\$249**

Your Apple can become a computer you never dreamed it could be. Because the most exciting chapter in the Z-RAM history of turbo charged IIc's has just been written. It's called Z-RAM Ultra. And it takes IIc expansion into a whole new realm.

The AppleWorks Amplifier

With any Z-RAM Ultra, your AppleWorks word processor capacity will instantly increase from 2,250 lines to over 23,000 and the maximum number of records from 1,350 to over 23,000. Available desktop memory rockets to over 700K with *all* of AppleWorks loaded into RAM. Z-RAM Ultra even expands the clipboard and auto segments large files so they can be saved on two or more disks. AppleWorks will now run about 10 times faster in your IIc with one disk

drive than in other IIc's with two disk drives. Nothing else comes close to enhancing AppleWorks like this!

Z-RAM is also a high speed solid state disk drive. With Z-RAM your programs will load and save over 20 times faster. Z-RAM's RAM disk is compatible with AppleSoft, ProDos, DOS 3.3, PASCAL and CP/M. And with Z-RAM you can copy a disk in one pass. Just insert the original, remove the original, insert blank disk! That's it! Z-RAM is another disk drive, only 20 times faster, 4 times larger capacity, and no whirring, clicking or waiting!

Only with Ultra 3

But before you start panting over all that extra memory, don't forget that the Z-RAM Ultra 3 card has a built-in high speed Z-80 microprocessor that allows you to run CP/M programs like Wordstar, dBASE II, Turbo PASCAL, Microsoft BASIC, FORTRAN and COBOL and over 5,000 other CP/M programs. So Z-RAM Ultra 3 not only makes Apple programs run better and faster, it lets you run MORE programs.

Only with Ultra 2 or Ultra 3

A built-in real-time clock. Displays the time and data on AppleWorks screens and files, and is fully ProDos compatible.

With the Z-RAM Ultra card installed, your IIc is still your IIc only now you'll have that extra memory that AppleWorks and other programs need.

FEATURES

- Works in any IIc, new or old
- Up to 1 MEG memory (you choose how much) lets you store, load and run programs up to 20 times faster
- Expands and accelerates all memory intensive programs, including AppleWorks
- No jumper wires, clips or drive removal—so installation takes only a few minutes and a screwdriver
- Optional 65C816 16-bit processor plugs right in with no component changes
- Printer buffer lets you continue working while printing AppleWorks files
- Real-time clock displays time and date on AppleWorks screens and files, and is ProDos compatible for use with other ProDos software
- Run CP/M programs with Z-RAM Ultra's built-in Z-80B microprocessor

Z-RAM is 100% compatible with all IIc software and hardware including the mouse, second disk, modem and printer. Z-RAM is easily handled by the IIc power supply as power consumption is kept very low by using custom integrated circuits and a patent pending power saving design.

Z-RAM comes complete with manual and software, and a 5 year no hassle warranty.

Pinpoint's AppleWorks Accessories with Ram Enhancement Software for 128K Enhanced IIe/IIc
 Together a \$118 value. **\$79**

16-bit 65C816 Upgrade **\$99**

Z - R A M U L T R A™

Z-RAM Ultra™ fits neatly inside any IIc, new or old. Installation is easy, clear instructions show you how. You'll need a screwdriver and about 20 minutes.

Your Apple can become a computer you never dreamed it could be. Because the most exciting chapter in the Z-RAM history of turbo-charged IIc's has just been written. It's called Z-RAM Ultra. And it takes IIc expansion into a whole new realm.

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Z-RAM is also a high speed solid state disk drive. With Z-RAM your programs will load and save over 20 times faster. Z-RAM's RAMdisk is compatible with Applesoft, ProDOS, DOS 3.3, Apple Pascal and CP/M. And

Only with Ultra 2 or Ultra 3:

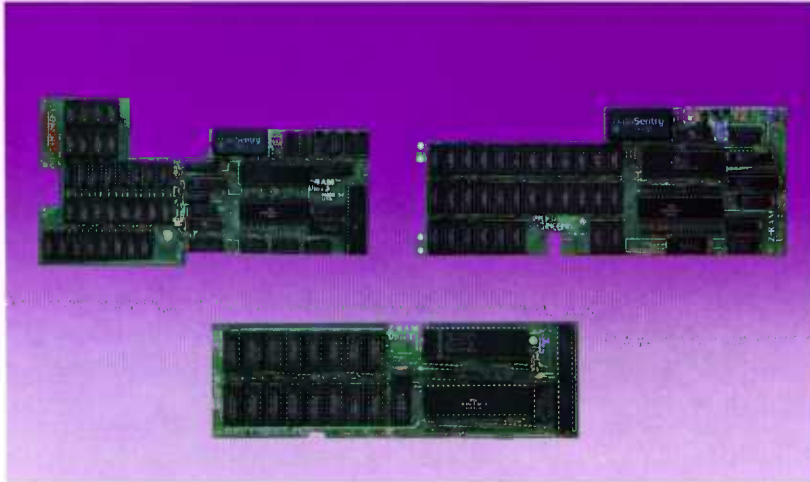
A built-in real-time clock displays the time and date on AppleWorks screens and files, and is fully ProDOS compatible.

With the Z-RAM Ultra card installed, your IIc is still your IIc only now you'll have that extra memory that AppleWorks and other programs need.

Features:

- Works in any IIc, new or old
- Up to 1 MEG memory (you choose how much) lets you store, load and run programs up to 20 times faster
- Expands and accelerates all memory intensive programs, including AppleWorks
- No jumper wires, clips or drive removal—so installation takes only a few minutes and a screwdriver
- Optional 65C816 16-bit processor plugs right in with no component changes
- Printer buffer lets you continue working while printing AppleWorks files
- Real-time clock displays time and date on AppleWorks screens and files, and is ProDOS compatible for use with other ProDOS software
- Run CP/M programs with Z-RAM Ultra 3's built-in Z-80B microprocessor

*Turbo-charge your
IIc with features
galore.*



Z-RAM Ultra 3

Z-RAM Ultra 1

Z-RAM Ultra 2

The AppleWorks amplifier.

With any Z-RAM Ultra, your AppleWorks word processor capacity will instantly increase from 7,250 lines to over 22,500 and the maximum number of records from 6,350 to over 22,500.

Available desktop memory rockets to over 720K with *all* of AppleWorks loaded into RAM. Z-RAM Ultra even expands the clipboard and auto-segments large files so they can be

with Z-RAM you can copy a disk in one pass. Just insert the original, remove the original, insert blank disk! That's it! Z-RAM is another disk drive, only 20 times faster, 4 times larger capacity, and no whirring, clicking or waiting!

Only with Ultra 3:

But before you start panting over all that extra memory, don't forget that the Z-RAM Ultra 3 card has a built-in high speed Z-80 microprocessor that allows you to run CP/M programs like WordStar, dBASE II, Turbo Pascal, Microsoft BASIC, FORTRAN and COBOL and over 5,000 other CP/M programs. So Z-RAM Ultra 3 not only makes Apple programs run better and faster, it lets you run MORE programs.

Z-RAM is 100% compatible with all IIc software and hardware including the mouse, second drive, modem and printer. Z-RAM is easily handled by the IIc power supply as power consumption is kept very low by using custom integrated circuits and a patent pending power saving design.

Z-RAM comes complete with manual and software, and a 5 year warranty — parts and labor.

Z-RAM Ultra 3 with ZeroK	\$289
Z-RAM Ultra 3 with 256K	\$399
Z-RAM Ultra 3 with 512K	\$549
Z-RAM Ultra 3 with 1 MEG	\$849
Z-RAM Ultra 2 with ZeroK	\$209
Z-RAM Ultra 2 with 256K	\$319
Z-RAM Ultra 2 with 512K	\$469
Z-RAM Ultra 2 with 1 MEG	\$769
Z-RAM Ultra 1 with ZeroK	\$139
Z-RAM Ultra 1 with 256K	\$249
Z-RAM Ultra 1 with 512K	\$399
Optional 65C816 16-bit Chip	\$79

IIc

Which Apple works better?



With new Z-RAM II installed, the Apple on the right works a whole megabyte better!

A little while ago, the owner of the Apple on the right unscrewed its hood. And in a few quick minutes, he turned his IIc into a whole new machine. With the new 1 megabyte Z-RAM II, Applied Engineering's powerful new version of an already awesome expansion card.



*"I recommend
Applied Engineering
products wholeheartedly."*

*Steve Wozniak, the creator
of Apple Computer*

Now his Apple can completely load programs into RAM — and then store, load and run them up to *30 times faster*. And our included RAM disk is compatible with Applesoft, PRO-DOS, DOS 3.3, PASCAL and CP/M.

Turbo Charged AppleWorks.

Even a 256K Z-RAM II can completely load AppleWorks into RAM. With Z-RAM II, AppleWorks responds the moment your fingers touch the keyboard. A 256K Z-RAM II lets your IIc run AppleWorks up to 30 times faster, expands the clipboard, and increases available desktop memory to 229K.

Only Z-RAM II increases the maximum number of records from 1350 to over 15,000. And only Z-RAM II increases the number of lines allowed in the word processor from 2,250 to over 15,000, provides a print spooler, and auto segments large files so they can be saved on two or more disks.

And for those who crave even more power, Z-RAM is available with 512K, 768K or 1 megabyte of main memory!

Welcome to the world of CP/M.

But perhaps the best news is that Z-RAM II has a built-in high speed Z-80B microprocessor that allows you to run CP/M programs. Which means you now have access to the single largest body of software in existence, including popular packages like WordStar, dBase II, Turbo PASCAL and Microsoft BASIC.

Z-RAM II is compatible with all IIc software and hardware, installs easily in just ten minutes with only a screwdriver, is available with memory upgrades up to 1 MEG that can be user-installed at any time. Z-RAM II is easily handled by the IIc power supply with our patent pending power saving design. In fact, a 1 megabyte Z-RAM II draws less power than a 512K Z-RAM.

For fast response.

Z-RAM II comes complete with simple instructions, RAM disk software, Z-80 operating system, CP/M manual, and a five-year "hassle free" warranty.

Make your Apple — and AppleWorks — work better. With 256K Z-RAM II (\$329); 512K (\$389); 768K (\$449); 1 MEG (\$599).

If you want to run CP/M software, but don't need more memory, we suggest our Z-80c card. The Z-80c has no memory expansion ports and is priced at only \$159.

Call 214-241-6060 TO ORDER TODAY. 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering. MasterCard, Visa and C.O.D. welcome. Texas residents add 5% sales tax. Add \$10.00 outside U.S.

AE Applied Engineering
The Apple enhancement experts.

P. O. Box 798, Carrollton, TX 75006, (214) 241-6060

Z-RAM[®] gave the IIc guts. Now comes the glory.

No jumper wires, clips or drive removal—so installation takes only a few minutes and a screwdriver

Optional 65C816 16-bit processor plugs right in with no other component changes

Up to 1 MEG memory (you choose how much) lets you store, load and run programs up to 30 times faster

Printer buffer lets you continue working while printing AppleWorks files

Real-time clock displays time and date on AppleWorks™ screens and files, and is PRO-DOS compatible for use with other PRO-DOS software

Pinpoint's AppleWorks accessories with RAM enhancement software—*together a \$118 value—only \$79 if ordered with Z-RAM Ultra.*

Run CP/M[®] programs with Z-RAM Ultra's built-in Z-80B microprocessor

Introducing Z-RAM Ultra.

Your Apple IIc is about to become a computer you never dreamed it could be. Because the most exciting chapter in the Z-RAM history of turbo charged IIc's has just been written. It's called Z-RAM Ultra. And it takes IIc expansion into a whole new realm.



"I recommend Applied Engineering products wholeheartedly." (Of course, Steve's IIc has a Z-RAM installed.)

Steve Wozniak, the creator of Apple Computer

Ultra smart. Ultra speedy.

With any Z-RAM Ultra, your AppleWorks word processor capacity will instantly increase from 2,250 lines to over 15,000 and the maximum number of records from 1,350 to over 25,000. Available desk-top memory rockets to over 700K with *all* of AppleWorks loaded into RAM. Z-RAM Ultra even expands the clipboard and autosegments large files so they can be saved on two or more disks. Nothing else comes close to enhancing AppleWorks like this!

Z-RAM Ultra will completely load your programs into RAM, then run them up to 30 times faster. And our included RAM disk is compatible with Applesoft, PRO-DOS, DOS 3.3, PASCAL and CP/M.

That's just the beginning.

Memory and speed are only part of the story. Z-RAM Ultra 3 also has a built-in Z-80B microprocessor that allows it to run CP/M programs (the largest body of software in existence)—including WordStar, dBase II, Turbo PASCAL, Microsoft BASIC and more. A PRO-DOS compatible battery backed-up clock not only displays time and date on the AppleWorks screen, but will time and date

stamp any PRO-DOS file. And a printer buffer handles printing of AppleWorks files so you can continue working.

Patented technology and a computer-aided design allow Z-RAM Ultra to run with extremely low power consumption—less than half the power drain of other memory cards. And all the IC chips are in sockets.

Call to order or for more information!

Z-RAM Ultra comes with simple instructions, RAM disk software, Z-80 operating system, CP/M manual, a five-year "hassle-free" warranty, and all the AppleWorks enhancements we're famous for.

If you want to run CP/M software, but don't need more memory, we suggest our Z-80C card, priced at only \$159.

CALL 214-241-6060 TO ORDER TODAY! 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering. MasterCard, Visa and C.O.D. welcome. Texas residents add 5 1/2% sales tax. Add \$10.00 outside U.S.

Prices:

Z-RAM Ultra 3 (With memory, clock and CP/M)		
256K—\$329.00	512K—\$379.00	1 MEG—\$459.00
Z-RAM Ultra 2 (With memory and clock)		
256K—\$269.00	512K—\$319.00	1 MEG—\$399.00
Z-RAM Ultra 1 (Memory only—expandable to 512K)		
256K—\$199.00	512K—\$249.00	
Pinpoint with RAM enhancement software		\$79.00
(List price \$118)		
16-bit 65C816 Upgrade		\$99.00

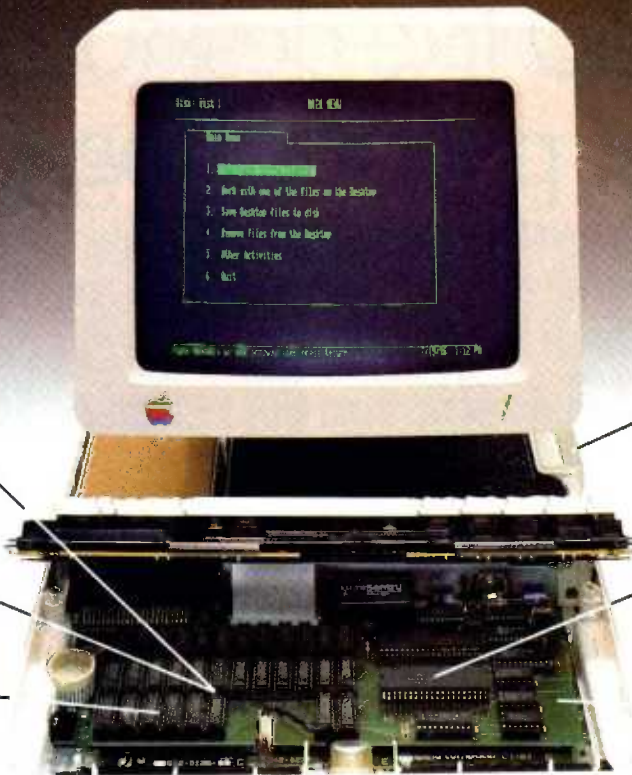
AE Applied Engineering
The Apple enhancement experts.

P. O. Box 798, Carrollton, TX 75006 (214) 241-6060

Multiply memory — Add up to 1 MEG with Z-RAM Ultra.

Multiply speed — Run and load programs up to 30 times faster.

Multiply production — Printer buffer lets you keep working while the system prints AppleWorks files.



Multiply value — Get Pinpoint's AppleWorks accessories with RAM enhancement software, a \$118 value, for only \$79 if ordered with Z-RAM Ultra.

Multiply efficiency — Optional 65C816 16-bit processor plugs in easily with no other component changes.

Multiply applications — Run CP/M programs with built-in Z-80B microprocessor.

IIc multiplied.

Imagine multiplying your AppleWorks word processor capacity over threefold to 22,600 lines from its present 7,250.

Multiplying your maximum number of records to 22,600 from the current 6,350. And available desktop memory rockets to over 700K with *all* of AppleWorks loaded into RAM.

You can do all of that and more with the Z-RAM Ultra expansion board for Apple IIc's.

Z-RAM Ultra completely loads programs into RAM, then runs them up to 30 times faster. And the included RAM disk is compatible with Applesoft, PRO-DOS, DOS 3.3, PASCAL and CP/M®.

Z-RAM Ultra even expands the clipboard and autosegments large files so they can be saved on two or more disks. Nothing else even comes close to enhancing AppleWorks like this!

There's lots more.

Memory and speed just begin the story. Z-RAM Ultra 3 has a built-in Z-80B microprocessor so it can run CP/M programs. That's the largest body of software in existence and includes WordStar, dBase II, Turbo PASCAL, Microsoft BASIC and more.

With Ultra 2 & 3, there's a PRO-DOS compatible, battery-backed up clock that displays time and date on AppleWorks screens *and* time and date stamps any PRO-DOS file.

There's an AppleWorks printer buffer so you keep working while files are printed.

With its patented technology and computer aided design, Z-RAM Ultra runs with less than half the power drain of other memory cards.

Easy to install.

It's easy to get all that performance. Z-RAM Ultra installs in just a few minutes with a screwdriver — no jumper wires, no clips, no drive removal.

A complete package.

Z-RAM Ultra comes with simple, easy-to-follow instructions, RAM disk software, Z-80 operating system, CP/M manual, a five-year "hassle-free" warranty, and all the AppleWorks enhancements we're famous for.

See your dealer or call today.

For more information or to order your Z-RAM Ultra, see your dealer or call 214-241-6060 between 9 am and 11 pm, 7 days. Or send check or money order to Applied Engineering.

Prices	
Z-RAM Ultra 3 (with memory, clock and CP/M)	
265K — \$329.00	512K — \$379.00
1 MEG — \$459.00	
Z-RAM Ultra 2 (with memory and clock)	
256K — \$269.00	512K — \$319.00
1 MEG — \$399.00	
Z-RAM Ultra 1 (Memory only — expandable to 512K)	
256K — \$199.00	512K — \$249.00
Pinpoint with RAM enhancement software \$79.00 (List price, \$118.00)	
16-bit 65C816 Upgrade \$79.00	
Z-80C Card to run CP/M software (no memory upgrade) \$159.00	
MasterCard, Visa and C.O.D. welcome. Texas residents add 6¼% sales tax. Add \$10.00 outside U.S.A.	

CP/M is a registered trademark of Digital Research, Inc.

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The Apple enhancement experts.

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