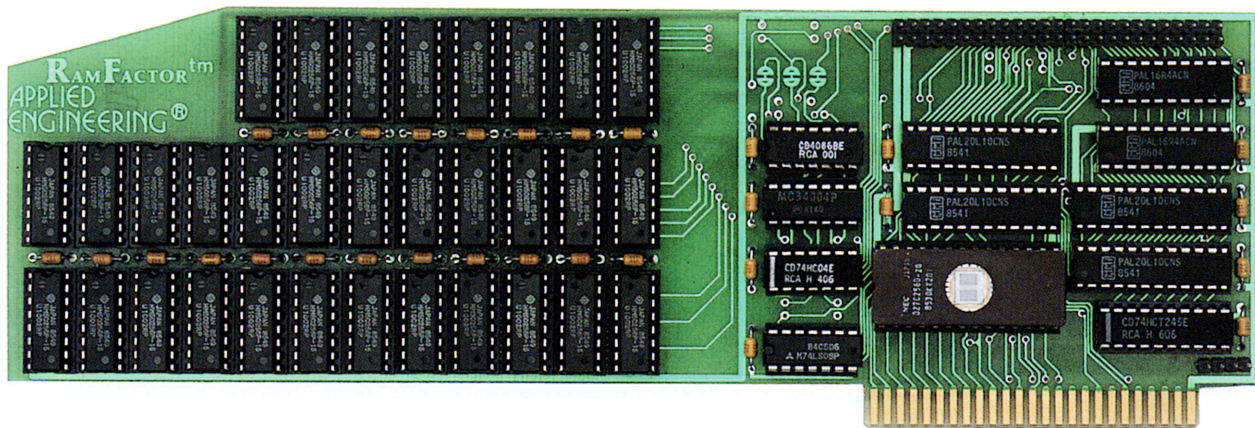


COMPATIBLE WITH IIe and II+



All the performance, speed, and software compatibility of RamWorks™ in a slot 1 through 7 card

That's right! Now Applied Engineering offers you a choice. While RamWorks is the clear winner for the auxiliary slot in a IIe, RamFactor is the standard for slots 1 through 7. Now anyone with an Apple II+, Franklin, or Apple IIe preferring to use slots 1 through 7 can now enjoy the speed and performance that until now was only available with RamWorks.

With RamFactor, you'll be able to instantly add another 256K, 512K, or a full 1 meg on the main board and up to 16 meg with additional piggyback card. And since virtually all software is automatically compatible with RamFactor, you'll immediately be able to load programs into RamFactor for instantaneous access to information. You'll also be able to store more data for larger word processing documents, bigger data bases, and expanded spreadsheets.

**Very Compatible**

All the leading software is already compatible with RamFactor. Programs like AppleWorks, Pinpoint, BPI, Managing Your Money, Dollars and Sense, SuperCalc 3A, PFS, MouseWrite, MouseDesk, MouseCalc, Sensible Speller, Applewriter IIe, Business Works, ReportWorks, Catalyst 3.0 and more. And RamFactor is fully ProDos, Dos 3.3, Pascal 1.3 and CP/M compatible. In fact, no other memory card (RamWorks excepted) is more compatible with commercial software.

**AppleWorks Power**

There are other slot 1-7 cards that give AppleWorks a larger desktop, but that's the end of their story. But RamFactor is the only slot 1-7 card that increases AppleWorks internal memory limits, increasing the maximum number of lines permitted in the word processor, and RamFactor is the only standard slot card that will automatically load AppleWorks into RAM dramatically increasing speed and eliminating the time required to access the program disk, it will even display the time and the date on the AppleWorks screen with any ProDos clock. RamFactor will automatically segment large files so they can be saved on 5¼", 3½", and hard disks. All this performance is available to anyone with an Apple IIe or II+ with an

80 column card. RamFactor, no other standard slot card comes close to enhancing AppleWorks so much.

**True 65C816 16 Bit Power**

RamFactor has a built-in 65C816 CPU port for direct connection to our IIe 65C816 card for linearly addressing up to 16 meg for the most powerful 16 bit applications. (II+ 65C816 card under development).

**Powerful Program Switcher**

With RamFactor, you can organize memory into multiple work areas and switch between them. Each work area can contain different programs and even different operating systems. And with our Battery Back-up option, you can have permanent storage for up to 20 years.

**FEATURES:**

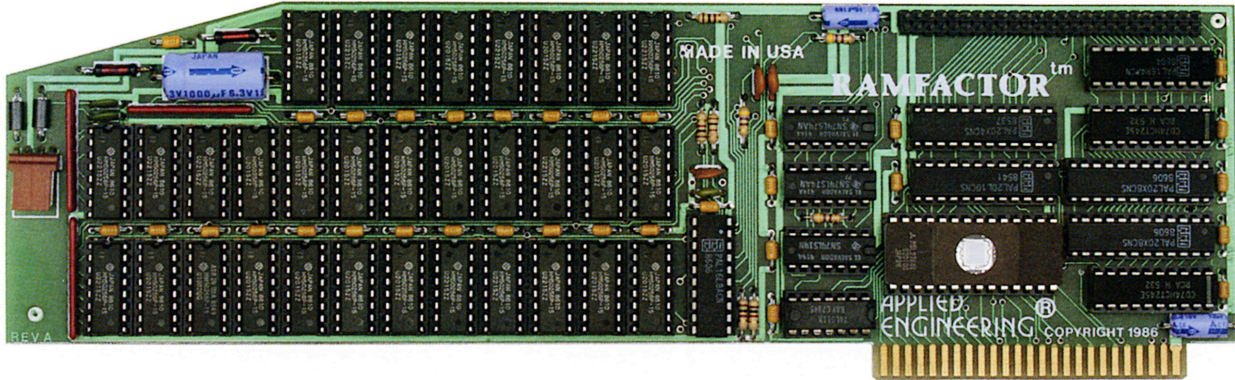
- Up to 16 meg total memory, 256K to 1 meg on main board. Up to 16 meg with additional memory on piggyback card.
- Fully Apple II Memory Expansion compatible
- Compatible with Apple IIe, II+ and Franklin
- Battery back-up option allows you to turn on your Apple and run your favorite programs in less than 1 second!
- Automatically recognized by ProDos, DOS 3.3, Pascal and CP/M
- Built-in RamDrive™ software
- Built-in linear addressing 16 bit co-processor port
- Built-in self diagnostic software
- Automatic expansion with AppleWorks 1.3 or later
- Allows Apple II+ and IIe to run your AppleWorks without buying additional software
- Accelerates AppleWorks
- Fits any I/O slot except slot 3
- Fully socketed and user upgradeable
- Much, much more

RamFactor with 256K .....	<b>\$239</b>
RamFactor with 512K .....	<b>\$289</b>
RamFactor with 1 MEG.....	<b>\$389</b>
RamFactor with 2-16 MEG.....	<b>CALL</b>
Battery Back-up Option .....	<b>\$179</b>
65C816 16 Bit Card.....	<b>\$159</b>



# RAMFACTOR™

**COMPATIBLE WITH IIe, II+ and IIgs**



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With RamFactor, you'll be able to instantly add another 256K, 512K, or a full 1 MEG on the main board. And since virtually all software is automatically compatible with RamFactor, you'll immediately be able to load programs into RamFactor for instantaneous access to information. You'll also be able to store more data for larger word processing documents, bigger data bases, and expanded spreadsheets.

### Very Compatible

All the leading software is already compatible with RamFactor. Programs like AppleWorks, Pinpoint, BPI, Managing Your Money, Dollars and Sense, SuperCalc 3A, PFS, MouseWrite, MouseDesk, MouseCalc, Sensible Speller, Applewriter IIe, Business Works, ReportWorks, Catalyst 3.0 and more. And RamFactor is fully ProDos, Dos 3.3, Pascal 1.3 and CP/M compatible. In fact, no other slot 1-7 memory card is more compatible with commercial software.

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### The "Instant On" Apple

With the RamCharger battery back-up option, RamFactor will retain programs and data during power failures or even when you turn your computer off. And because RamFactor plugs into slots 1-7, it's the only memory card that can cold boot an Apple without using slow floppy or hard disks. An available "Y" cable allows one RamCharger to power two RamFactors.



### Powerful Program Switcher

With RamFactor, you can organize memory into multiple work areas and switch between them. Each work area can contain different programs and even different operating systems. And with our Battery Back-up option, you can have permanent storage for up to 20 years.

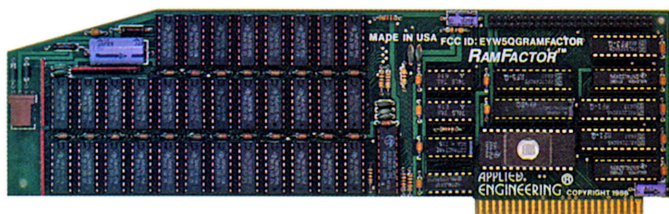
### FEATURES

- 256K to 1 MEG on main board. Expansion connector for possible future expansion to 16 MEG.
- Fully Apple II Memory Expansion compatible
- Compatible with Apple IIe, IIgs, II+, Franklin and Laser 128
- Battery back-up—turn on your Apple and run your favorite programs in less than 1 second!
- Automatically recognized by ProDos and DOS 3.3, Pascal, and standard CP/M
- Built-in RamDrive™ and ProDrive™ software—a true RAMdrive not disk caching
- Systems are directly bootable from RamFactor if desired
- Built-in self diagnostic software
- Automatic expansion with AppleWorks 1.3 or 2.0
- Allows Apple IIe, IIgs and II+ to run your AppleWorks without buying additional software
- Accelerates AppleWorks
- Fits any I/O except slot 3
- Fully socketed and user upgradeable
- 5 year no hassle warranty

RamFactor with 256K .....	<b>\$239</b>
RamFactor with 512K .....	<b>\$289</b>
RamFactor with 1 MEG .....	<b>\$369</b>
"Y" cable .....	<b>\$24</b>
Battery Back-up Option .....	<b>\$179</b>
65C816 16 Bit Card .....	<b>\$159</b>

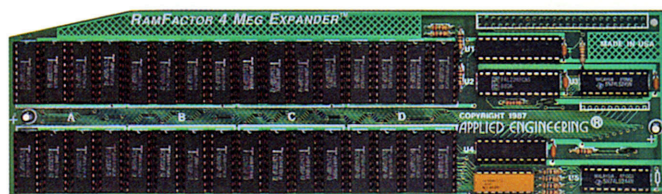


## Compatible with IIe, II+ and IIGs



### RamFactor

Up to 1 MEG on card



### RamFactor 4 MEG Expander

Up to 4 MEG on card

*Now you can have a slot 1 through 7 card with up to 5 MEG on one slot*

Now anyone with an Apple II+, Franklin, Laser 128, Apple IIe or IIGs preferring to use slots 1 through 7 can now enjoy the speed and performance that they've been waiting for.

With RamFactor, you'll be able to instantly add another 256K, 512K, or a full 1 MEG on the main board and an expansion connector can address an additional 16 MEG of memory for possible future expansion. Since virtually all standard software is automatically compatible with RamFactor, you'll immediately be able to load programs into RamFactor for instantaneous access to information. You'll also be able to store more data for larger word processing documents, bigger databases, and expanded spreadsheets. And with the battery back-up option, you can switch on your Apple and your favorite software will be up and running in just a few seconds.

### Very Compatible

All the leading software is already compatible with RamFactor. Programs like AppleWorks, Pinpoint, SuperCalc 3a, Sensible Speller, and many others. And RamFactor is fully ProDOS, DOS 3.3, Pascal 1.3 and CP/AM compatible. In fact, no other slot 1-7 memory card is more compatible with commercial software.

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disk, it will even display the time and date on the AppleWorks screen with any ProDOS clock. RamFactor will automatically segment large files so they can be saved on 5.25" disks. All this performance is available on the Apple IIe, 64K II+, Franklin, or Laser 128 when used with an 80 column display. RamFactor, no other standard slot card comes close to enhancing AppleWorks so much.

### "Electronic Hard Disk"



With the RamCharger battery back-up option, the new low power RamFactor will retain programs and data for over 10 hours during power failures or even when you turn your computer off. When power returns, RamCharger automatically recharges the battery to full charge. With power from your wall outlet, RamCharger will back-up your RamFactor card's RAM memory indefinitely. And because RamFactor plugs into slots 1-7, it's the only memory card that can cold boot an Apple without using slow floppy or hard disks. An accessory "Y" cable allows one RamCharger to power two fully expanded RamFactors for more than 4 hours.

### Powerful Program Switcher

With RamFactor, you can organize memory into multiple work areas and switch between them. Each work area can contain different programs and, with proper formatting, even different operating systems. Now you can switch from one program to another or even switch from AppleWorks to DOS 3.3 to CP/AM to Pascal 1.3 to ProDOS in under a second. And with our battery back-up option, you can have permanent storage for up to 20 years.

### Features:

- 256K to 1 MEG on main board. Expansion connector for possible future expansion to 16 MEG.
- Fully Apple II Memory Expansion compatible in II+ and IIe, RAM disk only in IIGs
- Compatible with Apple IIe, II+, IIGs, Franklin and Laser 128
- Battery back-up option allows you to turn on your Apple and run your favorite programs in just a few seconds
- Can be configured to recognize ProDOS, DOS 3.3, Pascal 1.3, and standard CP/AM
- Built-in RAM drive software (a true RAM disk not disk caching)
- Systems are directly bootable from RamFactor if desired
- Diagnostic software included
- Automatic expansion with AppleWorks 1.3 or 2.0
- Allows Apple II+ and IIe to run your AppleWorks without buying any additional software
- Accelerates AppleWorks
- Displays time and date on the AppleWorks screen with any ProDOS clock
- Fits any I/O slot except slot 3
- Fully socketed and user upgradeable
- 4 MEG RamFactor Expander option available
- 5 year warranty — parts and labor

<b>RamFactor with 256K</b>	<b>\$269</b>
<b>RamFactor with 512K</b>	<b>\$389</b>
<b>RamFactor with 1 MEG</b>	<b>\$629</b>
<b>"Y" cable</b>	<b>\$24</b>
<b>Battery Back-up Option</b>	<b>\$179</b>
<b>RamFactor 4 MEG Expander with 1-4 MEG</b>	<b>CALL</b>
<b>RamFactor Enhancement Kit—</b> Power reduction for old revision RamFactors	<b>\$20</b>



# RAM FACTOR™

Now anyone with an Apple II+, Franklin, Laser 128, Apple IIe or IIgs preferring to use slots 1 through 7 can enjoy the speed and performance that they've been waiting for.

With RamFactor™, you'll be able to instantly add another 256K, 512K, or a full 1 MEG on the main board and an expansion connector can address an additional 16 MEG of memory for possible future expansion. Since virtually all standard software is automatic-

records in the database and lines permitted in the word processor, and RamFactor is the only standard slot card that will automatically load all of AppleWorks into RAM, dramatically increasing speed and eliminating the time required to access the program disk. It will even display the time and date on the AppleWorks screen with any ProDOS clock. RamFactor will automatically segment large files so they can be saved on 5.25" disks. All

fully expanded RamFactors for more than 4 hours.

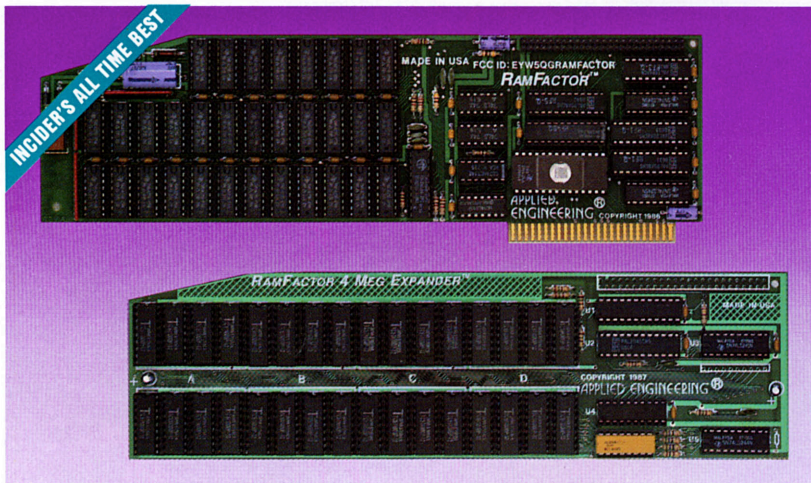
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## Features:

- 256K to 1 MEG on main board.
- Expansion connector for possible future expansion to 16 MEG
- Fully Apple II Memory Expansion compatible in II+ and IIe, RAMdisk only in IIgs
- Compatible with Apple IIe, II+, IIgs, Franklin and Laser 128
- Battery backup option allows you to turn on your Apple and run your favorite programs in just a few seconds
- Can be configured to recognize ProDOS, DOS 3.3, Pascal 1.3, and standard CP/AM
- Built-in RAM drive software (a true RAMdisk not disk caching)
- Systems are directly bootable from RamFactor if desired
- Diagnostic software included
- Automatic expansion with AppleWorks 1.3, 2.0 and 2.1
- Allows Apple II+ and IIe to run your AppleWorks without buying any additional software
- Accelerates AppleWorks
- Displays time and date on the AppleWorks screen with any ProDOS clock
- Fits any I/O slot except slot 3 (or II+'s slot 0)
- Fully socketed and user upgradeable
- 4 MEG RamFactor Expander option available
- 5 year warranty — parts and labor

Now you can have a slot 1 through 7 card with up to 5 MEG on one slot.



### RamFactor

Up to 1 MEG on card

### RamFactor 4 MEG Expander

Up to 4 MEG on card

ally compatible with RamFactor, you'll immediately be able to load programs into RamFactor for instantaneous access to information. You'll also be able to store more data for larger word processing documents, bigger databases, and expanded spreadsheets. And with the battery backup option, you can switch on your Apple and your favorite software will be up and running in just a few seconds.

## Very compatible.

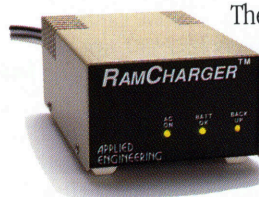
All the leading software is already compatible with RamFactor. Programs like AppleWorks, MultiScribe, Beagle Brothers' TimeOut Series, Springboard Publisher and many others. And RamFactor is fully ProDOS, DOS 3.3, Pascal 1.3 and CP/AM compatible. In fact, no other slot 1-7 memory card is more compatible with commercial software.

## AppleWorks power.

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this performance is available on the Apple IIe, 64K II+, Franklin, or Laser 128 when used with an 80 column display. RamFactor - no other standard slot card comes close to enhancing AppleWorks as much.

## "Electronic hard disk"



### The RamCharger™

battery backup option permanently stores your files with constant low power from your wall outlet . . . even with your computer turned off. And in the event of a power failure, RamCharger's battery retains programs and data for up to 10 hours. When power returns, RamCharger automatically recharges the battery to full strength. With power from your wall outlet, RamCharger will back up your RamFactor card's RAM memory indefinitely. And because RamFactor plugs into slots 1-7, it's the only memory card that can cold boot an Apple without using slow floppy or hard disks. An accessory "Y" cable allows one RamCharger to power two

<b>RamFactor with ZeroK</b>	<b>\$189</b>
<b>RamFactor with 256K</b>	<b>\$299</b>
<b>RamFactor with 512K</b>	<b>\$449</b>
<b>RamFactor with 1 MEG</b>	<b>\$749</b>
<b>RamCharger</b>	
<b>battery backup</b>	<b>\$179</b>
<b>"Y" Cable</b>	<b>\$24</b>
<b>RamFactor 4 MEG</b>	
<b>Expander with 0-4 MEG</b>	<b>CALL</b>
<b>RamFactor Expander Kit</b>	<b>\$29</b>
<small>(2 chip replacement set for old revision RamFactors)</small>	

II+
IIe
IIgs
Laser
Franklin



## Comparison Between RamWorks™, RamFactor™, GS-RAM Plus™ and GS-RAM Ultra™

Many of the features and benefits of RamWorks III™, RamFactor™, GS-RAM™, GS-RAM Plus™ and GS-RAM Ultra™ are the same; however, there are differences that we would like to point out so that you can make the best choice.

Most importantly, RamWorks III is specially designed for the Apple IIe

while GS-RAM, GS-RAM Plus and GS-RAM Ultra are specially designed for the Apple IIGS. These three cards will not work on a II+, Franklin or Laser. That leaves RamFactor as the source of most of the confusion, since it is compatible with the IIe, II+, IIGS, Franklin, Laser 128 and most compatibles.

For the most powerful AppleWorks enhancements, stick with RamWorks III for the IIe and GS-RAM, GS-RAM Plus or GS-RAM Ultra (the major difference is capacity) for the IIGS. For other applications, RamFactor reduces disk access time and storage and can be battery backed-up. See the accompanying chart for further comparison.

Capability	RamWorks® III	RamFactor™	GS-RAM™ GS-RAM Plus™ GS-RAM Ultra™
Computer compatibility	Apple IIe	Apple II+, IIe, IIGS and compatibles	Apple IIGS
Maximum memory on main card	1 Megabyte	1 Megabyte	1.5 MEG GS-RAM 6 MEG GS-RAM Plus 4 MEG GS-RAM Ultra
Expander cards (for expansion beyond main card)	512K, 2 MEG	RamFactor 4 MEG, "Y" connector for 2 RamFactors	2 MEG RAM
Compatible slot	Auxiliary slot	Slots 1-7 except 3	Memory expansion
RAM disk	Disk based	EPROM/disk based	IIGS Control Panel
Software standard	Yes	Yes	Yes
Battery back-up	No	Yes	No on main board*
AppleWorks compatibility	All versions	Versions 1.3, 2.0, 2.1 and 3.0	Versions 2.0, 2.1 and 3.0
Maximum number of records in database in AppleWorks	22,500	22,500	22,500
Maximum number of lines in word processor in AppleWorks	22,500	22,500	22,500
Lines in WP and DB clipboard in AppleWorks	2,042	2,042	2,042
Autoload AppleWorks	Yes	Yes	Yes
Displays time on screen with ProDOS clock	Yes	Yes	Yes
Auto-segments large files	Yes	Yes	Yes
AppleWorks printer buffer	Yes	No	Yes
Fully socketed and user upgradeable	Yes	Yes	Yes
16 bit option (65C816)	Yes	No	N/A
Memory chip types for expansion	64Kx1 256Kx1	256Kx1	256Kx1 GS-RAM 1 MEGx1 GS-RAM Plus 256Kx4 GS-RAM Ultra

Comparisons made using AppleWorks 2.1, however, similar performance is obtained using older AppleWorks versions with RamWorks.

\*RamKeeper provides the GS-RAM, GS-RAM Plus and GS-RAM Ultra with battery back-up.

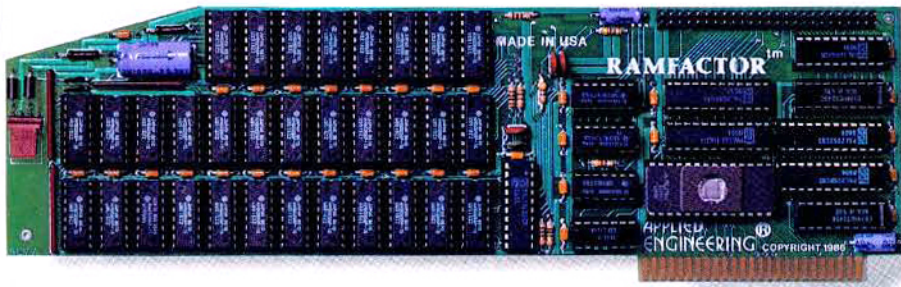


# RamFactor™

*Boot any II+, IIe, or IIGS and be up and running your favorite software in less than 1 second.*

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"Y" cable	\$24
(Allows one RamCharger to power two RamFactors.)	

Order RamFactor today . . . with 15 day money back guarantee and our "no hassle" five year warranty. See your dealer or call (214) 241-6060, 9 a.m. to 11 p.m., 7 days, or send check or money order to Applied Engineering MasterCard, Visa and C.O.D. welcome. Texas residents add 6¼% sales tax. Add \$10.00 if outside U.S.A.

**AE Applied Engineering™**  
The Apple enhancement experts

(214) 241-6060

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