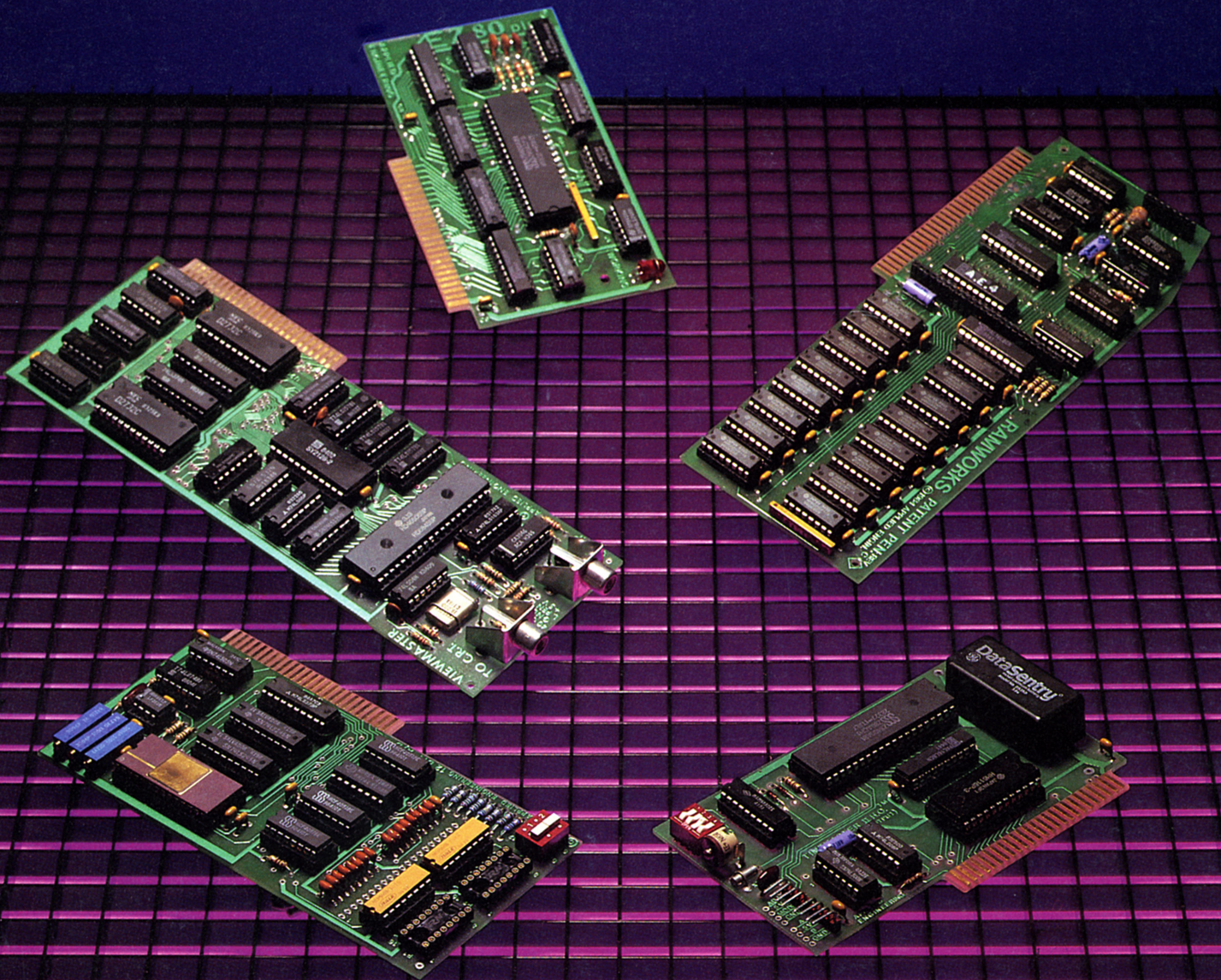# APPLIED ENGINEERING

Apple Peripherals

Why Are Apple Owners So Loyal?

People who have the best often are, but in the case of Apple there's more. Apple owners think back to how Apple got started in 1977, just two people working out of a garage and what happened is the talk of Wall Street and the computer industry as well. Many like the fact that Apple only makes computers. Unlike their competition, they don't make typewriters, copiers or telephones. They do just one thing and that's one reason they do it so well.

At Applied Engineering we think the same way. You see, Applied Engineering is the only major hardware manufacturer totally dedicated to the Apple computer. Whereas most of our competitors must divide their time between IBM, Atari, Radio Shack or other computers, our engineers only design products for the Apple. This dedication allows us to be much more familiar with the Apple and those who use them.

We don't expect you to buy an Applied Engineering peripheral on loyalty alone, but when you compare our products to those made by QUADRAM, MICROSOFT, AST and others you'll find out why Applied Engineering means a quality design, innovation, craftsmanship and total Apple compatibility.

The other guys do pretty well considering how busy they are with IBM. But at Applied Engineering, ALL of our work involves the Apple. In fact, all of our employees were Apple owners before they came to work for us. The people in shipping, engineering, quality control, order entry, all use Apples at work and at home.

This one track mindedness of ours allows us to offer the largest storage with Appleworks and Visicalc and our Z-80 card now includes the new 4.0 operating system. We can expand the Apple IIe to over 1 MEGABYTE of memory and the IIc to 512K, we've got clock cards, music cards, A to D converters, digital controllers, and a BSR system so your Apple can control your whole house with no additional wiring!

Applied Engineering recognizes that we've got to do a better job than our IBM counterparts because we know you're smarter than the average computer buyer, you bought an Apple. You see, our competition has it a little easier, their customers aren't as smart as you. After all, they bought the wrong computer.

So if you need more memory, or 80 columns, or RGB color, double hi res graphics, if you want to know the time and temperature or other "real world" conditions, if you'd like to run CP/M software, 68000 software, have a RAM disk, increase the storage of Appleworks or Visicalc, if you want your Apple to play music, talk and sing, if you'd like your Apple to control the lights and appliances in your house, then do what NASA does, what Ford does, what the U.S. Government, Hughes Aircraft, Honeywell, Westinghouse, AT&T, and even what Apple computer does. Call Applied Engineering. Then you will discover what thousands of companies and over a hundred thousand Apple owners already know, that you can be smart and loyal all at the same time.

Æ

We Set the Standard
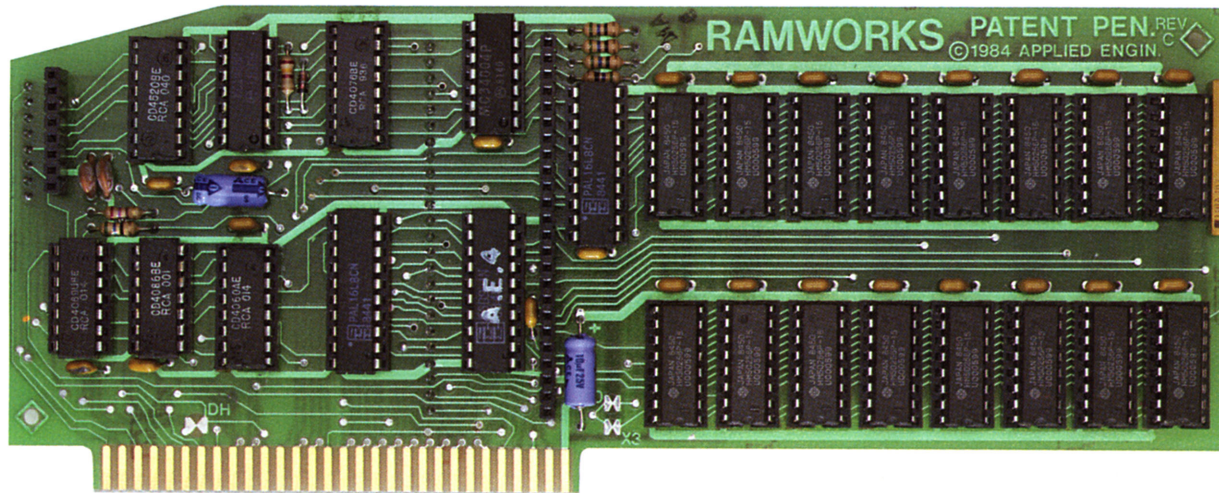
Applied Engineering has solved the most common problem that computer owners have—running out of memory. RAMWORKS is the perfect solution because it offers the widest and biggest memory sizes available anywhere.

RAMWORKS—A card that plugs into the Apple IIe auxiliary slot and functions EXACTLY like Apple's extended 80 column card (in fact, a 128K RAMWORKS actually costs less than Apple's 64K extended card) but with RAMWORKS you get more memory, 80 column text, a 3-year warranty and most importantly, room to grow without using more slots. A design so advanced there's a patent pending on it. If you have an IBM, we suggest you do what everybody does, trade it in on a IIe.

With the optional RAMDRIVE™ software RAMWORKS can also be used as an ultra high speed RAM disk. Depending on the memory size of the RAMWORKS card, you can emulate up to 4 disk drives with one RAMWORKS card. All at about 20 times faster than mechanical floppy drives and about 5 times faster than a hard disk.

RAMWORKS can be used as a solid state disk with DOS 3.3, PASCAL, CP/M and PRO-DOS (up to 1,900 blocks free)!

RAMWORKS can be purchased in a wide range of sizes and is user upgradeable using either 64K RAMS or the new 256K RAMS. In fact, RAMWORKS is the only auxiliary slot card on the market that will allow the new 256K RAMS to be used. If you already have an extended 80 column card, no problem. Just unplug the 64K RAMS and plug them into the RAMWORKS for an additional 64K. An RGB option is also available, you can order it with your RAMWORKS card or add it on at a later date.

RAMWORKS saves you time, money, slots and hassle. You'll have additional memory NOW and in the future.

It's Appleworks' Best Friend

A 64K RAMWORKS will add another 46K to your available desktop memory, a 128K RAMWORKS will add another 91K, a 256K RAMWORKS will add another 182K, and a 512K RAMWORKS will add another 364K and a 1 meg RAMWORKS will give you nearly an 800K DESKTOP. But RAMWORKS does more than just increase the desktop memory (as if that weren't enough). With RAMWORKS, Appleworks will be able to run up to 20 times faster. And now only RAMWORKS does this all automatically with no need for any optional software. Appleworks is a very large program. So large, in fact, that it won't all fit in a 128K Apple, so Appleworks has to constantly go back to the disk drive for more data. When you have a RAMWORKS card, you can have enough memory so that the entire Appleworks program can be loaded into the computer. This greatly increases the speed at which Appleworks operates because the disk drive operates at 300 RPM. APPLEWORKS operates at the speed of light!

It's Compatible

The simple fact is that RAMWORKS is compatible with more off-the-shelf software than any other RAM card. RAMWORKS is 100% compatible with ALL soft-

ware written for the Apple 80 column and extended 80 column card. Additionally, RAMWORKS can emulate other RAM cards so software written for other cards will run without modification. Software written for RAM-WORKS will not work on other cards. We can emulate others, but others can't emulate us.

It's Easy

RAMWORKS just plugs in and clear instructions show how to plug more memory chips into RAM-WORKS as your needs increase.

It's Popular

Popularity translates into great software support because software companies can't support all RAM cards, they can only support the ones their customers are likely to own.

It's Reasonable

Applied Engineering's years of experience and wide product line really pays off, and because of our high sales levels we buy most of our I.C. chips factory direct. So don't let our low prices fool you, they're caused by high volume production. That's why we can offer the most memory for the least money.

It's In Color

For only $129 an RGB option can be added to RAMWORKS to give you double high resolution color graphics and sharp 80 column text on any Apple compatible RGB monitor. The RGB option does not take up another slot, but rather it plugs into RAM-WORKS. You can order the RGB option with your RAMWORKS or add it on at a later date.

It Corrects Mistakes

Let's say you bought some other RAM card (and that's a mistake) and your RAM card is not being recognized by Appleworks, Advanced VisiCalc, FlashCalc or other programs and you want RAMWORKS. No problem. The memory chips on the card that you have now, which is where most of the money is, can be unplugged and then plugged into the expansion sockets on RAMWORKS.

It's Got It All

☑ 80 Column Text
☑ Double high resolution graphics (with or without RGB option)
☑ User Expandable to 1 Megabyte
☑ Can use 64K or 256K RAMS in any combination
☑ Adds Memory to Appleworks
☑ Accelerates Appleworks
☑ 100% Compatible with All IIe software
☑ RAM Disk software available, compatible with PRO-DOS, DOS 3.3 and PASCAL ($29.00)
☑ RAM Disk available for CP/M ($29.00)

☑ Visicalc preboot available ($29.00)
☑ RGB option
☑ Takes only one slot
☑ 3 year no hassle warranty

Ramworks™ with 64K........................... $179
Ramworks™ with 128K......................... $249
Ramworks™ with 256K......................... $299
Ramworks™ with 512K......................... $399
Ramworks™ with 1 MEG $649
RGB Option (can be added later)............... $129

LOW COST SOFTWARE OPTIONS

Ram Drive IIe

Ram Drive IIe will give you a high speed solid state disk drive. The Ram Drive IIe software features audio-visual access indicators, easy setup for turnkey operation, and easy menu driven documentation. The program can be modified and is copyable. If you have a 64K RAMWORKS, Ram Drive IIe will act as half a disk drive. If you have a 128K RAMWORKS, Ram Drive IIe will act as a full disk drive. As you go past 128K of memory, RAMWORKS will act as multiple disks, so all one megabyte can be as a solid state disk. Either way, your programs will load and save over 20 times faster. Ram Drive IIe is compatible with APPLESOFT, PRO-DOS, DOS 3.3, and PASCAL. The disk also includes a high speed RAM copying program. Ram Drive is another disk drive only 20 times faster and no whirring, clicking or waiting!   **$29**

CP/M Ram Drive IIe

CP/M Ram Drive is just like the Ram Drive IIe, only for CP/M. CP/M Ram Drive IIe runs on any Z-80 card that runs standard CP/M, i.e. Applied Engineering Z-80 Plus or Microsoft Soft Card. CP/M Ram Drive will dramatically speed up the operation of most CP/M software because CP/M normally goes to disk fairly often. Fast acting software like dBase II, Wordstar and Turbo Pascal becomes virtually instantaneous when used with CP/M Ram Drive.   **$29**

VC IIe Expander

VC IIe Expander gives owners of Visicalc IIe and Advanced Visicalc IIe increased storage. When used with VC IIe you'll get 141K workspace (128K RAM-WORKS or larger required). When used with Advanced VC IIe you'll get 131K with a 128K RAMWORKS, 253K with a 256K RAMWORKS and 437K with a 512K RAMWORKS.   **$29**
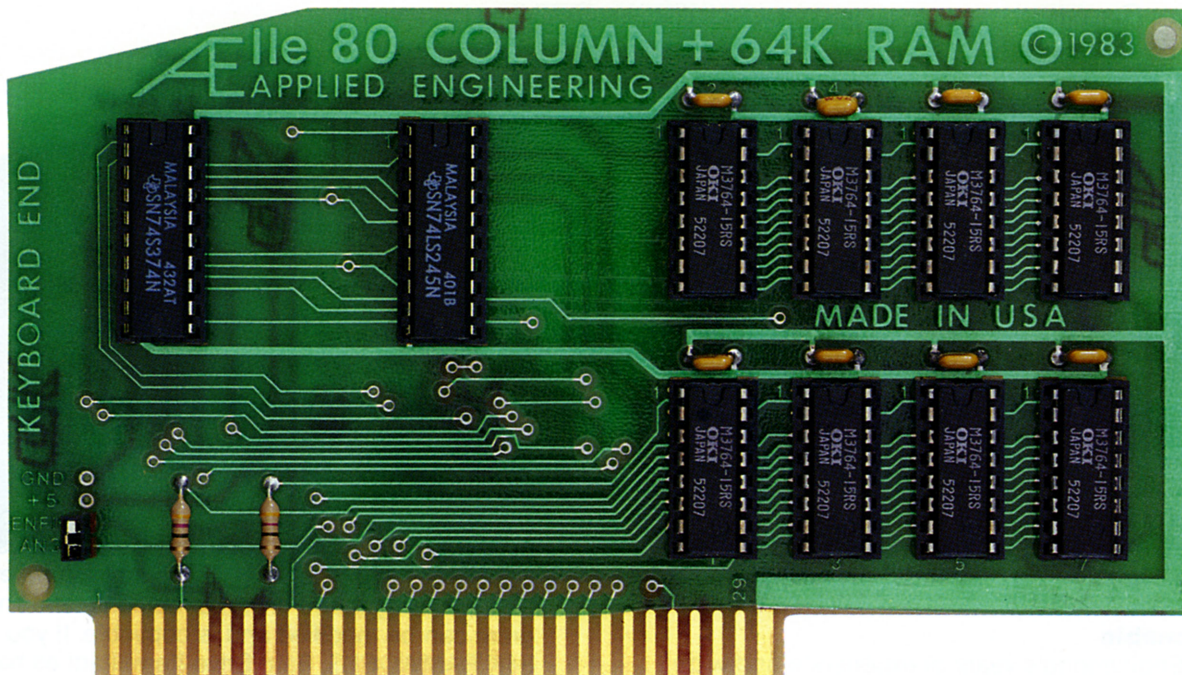
VISA MasterCard **and C.O.D. 214/241-6060**

FEATURES

- Plugs into the Apple IIe auxiliary slot and functions EXACTLY like Apple's Extended 80 Column Card

- Expands your Apple IIe to 128K memory

- Provides an 80 column text display

- Compatible with Apple IIe 80 column and extended 80 column card software

- Can be used as a solid state disk drive to make your programs run up to 20 times FASTER (will act as half a drive)

- Permits your IIe to use the new double high resolution graphics

- Automatically expands Appleworks to 55K available

- Automatically expands Visicalc to 95K storage in 80 columns!

- PRO-DOS will use the A.E. Extended 80 Column Card as a high speed disk drive

- Documentation included, we show you how to use all 128K
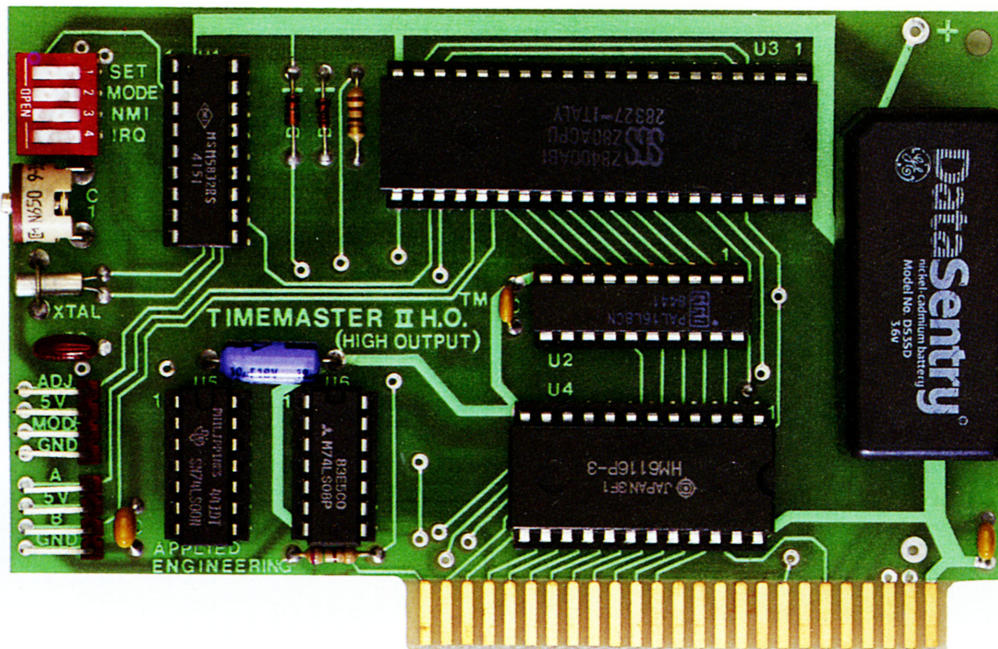
- 3-year "no hassle" warranty

$129

VISA MasterCard **and C.O.D. 214/241-6060**

Enter the CP/M world with the new Z-80 Plus card from Applied Engineering and introduce your Apple to thousands of new programs. Only the Z-80 Plus comes standard with the new 4.0 software, the most advanced system for running CP/M programs ever. Only CP/AM 4.0™ has advanced features like built-in disk emulation for popular memory expansion boards (those made by Apple and Applied Engineering and others) to give you a faster system with more storage. You also get menu driven utilities that are much easier to use than the older CP/M utilities so you can get down to all that great CP/M software faster. If you already own the Z-80 Plus, you can upgrade to the 4.0 software for only $29. The Z-80 Plus runs older CP/M programs too, down to Version 1.6 (2.2 is the most popular). With the Z-80 Plus you can run the largest body of software in existence. Simply plug the Z-80 Plus into any slot in your Apple. You'll have two computers in one and the advantages of both, all at an unbelievably low price.

FEATURES

- Totally compatible with all CP/M software
- Executes the full Z-80, 8080 and 8085 instruction set
- Fully compatible with Microsoft disks (no pre-boot required as with others)
- Does everything the other Z-80 cards do plus supports Z-80 interrupts
- Specifically designed for High speed operation in the Apple IIe (runs just as fast in the II+ and Franklin)
- Red "CPM Working" LED indicator, the Z-80 Plus does not interfere with non-CP/M programs

- An on-card ROM eliminates many I.C.'s for a cooler, less power consuming board
- A semi-custom I.C. and a low parts count allows the Z-80 Plus to fly thru CP/M programs at a very low power level
- The Z-80 Plus can access up to 1088K of memory (most programs only need 48K)
- Runs on any Apple II, II+ or IIe with at least 48K memory. Works with any 80 column card, but does not require one
- The Z-80 Plus will allow you to run: dBase II, Wordstar, Spell Star, Turbo Pascal, Cobol-80, Fortran-80, Peachtree and ALL other CP/M based software
- Fast Clock: 4MHZ
- Documentation included
- High quality P.C. board, gold plated connector, all I.C.'s in high quality sockets, with mil. spec. components used throughout
- Compatible with Apple II, II+ and IIe
- Three year warranty

With the Z-80 Plus, you can access the largest body of software in existence. Two computers in one and the advantages of both, all at an unbelievably low price.

$139

COMPATIBLE WITH IIe and II+

FEATURES

- Meets and surpasses all protocols as defined by Apple

- Absolutely, positively, totally PRO-DOS and DOS 3.3 compatible

- Time in hours, minutes, seconds and milliseconds (the ONLY PRO-DOS compatible card with millisecond capability)

- 24 hour military format or 12 hour with AM/PM format

- Date with year, month, day of week and leap year (other clocks say they have the year, but they don't; it's just that PRO-DOS will calculate the year based on day of week and it only does this for 7 years)

- The easiest programming in BASIC

- Fully buffered data buss

- Eight software controlled interrupts so you can run two programs at the same time (many examples are included)

- The only card recognized by both the DOS 3.3 and PRO-DOS versions of AppleWriter IIe

- Compatible with ALL of Apple's languages. Sample programs for machine code, Applesoft, CP/M and Pascal on 2 disks

- On-board timer lets you time any interval up to 48

days long down to the nearest millisecond

- Accuracy 0.00005% : Battery Life 20 Years

- High quality P.C. board, gold plated connector, all I.C.'s in high quality sockets, with mil. spec. components used throughout

- Three year warranty

H.O. — FOR THOSE WHO NEED IT, SIMPLICITY

At first, all clock cards seem to give you about the same things. Until you put them to work. Then you'll find out if they do everything you expected. Or make you do everything the hard way or maybe they won't even do it at all.

You know what makes the difference? It's not just having the newest, whizziest features, but rather what those features actually do for you in the real world. And that's the whole idea behind the Timemaster II H.O. because the H.O. is designed to work with you in a natural, intuitive way.

What we're really talking about here is useability. When you get right down to it, it's not any one big thing, but a combination of a lot of little things. Like full emulation of ALL other clocks. Yes, we emulate Brand A, Brand T, Brand P, Brand C, Brand S and Brand M too. It's easy for the H.O. to emulate other clocks, we just drop off features. That's why the H.O. can emulate others, but none of the others emulate us.

The Timemaster II H.O. will automatically emulate the correct clock card for the software you're using. You can also give the H.O. a simple command to tell it which clock to emulate. This is great for writing

H.O	PRO-DOS COMPATIBLE	INCLUDES DOS DATER	MILLISECOND TIME	YEAR DATA	LARGEST SAMPLE SOFTWARE	REMOTE SET PORT	BSR PORT	EMULATES ALL OTHER CLOCKS
	YES	YES	YES	YES	YES	YES	YES	YES
BRAND A	NO	NO	YES	NO	YES	NO	NO	NO
BRAND C	NO	NO	NO	NO	NO	NO	NO	NO
BRAND M	NO	NO	NO	NO	NO	NO	NO	NO
BRAND P	YES	YES	NO	YES	NO	NO	NO	NO
BRAND S	NO	NO	NO	NO	YES	NO	NO	NO
BRAND T	YES	NO	NO	NO	NO	NO	YES	NO

programs for those poor unfortunates who bought some other clock card.

Of course, most programs will use the Timemaster II H.O. in its native mode, but it's comforting to know that you can use programs written for other products without any modification.

H.O. — FOR THOSE WHO CAN HANDLE IT, PERFORMANCE

If you program, (or are learning to) you'll find the H.O. a joy to use, a 36 page manual has many program examples. Soon you'll wonder how you ever got along without your H.O. And speaking of software, you also get 2 disks full of some really fantastic sample programs in machine code, DOS 3.3, PRO-DOS, BASIC, PASCAL and CP/M. In fact, we provide more sample software than all the competition combined. Hobbyist take note; most of the machine code programs come with their source code on disk. In Pascal, the H.O. will update the filer and disks with the correct date and time. All routines are installed in the SYSTEM LIBRARY for easy use. You'll never use the Date command again! Other software includes Appointment Book so you'll never forget to do anything again. Just enter appoint-ments up to a year in advance then forget them, Appointment Book will remind you.

As for PRO-DOS, well, the H.O. is totally PRO-DOS compatible. The H.O. works with PRO-DOS software like Apple Works, Catalyst IIe, Word Juggler and ALL other PRO-DOS software. And let's get one other thing out of the way—No other clock is more compatible with PRO-DOS than the Timemaster II H.O.; none, zero, zip.

Dos 3.3 users will appreciate our Dos-Dater software, which upgrades the DOS on your disks so that DOS 3.3 will use the H.O. to time and date (including the year) disk files. Every time a program is saved or modified, the time and date are stored in the CATALOG with the name. You can now tell when a program was saved or when any file was last modified, and this date stamping feature is completely automatic.

REMOTE CONTROL

Our BSR X-10 interface option for the H.O. allows you to remotely control lights and electrical appliances through your BSR X-10 home control system in your home or office. You're already wired because a BSR system sends its signals over regular 120 volt wiring.

That means you can control any electrical device in your home or office without any additional wiring.

The X-10 is easy to program because it is controlled by firmware in ROM on the Timemaster II H.O. One simple command will turn on or off any appliance or light (lights can be brightened or dimmed too). Use your Apple for security lighting, heating and A.C. control, lab/process control, waking up Junior, re-waking up Junior and controlling your T.V. set (just think, you need not miss another episode of Star Trek).

Is the Timemaster II H.O. a simple, easy to use clock for beginners? Or a sophisticated high performance peripheral for the experienced? The answer is "YES". And when you think about it, aren't those two products the one you need now?

BSR Option (may be added later) $49
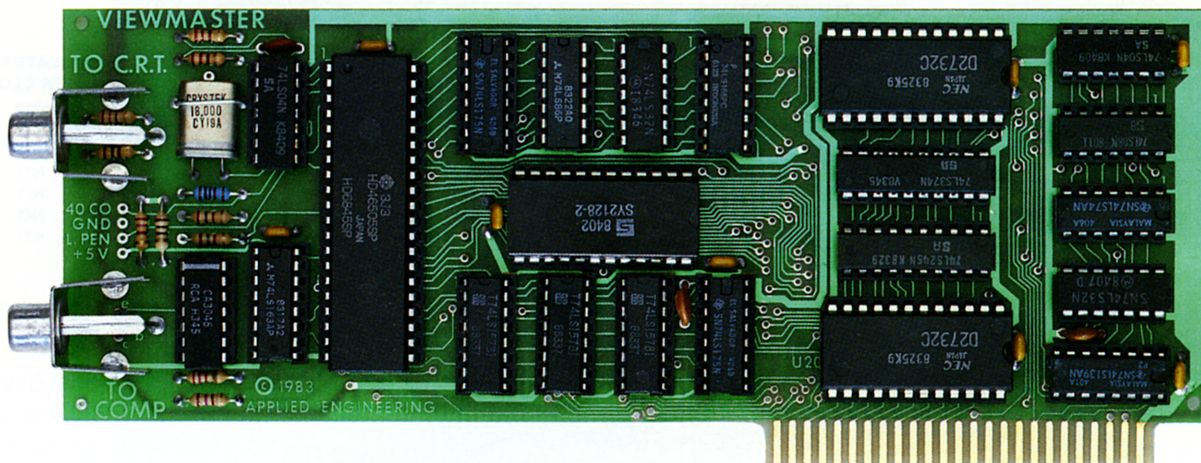
$129

COMPATIBLE WITH II+ and IIe

There used to be about a dozen 80 column cards for the Apple, Now There's Only ONE!

	PRICE	BUILT-IN SOFTSWITCH	SHIFT KEY SUPPORT	LOW POWER DESIGN	80 COLUMN HOME	7X9 DOT MATRIX	LIGHT PEN INPUTS	40 COLUMN OVERRIDE	INVERSE CHARACTERS
VIEWMASTER 80	**139**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
SUP'RTERM	MORE	NO	YES	NO	NO	NO	NO	YES	YES
WIZARD 80	MORE	NO	NO	NO	NO	YES	NO	YES	YES
VISION 80	MORE	YES	YES	NO	NO	YES	NO	NO	NO
OMNIVISION	MORE	NO	YES	NO	NO	NO	NO	YES	YES
VIEWMAX 80	MORE	YES	YES	NO	NO	YES	NO	NO	YES
SMARTERM	MORE	YES	YES	NO	NO	NO	YES	YES	NO
VIDEOTERM	MORE	NO	YES	YES	NO	YES	YES	NO	YES

FEATURES

- All new design
- 80 characters by 24 lines
- Fully compatible with all Apple languages and software
- Very sharp 7X9 character matrix with true descenders
- Highest compatibility with existing 80 column software
- Power and input connector for light pen
- Very low power consumption through the use of CMOS devices
- High speed (18 MHZ) scroll rate
- Upper and lower case characters with true descenders, both inverse and normal
- All on-screen editing functions are supported
- User defineable cursor shape
- Compatible with Apple II, II+ and IIe
- Three Year Warranty

TOTAL compatibility is the secret to the VIEW-MASTER 80's great success. The VIEWMASTER 80 works with all 80 column applications including CP/M, Pascal, Wordstar, Format II, Easywriter, Applewriter II, Supertext 80, Zardax, Apple PI, Letter Perfect, dBase II, Visicalc, Multiplan, and hundreds of others.

Viewmaster 80 delivers a super sharp, state of the art display, with a 7x9 character matrix giving you a clear, easily readable character.

Whether you're buying your first 80 column card or replacing a less powerful one, you'll appreciate the many extra features built in to the VIEWMASTER 80. There are no options available for the VIEWMASTER 80 because every feature of every 80 column card is already in the VIEWMASTER 80. The VIEWMASTER 80 is compatible with the Apple II, II+, and Franklin computers.

$139

VISA MasterCard and C.O.D. 214/241-6060

COMPATIBLE WITH IIe and II+
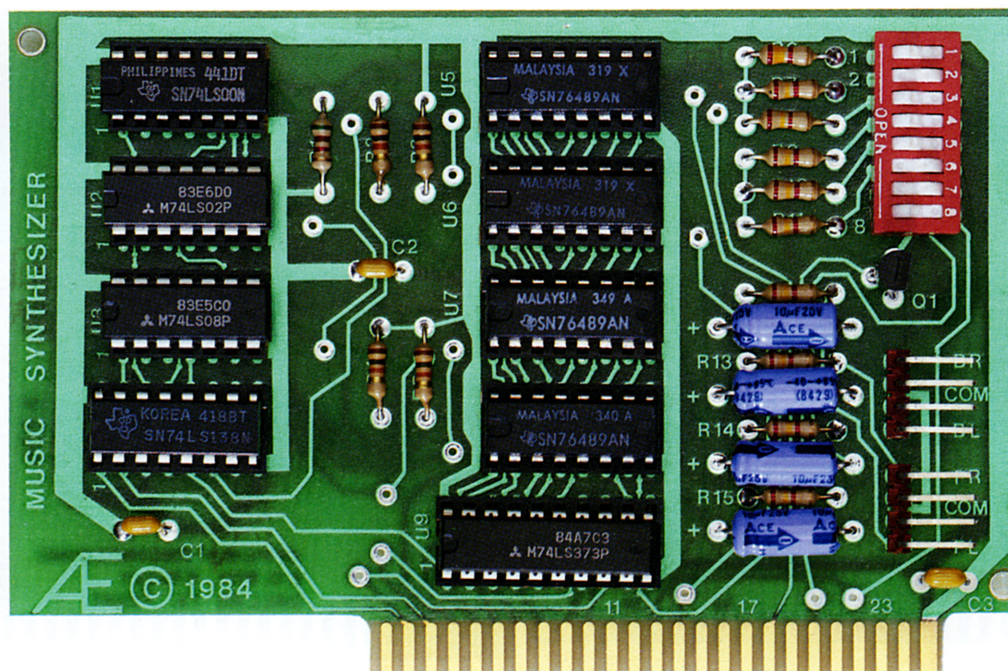
FEATURES

- Complete 16 voice music synthesizer on one card. Just plug it into your Apple, connect the audio cable (supplied) and you're ready to enter and play songs

- It's easy to program music with our "COMPOSE" software. You'll start right away at inputting your favorite songs. Our manual shows you how, step by step. The Hi-Res screen shows what you've entered in standard sheet music format (see photo above)

- No programming experience is required to use the Super Music Synthesizer, ideal for the computer hobbyist, professional or amateur musician and children

- We give you lots of software. In addition to Compose and Play programs, the disk is filled with over 30 songs ready to play

- Plays music in true stereo as well as true discrete quadraphonic

- Automatic shutoff on power-up or if reset is pushed

- Will play songs written for Alf synthesizer. (Alf software will not take advantage of all the features of this board. Their software sounds the same on our synthesizer)

- Whole through 64th notes, rests, which can be dotted, triplet or tied

- Key: 0 to 7 flats or sharps

- Accidentals: sharp, flat, and natural; double sharps/- flats converted to natural form

- 12 simultaneous tones with 4 percussive sounds

- Play speed controlled by game paddle

- Game paddle inputs during Compose to input pitch, length, accidentals, cursor movements, insert and delete

- Keyboard inputs: envelope (attack, volume, release, sustain, gap, noise, quarter length); disk (load, save, play); editing (new voice, subroutine, title, key, measure, time, transpose, position, delete)

- Pitch range: C two octaves below middle-C to E two octaves above middle-C

- User friendly by handholding when errors are encountered

- Easy to program in Basic to generate complex sound effects. Now your games can have explosions, phaser zaps, train whistles, death cries. You name it, this card can do it

- RCA-type standard audio output jacks for connection to stereo amplifier or headphones

- All connecting cables are provided

- Requires Apple IIe or II+ (48K minimum) with one disk drive

- Works in any slot of a IIe or II+ including slot 3 of a IIe

$159
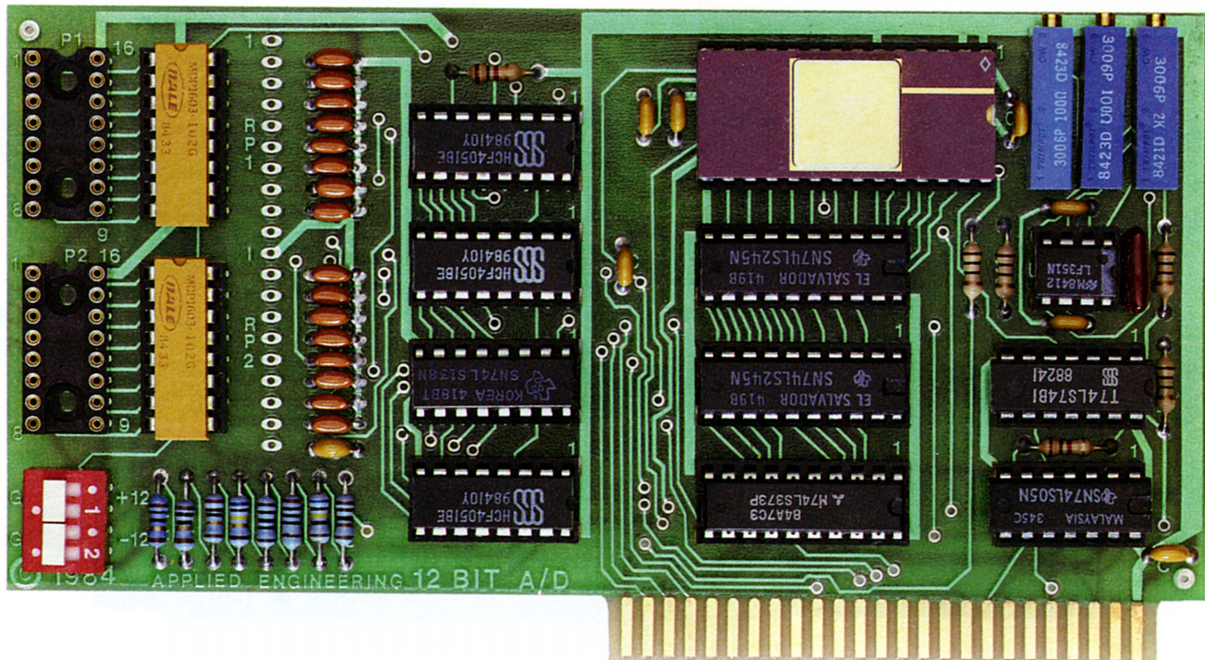
FEATURES

- All new 1984 design incorporates the latest in state-of-the-art I.C. technologies

- Complete 12 bit A/D converter with an accuracy of 0.03%

- 16 input channels

- 9 software programmable full scale ranges, any of the 16 channels can have any range at any time. Under program control, you can select any of the following ranges: +/-10 volts, +/-5V, +/-2.5V, +/-1.0V, +/-500mV, +/-250mV, +/-100mV, +/-50mV, or +/-25mV

- Very fast conversion (25 micro seconds)

- Analog input resistance greater than 1,000,000 ohms

- LASER-trimmed scaling resistors

- Low power consumption through the user of CMOS devices

- The user connector has +12 and -12 volts on it so you can power your sensors

- Works in any slot including slot 3 in the IIe

- Only elementary programming is required to use the A/D

- Input filtering for all 16 channels can filter out any frequency over a value you select, from 2HZ to 100,000 KHZ

- The entire system is on one standard size plug in card that fits neatly inside the Apple

- Systems include several sample programs on disk for BASIC and machine code including source code

- Works in any slot of a IIe or II+ including slot 3 of a IIe

Our latest A/D card features true 12 bit resolution and data acquisition rates of up to 40,000 samples per second, 16 input channels and 9 software programmable gains. The AE 12 bit A/D easily out performs the competition.

A few applications may include the monitoring of flow, temperature, humidity, wind speed, wind direction, light intensity, pressure, RPM, soil moisture, and many more.

$319

VISA MasterCard **and C.O.D. 214/241-6060**
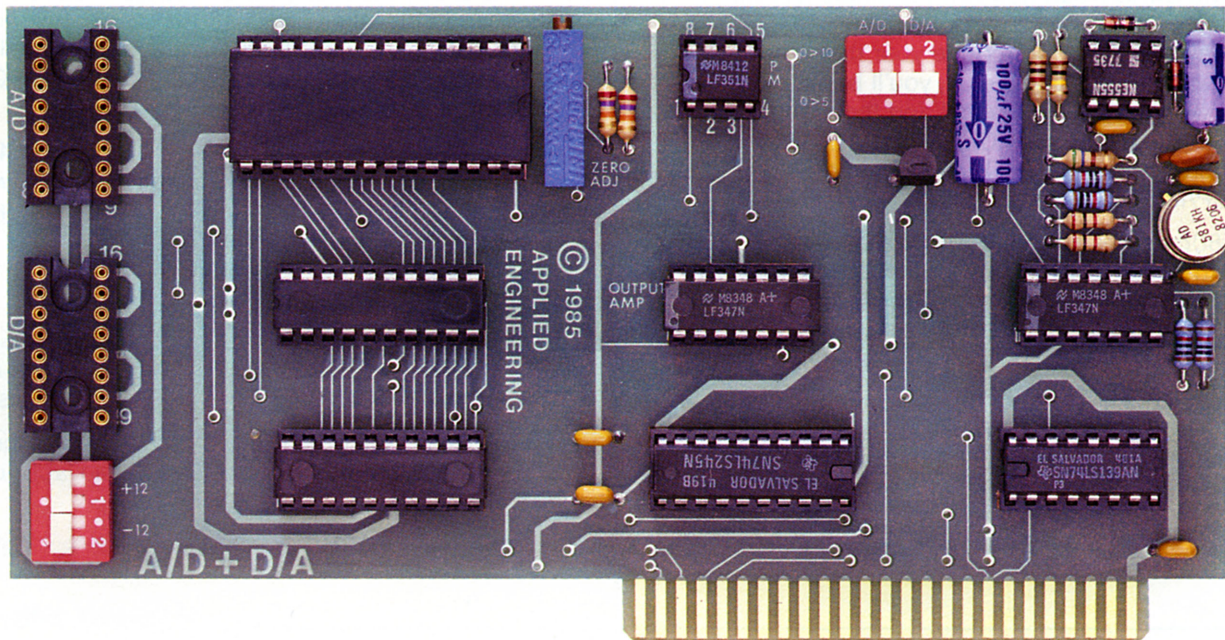
Commercial, industrial, and scientific data acquisition and control functions are now practical with Applied Engineering's A/D + D/A card.

A/D + D/A Features:
- Single PC card
- 8 channels A/D
- 8 channels D/A
- Superfast conversion time
- Very easy programming
- Many analog ranges
- Manual contains sample applications
- Works in any slot of a IIe or II+ including slot 3 of a IIe

A/D SPECIFICATIONS
- 8 channels
- 0.3% accuracy
- On board memory
- Fast conversion (.078 mS per channel)
- A/D process totally transparent to Apple (looks like memory)
- Eliminates the need to wait for A/D conversion (just peek at data)
- No missed codes over full temperature range
- 50K ohms analog input resistance
- User programmable input ranges are 0 to 10 volts, 0 to 5, −5 to +5, −2.5 to +2.5, −5 to 0, and −10 to 0.

The A/D section is a 8 bit, 8 channel memory buffered, data-acquisition system on a single Apple plug-in card. It consists of a high speed 8 bit successive approximation A/D converter, an 8 channel multiplexer, 8X8 dual-port RAM, and all necessary control logic. The A/D process takes place on a continuous, channel sequencing basis. Data is automatically transferred to its proper location in the on board RAM. No A/D converter could be easier to use.

D/A SPECIFICATIONS
- 8 channels
- 0.3% accuracy
- On board memory
- On board output buffer amps can drive 5 MA of output current
- No missing codes over full temperature range
- D/A process is totally transparent to the Apple (Just poke the data)
- Fast conversion (.003 mS per channel)
- User programmable output ranges are 0 to 5 volts and 0 to 10 volts.

The D/A section contains 8, 8 bit voltage output, digital to analog converters, with output buffer amplifiers and all interface logic on a single card. No trims are required to achieve the full specified performance. Separate on-card latches are provided for each of the eight D/A converters. No D/A converter could be easier to use. The on board amplifiers are laser-trimmed during manufacture, thereby eliminating any requirement for offset nulling.

A few applications may include the measurement and control of temperature, humidity, wind speed, wind direction, light intensity, pressure, RPM, soil moisture, process control, automatic test equipment and many more.

$199

VISA MasterCard **and C.O.D. 214/241-6060**

Z-80c

14

SIGNAL CONDITIONER

Our 8 channel signal conditioner is designed for use with our A/D converter. This board incorporates 8 F.E.T. op-amps, which allow almost any gain or offset. For example: an input signal that varies from 2.00 to 2.15 volts or a signal that varies from 0 to 50 mV can easily be converted to 0-10V output for the A/D.

The signal conditioner's outputs are on a high quality 16 pin gold I.C. socket that matches the one on the A/D so a simple ribbon cable connects the two. The signal conditioner can be powered by your Apple or from an external supply.

FEATURES

- 4.5″ square for standard card cage and 4 mounting holes for standard mounting

- 22 pin .156 spacing edge card input connector (extra connectors are easily available i.e. Radio Shack)

- Large bread board area

- Uses F.E.T. op-amps for an input impedance of 10,000,000,000 ohms

- Full detailed schematic included.

- All gains and offsets are programmed with easily constructed plug in component platforms (Two blank platforms included)

$79

I/O 32

COMPATIBLE WITH IIe and II+

FEATURES

- Provides 4, 8-bit programmable I/O ports

- Any of the 4 ports can be programmed as an input or an output port

- All I/O liners are TTL (0-5 volt) compatible

- Your inputs can be anything from high speed logic to simple switches

- Programming is made very easy by powerful on-board firmware

- The I/O 32 is your best choice for any control application

- Manual includes many programs for inputs and outputs

Some applications include:
Burglar alarm, direction sensing, use with relays to turn on lights, sound buzzers, start motors, control tape recorders and printers, use with digital joystick.

The I/O 32 features twin 6821 PIAs (Programmable Interface Adaptors). However, unlike previous offerings from other companies, the I/O 32 has its own powerful on-board firmware. This on-board firmware makes your programming a snap from BASIC. Of course, if you want to control the I/O 32 directly you can.

So whether you're a beginning BASIC programmer or an expert at machine language programming, the I/O 32 is the perfect solution to any control application.

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15

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