NEW PRODUCTS

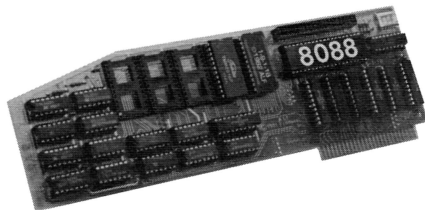# ALPHA 5

10-5-7
AD8088 PROCESSOR CARD

ALF's new AD8088 Processor Card adds a powerful 8088 processor chip to your Apple II, Apple II+, Apple IIe, Basis 108, Franklin Ace, or similar computer. Unlike most previous second-processor cards, the Processor Card allows the 8088 and the Apple's 6502 to both run simultaneously—more than doubling the processing capability of your system!

The Processor Card allows you to run the latest 16-bit software, or get faster execution of your own programs. The 8088 processor has access to all Apple memory, so programs up to 64K long can be run by the 8088 without adding memory. And more than one Processor Card can be used in the same computer, all running simultaneously.

"FTL" (Formula Transfer Link) is a program which speeds up most Applesoft BASIC programs by sending most math functions to the 8088 for fast evaluation. (Functions transferred are: multiply, divide, exponentiate, SQR, LOG, EXP, COS, SIN, TAN, and ATN.) FTL is easy to use: just insert the disk supplied with the Processor Card and type RUN FTL. Type in the slot number of the Processor Card, and FTL is set up. Then just run virtually any Applesoft program (even programs with embedded assembly language or compiled Applesoft programs). FTL works by copying Applesoft from ROM into RAM (where Integer BASIC normally exists) and replacing the math routines with calls to 8088 math routines.

"MET" (Multiple Event Timer) is a program which times intervals. When you're writing a program, MET makes it easy for you to find out where most of its time is spent. Then, you can work on speeding up just the critical sections. You simply insert POKE statements (or the equivalent in any language other than BASIC) at the beginning and end of each routine to be timed. MET keeps a "log" of the elapsed time and the value "poked". MET can be set up with any of eight resolutions, from 50 microsecond resolution (and maximum duration between "pokes" of 3.2768 seconds) to 1/10th second resolution (with a maximum duration of 6,553.6 seconds).

Each Processor Card also contains a serial number which can be read by the Apple computer. This has many applications for copy protected software.

Suggested list price is $345.00. Request the AD8088/AD128K data sheet for system requirements, ordering information, and additional details.

10-5-11
AD128K MEMORY CARD

The AD128K Memory Card adds 64K or 128K of memory to the AD8088 Processor Card. This allows the Processor Card to be used for many new applications.

When equipped with 128K, the Processor Card and Memory Card can emulate one Apple disk drive. Since memory is much faster than a disk drive, the emulator operates at very high speeds. A special copy program supplied copies a standard (unprotected) disk into the memory. The memory can then be used as if it were the disk, using standard DOS 3.3 commands. When finished, the special copy program is used to transfer the memory back onto the real disk.

When used in conjunction with CP/M-86 (trademark of Digital Research), the Memory Card allows large programs to be run or large amounts of data to be processed.

The Memory Card can also be used to store 8 (with 64K) or 16 (with 128K) hi-res screen images. The Processor Card can move 16 images into the hi-res memory area for viewing in less than one second!

Additionally, the Memory Card accepts an 8087 Numeric Data Processor chip which can be used by some programs for fast numeric operations.

Suggested list price is $370 with 64K or $445 with 128K. The Memory Card cannot be used without the AD8088 Processor Card. Request the AD8088/AD128K data sheet for complete information.
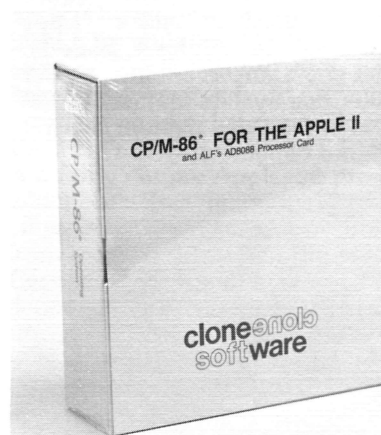
13-5-1
CP/M-86 OPERATING SYSTEM

Clone Software Corporation's version of Digital Research's CP/M-86 operating system, designed for the AD8088 Processor Card, is available through ALF. CP/M-86 lets you write your own programs in 8088 Assembly Language (using the assembler provided) or in high level languages like CBASIC-86 (Digital Research), C-86 (Computer Innovations), and Supersoft FORTRAN. (High level languages are not supplied with CP/M-86.) CP/M-86 also lets you buy the latest 16-bit programs that run under CP/M on computers like the IBM PC, the DEC Rainbow (and many others), and run them on your Apple through the AD8088 Processor Card. When used in conjunction with the AD128K Memory Card, large programs and programs which operate on large amounts of data can easily be used.

Suggested list price is $100.00. The AD8088 Processor Card is required. Request the AD8088/AD128K data sheet for system requirements and additional information.

13-3-32
TOTAL ACCURACY COPY PROGRAM

Total Accuracy Copy Program is an advanced program which copies standard Apple-compatible disks quickly and reliably. Starting from either a blank disk or a previously initialized disk, it can copy a 13-sector disk in under 40 seconds or a 16-sector disk in under 45 seconds. It also features a verify-only mode which lets you compare two copied disks to see if they're identical. The Total Accuracy Copy Program

NEW PRODUCTS (cont.)

features much of the same technology used in ALF's "Copy System CS3" (see Alpha 4, page 1). You get the same reliability as our $995.00 Copy System for just $49.95! (Naturally, the Copy System is faster for volume copying.)

The package also includes a program which checks disk drive speed. Total Accuracy Copy Program does not copy "protected"disks.

Suggested list price: $49.95. Request the Total Accuracy Copy Program data sheet for additional information.

NEW SOFTWARE FOR MUSIC CARD MC1 & MUSIC CARD MC16

The MC1 and MC16 music cards are now supplied with a new manual (#11-1-1C) and software (#13-3-1C for the MC16 and #13-3-8C for the MC1). Several programs not previously supplied with the Music Card are included, and some new programs have been created.

There's a new PLAY program which does not required game paddles for tempo control. An entire "album" of songs can be played back without stopping for tempo (paddle) adjustment. Playback tempo is automatically controlled by the "suggested speed" (now called "initial speed"). A new ENTRY program features both the original paddle-controlled playback ("PLAY:P" command) and the new automatic-tempo playback ("PLAY" command). A new feature, "RATE", has been added to allow the tempo to be changed at

various points in the song during playback.

A new version of ENTRY, called "ENTRY2", has been added. It allows the MC1 and MC16 to be used on an Apple IIe without paddles, and the MC1 to be used on an Apple III (also without paddles). Functions normally controlled with the paddles are controlled with the up, down, left, and right arrow keys and the open and solid Apple keys.

The ENVELOPE program (previously sold separately) lets you design envelopes by entering a short melody and a set of envelope parameters. The program can then play the melody while simultaneously drawing the envelope contour in high-resolution graphics. Experimenting with envelopes is easy since any parameter can be changed and the melody played (and graphed) again.

The PROCESS program (previously sold separately) is used to delete parts or subroutines from songs, and to append songs together. It also has many other commands, including commands to change parts into subroutines, compute current parameter settings, save and load songs in a simplified format, and so forth.

The MLIST program (previously sold separately) lists a song in alphanumeric format (similar to the description text line in ENTRY). It can list an entire song, just the parts, or specific parts and subroutines. Also, the listing can be restricted to particular types of commands or to, for example, just notes and rests.

The HUSTLE program (previously sold separately) constructs "album" files (containing the titles of all songs on a disk) for sequenced playback of a complete disk. It can also be used to remove particular titles from an album file.

A new PERFORM routine is included which is much easier to use for playing songs from your own Applesoft BASIC program. (Integer BASIC programs are no longer included with the Music Cards.) A version of PERFORM called FLASH is also included which allows the lo-res color display to be created during playback.

Suggested list price of the MC1 with the new software is $169.00, and the MC16 is $179.00. If you already have an ALF 9-voice card and want the new MC1 software, or have an ALF 3-voice card and want the new MC16 software, you can obtain the software for $14.95 and the manual for $7.00 (you must give your card's serial number when ordering).
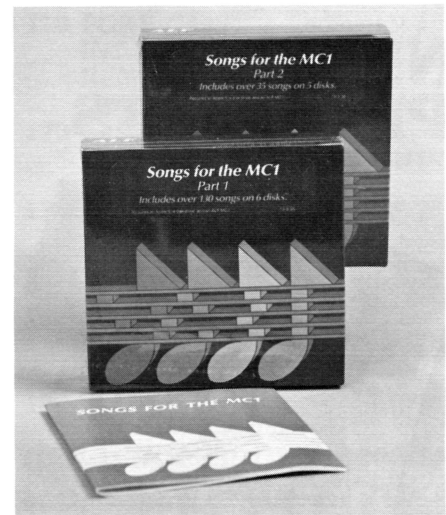
SONGS FOR THE MC1 SONGS FOR THE MC16

Our new "Songs for the MC1" and "Songs for the MC16" packages replace the previous "Album Series". Both packages include songs previously released in the "Album Series", plus several new songs. The new PLAY program, which allows an entire disk of songs to be played without stopping for "paddle" adjustments, is included.

Suggested list price and order number: Songs for the MC1 Part 1 (13-3-35), $69.95. Songs for the MC1 Part 2 (13-3-36), $69.95. Songs for the MC16 Part 1 (13-3-37), $69.95. Songs for the MC16 Part 2 (13-3-38), $69.95. Request the "Songs for the MC1 Booklet" or "Songs for the MC16 Booklet" for a list of which songs are in Part 1 and Part 2 of each package.
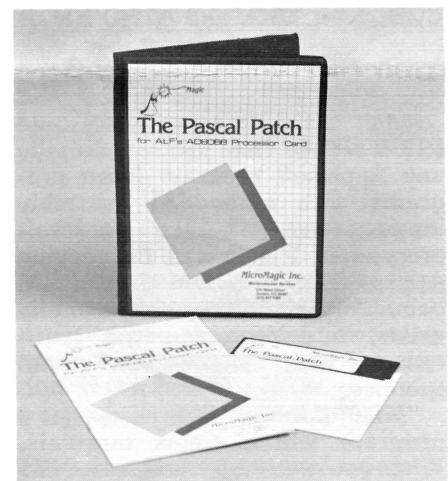
13-5-2 MICRO MAGIC PASCAL PATCH

Micro Magic's "Pascal Patch" is the equivalent of "FTL" (see the Processor Card, above) for Apple Pascal 1.1! Execution speed of programs

NEW PRODUCTS (cont.)

containing certain math functions can be improved simply by executing AD8088:INIT before executing the desired Pascal program. A new TRANSCEND unit is provided to improve performance of transcendental match functions.

Suggested list price is $49.95. Request the AD8088/AD128K data sheet for additional information.

NEW PROCESSOR CARD PROM

The latest version of the Processor Card PROM is labeled 1-9-1-1C. If your Processor Card's PROM is labeled "A" or "B", you may wish to have it updated. Return the entire Processor Card and we will reprogram the PROM. Include $5 for postage if your card is not under warranty.

11-1-7B NEW PROCESSOR CARD MANUAL

The original 11-1-7A Processor Card manual has been reprinted. The new version, 11-1-7B, is substantially the same as the "A" version. The update sheets previously included with the "A" manual have been included in the "B" manual.

Suggested list price is $7.00

NEW LOCATION

ALF has moved to new offices located in the Nelson Technical Plaza at 1315F Nelson Street, Denver, Colorado 80215. Our new offices are more than three times as large as our previous building on Estes street. Our phone number remains the same: (303) 234-0371.

DISCONTINUED PRODUCTS

The following products have been discontinued (most have been replaced with newer products). From Alpha 1: 10-5-17 Timing Mode Input Board, 11-1-7 Technical Manual Insert, 11-2-1 Music Notation Book, all cassette software, 13-3-2 Album 1, 13-3-5 Album 0. From Alpha 2: 13-1-2 Demo Record, 11-1-6 Owner's Manual, 13-3-4 Album 2, 13-3-6 Album 3. From Alpha 3: 10-1-9 Timing Mode I/O Extender, 13-3-12 Album A, 13-3-13 Album B, 13-3-14 Album C, 13-3-15 Album D, 13-3-16 Album 4, 13-3-17 Album E, 13-3-18 Album 5, 13-3-19 Album F, 13-3-9 Basic Ear Training Skills (Integer version only), 13-3-11 Process and Other Programs. From Alpha 4: 10-5-4 PAL 9000 Radio Direction Finder, 12-2-2 & 12-2-4 Floppy Boxes (no-tab versions only), 13-3-20 Album 6, 13-3-21 Album G, 13-3-22 Album 7, 13-3-23 Album H, 13-3-24 Album 8, 13-3-25 Album I, 13-3-28 Album 9, 13-3-29 Album J, 13-3-30 Album 10, 13-3-31 Album K.

DISK COPYING SERVICE

ALF has become one of the largest disk copying services in the country. We copy thousands of disks each day. Our disk copying service is used by hundreds of companies who produce software for sale, as well as by large companies and schools for their in-house requirements. We'll make as few as 50 copies of a disk, and have quantity discounts at 5,000 and 25,000 copies. In addition to copying, ALF offers many printing and packaging services to complete your software package. There are too many products and services to list here, but complete details are available in our Disk Copying Service flyer.

BLANK DISKS

Because we buy hundreds of thousands of disks for our Disk Copying Service, ALF is now a great source of low cost, high quality blank disks. ALF buys "bulk-pack" disks—the same disks found in 10-packs in stores, but without fancy printed boxes, labels, and sleeves. We can sell a box of 100 plain disks for a very low price, without any skimping on quality. All the disks we sell are first rate disks, guaranteed by the manufacturer. Because disk prices change often, you should request our latest price list for information on brands available and pricing. ALF sells disks in multiples of 100 only.

ARTICLES

FAST HI-RES DISPLAY
Philip Tubb

With the AD8088 Processor Card and AD128K Memory Card (with full 128K), you can display 16 hi-res images very quickly. Since a hi-res image is 8K long, 16 images can be stored in the 128K memory of the Memory Card. The images are easily stored by loading them one at a time into Apple memory, and using the "MOVE DATA" command (see the PROM Routines section of the Processor Card manual) to move each image from Apple memory to the Memory Card's memory. A similar procedure is used to view the images: use the MOVE DATA command to copy an image from the Memory Card's memory to the Apple's hi-res screen memory.

Two sample programs are includ-ed on the Processor Card software disk. (If your Processor Card disk doesn't have these programs, send it to ALF for updating.) "FAST SHOW" and "FASTER SHOW" both have a line 10 which reads SLOT = 4 and must be changed if your Processor Card isn't in slot 4. "FAST SHOW" is a fairly simple Applesoft program which has two functions. "LOAD" causes 16 hi-res images to be read from disk and stored in the Memory Card. The first 8 images must be in drive 1 and named IMAGE1.0 through IMAGE8.0, and the second 8 must be in drive 2 and named IMAGE9.0 through IMAGE16.0. You may want to type BRUN FAST LOAD before using FAST SHOW so the disk reading process will be faster. When loading is complete, the program automatically goes into the "DISPLAY" function. This causes all sixteen images to be displayed rapidly. You can stop the display by pressing control-C, then typing TEXT (return).

"FASTER SHOW" is a more complex Applesoft program which is used the same as FAST SHOW, but uses the PROM Routines' "SEQUENCE" command for a faster display. The data for the sequence command is stored in a "B" file on the disk named SEQUENCE. When FASTER SHOW is run, it will load this file (do not BRUN SEQUENCE). When the "LOAD OR DISPLAY?" question appears, the SEQUENCE file has been loaded, and you can remove the Processor Card disk. Now insert your own disk with the image files (named the same as for FAST SHOW), and type LOAD (return) to read them in. If you've already loaded the images, with FAST SHOW for example, just type DISPLAY to see them.

Both FAST SHOW and FASTER SHOW are simple demonstration programs which you can list to see how fast hi-res display is done with the Processor Card and Memory Card. They're not intended to be "slide show" programs, which you'll no doubt realize when you see 16 images flash by in less than a second. Keep in mind when you're writing your own programs with fast hi-res display that you must have a loop that waits for the Processor Card to finish the MOVE DATA or SEQUENCE command before you try to use the disk drive—otherwise your disk may be erased! See "The Apple Disk II" explanation in the PROM Routines section of your Processor Card manual. For an amusing demonstration, add the line POKE 24933,251 after the PRINT CHR$(4)"BLOAD SEQUENCE,

ARTICLES (cont.)

A$6000" line in FASTER SHOW. This causes the display to occur continuously through Processor Card commands. Replace the GOTO at the end of the program with an HGR statement, and you'll be able to type in and run small programs (remember to type NEW) while the display goes on. NOTE: remove all disks before running the modified FASTER SHOW program, and turn the computer OFF when you're through being amused (RESET won't stop the Processor Card). The low pitch of the bell (control-G), as the Processor Card slows the Apple's 6502 down to gain access to the screen memory, is particularly interesting. It is this slowing down which prevents proper use of Apple's Disk II—Apple didn't activate the DMA OUT line to prevent conflicts while the disk is in use.

Both FAST SHOW and FASTER SHOW store the hi-res images in a very simple fashion, to allow maximum speed. You'll notice that MEMDISK, although much faster than a regular disk drive, is not as fast as FAST SHOW. Also, with MEMDISK 16 hi-res screens won't fit in the Memory Card's memory. This is because MEMDISK must also store the names of the files, and leave room for future files and programs. MEMDISK, of course, can be used to load and save any type of file or program, not just hi-res images.

RALF FOR THE ALF MUSIC CARDS
Wally Hubbard

(A dirge plays in the background.)
"You say you just used the SPEED: command in the ALF "ENTRY" program and now the music doesn't sound right? You say the music your friend wrote for his 9-voice card gets too loud and too soft on your 3-voice cards? Your song is in the wrong key but you used a lot of TRANSPOSE commands and it will be a bear to fix? Your GAP SIZES are too big? Is that what's eating your petunias, Bunky?"
(Now the dirge fades and a rousing march plays.)
"Well, stand up and cheer, because now you have RALF on your side. RALF. An Applesoft utility program for revising ADSR and volume parameters throughout a song."
RALF works on the GAP SIZE, TRANSPOSE, ATTACK RATE, DECAY RATE, VOLUME LEVEL, SUSTAIN, and RELEASE RATE commands, much the same way the SPEED: command works on note lengths in the ENTRY program. You supply values for X and Y in the for-

mula NEW = X*OLD + Y so that the old command value is multiplied by X, then Y is added. X and Y may be any whole number or fraction.
EXAMPLES: to transpose a piece from the key of C to the key of E-flat, you set X = 1, Y = 6. To make up for SPEED:7/5 you set X = 7/5, Y = 0 and change the gap sizes, then set X = 5/7, Y = 0 and change the attack, decay, and release rates.
RALF is unlocked, listable, changeable, and commented. It is available on disk with instructions for $30 from Wally Hubbard, 3174-321 Pheasant Run Drive, Lafayette, IN 47905. (Telephone (317) 474-5254, 3-7 pm EST.)

SERIAL NUMBER PRINTER
Philip Tubb

AD8088 Processor Cards have a four character "serial number" encoded in the PROM (except those with the old 1-9-1-1A PROM). Usually, the serial number matches the one stamped on the circuit card (although ALF doesn't guarantee the serial numbers match or that each card has a different number). A simple BASIC program can be used to read the serial number, using the "MOVE DATA" function of the Processor Card to copy the number into Apple memory:

```
10   PRINT "PROGRAM TO
     PRINT SERIAL NUMBER
     OF": PRINT "ALF AD8088
     PROCESSOR CARD.": PRINT
20   INPUT "SLOT NUMBER?";
     SLOT: IF SLOT < 0 OR
     SLOT > 7 OR SLOT < >
     INT (SLOT) THEN 20
30   CARD = SLOT * 16 - 16256:
     POKE CARD,0: REM STOP
     ANY PREVIOUS COMMAND
40   IF PEEK (CARD) < 128
     THEN 40: REM WAIT FOR
     CARD TO BECOME READY
50   TABLE = 8192: REM
     ADDRESS OF 10 BYTES OF
     AVAILABLE MEMORY
60   POKE TABLE,TABLE - INT
     (TABLE / 256) * 256: POKE
     TABLE + 1,TABLE / 256:
     REM SET DESTINATION
70   POKE TABLE + 2,0: POKE
     TABLE + 3,16: REM IN
     APPLE MEMORY
80   POKE TABLE + 4,236:
     POKE TABLE + 5,15: REM
     SET SOURCE
90   POKE TABLE + 6,0: POKE
     TABLE + 7,255: REM IN
     AD8088 MEMORY
100  POKE TABLE + 8,4: POKE
     TABLE + 9,0: REM MOVE 4
     BYTES
110  POKE CARD + 14,TABLE -
     INT (TABLE / 256) * 256:
     REM SET UP FOR MOVE
     COMMAND
120  IF PEEK (CARD) < 128
     THEN 120: REM WAIT UNTIL
     READY
130  POKE CARD + 15,TABLE /
     256
140  IF PEEK (CARD) < 128
     THEN 140
150  POKE CARD,254: REM
     ISSUE MOVE DATA
     COMMAND
160  IF PEEK (CARD) < 128
     THEN 160: REM WAIT
     UNTIL DONE
170  PRINT "SERIAL NUMBER: ";
180  FOR A = 0 TO 3
190  PRINT CHR$ ( PEEK (A +
     TABLE));
200  NEXT A
210  PRINT
```

NOTICE:

Prices given in this newsletter are shown only to indicate the general price range of each product. Specific prices and terms are detailed in our current price list. Products mentioned but not sold by ALF are not being endorsed by ALF, they are mentioned only as a convenience to customers who may wish to obtain further information from the product's supplier.

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