NEW PRODUCTS

PRODUCT NAME CHANGES

At the request of Apple Computer Inc., we have changed the 3-voice 10-5-16 "Apple Music Synthesizer" to "Music Card MC16" and the 9-voice 10-5-1 "Apple Music][" to "Music Card MC1". The old names still appear in materials already printed, but as each item is reprinted the new names will be used. Apple Computer and ALF regret any confusion this may cause you.

10-1-9
TIMING MODE I/O EXTENDER

This circuit card allows accessories to be plugged into the Apple's game I/O connector along with the regular Apple paddles. It is installed by unplugging the Apple's game paddles, plugging the card into the game I/O connector, and plugging the game paddles into one of the three sockets on the Extender. Accessories can be plugged into the remaining two sockets, provided they are designed to be used in parallel with the game paddles and any other accessories connected to the Extender.

It is available in either of 2 configurations. With Option 1, the Timing Mode I/O Extender can be used in place of a Timing Mode Input Board (see Alpha 1). It is slightly less expensive, and does not require an expansion slot to install. Thus, you can get all the benefits of a Timing Mode Input Board (plus the benefits of a game I/O extender) without using up a slot in your Apple. Installation is easy. Just unplug your regular Apple paddles, plug the circuit card into the game I/O connector, and then plug the paddles into one of the three sockets on the circuit card. Now plug the connector on the end of the short cable into one of your MC16 Music Card (just like the Timing Mode Input Board connector). (NOTE: this connector must not be connected to an MC1. The MC1 does not have a "Timing Mode" feature.) Programming in the PLAY and ENTRY programs allows the desired playback speed of a song to be programmed into a synthesizer channel, and monitored through the SW2 input of the game I/O when the Timing Mode I/O Extender is connected. This allows song playback speed to be set programmatically rather than by game paddle setting. Timing Mode is useful for songs which have ritards or other variations in tempo, and for "album" playback using DISCO. When using Timing Mode (with either the Timing Mode Input Board or the Timing Mode I/O Extender), songs can be played at the correct tempos automatically without interruption for paddle adjustment.

Playback tempo (speed) is specified using ENTRY with the TEMPO command. It need be specified only in one part, and can be changed at any point in the music. Playback speed is controlled by Timing Mode only when the "suggested speed" is edited to zero (otherwise speed is controlled by the paddle timers). Note that one channel of one synthesizer cannot be used for music production when the Timing Mode is activated.

Option 2 has no synthesizer cable, but is supplied with a removable header cover which allows experienced hobbyists to solder on small components or cables, or the cover can be left on to use the extender as a simple "Y" adapter.

The extender card fits entirely within the Apple. It is supported by the game I/O connector itself on one end, and a small "foot" on the other end.

Suggested list price is $18.00 (Option 1) or $14.00 (Option 2). For further information, request the Game I/O Extender data sheet.

13-3-12   ALBUM A
13-3-13   ALBUM B
13-3-14   ALBUM C
13-3-15   ALBUM D

These albums are versions of Albums 0 and 1 (described in Alpha 1) and Albums 2 and 3 (described in Alpha 2), modified for use with the MC1. In addition to replacing the MC16 Play and Disco programs with MC1 versions, many songs have subtle changes which make them more suitable for playback with the MC1. Album A is the MC1 version of Album 0, Album B is Album 1, and so forth.

Suggested list price is $14.95 each.

13-3-16   ALBUM 4
13-3-17   ALBUM E

This disk contains 20 songs programmed for the MC1 (Album E) or the MC16 (Album 4, two MC16's required).

Frosty the Snowman by Nelson, Rollins (Harman)
Rudolph by Marks (Gill)
Do You Hear What I Hear? by Regney, Shayne (Harman)
Drummer Boy by Davis, Onorati, Simeone (Harman)
Silver Bells by Livingston, Evans (Harman)
Sleigh Ride by Anderson (Harman)
The Christmas Song by Torme, Wells (Harman)
Santa Claus is Comin' by Coots (Tubb)
Beginning to Look Like Xmas by Willson (Harman)
Toyland by Herbert (Gill)
A Holly Jolly Christmas by Marks (Gill)
White Christmas by Berlin (Harman)
Up on the Housetop by Hanby (Harman)
Christmas in Killarney by Redmond (Bloom)
March of the Toys by Herbert (Gill)
Merry Little Christmas by Martin, Blane (Harman)
Parade of the Wooden Soldiers by Jessel (Gill)
Let it Snow! by Styne (Harman)
Teach the World to Sing by Backer, Davis, Cook, Greenaway (Bloom)
Here Comes Santa Claus by Autrey, Haldeman (Ridges)

Together with Album 0 and the Generic Xmas Album, you'll get your recommended yearly allowance of Christmas carols!

Suggested list price is $14.95.

13-3-18   ALBUM 5
13-3-19   ALBUM F

This album is the first of a series of "single artist" albums, each of which feature a collection of songs programmed mainly by one person. The songs on this album were submitted by John Sauter. Album 5 is for playback with two MC16's, Album F is for playback with an MC1.

Gigi by Lerner, Loewe
Matchmaker by Harnick, Bock
Sunrise, Sunset by Harnick and Bock
Skoda Lasky by Brown, Timm, Zeman, Vejvoda

NEW PRODUCTS (cont.)

All We Like Sheep by Handel (Sauter, Dickson)
Wedding Song
Goodnight, My Someone by Willson
If I Were a Rich Man by Harnick, Bock
Cabaret by Ebb, Kander
Witches' Dance by Schytte
Annie's Song by Denver
Summertime by Gershwin
Feux-Follets by Philipp (Kathy Sauter)

Suggested list price is $14.95.

13-3-9 & 13-3-10
BASIC EAR TRAINING SKILLS

Basic Ear Training Skills is a disk of four programs which drill a student on various fundamental music skills. Order number 13-3-9 is the Integer BASIC disk for use on standard Apples, and order number 13-3-10 is the Applesoft BASIC disk for use on "plus" Apples. (For systems without an Apple DISK II, order the cassette tape versions, 13-2-9 Integer or 13-2-10 Applesoft.) 48K of memory is required. One (or more) MC16 Music Card is required, along with appropriate sound equipment as described in the AMS manual or data sheet. This program cannot be used with the MC1.

The first program helps the student learn to discriminate between two pitches. The two pitches are played, and the student is asked which is higher or if the two are the same. The pitches begin rather far apart, and become closer together as the student progresses.

The second program also plays two pitches, but then asks the student to identify the interval they form. The intervals can be played as harmonic (simultaneous) or melodic (consecutive).

The third program plays a three note chord, and asks the student to identify the chord as Major, Augmented, Diminished, or Minor.

The fourth program plays the notes in a scale, and asks the student to identify the type of scale. Six common scales are available.

All four programs use a unique high-resolution graphics approach which minimizes typing. The student uses one of the Apple game paddles to move an arrow on the screen until it points to the desired answer, then presses the paddle button.

These programs are drills only, and are not designed to test the abilities of the student, nor are they intended to replace the music instructor. They are designed to be supplements to standard ear training procedures, and for best results the student should first have a basic understanding of the subject matter. The theoretical understanding of these concepts is then developed into a practical skill by use of these drills.

Suggested list price is $49.95, see the limited sales conditions elsewhere in this issue. For additional information, request the Basic Ear Training Skills data sheet.

13-3-11
PROCESS & Other Programs

"PROCESS & Other Programs" is a disk of advanced programming aids for use by owners of our MC1 or MC16 Music Cards. The disk contains both Integer BASIC and Applesoft BASIC versions for both synthesizers. A detailed owner's manual is provided which is 3 hole punched and generally similar in format to the MC1 or MC16 owner's manuals, so it can be placed in the binder along with your synthesizer manual (a larger ring binder, available locally, may be required). There are six programs in the series.

The TEMPO program is used to change a disk of songs to Timing Mode or back to Paddle Mode (Don't Wait and Wait modes for the MC1). An entire disk of songs can be quickly changed.

The HUSTLE program is used to construct a DISCO-compatible ALBUM file. One or more disks can be scanned for songs, and HUSTLE will build an ALBUM file containing all song titles. HUSTLE can also be used to go through an ALBUM file song by song, retaining or deleting each title.

The ENVELOPE program is used to design and experiment with envelopes. A short melody can be entered along with all ENTRY envelope parameters. The melody is played while the envelope contour is simultaneously plotted in high-resolution graphics. Any or all parameters can be easily changed and the melody played again to see the effects. Several example melodies with envelope parameters are pre-programmed.

The MLIST program lists ENTRY-created songs in alphanumeric format. A variety of options also allow the listing to be restricted to certain types of commands in order to list just notes and rests, or perhaps just envelope changes, and so on.

The PROCESS program provides advanced editing capabilities for ENTRY-created songs. It can be used to delete subroutines or parts, change parts into subroutines (or vice-versa), move parts or subroutines from one song to another, append songs together, and so on. It can also print information which is not normally accessible (for example, the current STEREO settings). For programmers, PROCESS also includes commands to convert a song into a special format which is easy to modify using your own BASIC programs. This special format can then be turned back into the normal ENTRY format.

The FLASH program is similar to the PERFORM program provided with each synthesizer, but it also creates the low-resolution color graphics of the PLAY commands in ENTRY and PLAY.

An Apple DISK II and 48K is required. For evaluation, you can order the owner's manual separately (part number 11-1-2, $7.00).

Suggested list price is $49.95, see the limited sales conditions elsewhere in this issue. For additional information, request the PROCESS data sheet.

ARTICLES

METRONOME SETTINGS
By Philip Tubb

The quick reference card for the MC1 (#11-3-2) includes a metronome setting chart which is not present on the MC16 reference card (#11-3-1). This chart helps you select a QUARTER setting when entering sheet music that has a metronome setting. Usually, the metronome setting is shown with a quarter note followed by an equal sign (=) and a number. This number indicates the number of quarter notes per minute. If the note shown isn't a quarter note, then you'll have to modify the number in order to use the chart. For example, if the note is a half note and the number is 60, that indicates 60 half notes per minute which is 120 quarter notes per minute; so use 120. If the note were an eighth note with 60, that would be 30 quarter notes per minute and you would use 30 on the chart. The chart looks like this:

40-41	624	SPEED:13/5
42-45	576	SPEED:12/5
46-49	528	SPEED:11/5
50-55	480	SPEED:2
56-62	432	SPEED:9/5
63-71	384	SPEED:8/5
72-83	336	SPEED:7/5
84-99	288	SPEED:6/5
100-125	240	
126-167	192	SPEED:4/5
168-208	144	SPEED:3/5

The first number is the metronome setting range in quarter notes per minute. The second number is the suggested QUARTER setting. If you haven't entered the song yet, just change the quarter setting at the start of each part to this setting (and be sure you put a quarter command with this setting in each subroutine before entering any notes). If you've already entered the song with a standard QUARTER:240 setting, then use the SPEED command in the third column to change the song to the indicated quarter setting. (CAUTION: save the song first as recommended in your owner's manual. After using the SPEED command, check to make sure everything looks reasonable. If you mistype the SPEED command, your song may well be destroyed and you'll need the saved copy back.)

ARTICLES (cont.)

Additionally, the speed commands shown above can also be used to change the speed of your song even when you don't know the metronome setting. The SPEED:4/5 and SPEED:3/5 commands, and the SPEED:2/5 and SPEED:1/5 commands not shown will make your song play faster. The other speed commands make your song play slower. This assumes that your song presently has a setting of QUARTER:240. Note that if you use one of these commands and the result is not what you like, don't use another one. Load back the QUARTER:240 version and then try another command. (If you foolishly didn't save the song, invert the speed command to get back to QUARTER:240. For example, if you used SPEED:7/5 then type SPEED:5/7 to get back. Use SPEED:1/2 to get back from SPEED:2.)

To calculate the proper paddle setting, use the formula PADDLE=(5577465/(QUARTER*METRONOME))-1. In other words, take the quarter setting (the second column in the table) and multiply that by the metronome setting in quarter notes per minute. Now divide 5577465 by that number. Subtract one, and that's your approximate paddle setting.

ENTERING SHEET MUSIC
By John Sauter

This article is written for persons who have read the MC16 owner's manual (#11-1-6B) and want more guidance on entering sheet music. Before reading this article, please read the ENTRY section of the manual.

The ENTRY section of the owner's manual says everything you need to know to enter music, but you may have to do a lot of experimenting before finding the most convenient way to use the rich set of facilities in ENTRY. In this article I will present the techniques I have come to use.

First, I look at each measure of the music, trying to figure the minimum number of separate voices. If two notes are sounded together, then they have to be assigned to separate channels of the synthesizer, so they have to be in different parts. Since I only have two synthesizer cards I am limited to six parts, and most of the music I like needs all six.

Having decided the number of parts, it is important to have a rule for assigning parts to notes in each measure. My usual rule is to assign the highest note in the treble clef to part 0, the next highest note to part 1, the third highest note to part 2, and similarly in the bass clef with parts 3 to 5. I mark exceptions to this rule on the sheet music by flagging notes that do not follow this rule with their part numbers. For example, if the music has a distinct melody I always assign it to part 0, as that part will probably be played at a higher volume than the others. If a chord has four notes in the treble clef but only two in the bass, I take a part normally assigned to the bass clef and make it play the lowest note in the treble clef.

Sometimes there are too many notes for the synthesizer. Usually this happens in chords, and for them I eliminate notes near the center. If it happens in the regular flow of the music you can sometimes get around it by playing two notes in sequence instead of overlapping them, but there is no good general advice for this, you will have to listen to it and edit the song until it sounds good. I always circle notes I have decided not to enter so I can remember to check back on those measures later.

I then scan the piece looking for duplications. Usually these are marked in the sheet music with repeats, but sometimes I have found long duplicate passages written out in full.

Next I assign subroutines. If there is one long repeating passage I assign it subroutines 0 to 5, corresponding to parts 0 to 5. Initialization gets one subroutine, usually 6 (this saves space over putting initialization in each part, as ENTRY does by default, and makes experimentation easier) and each envelope gets a subroutine. Obvious envelopes are normal, stacatto, and glide, which are usually subroutines 7, 8, and 9. Later more envelope subroutines will probably be added. Volume commands do not go in the envelope subroutines but are instead placed "in line" with the music.

I mark each section of the sheet music as to whether it is to be coded directly into the parts, or into subroutines. Each section is usually either parts 0 to 5 or subroutines 0 to 5, but

sometimes there are several different repeated sections, and they get their own block of subroutines. When this is done I number each measure on the music, starting the numbering over in each section. These numbers will correspond with the MEASURE numbers shown by ENTRY.

Next I enter skeleton subroutines and parts. This is the beginning of the actual computer work. First I define the subroutines, except the envelope subroutines, to contain just the time signature, the key signature, and QUARTER:240. The envelope subroutines I initially set up as follows: "init" (usually 6) contains GAP:50, TRANSPOSE:0, ATTACK:8192, DECAY:50, VOLUME:55000, SUSTAIN:0, RELEASE:1000. "Normal" (usually 7) contains GAP:50. "Stacatto" (usually 8) contains GAP:100. And "Glide" (usually 9) contains GAP:65535. I write the envelope subroutine numbers at the top of the sheet music so I don't have to remember them.

Now I enter the notes. Usually I enter each part of one or two lines at a time, each time playing the song and writing it on disk. I enter each part keeping in mind the rule for assigning notes to parts, observing the exceptions written on the sheet music. The measure numbers are helpful for avoiding mistakes. Until I have a line or two of melody I pay no attention to the volume marks (P, F, etc.). When I have enough melody to be recognizable I experiment with the SPEED command and with the paddle setting to make the tempo seem about right. I then insert a TEMPO command right after the QUARTER in part 0. Although I don't have a timing board, those who do will appreciate this.

Also at this time I can adjust the volume of the various parts. Frequently it is necessary to make the melody louder than the supporting parts, perhaps by 10000 or 15000. I edit subroutine "init" to decrease the volume, and then insert a VOLUME command right after the TEMPO command in part 0. Now I can associate volume numbers with the volume marks in the sheet music, so I write the volume on the music each place where it changes. A crescendo is programmed by increasing the volume evenly through each measure, usually in steps of 1000. Diminuendos are similar but decreasing. I now go back and put in the VOLUME commands as marked in the part of the song I have already entered.

As I come to a place in the music where there is a repeated section I enter the appropriate CALL command and continue entering into the appropriate subroutine. Of course, if this is not the first CALL to a subroutine I do not need to enter the notes into it again. When the last note is entered I put an extra measure of rest on the end to let the final chord die out.

Now comes the hard part: getting the expression right! Sheet music leaves out a lot of detail about how the music is to be played. Old music frequently leaves out ornamental notes and minor changes in tempo. New music puts in all the notes but often leaves out the volume and tempo information. If you do not have a good ear for music (as I do not) you should either get a friend who does to help you or listen to a record of someone playing the song well. There is no way to give general advice on this, since expression depends heavily on the piece and, if it is a familiar one, on what people are used to hearing. You will need to experiment with the envelope subroutines, and probably create some new ones. It may be that passages which the sheet music shows as repeated should be played differently, in which case you will have to enter them a second time.

Having the envelope in subroutines is valuable because you can easily change, for example, how glides sound; then play the piece. If you had to go through the whole score changing every glide you would be less likely to do lots of experimenting. Don't be afraid to add a new envelope subroutine. One I frequently use is "glide for long notes", which has a slower than normal decay. Of course, when I add this I must put DECAY into all of the envelope subroutines; all but "glide for long notes" must have the DECAY command from "init".

The synthesizer is a limited musical instrument, so don't be disappointed if it cannot, in spite of all your efforts, play your favorite piece as well as the Boston Symphony Orchestra.

[John Sauter has submitted many songs to ALF. Three of his songs appear on Album 2/C, and the new Album 5/F consists entirely of Sauter songs. Correspondence can be addressed to: John Sauter; 800112 Bates Road; Merrimack, NH 03054.]

ARTICLES (cont.)

ON SUBMITTING SONGS

If you have songs you've programmed on an MC1 or an MC16 Music Card, you might want to consider submitting them to ALF for possible inclusion on a future Album. We pay cash for the songs we accept, so get started right away by sending a self-stamped, self-addressed envelope with a note asking for publications 8101 and 8102. They have all the information you need.

USERS' GROUPS

Scott Knaster has started an ALF Users' Group which will serve as a repository for songs and as an informal information exchange. Those interested should write to Scott for additional information:
Scott Knaster
7143 E. Ohio Drive
Denver, CO 80224
Be sure to enclose a self-stamped self-addressed envelope.

In England, those interested in a Users' Group should contact:
John A. Sharp
20 The Glebe
Garson
Watford
Herts   WD2 6LR

NOTES ON ENTERING MUSIC FOR ALIEN INSTRUMENTS
By Forrest Thiessen

Sheet music, particularly if intended for use by an orchestra, will very often display some interesting quirks. Perhaps the most common of these quirks is the tendency of composers to write musical scores for certain instruments with the pitches of the notes transposed by small amounts.

What follows is a quick reference for some common instruments:

INSTRUMENT	TRANSPOSE VALUE
Piano	0
Piccolo	24
Flute	0
Oboe	0
English Horn	242
B Flat Clarinet	252
E Flat Alto Clarinet	238
B Flat Bass Clarinet	228
B Flat Contra Bass Clarinet	204
Alto Saxophone	238
Tenor Saxophone	228
Baritone Saxophone	214
Bassoon	0
Trumpet	252
French Horn	242
Baritone	0
Trombone	0
Tympani	0
String Instruments	0

HOW TO USE ENVELOPES WITH CHROMA
By Forrest Thiessen

The CHROMA subroutine supplied with the MC16 Music Card enables BASIC programs to control your synthesizer directly. When using CHROMA you specify what pitch should be played on which synthesizer channel at what volume. Details on the use of CHROMA may be obtained by reading the appropropriate section in your owner's manual.

While CHROMA is very useful, it has no provisions for doing any envelopes besides a square, on-off envelope. If you wish to use any other type of envelope, you must write your own program to do so. What follows is an example of how this can easily be done.

```
1000    FOR I=0 TO 255 STEP X
1010    POKE VOL0,I
1020    NEXT I
1030    POKE VOL0,255
1040    FOR I=0 TO Y : NEXT I
1050    FOR I=255 TO 0 STEP -Z
1060    POKE VOL0,I
1070    NEXT I
1080    POKE VOL0,0
1090    RETURN
```

This Integer BASIC subroutine will generate a simple Attack-Sustain-Release envelope. It has three parameters. X controls how fast the attack is, and Z controls how fast the release is. They should both be in the range of 1 to 255, the larger the value, the faster the attack or release. Y controls how long the sustain will be, and may be any value greater than or equal to zero. The larger the value, the longer the sustain.

To use this subroutine it is necessary to have CHROMA attached to the end of your program, as described in the owner's manual. Additionally, you need to have initialized CHROMA with a GOSUB 32767 before you call this subroutine for the first time.

Here is an example of the calling sequence for this subroutine (assuming you've already set SLOT, used GOSUB 32767, and defined the variables as shown in the manual):
```
50    POKE PITCH,78
60    CALL CHROMA
70    X=80 : Y=50 : Z=2
80    GOSUB 1000
```
Lines 50-60 set up the pitch to be played, in this case, middle C, line 70 sets up the envelope parameters, and line 80 plays the note using those parameters.

Subroutines like this can be very useful in adding sound effects to games.

[Forrest Thiessen is currently at M.I.T. working on a degree in Enveology.]

CORRECTION

The new product announcement for the 10-5-1 Apple Music][(now called the MC1) in ALPHA 2 contained an incorrect range specification. The 62.5 Hz to 64,000 Hz figures are correct; but the 7 octave range figure is in error. The synthesizer has a 6 octave range which begins at the C two octaves below middle C. The MC1/MC16 data sheet has the correct figures.

SUBSCRIPTION INFORMATION

Alpha is published whenever it seems like a good time to do so. To receive the next Alpha, send a self-stamped self-addressed envelope (business size) with a note requesting Alpha 4. If you wish, you can subscribe by sending $5.00 for 7 issues. Please specify which issue the subscription should start at. Those outside the U.S. should inquire for rates.

LIMITED SALES CONDITIONS

The $49.95 price shown for the Basic Ear Training Skills series and for the PROCESS & Other Programs series buys only the documentation and the right to use the programs on computer(s) owned by the purchaser. ALF retains all other rights and possession of the programs. The right to use is non-transferable (except from wholesaler to one retailer and from retailer to one retail purchaser).

NOTICE:

Prices given in this newsletter are current U.S.A. prices only and are subject to change without notice. Ask for a recent price list if this issue is not current. Available products described in Alpha 1, Alpha 2, and Alpha 3 are shown in Catalog 3 which is available on request.

LABEL INFORMATION

After your name on the mailing label you'll find a star (*) followed by a digit. The digit tells how many issues are remaining in your subscription. (If there is no *, you have no subscription.) If the digit is a letter, you are indeed privileged; you'll continue receiving Alpha until the letter changes to a digit.