$1.50

DAL-ACE

DALlas Atari Computer Enthusiasts

Volume 7, Issue 9 September 1986

Winners of the Great ATR Giveaway

Next Meeting:
Saturday,
October 11th

PRESIDENT'S PERSPECTIVE

By John Pellet

ATARIFEST

Since Bill Bailey has taken over this effort (THANKS BILL!), he'll be providing information as it becomes available. If there's nothing here one month, then nothing has changed. The last time we talked, we were waiting for Atari to send more information.

TOYS FOR TOTS

We still have no volunteer for Toys for Tots. If you want to have one this year - and everybody seems to enjoy it - SOMEBODY better volunteer to head the effort. Time is growing short! Talk to Marc Salas if you have any questions - he headed last year's great festivities!

NEXT YEAR'S OFFICERS

Believe it or not, it's time to be thinking about officers for next year. With our new bylaws, elections will be held in December so a list of candidates will be published in the November newsletter. I hope YOUR name will be there! Based on a survey of current officers, there may be substantial turnover, so your HELP is needed. At this and the next meeting we will be passing around signup sheets for the various elected and volunteer positions. Each sheet will describe the duties of the office AND a reasonable estimate of how long you can expect the job to take each month. A similar description will be found elsewhere in this issue, and probably next month as well. VOLUNTEER! If you have someone in mind, please let a member of the nominating committee or any of the officers hear from you.

DCC FORM

As all of you should know, DCC has established a standard form to be completed by ALL persons escorting a minor into Infomart. Unescorted minors, under 16, are not permitted. The text of that release is given below. Blanks are available from our kiosk, the information booth, or me. Please fill this out each meeting if your children are coming with you, and abide by it!

I, ____, am the parent / legal guardian of ____, who is less than 16 years old. I understand that INFOMART is a restricted building and that while the above-mentioned minor is in INFOMART, he/she will be in my immediate presence at all times. I also understand that failure to have the above-mentioned minor in my presence is cause for my immediate expulsion from INFOMART. I further understand that I am responsible for all damage to any facility or equipment caused by the above-mentioned minor.

GOOD IDEAS BEAR FRUIT

In response to those letters y'all helped stuff, we've received the following software for review this month.
For the ST:
Phantasie from Strategic Simulations, Inc.,
LOGO User's Guide (book) from Abacus Software, and
TextPro from Abacus Software.

For the 8-bit:

Tinkertune from Minerva Research, Ltd., and
Super ReeveKey from Reeves Software.

We need reviewers for each of these. If you are willing to write any of these up for the newsletter, please see Jim about borrowing the review copy. Based on the letters we've received, more software is on its way!

Also, at least partially due to your envelope stuffing, we are getting many, many press releases. So that everybody can see them, I've put them all into a notebook, separated by company, which I will bring to the meetings (in my President's box). The notebooks, along with any extra copies, will be at the front of the meeting room before and after the business meeting.

DISK LIBRARY NEWS

I'm only adding one ST disk this month, #34. It contains 3 new accessories: CRABS, MITES (desk gobblers), and WORD400 (editor); 2 demo graphics, including the ultimate bouncing ball, FUJIBOINK!; and 5 programs: another terminal, a neat disk copier that will also work in an AUTO folder to move files to a ramdisk, a GEM squeeze/unsqueeze, a new spooler, and a TEXT version of battle. Full documentation is on the disk.

THANKS!

That's about it for this month. In October we're on the second Saturday, so I'll see you on the 11th.

ENTHUSIASTICALLY YOURS
JOHN PELLET

DALLAS COMPUTER COUNCIL NEWS

August 18, 1986 Meeting

70 vendor tables were occupied at the August Users Forum. This is a new record.

The bylaws were STILL at the lawyers. No progress.

There will be a BBS SYSOPS meeting at 11 AM and a newsletter editors meeting at 9 AM at the September 13 Forum.

By next month, DCC should have a phone number and answering machine for anyone to call if they want more information about upcoming Council events.

On Saturday, October 18, from 8 to 5, there will be a Texas-wide Computer Festival at the Marriott Hotel I35 in Austin. Events scheduled include new and used hardware and software sales and displays, meetings of all types, and a huge flea market. Personal and commercial tables will be available but are limited. Machines covered will include IBM, Apple, Atari, Commodore, and more. Groups will be represented from Austin, Waco, Houston, San Antonio, and Dallas. Call 495-8025 (presumably area code 512) or write P. O. Box 9536-239, Austin, Texas, 78758 for more details.

All DCC affiliates should remember the following general guidelines applicable to DCC deadlines. Texas Computer Market schedule changes: the 15th of the month preceeding the meeting. InfoCard deadline: Wednesday, 2+ weeks before the meeting. Room request deadline: Friday, 1+ the week before the meeting.

Gary Sewell and Stuart Yarus were guests on KRLD's Sunday night computer talk show on 8/17. Host Larry Dominguez was pleased with the audience response. KRLD plans to have an information/interview booth at the next Users Forum.

Please remember to fill out the release forms available at the Information Booth if you are accompanied by children under 16 years of age. DON'T FORGET!

Finally, volunteers are needed to help with setup and cleanup at the Users Forum as well as staffing the central Information Booth. The tables below show the minimums expected from various affiliates. But additional help is always welcome. If you can help for 30 minutes it would certainly be appreciated.

INFORMATION BOOTH STAFFING

TIME	September		October	
8:30-9:00	TI-PRO	DALTRUG	TI-PRO	DALTRUG
9:00-9:30	WIC	DALTRUG	TI-PRO	DALTRUG
9:30-1:000	EPSON	DALTRUG	EPSON	DALTRUG
1:000-10:30	APPLE	DALACE	APPLE	DALACE
10:30-11:00	APPLE	TIMEX	APPLE	DALACE
11:00-11:30	APPLE	NTSTUG	APPLE	NTSTUG
11:30-12:00	APPLE	SCOPE	APPLE	SCOPE
12:00-12:30	APPLE	SCOPE	APPLE	TI-99/4A
12:30-1:00	APPLE	TI-99/4A	APPLE	TI-99/4A
1:00-3:30	NTPCUG		NTPCUG	

MORNING SETUP DETAIL (8:00 - 9:00 AM)

Affiliate	Sept.	Oct.	Nov.	Dec.
NTPCUG(1)	3	3	3	3
DALTRUG(1)	2	2	2	2
TI-PRO(2)	2	2	2	2
TI-99/4A	1	-	1	1
EPSON	1	1	-	1
WIC	-	1	-	-
COGS	-	-	1	-
NTSTUG	1	1	1	1

(1) 1 person @ 7:30 - 10:00 AM: Vendor Area
(2) 2 persons @ 7:30 - 10:00 AM: Vendor Area

AFTERNOON CLEANUP DETAIL (3:30 - 4:30 PM)

Affiliate	Sept.	Oct.	Nov.	Dec.
APPLE	4	4	4	4
DALACE	2	2	2	2
SCOPE	1	1	1	1
TIMEX	1	-	-	1
SPE	-	-	1	-

DUTIES OF SETUP CREW:

1. Setup tables in vendor area.
2. Get easels, etc. from storage area to ea. floor.
3. Move flipcharts & pens from storage to rooms.
4. Tape room schedules to room doors.
5. Assist Vendor Mgr (7:30 AM) & Events Chairman.

DUTIES OF CLEANUP CREW:

1. Reverse of 2, 3, & 4 above.
2. Collect mat'l & dispose of debris in lobby.

MI-Term Version 4.0 Review
By Randy Sims

MI-Term Version 3.0 was the first GEM-based terminal program for the Atari ST computer line but had some major problems. A bug in the program made the RS-232 interface lock up at seemingly random intervals, forcing the user to disconnect from whatever host system he was connected to and re-boot the system. Also, the method for creating presets, called macro keys or do-files on some other programs, was quite complicated and used hard-to-remember commands requiring the user to constantly consult the documentation. When MichTron announced a major revision of the program, I was glad to hear they addressed both of these problems.

With MI-Term Version 4.0, MichTron has redeemed the program. While the first version was buggy, the current version has performed well for hours on end. I have yet to have it crash on me. Equally impressive is the improvement made in the preset creation process. In the previous version of MI-Term, the user was forced to type in obscure commands to make auto-login functions. 4.0 uses a mouse-driven menu system, with a scrolling bar, to select commands. Prompting for extra information, such as phone numbers, passwords, etc., uses clearly stated requestors, a major improvement for the preset creation system.

Besides a nifty new preset editor and bug-free operation, what does MI-Term Version 4.0 offer to the average user? Well, it still isn't a perfect program. One major trade-off MichTron made when creating the program was using the GEM interface at all times at the expense of a good terminal emulator. Unlike Antic Software's Flash, MI-Term cannot emulate a DEC VT100 terminal. People who need this kind of terminal emulation are out of luck with MichTron. However, if you can make do with a VT52 terminal, you can use the VT52 emulator desk accessory by installing it on your boot disk with MI-Term, as its GEM interface allows constant access to desk accessories.

MI-Term's access to desk accessories can be an advantage big enough to make the lack of terminal emulation acceptable to some people. I have installed the Thunder spell checker desk accessory on my MI-Term disk, and have constant access to a 50,000 word dictionary while on line. The Thunder program also tells me when it detects a spelling error in my typed messages, which can be very nice. The access to desk accessories also can let folks with sufficient memory use MichTron's nice product Cornerman, among other useful accessories.

MI-Term Version 4.0 can transfer files in three methods: ASCII, XModem, and DFT. A variety of ASCII transfer methods are available, including prompted sending and delayed line send. DFT is an uncommon file transfer system. The only systems I know of that support it are the MichTron BBSs. Of course, our own club ST board runs that software, and DFT is faster than XModem, so that is one advantage of having the DFT transfer protocol.

Overall, MI-Term Version 4.0 is a very nice product. If you can get along without a VT100 emulator. I recommend it highly because, unlike Flash, it uses GEM constantly. In terminal mode on Flash, you don't have access to desk accessories and that is the ONLY time you could use certain useful desk accessories like Batteries Included's Thunder.

AND THE WINNERS WERE ...
Results of The Great ATR Giveaway

Ladies and Gentlemen! After several months and much fanfare, the "Great ATR Giveaway" was finally held. The winners and their prizes are:

1st place
Ken Simone
ATR8000 from SWP Microcomputers, Inc.

2nd place
Wayne Wells
Zoomracks from Quickview Systems

3rd place
Randy Ochmann
The New Aladdin, #2, from Disk Publications, Inc.

4th place
Rachel Duke
an Infocom Adventure from Computer Discoveries

5th place
Marcus Arreguin
Bob Dain
Michael Duke
Mark Lewis
Steve Markley
Al Winters

Buy one, get one free coupon from the club library and a Disk Bank (to each winner)

About $300 was raised from the giveaway. Thanks to everyone for buying a ticket.

COMPUTER SKILLS

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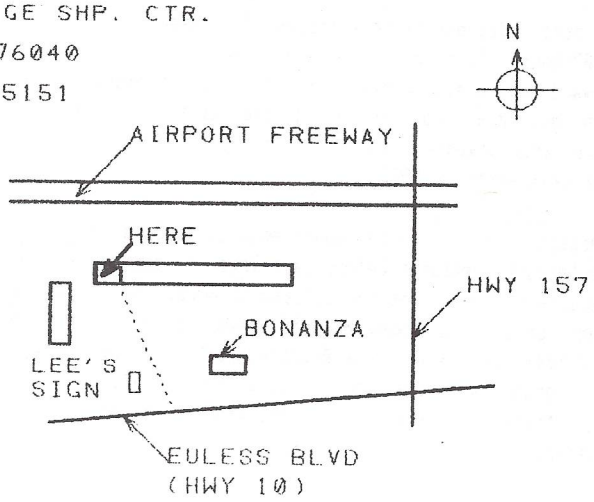

520 ST
1040 ST

COMPUTERS
ST SOFTWARE

ATARI - COMMODORE - APPLE - IBM - ETC.
COMPUTER AND PERIPHERAL SERVICE.

COMING ATTRACTIONS

September Meeting

We will give a demonstration of *HippoVision* from Hippopotamus Software, Inc. *HippoVision* is a video digitizer package for the ST. As part of the demonstration, portraits will be taken. One will be used for the cover of a future issue of *The New Aladdin*.

October Meeting

Representatives from Hippopotamus Software, Inc. will demonstrate their 16-bit (ST) product line. This should be a great opportunity to view the capabilities of the ST. Let's give the folks from Hippopotamus an enthusiastic DAL-ACE welcome!

The Eight-Bit Stretch:
More Bang for Your Buck

By Jeff Wilson

In other editions of this column, I've asserted that your 6502-based Atari machine is worth saving and pointed you toward some useful books destined for extinction. Now we can get down to the meat of the matter and talk about some improvements possible for our computers. The topic for this month is SPEED.

Perhaps you're on the ragged edge of discarding your AJ (ante-Jack: designed before Jack Tramiel took over) Atari because it hasn't got the ol' zip anymore. Games feel so much better on those MC68000-based systems such as the 520/1040 ST. Well, your 8-bit wonder didn't get slower. And goodness knows, your reflexes haven't improved with age these last five years. The other products just got faster.

Raw speed isn't everything, but it sure helps. How can we get a bit more performance out of our faithful, 6502-based machines? I'll report a few ideas I've tried and the results that followed. I invite others to share their attempts at performance boosting with the DAL-ACE membership. Just send your comments to Mr. Dave "All-the-News-that-Fits-I'll-Print" Gillen.

So what is a good performance metric, anyway? My favorite answer is that there isn't one. What really counts is how quickly a particular application program delivers correct results after the right button is pushed.

We all know that the Atari 8-bit products aren't speed demons; we know that Cray supercomputers are. Just about everything else falls in between. Since everybody understands this, why are folks so hot for performance measurements? Dunno. Must be the way we're put together.

Nevertheless, the quest for performance characterization plods on. Why resist it?

Number Crunching

Start with raw computing speed. It's interesting in two contexts for the 8-bit Ataris: under the built-in BASIC interpreter and using a program translator that's "closer" to the physical machine, such as OSS's ACTION! or a 6502 assembler.

I've written three mind-numbingly simple programs to show how much difference the implementation language can make. Here are the BASIC versions of each:

```
LOOP.BAS:
1 I=0:STOP
2 I=I+1:GOTO 2
3 PRINT I

ADD.BAS:
1 I=0:A=1:B=4/3:STOP
2 I=I+1:C=A+B:GOTO 2
3 PRINT I

MULT.BAS:
1 I=1:MLTR=1.0001:STOP
2 I=I*MLTR:GOTO 2
3 PRINT "ITERATIONS=",(LOG(I)/LOG(MLTR))
```

Pretty straightforward, right? LOOP.BAS lets us measure the "overhead" of processing a loop. ADD.BAS includes an extra addition and assignment (C=A+B) per loop iteration. MULT.BAS is really LOOP.BAS in logarithmic clothing: it allows us to measure looping rate when multiplying rather than incrementing a counter. (See your high school algebra textbook for an explanation of log(a)/log(b)).

To use them, you RUN them, performing the initialization of statement #1, then get out your stopwatch and CONTINUE them for a minute. At the end of the minute, you press BREAK, then CONTINUE them once again to receive a count of the minute's worth of iterations.

Atari BASIC does all calculations in 6-byte BCD (binary-coded decimal) rounded floating point. The good news is that numbers of quite a large range are easily represented, and the user need not worry over choices among several numeric data types. The bad news is that all numbers, even small integers, gobble up a full six bytes. Worse yet, the built-in Atari floating point package is pretty slow.

But how slow? What part of its sloth is the fault of the FP package, and what is BASIC's problem? To find out, I wrote equivalent routines in 6502 assembler (see the accompanying listing), using OSS's excellent M65/DDT cartridge. And I played fair by using the floating point package to update loop counters, instead of taking the far speedier integer math approach.

Hint if you want to check the machine language results: treat the FP calls as atomic operations. Should you halt

execution in the middle of a calculation, the values of the FP registers are indeterminate.

By the way, the listing includes all of the addresses you'd need to use the FP package yourself. I swiped them from Ian Chadwick's *Mapping the Atari*. I plan to throw away my demonstration program but keep the address definitions in an INCLUDE file that I'll reuse. You might want to do the same.

Here's what I learned (reported to three digits precision), using my unmodified 130-XE for all tests:

Operations per Minute
130-XE FP Package

	BASIC	6502 ML	Ratio
LOOP	12,600	137,000	10.9X
ADD	7,750	53,700	6.9X
MULT	4,590	7,670	1.7X

The ratio column reflects the relative importance of BASIC's overhead in slowing processing.

That machine language ain't half bad, eh? But can we do any better?

Yes! I accepted the risk of destroying my 130-XE and installed Newell Industries' Omnimon-XL, an OS ROM substitute. Actually, I spent a couple more bucks and reduced the risk by soldering a Ramrod-XL (3-way ROM selector switch) into my computer, then plugged the Omnimon chip into that. It wasn't hard -- it worked the first time, and has given me no trouble.

Ramrod and Omnimon are good products that deserve reviews of their own. They provide a lot more than a performance upgrade.

Look at what Omnimon's "Fastchip" floating point package did for me:

Operations per Minute
130-XE with Fastchip FP

	BASIC	6502 ML	Ratio
LOOP	14,800	259,000	17.5X
ADD	8,520	66,300	7.8X
MULT	12,500	63,500	5.1X

This illustrates a sad truth of computer performance: If you relax one processing bottleneck, another rises in relative importance. Though Fastchip FP does speed up BASIC a bit, the ratio of machine language to BASIC performance widens. Here's the relative benefit that really becomes available with each language:

Fastchip / Unmodified 130-XE
Performance Ratio

	BASIC	6502 ML
LOOP	1.2X	1.9X
ADD	1.1X	1.2X
MULT	2.7X	8.3X

Particularly for the MULT test, BASIC throttles available computing performance.

Moral #1: Prototype in BASIC, implement in something better

Moral #2: It's doubtful that the average BASIC user will see the 4X speedup claimed in Newell Industries' literature.

Amusing Observation: The maximum MFLOP (millions of FP operations per second) rating for my souped-up 130-XE is .0043. Supercomputers operate in the 100-1000 MFLOP range.

That's it for now. Next time, we'll look at I/O (input/output) performance improvement, a real sore point for many users.

```
                10 ;TEST OF BCD FLOATING POINT ROU-
                20 ;TINES CALLED BY MACHINE LANGUAGE
                30 ;IN "MORE BANG FOR YOUR BUCK"
                40 ;
                50 ;FPTEQU -- EQUATES FOR ATARI BCD
                60 ;FLOATING POINT MATH
                70 ;
                80 ; ZERO PAGE LOCATIONS
                90 ;
=00D4           0100 FR0 =   $D4     ;$D4-D9
=00DA           0110 FRE =   $DA     ;$DA-DF
=00E0           0120 FR1 =   $E0     ;$E0-E5
=00E6           0130 FR2 =   $E6     ;$E6-EB
=00EC           0140 FRX =   $EC
=00ED           0150 EEXP =  $ED
=00EE           0160 NSIGN = $EE
=00EF           0170 ESIGN = $EF
=00F0           0180 FCHRFLG = $F0
=00F1           0190 DIGRT = $F1
=00F2           0200 CIX =   $F2
=00F3           0210 INBUFF = $F3    ;$F3-F4
=00F5           0220 ZTEMP1 = $F5    ;$F5-F6
=00F7           0230 ZTEMP4 = $F7    ;$F7-F8
=00F9           0240 ZTEMP3 = $F9    ;$F9-FA
=00FB           0250 RADFLG = $FB
=00FC           0260 FLPTR = $FC     ;$FC-FD
=00FE           0270 FPTR2 = $FE     ;$FE-FF
                0280 ;
                0290 ;FP LOCATIONS ABOVE ZERO PAGE
                0300 ;
=057E           0310 LBPR1 = $057E   ;LBUFF PREFIX 1
=057F           0320 LBPR2 = $057F   ;LBUFF PREFIX 2
=0580           0330 LBUFF = $0580   ;GETS FASC CHARS
=05E0           0340 PLYARG = $05E0  ;TO EVAL POLYNOM
=05E6           0350 FPSCR = $05E6   ;FPT SCRATCH PAD
=05EC           0360 FPSCR1 = $05EC  ;MORE SCRATCH
                0370 ;
                0380 ;FLOATING POINT ENTRY POINTS
                0390 ;  NOTE: FADD,FSUB,FMUL,FDIV,
                0400 ;        LOGx,EXPx,AND PLYEVL
                0410 ;        ALTER FR1
                0420 ;
=D800           0430 AFP =   $D800   ;ASCII TO FPT
=D8E6           0440 FASC =  $D8E6   ;FPT TO ASCII
=D9AA           0450 IFP =   $D9AA   ;INTEGER TO FPT
=D9D2           0460 FPI =   $D9D2   ;FPT TO INTEGER
=DA44           0470 ZFR0 =  $DA44   ;FR0=0
=DA46           0480 ZF1 =   $DA46   ;FR1=0
=DA60           0490 FSUB =  $DA60   ;FR0=FR0-FR1
=DA66           0500 FADD =  $DA66   ;FR0=FR0+FR1
=DADB           0510 FMUL =  $DADB   ;FR0=FR0*FR1
=DB28           0520 FDIV =  $DB28   ;FR0=FR0/FR1
=DD40           0530 PLYEVL = $DD40  ;FR0=POLYNOMIAL
=DD89           0540 FLDOR = $DD89   ;FR0=(REGX,REGY)
=DD8D           0550 FLD0P = $DD8D   ;FR0=(FLPTR)
=DD98           0560 FLD1R = $DD98   ;FR1=(REGX,REGY)
=DD9C           0570 FLD1P = $DD9C   ;FR1=(FLPTR)
=DDA7           0580 FSTOR = $DDA7   ;(REGX,REGY)=FR0
=DDAB           0590 FSTOP = $DDAB   ;(FLPTR)=FR0
=DDB6           0600 FMOVE = $DDB6   ;FR1=FR0
=DDC0           0610 EXP =   $DDC0   ;FR0=EXP(FR0)
=DDCC           0620 EXP10 = $DDCC   ;FR0=EXP10(FR0)
=DECD           0630 LOG =   $DECD   ;FR0=LOG(FR0)
=DED1           0640 LOG10 = $DED1   ;FR0=LOG10(FR0)
                0650 ;
                0660 ;PERFORM THE SAME OPERATIONS
                0670 ;AS SHOWN IN THE BASIC LANGUAGE
                0680 ;EXAMPLE.  THIS CODE IS
                0690 ;DESIGNED TO BE USED WITH A
                0700 ;DEBUGGER, SUCH AS DDT, THAT
                0710 ;TRAPS BRK INSTRUCTIONS.
                0720 ;
0000            0730     *=  $6000   ;PGM STARTS HERE
                0740 ;
6000            0750 LOOP1:
6000 2044DA     0760     JSR ZFR0
6003 00         0770     BRK
6004            0780 LOOP2:
6004 A287       0790     LDX # <ONE
6006 A060       0800     LDY # >ONE
6008 2098DD     0810     JSR FLD1R
600B 2066DA     0820     JSR FADD
600E 90F4       0830     BCC LOOP2
6010 00         0840     BRK
6011            0850 LOOP3:
6011 4C8360     0860     JMP CONVERT
                0870 ;
6014            0880 ADD1:
6014 2044DA     0890     JSR ZFR0    ;FR0=0
6017 A28D       0900     LDX # <I    ;INITIALIZE I
6019 A060       0910     LDY # >I    ; AT
601B 20A7DD     0920     JSR FSTOR   ;  ZERO
601E 00         0930     BRK         ;STOP
601F            0940 ADD2A:
601F A28D       0950     LDX # <I    ;GET CURRENT
6021 A060       0960     LDY # >I    ; VALUE OF I
6023 2089DD     0970     JSR FLDOR   ;  INTO FR0
6026 A287       0980     LDX # <ONE  ;GET ONE
6028 A060       0990     LDY # >ONE  ; INTO
602A 2098DD     1000     JSR FLD1R   ;   FR1
602D 2066DA     1010     JSR FADD    ;INCREMENT FR0
6030 9001       1020     BCC ADD2B   ;IF OVERRUN,
6032 00         1030     BRK         ; THEN STOP;
6033            1040 ADD2B:
6033 A28D       1050     LDX # <I    ;ELSE SAVE
```

```
6035 A060      1060     LDY # >I    ; NEW VALUE
6037 20A7DD    1070     JSR FSTOR   ;  OF I
603A A287      1080     LDX # <ONE  ;GET ONE (THAT'S
603C A060      1090     LDY # >ONE  ; A) INTO
603E 2089DD    1100     JSR FLD0R   ;  FR0
6041 A299      1110     LDX # <FRTHDS ;GET 4/3
6043 A060      1120     LDY # >FRTHDS ; (THAT'S B)
6045 2098DD    1130     JSR FLD1R   ;    INTO FR1
6048 2066DA    1140     JSR FADD    ;ADD A & B
604B A293      1150     LDX # <C    ; TO GET
604D A060      1160     LDY # >C    ;  C, THEN
604F 20A7DD    1170     JSR FSTOR   ;   SAVE IT
6052 90CB      1180     BCC ADD2A   ;DO IT AGAIN
6054           1190 ADD3:
6054 A28D      1200     LDX # <I    ;GET CURRENT
6056 A060      1210     LDY # >I    ; VALUE OF I
6058 2089DD    1220     JSR FLD0R   ;  AND MAKE
605B 4C8360    1230     JMP CONVERT ;   IT ASCII
               1240 ;
605E           1250 MULT1:
605E A287      1260     LDX # <ONE  ;GET ONE
6060 A060      1270     LDY # >ONE  ; INTO
6062 2089DD    1280     JSR FLD0R   ;  FR0
6065 00        1290     BRK         ;AND STOP
6066           1300 MULT2:
6066 A29F      1310     LDX # <MLTR ;GET MULTIPLIER
6068 A060      1320     LDY # >MLTR ; INTO
606A 2098DD    1330     JSR FLD1R   ;  FR1
606D 20DBDA    1340     JSR FMUL    ;FR0=FR0*FR1
6070 90F4      1350     BCC MULT2   ;IF OVERRUN,
6072 00        1360     BRK         ; THEN STOP;
6073           1370 MULT3:
6073 20D1DE    1380     JSR LOG10   ;TAKE LOG10(FR0)
6076 A2A5      1390     LDX # <LOGMLTR ;LOAD
6078 A060      1400     LDY # >LOGMLTR ; LOG10(MLTR)
607A 2098DD    1410     JSR FLD1R   ;     INTO FR1
607D 2028DB    1420     JSR FDIV    ;FR0=FR0/FR1
6080 4C8360    1430     JMP CONVERT ;MAKE IT ASCII
               1440 ;
               1450 ;CONVERT FR0 TO ASCII, STARTING
               1460 ;AT (INBUFF) AND ENDING IN A
               1470 ;BYTE WITH SIGN BIT SET.
               1480 ;
6083           1490 CONVERT:
6083 20E6D8    1500     JSR FASC
6086 00        1510     BRK
               1520 ;
               1530 ;DATA
               1540 ;
6087 40010000  1550 ONE .BYTE $40,$01,$00,$00
608B 0000      1560     .BYTE $00,$00
608D           1570 I
608D           1580     .DS 6
6093           1590 C
6093           1600     .DS 6
6099           1610 FRTHDS
6099 40013333  1620     .BYTE $40,$01,$33,$33
609D 3333      1630     .BYTE $33,$33
609F           1640 MLTR
609F 40010001  1650     .BYTE $40,$01,$00,$01
60A3 0000      1660     .BYTE $00,$00
60A5           1670 LOGMLTR
60A5 3D434272  1680     .BYTE $3D,$43,$42,$72
60A9 7686      1690     .BYTE $76,$86

ASSEMBLY ERRORS: 0   22865 BYTES FREE

SYMBOLS


 6014 ADD1          601F ADD2A
 6033 ADD2B         6054 ADD3
=D800 AFP
 6093 C             =00F2 CIX
 6083 CONVERT
=00F1 DIGRT
=00ED EEXP          =00EF ESIGN
=DDC0 EXP           =DDCC EXP10
=DA66 FADD          =D8E6 FASC
 00F0 FCHRFLG       =DB28 FDIV
=DD8D FLD0P         =DD89 FLD0R
=DD9C FLD1P         =DD98 FLD1R
=00FC FLPTR         =DDB6 FMOVE
=DADB FMUL          =D9D2 FPI
=05E6 FPSCR         =05EC FPSCR1
=00FE FPTR2         =00D4 FR0
=00E0 FR1           =00E6 FR2
=00DA FRE            6099 FRTHDS
=00EC FRX           =DDAB FSTOP
=DDA7 FSTOR         =DA60 FSUB
 608D I             =D9AA IFP
=00F3 INBUFF
=057E LBPR1         =057F LBPR2
=0580 LBUFF         =DECD LOG
=DED1 LOG10          60A5 LOGMLTR
 6000 LOOP1          6004 LOOP2
 6011 LOOP3
 609F MLTR          605E MULT1
 6066 MULT2         6073 MULT3
=00EE NSIGN
 6087 ONE
=05E0 PLYARG        =DD40 PLYEVL
=00FB RADFLG
=DA46 ZF1           =DA44 ZFR0
=00F5 ZTEMP1        =00F9 ZTEMP3
=00F7 ZTEMP4
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DUTIES OF DAL-ACE OFFICERS & VOLUNTEERS

By John Pellet

For those of you who want to know what you're getting into BEFORE you step in it, below are brief descriptions of the duties for each elected and volunteer position that the club needs to have filled by an enthusiastic Atarian! Also, an estimate of the time, per month, that is required to discharge these duties is provided. Note that while you can spend as much time as you want (like ANY volunteer organization, we're a black hole for manhours) the estimated time should be sufficient to do a fully creditable job. Please read these carefully and signup for one or more offices. If you want more information, please call me. In case of need, the club WILL supply hardware and software to do each job. Please note that the bylaws have formal definitions of each officer's duties. But if you're thinking about doing the job, what follows will be more informative.

PRESIDENT

The president gets to do everything he thinks should be done that he can't talk somebody else into doing. This includes presiding at meetings and board meetings, attending DCC meetings, writing a column for the newsletter, and anything else he can think of. Plus you can expect to get a half dozen phone calls each month from interested Atarians (both new and old). My experience is that this takes 2 days and one evening (meeting day, production meeting, and DCC meeting) plus a couple of hours a week. You can get by on less - it depends on what you think of to do and how many people you can get to help. In all, because of the extra things I've been doing this year, I've averaged about twice the above.

VICE-PRESIDENT

The VP gets to take over when the president is gone or incapacitated (ask Jim if he bought insurance for me.). But his main duty revolves around the meetings. He gets people for demos, requests meeting rooms, and in general gets the joy of putting together the meeting each month. The VP is also very likely to be one of the DCC reps. This takes an evening a month, which, when added to the meeting and production/board meetings (often writing a column about upcoming events) adds up like above. Not having done this one, my estimates are similar to above. The minimum is 2 days plus one evening per month and a couple of hours per week.

VICE-PRESIDENT OF COMMUNICATIONS

The VPC heads up those areas that everyone wants: newsletter, BBS, and disk libraries. If there are good people at each of these, time can be very minimal. In fact, the major job of the VPC is to FIND these good people. And look for their replacements. Besides attending the meeting and production/board meetings, a couple of hours a month can do it.

SECRETARY

Another critical position. While people may (or may not) notice that the president isn't at a meeting, lack of the labels may get a lynch mob (an exaggeration, I think). The sec'y keeps up the club's mailing lists, takes minutes when required (in my experience, tallying the votes at the annual elections is about it), and writes such letters as may be required that mobody else does (like address changes). The biggy is maintaining the lists and printing the labels. This will be very dependent on hardware in use. I think Ralph spends about an hour a week on data base maintenance and about three the week before the meeting printing the labels, plus, of course, attending meetings as above.

TREASURER

The money man! Keeps the books, writes the checks, and does the taxes. Plus keeps the inventory (such as it is). Tells me there's no money to spend. Again, I haven't done this one, but my estimate is an hour or two a week, with a few more at the end of the year and tax time. And a couple of hours extra the week after the meeting to put all the receipts in the bank. Plus attending meetings as above.

MEMBER-AT-LARGE

M-A-L's do whatever they either volunteer for or can be coerced into. Plus are another target for phone calls and gripes from members. If you don't volunteer for anything, no time. If you do, it depends. Certainly no more than those above.

SUPPORT DAL-ACE, VOLUNTEER!!!!!!!

ADVERTIZING MANAGER

Another job that simply takes however much time you put into it. And produces comensurate results. The major headache is coordinating between advertisers and the editor. Nobody ever has their ad copy ready early. We've gone from 1*3 pages of ads 2 years ago, to 6*7 last year, and back down to 1*2 now. The job involves calling prospective advertisers, arranging deadlines and payment, and collecting where appropriate. It can be done, again, in a couple of hours a week. And it can take much more.

BBS SYSTEM OPERATOR

The Sysop maintains one or both BBS. Often this includes customizing the software (but will be less true in the future as we move away from interpreted languages). Between backing up the system, bringing it up and down due to crashes and storms (the latter MUCH more frequent) and carrying equipment to the meeting, this is one that can be a time-hog. I won't even try to guess how many hours Howard and his family put into the BBS, but I think it could be done in a couple of hours per week, at the minimum.

DISK LIBRARIAN

The disk librarians actively solicit new programs, review them for acceptability, catalog them, and otherwise maintain the library. Copying is the major time-taker. When I had the library, it took three or four hours the week before the meeting, but not much else. The editor or the VPC may ask each librarian to write a brief synopsis of new additions for the newsletter.

NEWSLETTER EDITOR

The editor, literally, puts together the newsletter. In this he can have as much help as he can scrounge, but his name is on the masthead. Pasting up the master copy usually takes about 5 hours, depending on how much preparation has been done beforehand (When I was editor, I encouraged everyone to show up with FINISHED copy.) and who's helping. I found preparation of the standard monthly files, like the current back page, took about 5 hours the week before the production meeting. And I usually spent another couple of hours a week looking for material and begging people to write something.

SOLAPAK V1.1

from Sola Powered Software

Reviewed by L. Dineen

Solapak is a print spooler, a ramdisk, and a screen saver, and it is not copy protected. So do not copy it for your friends please. The print spooler allowes up to 8 files to be queued for printing while you do something else with your ST. Each file can have a different print format such as left and right margins,type face etc. The spooler can be configured to just about any parallel printer and several such files are provided. Printing can be paused and continued, or cancelled. An interesting feature is the adjustable print speed which allows you to maxamize your output to the printer.

The ram disk is installed at boot if you wish,the size is adjustable,as well as the directory size. Ram disk is fast as we all know the transfer rate is well over 10 million bits per second (someone count them to be sure ok !). Also included is a program called COPY2RAM which allows the ram disk to be loaded up with user selected files on bootup.

The saver shuts of the display after a user selected time period,and then flashes the display once in a while to remind you that your ST is still on any movement of the mouse or key press instantly restores normal display.

Installiation is easy and well doucmented. All the files you need are on the disk and I could not find a printer that was not supported. I have not found any bugs yet and it works fine with my KX-P1092.

OPINION

Solapak is well worth the money especially if you do a lot of word processing. The product works as advertised (unique ?) and as such is worthy of your consideration. Since its not copy protected please don't copy it for your friends respect the trust put in you.

COMPUTER DISCOVERIES
12801 Midway Road, #109
(214) 484-9104
Open Mon-Sat 10:00 am - 6:00 pm

Price List
(Effective 9/01/86)

* All sales subject to 3% discount for cash and additional 3% to members of major users groups.

Item	List Price	Store Price	3% + 3%
1040ST with Color Monitor	$1199.95	$1149.95	$1080.95
1040ST with Monochrome Monitor	$ 999.95	$ 949.95	$ 892.95
520ST with Color Monitor and SS/DD drive	$ 999.95	$ 899.95	$ 845.95
520ST with Color Monitor and Doublesided Drive	$1299.95	$ 949.95	$ 892.95
520ST with Thompson (or comparable composite monitor) and cable	$ 899.95	$ 749.95	$ 704.95
*** Extra Doublesided drive only $250 when purchased with complete system.			
1040ST CPU (without monitor)	$ 799.95	$ 749.95	$ 704.95
520ST CPU, with RF Modulator and composite cable	$ 399.95	$ 349.95	$ 328.95
Singlesided Drive	$ 199.95	$ 174.95	$ 164.45
Doublesided Drive	$ 299.95	$ 274.95	$ 258.45
Supra 20 MegaByte Hard Disk Drive, 3 1/2" disk	$ 799.95	$ 799.95	$ 751.95
Atari 20 MegaByte Hard Disk Drive	$ 799.95	$ 749.95	$ 704.95
Avatex 300/1200 baud modem	$ 199.95	$ 99.95	$ 93.95
Avatex 300/1200 baud modem with cable and software	$ 250.00	$ 149.95	$ 140.95
Cadet 2400 baud modem (one only)	$ 499.95	$ 399.95	$ 375.95
ST Workstation, with built in surge protector	$ 129.95	$ 119.95	$ 112.95
Star LV1210 printer	$ 249.95	$ 229.95	$ 216.15
STAR NX-10 printer, brand new model, many new features, best buy	$ 359.95	$ 299.95	$ 281.95
130XE, 128k computer	$	$ 159.95	$ 150.35
65 XE, 64k computer	$ 125.00	$ 99.95	$ 93.95
XM301 modem, autoanswer/autodial, with software	$	$ 49.95	$ 46.95
Printer, Hush 80 thermal printer, very quiet, 80cps	$ 139.95	$ 49.95	$ 46.95
Composite video cable for 520ST (with RF modulator)	$ 29.95	$ 24.95	$ 24.95
Indus GT drives, brand new production	$ 299.95	$ 199.95	$ 187.95

ST SOFTWARE

Memory Upgrade, 1 MG, using high quality, custom board, installed	$ 199.95	$ 174.95	$ 164.45
Megamax C compiler	$ 199.95	$ 189.95	$ 178.55
Mark Williams C compiler	$ 179.95	$ 149.95	$ 140.95
Modula II (all new version)	$ 79.95	$ 74.95	$ 70.45
O.S.S. Pascal	$ 74.95	$ 64.95	$ 61.05
Pascal, Pecan UCSD	$ 79.95	$ 79.95	$ 74.95
Micro C-Shell, Unix-like command interpreter	$ 49.95	$ 44.95	$ 42.25
VIP Professional, popular, Lotus 1-2-3 clone	$ 179.95	$ 129.95	$ 122.15
DAC Easy Accounting Package	$ 69.95	$ 64.95	$ 61.05
General Ledger from Synsoft	$ 49.95	$ 49.95	$ 46.95
DBMan, the best database available for the ST, dBase II & III clone	$ 149.95	$ 99.95	$ 93.95
HabaView, easy to use, mouse controlled data base	$ 74.95	$ 64.95	$ 61.05
Easy Draw, powerful, mini-CAD system	$ 149.95	$ 99.95	$ 93.95
D.E.G.A.S.,the most popular art program on the market	$ 39.95	$ 34.95	$ 32.85
Rubber Stamp, a necessary and useful complement to Typesetter	$ 39.95	$ 34.95	$ 32.85
Print Master	$ 39.95	$ 34.95	$ 32.15
Art Gallery I or Art Gallery II	$ 29.95	$ 24.95	$ 23.45
Music Studio	$ 59.95	$ 49.95	$ 46.95
P.C. Intercom, the best, most powerful telecom software available	$ 124.95	$ 99.95	$ 93.95

Personal Money Manager, Michtron budget/checking account program.....	$ 49.95	$ 44.95	$ 42.25
Home Accountant, just released for the ST, complete budgeting pkg.....	$ 79.95	$ 74.95	$ 70.45
Business Tools, Michtron business letters, forms, contracts.....	$ 49.95	$ 44.95	$ 46.95
Cad 3-D.....	$ 49.95	$ 44.95	$ 42.25
Text Pro, possibly the best word processor now available.....	$ 49.95	$ 44.95	$ 42.25
Paint Pro, very powerful paint program	$ 49.95	$ 44.95	$ 42.25
LDW Basic Compiler (for use with ST Basic).....	$ 79.95	$ 69.95	$ 65.75
Thunder, real time spell checker from Batteries Included.....	$ 39.95	$ 34.95	$ 32.85

ST GAMES

Silent Service.....	$ 44.95	$ 39.95	$ 37.55
Star Fleet I.....	$ 54.95	$ 49.95	$ 46.95
Winter Games.....	$ 44.95	$ 39.95	$ 37.55
Leader Board.....	$ 34.95	$ 29.95	$ 28.15
Mean 18.....	$ 44.95	$ 39.95	$ 37.55
Flipside, Michtron Reversi-type strategy game.....	$ 39.95	$ 24.95	$ 23.45
Borrowed Time, unique graphics adventure game.....	$ 39.95	$ 34.95	$ 32.85
Hacker, graphics adventure game simulating	$ 44.95	$ 39.95	$ 37.55
Hacker II, sequel to Hacker.....	$ 49.95	$ 44.95	$ 42.25
Time Bandit, Michtron, arcade-style, animated adventure game.....	$ 39.95	$ 34.95	$ 32.85
The Pawn, rare, high quality graphics in graphic-adventure game.....	$ 44.95	$ 39.95	$ 37.55
Sundog, the most popular game to date for the St.....	$ 39.95	$ 34.95	$ 32.85
Brataccas, fantastic cartoon animation,.....	$ 39.95	$ 34.95	$ 32.85
Selected Infocom games.....from	$ 49.95	$ 19.95	$ 18.75

8-Bit Software

Basic XE.....	$ 79.95	$ 69.95	$ 65.75
Voice Master, speech synthesizer.....	$ 89.95	$ 84.95	$ 79.85
Memory Upgrade, 256K, for 800XL, with memory.....	$ 79.95	$ 74.95	$ 70.45
Memory Upgrade, 256K, for 800XL, without memory.....	$ 49.95	$ 39.95	$ 37.55
Omniview, XL/XE.....	$ 59.95	$ 54.95	$ 51.65
Omniview, XL/XE, 256K version.....	$ 59.95	$ 54.95	$ 51.65
Typesetter.....	$ 34.95	$ 29.95	$ 28.15
Page Designer.....	$ 29.95	$ 24.95	$ 23.45
Rubber Stamp.....	$ 29.95	$ 24.95	$ 23.45
Megafont II+.....	$ 29.95	$ 24.95	$ 23.45
Karateka.....	$ 29.95	$ 24.95	$ 23.45
Syncalc XE.....	$ 49.95	$ 44.95	$ 42.25
SynFile XE.....	$ 49.95	$ 44.95	$ 42.25
PaperClip XE.....	$ 59.95	$ 49.95	$ 46.95
Silent Service.....	$ 34.95	$ 29.95	$ 28.15
Power Star, cartridge.....	$ 39.95	$ 34.95	$ 32.85

*** Largest selection of 8-bit and ST software in town. Most Software discounted at least 10%.

Computer Discoveries hopes you will support the store which supports you and your users' group.

Editor's STRING$

Hello!

Only three more issues and then... *** POOF! *** no more newsletter. Why? Well, because I will be leaving this post at the end of December. That's right and unless one of you step forward, there'll be NO MORE NEWSLETTER.

Yes, that sounds bad but YOU can do something about it. No, forcing me to stay on at gun-point is not the answer. Volunteering to be the newsletter editor (or part of the editorial staff) is what you have to do.

So, what is it like being the editor? It's not as bad as you might fear. Can you read? Do you have imagination? Can you use scissors and glue? Well if you've answered, "yes" to these questions, you've met the minimum qualifications to be the editor! Truthfully, being the editor does NOT require you to write lots of articles. In fact, the only ones that I write are the ones I'm interested in. If there aren't enough articles, then we run a short newsletter!

Articles come from various sources, too. They come from members of the club, from exchange newsletters, from bulletin boards, and from information resources (like *StarText* and *CompuServe*). I've always wanted to rerun some of the better articles from past issues, sort of a Best of DAL-ACE but never got around to it. So, you see, there are plenty of sources for material. That's where some imagination comes in.

I'm a stickler for grammer, punctuation, and spelling. That's what several years of a parochial education did to me. It's not necessary but it sure helps. Of course, that's what dictionaries and style guides are good for. If you can read, you can edit!

Actually assembling a newsletter is a learned art. Remember art class in school? Grade school? Scissors and glue (and sometimes a little magic marker)? Well, even though the Atari is very "hi tech," we use some very primitive tools to assemble the newsletter. Yes, knowledge of your Atari and a text editor help but that's why you're in the club, right?

And the BEST way to learn is by doing. So, sign up TODAY to be the DAL-ACE Newsletter Editor.

If you don't do it, then there will only be THREE MORE ISSUES TO GO!

Dave

MR MICRO OFFERS SOFTWARE DISCOUNT TO DCC MEMBERS!

By Andy Reese, Apple Corps of Dallas

Marty Ackermann, President of Mr. Micro is offering a special deal to all members of the Dallas Computer Council. Mr. Micro is an authorized Apple, Compaq, and IBM dealer with a wide selection of software for these brands. I have been talking with Marty over the past few months about the DCC and the wide range of members we represent. He has offered the following to any DCC member who shows his Infocard at one of their three stores:

All Apple and IBM proprietary software - 25% off list price.

All Other software paid for with credit card - 35% off list price.

All Other software paid for with cash or check - 40% off list price.

This is a very generous offer and demonstrates Mr. Micro's commitment to user groups. The official written offer will be in the mail to me this week and may have to exclude some products, but as of right now this includes most name brand products such as Microsoft and Lotus, AS WELL AS COMPUTER SUPPLIES! Mr. Micro also offers support for these products, which is not usually available from mail order firms.

We want this program to be a success, so the next time you need software, check them out. They have three locations : Forest at Preston, Coit at Campbell, and downtown.

For any further information, contact Marty at 214/386-9712 or you can ask me about it at 214/357-9185, or on Startext @ MC 153211.

EDITORIAL STAFF

Editor:	Dave Gillen	931-6058
Production Manager:	Jeff Golden	252-3268
Production Crew:	Frank Corlett	
	Susan Henderson	
	Steve Markley	
Distribution Manager:	Roger Markley	231-6918
Distribution Crew:	Steve Markley	
	Cathy Barros	
	David Miller	
	James & Rachel Duke	
Advertising Manager:	Don Adams	350-2206

NEWSLETTER SUBMISSIONS

Submissions are WELCOME in ANY form. It is extremely helpful if all submissions conform to this format:

- Condensed print (16 to 17 CPI).
- Column width of 56 characters (3 7/16 inches).
- Page length of 9 inches (54 lines @ 6 LPI).
- Right and left margins justified for text.

All submissions should be given to one of the staff above or brought to the production meeting both printed out and on a DOS or TOS disk.

DAL-ACE CALENDAR

Here is the current schedule of upcoming DAL-ACE events.

Saturday, September 27	Newsletter Production Mtg
Saturday, October 11	Main Meeting
Saturday, November 1	Newsletter Production Mtg
Saturday, November 15	Main Meeting
Saturday, November 29	Newsletter Production Mtg
Saturday, December 13	Main Meeting

Newsletter production meetings are usually held at 1 PM on the Saturday two weeks before the regular meeting date at Jim Chaney's house, 916 E. Berkley in Richardson.

Main Meeting dates that are more than 90 days ahead of time are tentative. The Infomart reserves the right to change the dates, so check the newsletter for the latest schedule.

INFOMART DIRECTIONS

From north Dallas, take either Stemmons (I-35E) or the Dallas North Tollway SOUTH. From Stemmons, take the Oak Lawn exit, turn east (left) and park at Infomart, on the left just after you go under Stemmons. If you're using the tollway, exit right on Wycliff, go left on Harry Hines to Oak Lawn and turn right. Infomart will be on your right. From the south, take Stemmons north then follow above. Infomart is the big white steel and glass building south of the other 'marts. The main entrance faces Stemmons. Guests are WELCOME!!

*** MEETING INFORMATION AND AGENDA ***

10:00 - 10:30	NEWSLETTER EXCHANGE SIG
11:00 - 12:00	CLUB SALES
11:00 - 11:30	NEW ATARI USERS
11:30 - 12:00	MEMBERSHIP SIGNUP & NEWSLETTER DISTRIBUTION
12:00 - 2:00	8-BIT DEMOS BUSINESS MEETING OTHER DEMONSTRATIONS
1:00 - 2:30	CLUB SALES
2:00 - 4:00	ADVENTURE SIG ST SIG

Meeting rooms and additional information will be posted on the schedules at the main entrance, and the main kiosk, which will be manned from 9AM to 4PM. Disk-of-the-month and garage sales will be in the main meeting room. Vendor sales will take place in the basement.

NEWSLETTER ADVERTISEMENTS

Personal sale ads are free to current members

COMMERCIAL RATES:

Full page (7 1/2" H by 9" V) $35
Half page (7 1/2" H by 4 1/4" V) $25
Quarter page (3 1/2" H by 4 1/4" V) .. $15

* Long term contracts are available *
* at reduced cost. *

Ads must be camera ready. Copy must be received PRIOR TO the production meeting date at left. Mail copy to DAL-ACE Newsletter, P.O. Box 851872, Richardson, Texas, 75085-1872 OR contact the Advertising Manager listed at left. Copy received after the deadline will be run the following month. For contract advertisers, if no new copy is received by the deadline then the most current ad will be re-run.

**** DISCLAIMER ****

The material in this newsletter reflects the opinions of the authors. Opposing opinions are solicited. Unless otherwise stated, this material is NOT copyrighted and no rights are reserved. The purpose of the newsletter is to present information for your consideration. Neither the editor nor DAL-ACE make any claims for the validity or usefulness of this material. The reader is the final judge of any product or advice presented. DJG

DAL-ACE OFFICERS

PRESIDENT	JOHN PELLET	792-3175
VICE-PRESIDENT	JIM CHANEY	231-4402
V.P. COMMUNICATIONS	SUSAN HENDERSON	733-0287
SECRETARY	RALPH GREEN, JR.	CH3-2770
TREASURER	DON ADAMS	350-2206
MEMBER-AT-LARGE	LARRY DINEEN	817-668-7296
MEMBER-AT-LARGE	JEFF GOLDEN	252-3268
MEMBER-AT-LARGE	STEVEN MARKLEY	231-6918
MEMBER-AT-LARGE	MARC SALAS	255-8425

DAL-ACE VOLUNTEERS

NEWSLETTER EDITOR	DAVE GILLEN	931-6058
ADVERTIZING MANAGER	DON ADAMS	350-2206
BULLETIN BOARD	HOWARD CHANG	BBS 540-3270
8-BIT DISK LIBRARY	JEFF GOLDEN	252-3268
ST DISK LIBRARY	LARRY DINEEN	817-668-7296

DAL-ACE BULLETIN BOARD #1	540-3270
DAL-ACE ST BULLETIN BOARD #2	267-4913

DAL-ACE

DALlas Atari Computer Enthusiasts

DAL-ACE is an independent, user education group not affiliated with the ATARI, Corporation. This is the official newsletter of DAL-ACE and is intended for the education of its members as well as for the dissemination of information about Atari computer products.

DAL-ACE membership is $16.00 per year. This newsletter is written, edited, and published by volunteers. Its availability and/or distribution may, at times, be subject to circumstances beyond the control of club officers. Members will note that their renewal date appears on their address label.

Other computer user groups may obtain copies of this newsletter on an exchange basis.

ALL MATERIAL IN THIS NEWSLETTER MAY BE REPRINTED IN ANY FORM, PROVIDED THAT DAL-ACE AND THE AUTHOR, IF APPLICABLE, ARE GIVEN CREDIT. LIKEWISE, PORTIONS OF THIS NEWSLETTER ARE REPRINTED FROM OTHER NEWSLETTERS AND ARE SO NOTED.

DAL-ACE

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