

EXPANDABLE COMPUTER NEWS

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ECN

An Independent Publication for users of the Adam Computer
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ISSUE 20

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We welcome contributions of original articles, programs, reviews, comments, questions, etc. We are unable to pay for such contributions at this time. Please include a signed statement giving us authorization to use your contribution. We would like to thank all of our subscribers for their assistance—without them this publication would not be possible.

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Sage Enterprises has available for sale a number of products for the ADAM Family Computer System as listed below. To order any of these products send check or money order payable to Sage Enterprises in U.S. Funds to the address listed above. Missouri residents please add sales tax. All prices include shipping and handling.

<u>ITEM</u>	<u>Foreign Price</u>	<u>U.S. & Canadian Price</u>
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Ramblings From The Ridge by D. Sage

Welcome to our special issue, or the first of two special issues. I'm not sure how this is going to turn out so we may carry over into the next issue. There are a lot of illustrations that I want to include as part of this historical issue. I realize that these illustrations waste a lot of space, but many of them are classics that will bring back some fond and not so fond memories. Anyway, I have tried to pick and choose some classics. This issue should include most of the regular columns, but the final draft won't be run until long after I have written this so some things may have to go or others may be added. Who knows!

AUG has ceased publication of AUGMENT. They will fill subscription obligations with copies of their word processing newsletter and some shorter ADAM supplements.

As usual this is late, but it is difficult to control a production schedule with all the problems that seem to crop up. The weather in the form of thunderstorms can't be helped. When those hit on weekends, it is difficult to make up the lost time.

I still have a stack of programs and projects that have been sent in. Looks like these will go into one or two special issues on programs and projects sometime in the future. Until then I hope you enjoy this and the next issue as much as I have in putting them together.

Industry Observations by D. Sage

Thomas Rattigan, head of Commodore was recently fired. If you will recall he is the former Pepsi executive who was hired to replace Marshall Smith. Under Smith's management Commodore nearly went bankrupt. Under Rattigan's leadership the company finally returned to profitability, so naturally they fired him and about 50 other managers. Looks like Commodore has returned to the kinds of decision making that brought us the Plus-4 and other fiascos.



IBM announced the PS/2 line of personal computers. These systems are to include an operating system that will allow connectivity of all systems in the IBM line from micro to mainframe. Natural-ly, the new operating system is not ready and may not be ready until well into next year. Talk about selling a pig in a poke. Of course they are using nearly the entire former MASH crew to sell the new



products. I'm convinced. I for one won't miss the Charlie commercials, but are the new ones really a step forward. Oh yes, IBM couldn't get Alan Alda. If you'll recall, he used to be under contract to Atari.

IBM's new systems are supposed to include proprietary components that will make it difficult for the clone makers. Closed architecture had been one of the greatest criticisms of the Macintosh. Now that Apple has seen the light and begun producing Macs with open architecture, it only makes sense that IBM would try to give their new systems a closed architecture. Look for Apple to take advantage of this situation as well as companies like Zenith and Compaq. Well boys and girls can you spell BIG BLUE MISTAKE?

Atari continues to sell the ST. A lot of the companies that jumped on the Amiga bandwagon have had second thoughts and now are switching their primary efforts to supporting the ST. It's hard not to considering Atari's success and the Amiga's slow start.



Oh yes, yours truly has been asked to serve on Lotus Software's Advanced User Advisory Panel. I guess some people think my opinion is worth something. And I even prefer SuperCalc to 1,2,3.

Until next time, don't take any wooden computers.

Renewals

Remember to check your mailing label. The number of the last issue of your subscription is printed in the upper right corner of your mailing label. If your current label has number 20 printed on it then this is the last issue of your subscription. You will not be receiving a renewal notice if your subscription has expired. Thanks.

Advantages of FORTH by Thomas C. Gilmore

This is the third in a series of articles on FORTH for the ADAM computer. The first two articles focused on WHAT is available for your ADAM computer, how to put it to work and what FORTH is and isn't. This article will describe more of the specific advantages of using FORTH.

First, it seems like a good spot to call attention again to the three suggested references mentioned earlier in this series:

1. Starting FORTH, by Leo Brodie, 348 pp., plus appendices, Englewood Cliffs, NJ 07632.

Prentice-Hall, Inc., 1981.

2. Mastering FORTH, by Anita Anderson and Martin Tracy, 216 pp., Bowie, MD 20715. Brady Communications Co., Inc., 1984.

3. Thinking FORTH, by Leo Brodie, 267 pp. plus appendices, Prentice-Hall, Inc., 1984.

Studying at least one of the first two tutorials is indispensable for getting started in FORTH on your ADAM. Also each of the three references includes a summary and discussion of "generic" FORTH advantages, regardless of the hardware used.

Now, what will an ADAM user notice about using FORTH? FAST!

Relative to BASIC and LOGO, most ADAM users will be startled by the speed of FORTH execution. Similar to Turbo Pascal on the ADAM (see the Jan/Feb 1985 issue of ECN), FORTH provides COMPILED code.

DIRECT! In the on-line (interpretive) mode, FORTH provides immediate feedback to the user. Without worrying about conventions of line numbers, the strangeness of yet another text editor, or even much about language syntax, a new user can start DOING the examples and exercises from one of the suggested tutorials.

Later, as you become more familiar with the features and syntax, the possibilities of constructing your own, "user-friendly" programs will become apparent. You have the ability to define your own synonyms for ANY word — to make it as short (for fewer keystrokes) or as long (for ease of remembering what it does) that you want.

SIMPLE TO TEST! You do NOT have to write a complete program, as you do in BASIC and even Pascal, to begin testing what you have written. In fact, some system and program designers will use FORTH for "sketching out" their design and trying it, EVEN IF they plan to eventually implement the design in some other language!

COMPACT! Memory usage for code and data is minimal. In fact, the FORTH code that you get from ECN is about the smallest for programming that you will find anywhere in terms of memory size. That leaves LOTS of space for your programs.

POWERFUL! The "multiplying effect" that you obtain -- getting the use of a lot of compiled code by just writing a bit of source text — is quite astounding. Sometimes you have to develop a level or two of new FORTH words before you can make practical use of this power in a new application (computing problem). There are no artificial restrictions on how few or how many levels you develop.

MORE PERSONAL! To me, the ADAM, particularly with ADAMCalc and ADDRESS BOOK, set a new high level (in 1985) of how personal a

"personal computer" could be. Now, FORTH on the ADAM carries that into the program-development (or software development) arena. For a computer hobbyist and/or home computerist that can be a lot of fun (and value).

If your learning and thinking style is more linear ("left-brain") you may possibly feel more at home with BASIC, ASSEMBLER, or Pascal. However, if you prefer, as I do, more of the parallel ("right-brain") learning and thinking style, FORTH (like SmartLOGO) may be more your thing. Yes, that's how I would sum it up for ADAM users: FORTH is most similar to SmartLOGO — it's like getting SmartLOGO with SPEED!

The important point is that, whatever your style and/or the characteristics of the computing problem at hand, you can have a choice of software with which to get it done, in a personally satisfying way. Even if you're an experienced hacker who now prefers only to work in assembler (or machine) code, FORTH provides an interesting and useful alternative tool for development and testing.

Now here is another short program file (called a "screen") in FORTH:

```
9 list
scr #9 SAMPLE.BLK
0 1/2 Example of double-size (32-bit) variables
1Jun86tgc
1 1/2 Interactively create a 32-bit variable d 1/4 for
the OK tolerance
2 : tolerate ( n -- )
3 1/2 Store the input number for the allowable
tolerance
4 s>d d 1/4 2! ;
5 : check ( d1 d2 -- )
6 1/2 check to see if the 32-bit number d2 is "close
enough" to d1
7 d- dabs d 1/4 2@ ( find absolute difference )
8 d> if ." not" ( compare to tolerance d 1/4 )
9 else ." about the same"
10 then ;
ok
```

And here is what it looks like when you compile and run it:

```
2 variable d 1/4 ok
9 load ok
2 tolerate ok
300,000 299,998 check about the same ok
300,000 299,997 check not ok
3 tolerate ok
300,000 299,997 check about the same ok
bye
```

(Yes, experienced programmers, FORTH, unlike almost all other computer languages, DOES accept commas in INPUT numbers!)

In the next article, we'll point out some of the design features of FORTH and how they work, including a step-by-step discussion of a sample program.

What's An Xmodem by John Moore

As soon as one begins telecomputing, the word "Xmodem" appears and never seems to leave. What is an "Xmodem," anyway? It's not a thing - you don't go down to the Computer store and order a Hayes Xmodem! Xmodem is a "protocol." An agreement between computers on how they will transmit data between them.

The original program was Ward Christensen's MODEM way back in 1977 (ancient times as far as personal computers go). His original work is essentially the same as today's Xmodem (checksum). Since he released his work into the public domain, Christensen has never made a dime from it, but his pioneering efforts are recognized by the alternate name sometimes used for Xmodem: the "Christensen Protocol." Other names you may run across are MODEM7 and CPMUG (CP/M Users' Group) Protocol.

Xmodem requires complete "transparency" to all 256 possible values of a hex digit. By this, I mean that the communications link must pass each value unchanged! For this reason, Xmodem is only possible with your modem set to 8 bits (since it takes all 8 bits to give 256 values), no-parity (since using a parity check will actually change the value of a byte), and 1 stop bit. It cannot work over networks with 7-bit data links, or networks which use certain ASCII codes (like X-on or X-Off) for their own special purposes.

The Xmodem protocol is often called a "receiver-driven" protocol. This is one way of saying that the receiver always has to make the first move. It is sometimes called a "send-and-wait" system, since the sending computer transmits data to the receiver and then waits for an appropriate response before continuing.

The regular Xmodem "standard" sends data in blocks of 128 bytes. This means that the last block may contain as many as 127 bytes of useless data (garbage), since it must be "filled up" with something before being sent!

To see how the protocol works, let's examine the simplest version in use today: Xmodem (checksum). To get things going, the operator tells the transmit program on the remote system (usually KMD) the name of a file to send. The system opens the file for

transmission and begins waiting. Meanwhile, the operator instructs his local terminal program to receive the file. It opens the file for input and sends a NAK (Negative Acknowledge - ASCII 15H). As soon as the sender sees this, it begins transmission of a tightly-specified block of data.

The format of the data block is this: the first character is an SOH (Start Of Header - ASCII 01H). The next two bytes are the "block #" and its complement. Let's stop and examine the reasons behind this. The complement of a number in binary is the "mirror image" of its bits.

0000 1001 = 9 (binary)

1111 0110 = complement of 9

Notice that if you add a number and its complement, the total will always be 1111 1111 (binary - FF Hex - 255 decimal). If you add 1 to it, the total becomes zero. Because of that, telecommunications programs can add "the first three bytes" of each block and if the sum isn't zero, an error has occurred!

It would be possible for multiple errors to "offset" each other, but that is very unlikely. Block numbers start at 1, go to 255, and then repeat. Block #0 is not allowed!

Now, the sending computer transmits the 128 bytes of data. As it sends them, it adds the value of the data byte to a storage location with "no carry." This means that if the location has the value 255 and you add 1 to it, the new value is 0.

When all data has been sent, the machine transmits (as a 129th byte) the current value stored (the checksum). The receiver has been doing its own sum on the received data, and it compares the two values. If there's a difference, we have an error! The receiver transmits a NAK. If the two values are the same (and there was no error in the header), an ACK (ACKnowledge - ASCII 06) is sent.

A NAK always forces the sender to re-transmit the last information. ACK indicates correct reception and gives permission to advance to the next block. This is one of the weak points of the protocol. Single-byte responses could be garbled by transmission noise over the telephone lines. The worst thing that could happen would be a NAK that got changed to an ACK.

The problem is that the Xmodem protocol has no way for the receiver to tell the sender to "back up!" If the two get "out of sync" they can never get back together. The result will be a lot of errors. For this reason, most Xmodem programs have an error counter that will automatically abort after - say - ten errors.

When the sending computer sees an ACK, it will

send the next block. When there are no more blocks, it will answer the ACK by sending an EOT (End Of Transmission - ASCII 04). This is another "single-character command," but some programs add a little extra reliability by automatically sending a NAK after an EOT. If the first EOT was some other character that was "trashed" by noise, it's unlikely that exactly the same error would occur the second time. If the second transmission is also an EOT, the receiver replies with an ACK, and everyone knows the transfer is over.

Somewhere along the line, users decided that it would be nice to have a way to stop a transfer if things were not working right. Most programs were changed so that while the sender was waiting for an ACK or NAK (or while the receiver was waiting for a SOH), the transfer could be stopped by sending a CAN (CANcel - ASCII 18H or "Control-X").

Since this was another "single-byte command" it was decided to require two CAN characters in a row to force the abort. As we've mentioned, it's not as likely that two characters will be changed as one.

The checksum method of error-detection was replaced by a better method around 1980 (except in most of the commercial CP/M programs where checksum is still quite often the only Xmodem choice). Instead of a one-byte checksum at the end of each block of data, the new implementation required a two-byte CRC (Cyclic Redundancy Check) value be transmitted. How this value is calculated is beyond the scope of this article, but I am assured that using the CRC check in the Xmodem protocol will catch 99.997% of all transmission errors - not a bad average! Checksum, on the other hand, can miss some gross errors. As an example, if something was "stripping off" the high bit of every byte, a checksum program would not catch it!

To make this addition to the protocol, a small change had to be made in both the sending and receiving programs. A receiver capable of CRC checking will inform the transmitter by sending a "C" (ASCII 43H) before the first block, instead of the usual NAK. If the sender is properly equipped, it will recognize this, switch its own error checking to CRC and begin to send data. If the sender is not equipped, it won't recognize the "C" and will keep waiting for a NAK. For this reason, it is essential that receiving programs count the initial tries and automatically step down to the checksum method after no response to the "C" signal, and begin sending NAKs.

As another "single-byte" command, the "C" is subject to garble. If it should get changed to a NAK, the two programs would be using two incompatible error-checking methods. This would result in a lot of re-sending, and eventual timeout - wasting time.

Sending programs must be equipped to switch to checksum if the first character received is a NAK. In our next article, we'll discuss Ymodem, Zmodem, and how a mistake can become an internationally accepted standard!

Glitches, Bugs, Errata, Etc.

■ David Clark advises us that a couple of errors slipped through in his DIR and MERGE programs. The following line should be added to the DIR program to make it work properly:

```
395 POKE 16680 + x, 3
```

In the MERGE program, line 230 should read as follows:

```
230 POKE 65534, 205: POKE 65535, 31
```

Please accept his and our apologies for any inconvenience this may have caused. NOTE: These have been corrected in the PDF Issue #19.

■ Brian Lewis advises us that he has recently published a book, The Naked Australian, that was written on his ADAM computer. Interested parties should send an SASE to A/A Publishing, P.O. Box 1772, Carmichael, CA 95609.

■ Trying to decide what to buy for your ADAM? Should you get a 64K expander or a printer interface as your next purchase? Generally, the printer interface will be of the greatest use to most owners. The 64K expander has only limited use and as some of you know in most cases it adds little in the way of additional capability to the ADAM.

Bulletin Board

NOTICE: David Carmichael, former Chairman of the Kansas ADAM Users Group, advises us that NO ONE is authorized to raise funds for that now defunct users group. He was recently informed that another organization was soliciting funds on behalf of KAUG. No such effort has been authorized by KAUG or any of its members. Anyone who may have made such a contribution should write to the soliciting organization and demand a refund.

FOR SALE: Word Roulette. This is a "Wheel of Fortune" like game. \$10 on disk or \$12 on data pack. Contact the author: John K. Davis, 6 Burress, Apt. 1107, Houston, TX 77022.

FOR SALE: Carts - \$7.50 each: SpyHunter, Destructor, River Raid, Zaxxon, Beamrider, Fathom, Subroc, Nova Blast, Time Pilot, Baseball, Fix up/Mix up Puzzler, Moonsweeper, Slither, Oil's Well. Contact: Lee Smith, Box 159, Terre Hill, PA 17581.

WANTED: Would like to hear from other ADAM

users from anywhere. Contact: Dave McIntosh, 7 Monsarrat Crescent, London, Ontario Canada N5Y 4Y7.

FOR SALE: My computer is fried, so I'm selling tapes \$5 each/full of programs, also ADAM Technical Manual - \$50.00. Contact: G. Witt, 405 E. College, Carbondale, IL 62901, ph. 618/549-3176.

NOTICE: The ADAM User Group of West Palm Beach, FL, announces the "TARDIS" (The ADAM Resource Downloading Information System). Online Saturdays from 6 p.m. to 2 a.m. and Sundays 5 p.m. to 11 p.m. (EST). You do not have to set your modem (ADAMLink). Just load and Call. Downloading available with Adam Link 2. See our posting in "Computer Shopper". Formerly known as ADAMTalk. Contact the ADAM User Group of WPB, 4757 #B Sunny Palm Crl, West Palm Beach, FL 33415. (Sorry phone number was not provided in listing.)

NOTICE: The Adam Users Group #1986, 2226 Patterson, Joplin, MO 64801-6322, has a number of ADAM products for sale: Hard to find ADAM computer and Colecovision parts (everything from complete systems to nuts and bolts), disk drives in stock. Send SASE to the above address for catalog.

FOR SALE: Mel Ostler, NewMArizTexaCol Programmers Group, 7641 Raasaf Blvd., Las Cruces, NM 88005, announces that they have available disassemblies of ADAM'S Basic and EOS. Send SASE for more information.

ADAM Suppliers

The following is a list of a few of the companies that sell ADAM products. To obtain a catalog from these companies, send them a self-addressed stamped envelope.

Alpha-1, 1671 E. 16th St., Suite 146, Brooklyn, NY 11229, ph. 718/336-7612. They carry a wide selection of ADAM products—hardware, software, supplies, etc.

DO NOT STAMP SOFTWARE, 2608 West 600 South, Roy, Utah 84067. Software.

Elliam Associates, 24000 Bessemer St., Woodland Hills, CA 91367. CP/M Software.

Eve Electronics, 2 Vernon St., Suite 404, Framingham, MA 01701. Hardware, CP/M Software.

Extended Software Co., 11987 Cedar creek Dr., Cincinatti, OH 45240. Software.

M.W. Ruth Co., 510 Rhode Island Ave., Cherry Hill, NJ 08002, ph. 609/667-2526. Wide selection of ADAM hardware, software, & supplies.

Orphanware, 5665 Myers Rd., Akron, OH 44319, ph. 216/882-4720. Hardware & software.

Reedy Software, 10085 60th St., Alto, MI 49302. Software.

This list is not intended to be comprehensive, nor is it intended to be a specific endorsement of any one company. Nevertheless, in our dealings with these companies, we have found them to be reputable and generally prompt in filling orders.

User Group News

The list of users' groups continues to grow. If there isn't one in your area to join - start one!

NATIONAL GROUPS

#1 Adam User's Group
P.O. Box 3761 - Attn: Jay Forman
Cherry Hill, NJ 08034

LOCAL GROUPS

James E. Gilbert
4608 Lakeview Dr.
Huntsville, AL 35810

Victor L. Watford
P.O. Box 777
Russellville, AL 35653

Richard Bains
7210 Bulen Drive
Anchorage, AK 99507

Danny Levitt
4525 S. White Pine
Tucson, AZ 85730

Robert R. Marentes
9425 N. 38th Ave.
Phoenix, AZ 85021

East Bay ADAM Group (EBAG)
Tom Ozretich
6097 Slopview Court
Castro Valley, CA 94552
ph. 415-886-2884

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1736 So. Bedford Street
Los Angeles, CA 90035

Frank Fleisch
13381-19 Magnolia Ave.
Corona, CA 91719

Central Calif. Adam User's Group
James Turner, Jr.
20110 Ave. 19
Madera, CA 93637

San Diego Adam Users Group
Dr. Harold Alexander
37 Catspaw Cape
Coronado, CA 92118

AUG of San Diego County
868 N. 2nd St. #242
El Cajon, CA 92021
ph. 619/445-2400

Bay Region ADAM Information Network
550 27th St. #202
San Francisco, CA 94131
ph. 415/282-3056

Inland Empire Users Group
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6644 Seine Ave.
Highland, CA 92346
ph. 714/862-5807

Denver ADAM User's Group
1416 Lipan St.
Denver, CO 80204

ADAM Users Group #305
John F. Busby, II
6634 SW 41st St.
Davie, FL 33314

Emerald Coast ADAM User's Group
Howard Pines
1010 Gloria Drive
Ft. Walton Beach, FL 32548

Robert J. Niemeyer
292 Boca Ciega Point Blvd. N.
St. Petersburg, FL 33708

ADAM User's Group
Michael G. Graham
217 Albert St.
Winter Springs, FL 32709
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ADAM Support Group
John Moore
1870 Fisher Tr. NE
Atlanta, GA 30345

Hawaii AUG
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Honolulu, HI 96818
ph. 808/422-4019

Donald R. Lager
5415 N. 2nd St.
Rockford, IL 61111
ph. 815/877-7786

KC Users Group
Joe Reardon
1513 Tauromee
Kansas City, KS 66102
913/371-7491

Greater Cincinnati Adam Users Group
c/o Keith Bowman
P.O. Box 434
Alexandria, KY 41001

ADAM Network
P.O. Box 85
East Detroit, MI 48021

Bill & Nancy Rahn
12426-15th St. S.
Afton, MN 55001
ph. 612/436-6577

Outsider's Users Group
Donald Viltiard
P.O. Box 771
Starkville, MS 39759

Omaha ADAM Users Club
Norman Castro
809 West 33rd Ave.
Bellevue, NE 68005
ph. 402/291-4405

Al Roginski
4327 Thorndale Pl.
Las Vegas, NV 89103

Metro Adam User's Group
Russell Williams
414 W. 149th St.
New York, NY 10031
ph. 212/208-0645 (9am-5pm M-F)

Genesee Valley Adam Users
Donald K. Zimmermah
5132 Jordon Road
Silver Springs, NY 14550

ADAM-X-Change (New York & Canada)
Wade Rowley
12863 Washburn
Wolcott, NY 14590

Tri-Angle Adam Users
L-5 Oak Grove
Chapel Hill, NC 27514
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Mutual ADAM Users Group
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Akron, OH 44306

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Portland Adam Users Group
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Portland, OR 97207

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Steve Chamberlain
120 E. 4th ST.
Bloomsburg, PA 17815

Midsouth ADAM Users
Roger Burford, Lot 142 NAS MHP
Millington, TN 38053

Adam Users of El Paso
Alan Samuels
4821 Vista Del Monte
El Paso, TX 79922

Houston AAUG
c/o Thomas Rutan
1805 14th Ave. N
Texas City, TX 77590

Norfolk ADAM Group - Gerald M. Steen
1000 Rockbridge Ave. #144
Norfolk, VA 23508

ADAM Users Group of Central Virginia
Thomas J. Kelly
3B, Rt. 664
Earlsville, VA 22936

ADAM Washington D.C. Users Group
1811 St. Roman Dr.
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22607 SE 322nd
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Westmount, Quebec H3Z 2Y6

Winnipeg Adam Users Group
729 Government Ave.
Winnipeg, Manitoba R2K 1X5

Metro-Toronto Adam Group
P.O. Box 123
260 Adelaide St. East
Toronto, Ontario M5A 1N0

AUSTRALIA

The Bendigo Colecovision Club
C1-2 Fenton St.
Bendigo, VIC 3550, Australia

ADAM Owner's & User's Group
4 Norman Street
Deakin, ACT 2600, Australia

ENGLAND

The U.K. ADAM Subscribers - Keith A. Marner
33 Homer Road
Croydon, Surrey, CR0 7SB, England

Origins: Video Games, Home Computers, ADAM & ECN

by D. Sage

Since this is the fourth year of ECN, I felt that it would be nice to take a look back at how the home market has evolved and also trace the history of the ADAM Computer. By reflecting on the past we are often able to develop a better perspective of today's events. This is true in the home computer market as well as in other areas.

It has always been my contention that the video game industry had more to do with creating a home computer industry than did the hobbyist computer industry. Video games brought sophisticated home (computer) systems to many people, who would otherwise not have been exposed to this fascinating technology. Today there remains a division in the home market between the hobbyist (hacker) and the home user. It is true that some home users have since become hackers, but many home users are content with simply using their computers to run packaged software and have no desire to learn about the complicated hardware that allows them to run that software. Nor do they have any real desire to program their computers, write sophisticated spreadsheet or data base macros. These people want to be able to use their home computers much like they did their video game systems, and rightly so. They simply want to plug in (load) the software and use it, without learning complex instructions.

Let's now take a look back and see what developments have lead us to the present and how this model of the typical home computer buyer evolved and affected the developments over the last several years.

Throughout these pages I have tried to include pictures and illustrations of some of the many products that have appeared and evolved. I hope these will be legible, but because many of them were produced in color, the reproduction will certainly suffer.



Fairchild Channel F Game System

In 1971 Nolan Bushnell and his associates introduced PONG under the Atari label. A later version included a greater variety of options.

While other game systems (RCA & Fairchild) were

introduced during those early days, it was PONG that really brought video game entertainment into the home. The system first appeared as an arcade version, but in 1975 was packaged for home use with a television. Images were strictly black and white, but the interest in home gaming grew quickly.

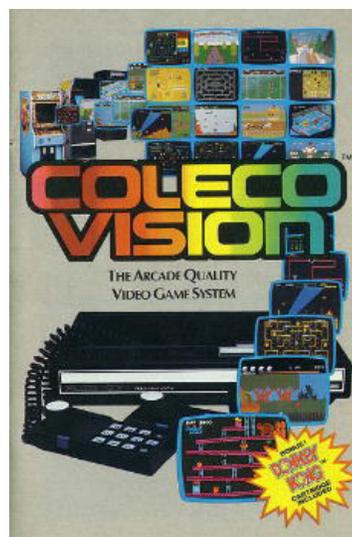
Meanwhile, the competition was not sitting idly by. In 1976 Coleco introduced the Telstar dedicated (no cartridges) system. Telstar was upgraded several times until it was programmable (played several different games). The Telstar system turned out to be a major failure for Coleco, nearly driving the company into bankruptcy. At the same time Coleco was producing stand alone games that were quite successful.

Soon a number of fully programmable (cartridge and cassette) systems appeared on the market. The Bally Astrocade system was the most spectacular of these systems which also included Atari's VCS system (1977). The Bally system was powered by the Z80 and provided excellent graphics. Unfortunately, Bally was not familiar with marketing high volume consumer products and was rapidly pushed aside by Atari's VCS.

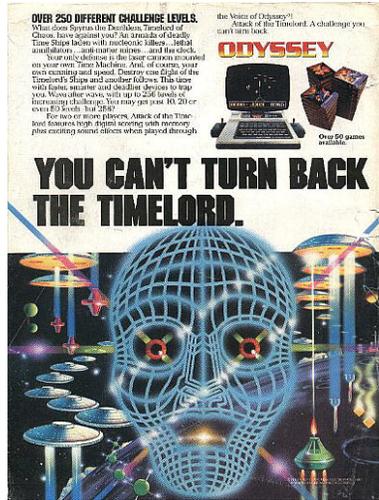
There of course were other systems such as the Intellivision and Odyssey by NAP. In August 1982, Coleco reentered the programmable market with ColecoVision. Time to stop and take a breather. This paragraph covers an awful lot of ground.

By 1982 Atari clearly had the lead in terms of systems sold. Mattel's Intellivision was in second place and NAP (Phillips) was in third with Odyssey. Atari, who had slowly been introducing new games, was faced with a new problem — competition in the software market. A number of companies had begun introducing cartridges for the VCS. Some of these included Apollo (Space Cavens, Spacechase, Skeet Shoot, Racquetball, & Lost Luggage), Activision (Laser Blast, Kaboom, Grand Prix, & more), Imagic (Demon Attack & Star Voyager), and Parker Bros. (Star Wars, Frogger). Of these Activision, Imagic and Parker Bros. would become quite successful. Apollo would be outclassed and would simply disappear.

Nevertheless, by the beginning of 1982, Atari was beginning to lose control of the home video game



market. Warner's acquisition, while still turning large profits, was being doomed by internal and external forces. No longer did gamers have to rely on Atari to quench their thirst for games and the games from other companies were great. These upstarts, particularly Imagic, were providing not only excellent game play but brilliant graphics, pushing the VCS beyond its limited capabilities.



Intellivision was also eating into the market, with a variety of excellent introductions. Now their loomed a more determined opponent on the horizon. In February of 1982, Coleco announced that they would reenter the home video game market with their own programmable system that would be superior to anything on the market, provide an Atari emulator, and include an upward path of expansion that would include a computer module.

As would become typical, Coleco would promise more than they would fulfill. Their early game offerings were to include Donkey Kong, Space Fury, Venture, Mouse Trap, Lady Bug, Cosmic Avenger, Zaxxon, Carnival, Turbo, Side Trak, Spectar, Rip Cord, Head-to-Head Baseball, Head-to-Head Football, Skiing, Horse Racing, Blackjack/Poker, Tunnels & Trolls, Fidelity's Chess Challenger, Smurf, and Mr. Turtle. I am sure that all of you have these, particularly the ones that I have underlined. The threat



of an expandable system by Coleco quickly got everyone's attention.

Atari had just introduced the 5200 Super System and between that and Coleco's announcement everyone went scurrying back to the drawing board. A variety of companies sought ways to turn the VCS into a computer, Intellivision began to work busily on a computer module.

Atari had wounded itself again. The 5200 was an

incompatible system that could not play VCS cartridges. They literally handed Coleco the opportunity, to become the game system of the future. The Colecovision already had a module to allow it to play VCS games as well as its own superior arcade translations, plus expandability (whatever that meant). Warner was clearly not ready to deal with a rapidly changing market and would continue to make mistakes that would ultimately bring Atari to the brink of extinction. Part of the problem was that Warner acted as if Atari was invincible. It had the top selling video game system and its home computers were doing well. The Atari 400 was selling for \$399 and the 800 was selling for \$899 (for real). The only competition was coming from Commodore with the Vic-20 priced at \$299 (with its 22 character screen display, Atari used a 40 character display) and the Sinclair ZX-81 at \$99.99.

Warner felt that nothing could go wrong. Warner failed to perceive that sitting in the wings were a large number of third party developers who would dump large amounts of VCS cartridge software on the market. In addition, home computers were on the verge of undergoing a major transition. Not only were other companies greedily eyeing the potential for profits, but established competitors like Commodore were preparing for a major price war that would make the old gasoline wars look like child's play. Warner was not alone in misjudging the situation. A number of Wall Street analysts viewed the growth potential of this new industry as virtually unlimited. Despite the fact that there are only so many families in the U.S. that could afford to buy game systems and home computers as well as their expensive software, everyone was overly optimistic about the future.

At the June 1982 Consumer Electronics Show, things began to happen. Emerson introduced the



Emerson introduced the MindMaster video game system. It was a home computer system that could play VCS games as well as its own superior arcade translations, plus expandability (whatever that meant). Warner was clearly not ready to deal with a rapidly changing market and would continue to make mistakes that would ultimately bring Atari to the brink of extinction. Part of the problem was that Warner acted as if Atari was invincible. It had the top selling video game system and its home computers were doing well. The Atari 400 was selling for \$399 and the 800 was selling for \$899 (for real). The only competition was coming from Commodore with the Vic-20 priced at \$299 (with its 22 character screen display, Atari used a 40 character display) and the Sinclair ZX-81 at \$99.99.



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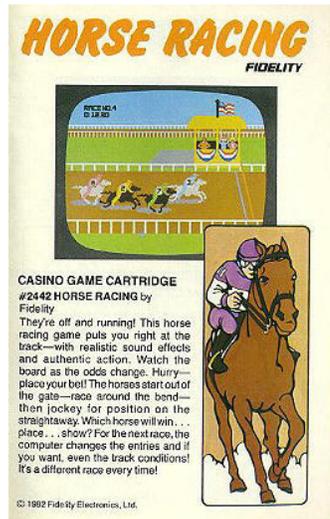


Arcadia 2001 portable programmable game system that was to have offered some 20 unnamed titles. Atari introduced the 5200. GCE introduced the Vectrex game system with its built in vector-graphics screen and games like Berzerk, Star Trek & Scramble. A number of third party software companies introduced cartridges for the VCS.

Finally, Coleco introduced a nearly finished Colecovision system (they had not yet obtained FCC approval, a problem that would delay shipment by several months).

Adding to all of this confusion was the entry of more companies during the last half of 1982. These included U.S. Games, Data Age, TigerVision, Comma Vid and Spectravision (all VCS Carts), The Games Network, and the Arcadia Super Charger for the VCS. Also introduced were the Commodore 64 and Texas Instrument's 99-4A.

In spite of all of the activity in 1982, 1983 would erupt in a virtual explosion of new introductions for the Atari VCS and would see a number of other interesting developments dealing with Coleco's efforts.



At the 1983 Toy Show held in February, Coleco announced the Super Game Module. The new system was to use the wafer tape system. A similar system called the stringy floppy was already being marketed by a third party company for use with Commodore computers. The SG Module was designed to run a variety of arcade games that would be expanded from the

releases available in cartridge form. At that time the planned titles included Zaxxon, Buck Rogers, Time Pilot, Turbo, Sub-Roc, Donkey Kong, Donkey Kong Jr., and Smurf Rescue. You're right, the Super Game Module was never released.

By late spring Coleco had decided to drop the module and proceed with the ADAM Computer

expansion module instead. The ADAM at this point still had wafer drives instead of the data drives. The list of Super Games had changed to Slither, Tunnels & Trolls, Ulysses and the Golden Fleece, Sword and Sorcerer, Cranston Manor, Gorf and Front Line in addition to the original games planned for the SG Module. ADAM was set to ship in August with the Expansion Module priced at \$400 and the standalone at \$600. All Super Games were scheduled to be released by Christmas.

1983 was a busy year. Other systems announced that year included the ill-fated Ultravision. That system included a built-in color TV and could play Atari VCS, Colecovision and their own game cartridges. Ultravision never produced a single working system. Spectravideo, a game cartridge and controller company, introduced the SV-318 computer that could play Colecovision cartridges as well as Z-80 computer software. Spectravideo was never able to become established in the U.S. computer market and was later absorbed by Bondwell. Mattel introduced the Aquarius and late in the year IBM announced the



The Super Game Module

PC JR. In the fall both Timex and Texas Instruments withdrew from the home computer market and dumped a large number of computers on the market at give-away prices. Also during that year Osborne was forced into bankruptcy while a number of Japanese companies and Microsoft announce the MSX standard for Z80 home computers.

Meanwhile Coleco was having troubles with ADAM. The company that originally produced the wafer drives for Commodore products had gone into bankruptcy and Coleco was finding the system to be too unreliable. After switching to the data drive technology they found themselves experiencing difficulty meeting FCC standards. A number of design

changes were required that totally upset production deadlines and resulted in the ADAM not shipping until late October of 1983.

When the ADAM finally shipped it shipped with incorrect manuals and a number of serious bugs. Additionally, Coleco's concept of the product did not fully match that of the consumer. The system, while intended for first time users, turned out to be more complex to use than expected. New buyers proceeded to erase the SmartBasic tapes, locked up the wordprocessor and generally became frustrated with early versions of the product. Large numbers of ADAM'S were returned not because the hardware was really faulty, but because of faulty instructions and inadequate warnings. J.C. Penney promptly dropped the product from their catalogue and Sears soon followed suit.

The bugs that slipped into SmartWriter and other software products were never fully corrected and would later lead to Coleco's decision to drop the



ADAM. Originally, SmartBasic was to have been included in ROM. Most ADAMs should have the empty ROM socket on the motherboard. Since SmartBasic was to be in ROM there was no need to make provisions for backup copies. When the product didn't make it into ROM no one realized that this would be a problem. And yet the lack of a backup would be the reason many ADAMs were returned when SmartBasic was inadvertently erased. Because of the many bugs in SmartBasic, Coleco decided to keep the language on data pack. In the first months SmartBasic went through many revisions. Often the manual being shipped failed to reflect the capabilities of the current versions. Manual pages were revised manually with stick on replacement pages. A number of bugs were never fixed including the spaces that automatically appeared in REM and DATA statements. SmartWriter was burned into ROM with the infamous line-feed problem.

It is my opinion that all of these problems could have been easily avoided. Why did they occur? Well,

partly because of Coleco's sensitivity to criticism, they simply did not seek outside input. They also lacked staff that were fully familiar with the home computer market and the technical understanding of the product. Time was another factor. Because of the redesign of the product and production delays, they simply did not have the time to test the product and get it into production for the Christmas season that would turn out to be a disaster. Much of the software for the system was contracted to outside companies and to some extent Coleco seemed to assume that these companies would provide them with fully tested workable products.

Another problem that Coleco had was their desire to seek support only from well established big name software companies. They displayed no interest in working with small third party organizations such as ours or other user groups. They wanted to maintain a closed system and in the end it would doom the ADAM.

In spite of all these problems, many outsiders saw the ADAM as a way to make money. A large number of publishers had authors busily writing books on the ADAM. Unfortunately, some of these authors were using ADAMs with software that was different from that which was shipped or was still buggy. As a result a number of books were published that included programs that would not run on the ADAM.

Undaunted Coleco continued to announce new products for the ADAM. The next issue will cover many of these developments and the rest of the story. The remainder of this issue includes some of the items that Coleco listed in its catalog at the start of 1984. You will note that the disk drive picture, although listed as 5 1/4", actually shows a picture of the originally planned 3 1/2" drive. The external modem and other never shipped products are also listed. I hope you have enjoyed this initial look back and I am looking forward to concluding the story next time.

Proposed and Existing ADAM Products ADAMLink™ 1200 Direct Connect Modem

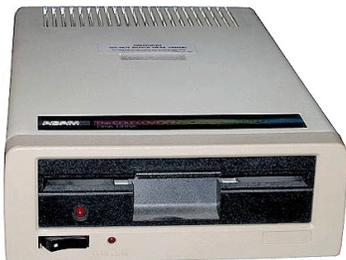
An advanced 1200/300 baud full duplex modem at an unheard-of low price point! ADAMLink™ 1200 has its own built-in microprocessor. It connects right in to ADAM-Net™ and it couples directly to the phone line, too. No additional interface is necessary and there are no clumsy receiver cups.

The ADAMLink™ Telecommunications software package is included, which incorporates advanced features that will make the Modem easier to use, such as automatic dialing and 1200/300 baud speed selection. Electronic banking can be handled efficiently and electronic mail sent at high speed. With the Modem, ADAM™ also becomes a terminal

to access information services such as CompuServe, The Source, Dow Jones and ADAM™ On-Line, a new information service directed specifically at ADAM™ users. The package also includes a free sampling of CompuServe and ADAM™ On-Line. #7818.

ADAM™ 5 1/4" Disk Drive Module

A double density disk drive for those who prefer the disk storage medium. This state of the art accessory allows data storage of up to 360K bytes or



characters on readily available 5 1/4" floppy disks. Information retrieval is swift and efficient, making it ideal for applications requiring frequent disk access. Most ADAM™ software will be available on 5 1/4" disks as well as the

standard digital data packs. The SW Disk Drive will work with all ADAM™ software, including SmartWRITER™ word processing and CP/M®-based programs. The Disk Drive Module fits easily into the Memory Console and can be used in conjunction with the Digital Data Drive. And whenever the user is ready, adding a second Disk Drive will be easy. CP/M* is a registered trademark of Digital Research, Inc. #7817.

ADAM™ Tractor Feed for SmartWRITER™ Printer

Designed especially for ADAM™! Snaps on to the SmartWRITER™ printer to securely hold continuous-feed fanfold paper in any width up to 9 1/2". This will make using the printer even quicker and more convenient, since paper will no longer have to be loaded one page at a time. #7823.

Word Processing

SmartWRITER™ WORD PROCESSING Included with ADAM™ Family Computer System

The feature that sets ADAM™ apart from every other home computer—a built-in word processing program that's easy to learn and helps produce letter-perfect documents every time. SmartWRITER™ word processing lets ADAM™ do almost everything that expensive office word processing systems do. "Insert," "delete," "move," "search," "search and replace," even copy words, sentences, or paragraphs. The user can also underline text, change margins and fix any typographical errors right on the screen, before printing. Even such functions as super- or sub-scripting and automatic page numbering can be handled quickly and efficiently. Large amounts of text can be edited quickly by "highlighting." The versatile Smart Keys help simplify everything with clear

onscreen "messages" and "labels" to guide the user every step of the way.

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The wordbase that integrates with all ADAM™ "Smart" Software! It puts a pre-programmed lexicon of thousands of words right at the user's fingertips! And what's more, because this huge word list is electronically incorporated into the system, it can be accessed many times faster than other similar programs. It can also be used with other ADAM™ educational and information data programs to dramatically increase their power. SPELLING CHECKER scans a document in a flash, and highlights misspelled words! Recommended for ages 6-Adult. #7801.

Graphics Processing

SmartPICTURE PROCESSOR™

SmartPICTURE PROCESSOR™ will make working with graphics as easy and efficient as SmartWRITER™ makes working with text. It's an easy-to-use, comprehensive electronic art kit. Whether child, artist, or video game designer, SmartPICTURE PROCESSOR™ offers challenge and fun for all, with its multiple color and "brush" options. Its unique Smart Frame and Smart Magnet features and three-dimensional effects let the user do things they could never attempt with a pen and paper, such as rotate dimensional objects, automatically color them in, move them or copy them...even store, recall and edit pictures or graphs that they've drawn onscreen! Pre-defined shapes can be employed, or the user can draw freehand.

SmartPICTURE PROCESSOR™ is a program that can be many things to many people. For children, it's an electronic arts activity center. The only limit is the user's imagination! Recommended for age 5-Adult. #7812 Digital Data Pack/#9618 5 1/4" Disk.

PUBLIC DOMAIN FORTH for ADAM

The Public Domain version of the FORTH 83 language is now available for the ADAM. This version has been made available to ECN subscribers by Thomas Gilmore who will also be contributing a series of articles on the language. A start-up set is available now and an advanced set, organized to complement the start-up set will be available later.

The start-up set is available on two disks for \$7 or two data packs for \$10. These may be ordered directly from ECN and are designated CPM public domain volume 12. This set requires that you have ADAM's CP/M 2.2.

Send your order along with a check or money order for the appropriate amount to ECN, Sage Enterprises, Rt. 2, Box 211, Russellville, MO 65074. Be sure to indicate whether you want disk or data pack.

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- Labels T/F-F/F for 5 1/4" disks (cover top of disk) 100/\$4.95
- Index Cards TF-F/F 3 x 5.....500/\$8.95
- Rolodex Cards - T/F-F/F - 2 1/6 x 4.....500/\$8.95
- Disk Holder - Holds up to 50 disks-anti static.....\$11.95
- Monitor/TV Stand-360 rotation, up to 12.5 angle.....\$21.95

ADAM

- DATA PACK (Adam).....1/\$3.95 - 10/\$37.50
- RIBBON CART.....1/\$5.50 - 3/\$15.00
- DAISY WHEEL (Adam) - Italic, Script, Elite, etc..... 1/\$5.50
- ADAM COVERS - Set with logo for system.....\$18.95
- ADAM DISK COVER - To match above.....\$9.95
- TRACTOR FEED for Adam printer.....\$69.95
- PRINTER STAND - Front on/off switch.....\$16.95
- POWER PACK-Separate printer/use CPU alone... \$29.95
- PACKCOPY - Backup SmartBASIC, etc.\$29.95
- BLACK GOLD - Look for oil. Survey-profits-fun.....\$19.95
- BOUNTY HUNTER - Text adventure.....\$14.95
- EBU - SmartBASIC - Data Pack or Disk.....\$21.95
- HACKER'S GUIDE TO ADAM - Disk or DP - Vol. I or II \$17.95
- SignSHOP - Design & Printing System (DP).....\$20.95
- MicroWORKS (DP) - 5 programs that work alone or together (1. Word processor/text editor 2. Database 3. Spreadsheet 4. Picture editor 5. Business graphics).....\$25.95
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