A·C·U·G·O

OFFICIAL CLUB NEWSLETTER

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ATARI® 1200XL™
HOME COMPUTER

THE NEXT
LOGICAL STEP

ATARI 1200XL

PRESIDENT'S PERSPECTIVE

Since Atari announced in December, and showed the new 1200XL at C.E.S. in January, a lot of talk about the new computer has begun. In this article, I hope to share with you a few of my thoughts on the 1200XL.

Please remember that no consumer has yet seen the new computer, but Atari has shown and released information about it. The comments given are based on these reports.

First, lets get the good news out of the way about the 1200XL: it looks good and has style.

Now for the bad news. Don't let that 64K of memory fool you. The amount of free memory is still around 39K without DOS. It has only two joystick ports so none of the add-on devices   that use these will work. These include the EPROM burners, and any of the printer drivers that use ports 3 and 4. To compensate for the lack of ports, Atari gave you programmable function keys. Of the three that we have now, I don't think any product uses all of the combinations. Also they threw in a HELP key, the use of which is in checking out the computer. On top of this they gave you the ability to use European characters. Thank you, thank you just what I have always needed. They even threw in a complete self test routine. Now imagine, every time you turn on your 1200XL, you too can run a complete diagnostic of your computer. I heard it only takes about 7 minutes. Now at first this might seem nice to have but in the amount of memory that this required, they could have included nice things like extra basic commands such as print-using, renumber, etc.

As for expandability, well you thought the 400 was bad. The 1200XL has no connectors to install nice things like the RAMDISK, the BIT-3 80 column board, the RAMROD EPROM OS board, etc. In other words nothing! But you do get 64K of memory.

Graphics and sound seem to be the same as the 400/800. At least programs that are out now will work on the new machine.(I hope)

Now you may be asking how much do I pay for this marvel of electronic wizardry? Its seems that Atari thinks that they can strip out 40% of the 800, re-package it and sell it for 50% more! So much for their thinking. I still think the 800 is a lot more computer for your money.

Any of you that know me may not believe what you are about to read, but I hope Commodore tears Atari up on sells. Maybe that will teach Atari how to compete in the 'new' home computer market.

Happy 400/800 computing,
Gary

PRODUCT REVIEW
SPELL WIZARD
by DATASOFT INC.

SPELL WIZARD is a program that allows you to correct for spelling errors in your document before you print it. The program is very easy to use and understand. It comes on two disks, one of which is the main program and the other is the dictionary which contains over 33,000 words. The program works with one or two disk drives, but two is recommended for faster use.

To use the program, you first boot up the program disk and follow the instructions. The main menu has four selections: Proof a document; Print dictionary; Search dictionary; and exit Spell Wizard.

The first allows you to check a document for misspelled words. To use this option, you will be asked to insert the disk that contains your file to be checked. During the minute or so that it takes to read your file, you will see the total number of words and the number of unique words that make up the file. After this, Spell Wizard will read in its dictionary and then asks if you wish to include a special dictionary that you have created. When you are through answering these questions, Spell Wizard will then check the spelling of the words. If it finds any misspelled, they will be shown to you in inverse video, and a menu will appear at the bottom of the screen.

There are three options to pick from: Continue scanning; Make correction; Search dictionary. The first will not make any changes to the document. It could be that the word is not in the current dictionary. The second allows you to correct the spelling at this time. The corrected version will be saved back to the file! No extra wordprocessing needed. The last allows you to search through the dictionary to find the correct spelling of the word. The program allows you to use wild cards in making your search. In other words you could use com* to find computer, computers, etc. The words appear just above the words in your file. You can use the SPACE-BAR to stop the words.

The second option on the main menu is to print out the dictionary to a printer. This is handy if you want a complete list of all the words in the dictionary.

The third, search dictionary, is the same as the one above. It searches through the dictionary to find the correct spelling.

The last option is to exit into the wordprocessor to allow printing of the finished document.

The operation of the program is very easy to use. Only one quirk was found, and that was during the phase that asked you if you wanted to include any user dictionaries. It kept coming back to the question if you wanted to include a special dictionary. After you include your dictionary, type 'N' to continue.

Speed is one of the more important features of this type of program. In performing a timing check, a document of this size took about five minutes from start to finish. This time included loading, checking, correcting, and saving the new words to my special dictionary. Not bad.

Spell Wizard was designed to compliment Text Wizard, but any DOS text file can be used. One of the first things I tried was Letter Perfect. The first thing you must do is use the LJK Utility Program to convert Letter Perfect files to Atari DOS files, then you can use Spell Wizard to check it. Be sure that you use the utility program to convert it back to LJK format before you print it.

I highly recommend this program to anyone who does a lot of typing and/or can not spell(like me).

Price of this package is around $75.00.

by GARY SEWELL

PRODUCT REVIEW
Signalman II Modem
From Anchor Automation

Those of us who are kind of "hardware nuts" are always looking for a product that doesn't break the family budget. So, when I wanted to add a modem to my system, I had a problem. The choice is pretty big, but the shock comes when one looks at the price tag. I just didn't have the $200 or more to spend and most of them did approach this figure. But not the Signalman Mark II. It's price tag was just as shocking--only $99(retail). How good can it be for that price? I was really glad that I took the chance and ordered one.

What I got for my money was a small plastic box, designed to be used with the ATARI 850 Interface, and looks very much like it. It came with the cables to connect it with the Interface and the telephone. The instructions for installation are easy to follow and include troubleshooting tips. It is powered by a 9V battery(not included), which will last most users for several months(with a power pack optional). The Signalman will operate with any standard direct dial-up modular telephone set with a plug-in hand set. The phone can have either a pushbutton or rotary dial, but cannot be Trimline type (ones with the dial integrated into the handset). Some Radio Shack phones will not work, and most older Bell telephones will draw too much current, thus damaging the modem.

Operation of the modem is very simple. A slide switch on the modem allows the choice between voice and data communication. In the VOICE position, the telephone is used as if the modem did not even exist. In this mode you dial the phone to initiate the communication link. When modem tones are heard in the handset, the slide switch is then moved to the DATA position. At this point the modems synchronize and the communication link is established.

If you decide to buy one of these modems, be sure it is labeled Signalman Mark II(Atari) and that the serial number is greater than 201,000. My first unit was one of the earlier models (labeled Mark I) and it failed after 60 days. I returned it to Anchor Automation and the 1 year warranty was promptly honored by them. They replaced that modem with a Mark II(Atari), getting me back on-line in less than 10 days. The Mark II has not given me any problems.

I am very impressed with the Signalman Mark II. It opens up a vast world at a reasonable price. With the addition of a good smart modem program like JTERM (Compute!, Jan, 83), I can communicate with computers anywhere in the U.S., or give a program to a friend in Little Rock without having to go to their house. I have found the Signalman Mark II modem to be worth ever dollar it costs.

by Keith Steensma

PRODUCT REVIEW
OMNIMON!
by David Young

As promised in last months newsletter, this month I will cover the new monitor written my our own David Young.

David wrote another fine piece of software a few years ago called DISKSCAN, and it is still one of the best disk based programs that allow you to examine your disk.

With OMNIMON!, David kept some of the same features of DISKSCAN, but included it in an EPROM so that it is always there when you need it. The program occupies the address range from HEX C000 to CFFF. This is the part that until now was not used so it takes up no additional memory.

The operation of OMNIMON! is very easy to master after a few minutes, but some knowledge of assembly level language and the interworkings of the Atari will help.

You have two ways to enter OMNIMON!. The first is to hold the SELECT key and press the SYSTEM RESET. Across the top of the screen you should see something like this:

David Young OMNIMON! Copyright 1983

```
PC   NV-BDIZC ACCUM X-REG Y-REG STACK
C27BB  28      80    23    21    1FF
```

The values you see should be recognizable to any 6502 programmer. This is the dump of the internal registers of the 6502. The second way to enter the monitor is to hold down the OPTION key and press SYSTEM RESET. The latter will do a warmstart when you try to re-enter the program. Using the first, you should be able to continue with the operation at the point you entered OMNIMON!. Re-entry is accomplished by holding the START key and pressing the RETURN key.

While you are in the monitor, pressing the '?' and RETURN will show you the options that are available to you. They are listed below.

```
RD DISK:R (sec# adr #)     CPU/CHG:C
SEARCH :S adr byt byt ...  DPY/CHP:D (adr adr)
TOGGLE :T                  EXECUTE:E (byt)
WR DISK:W (sec# adr #)     JSR     :J adr
DIS/CHG:X (adr adr)        LINK    :L (drive#)
PSH STK:+ byt byt ...      PRINTER:P
POP STK:-
```

The first of these options is the 'C' command. With this command you are shown the register dump as when you entered OMNIMOM!, but any changes that you have made will show up now. To make a change with this command or any OMNIMON! commands, all you do is use the standard Atari cursor keys to move to the point at which you wish to change and type in the new value.

The 'D' command is used to display memory. By typing in a range of addresses, you can dump a large area of memory. The values returned are in HEX format but you can select character mode by typing 'T' before you use any of the other commands. Again, you can use the editor inside the Atari to make any changes to the values shown.

The 'A' command is used to alter memory. At first you might say that the 'D' command could be used for that. It's true that they look the same, but the 'A' command allows you to change a block of memory. While this command is handy, its use must be used with care. Unlike the 'D' command, the old values are not shown before you make the changes.

One of the most useful (to me) features of OMNIMON! is its search routine. The 'S' command is used to activate this feature. By specifying the address and the values to search for, OMNIMON! will search from the address you entered to the end of memory($FFFF) for that data. It will display the address at each occurence of a match. Again by using the 'T' command, you can toggle between HEX and character mode.

The 'P' or printer command is used to activate the printer. Any thing that goes to the screen, will also be printed. This is nice if you have a large memory dump. By typing 'P' again this feature will be turned off.

The 'R' command is used to read in from the disk a number of sectors and place them at the address you specify. At this point you can use the 'D', 'S', or the 'X' command to examine the data. More on the 'X' in a minute. The 'R' command works with both single and double density drives. Another nice feature is that DOS doesn't even have to be booted up to this command! The number of sectors to be read in is one of the parameters used when you type in this command.

The reverse of the read command is the 'W' command. It allows you to write out to the disk data stored at a certain address and to begin at sector X and continue with Y sectors where X and Y are sector numbers.

With the Atari disks, two means of data storage are possible. One is sequential and the other is linked. In

the sequential mode the data is placed one sector after the other. In linked the data can be anywhere on the disk. To read both types, OMNIMON! has a 'L' command which will switch between the two modes. Also the command will allow you to change drive numbers.

Now for that 'X' command. This is routine for disassembling the data stored in memory into 6502 assembly language mnemonics. I keep repeating this but again you can use the editor to make changes to the disassembly right on the screen.

The '+' and '-' commands allow you to alter the values on the stack. This is handy if you need to make changes to the stack.

The 'E' or execute command allows you to single step through a program. This is handy if you want to check out a routine. The only limitation is that it can only step 31 times.

The last command is 'J' which is used to execute a subroutine and then return back to OMNIMON!. A use of this might be to check out a routine to read a certain sector on the disk. To use this command, you type JXXXX where XXXX is the address to jump, and press return. All this does is load the program counter with the address. The next step is to re-enter the program by holding down the START key and pressing return.

, With OMNIMON! in your Atari you can do things that until now were at most impossible to do. I highly recommend it to any one that is doing any serious work with the Atari.

OMNIMON! is available in two forms. The first is through Newell Ind. They are including it with their RAMROD OS board. The second is from David as an additional piggy-back board that can be used on a 400 or 800.

by Gary Sewell

ANY OLD PORT IN A STORM

One of my favorite features on the Atari is its ability to be interfaced easily with the outside world. Specifically, I refer to the joystick ports. Within those four little jacks you have the capability of detecting 8 potentiometer settings AND 20 switch settings! Between those two lies just about anything you'd want to do from the world at large.

If you want to experiment, the first step is to get some joystick plugs. These are referred to as DB-9 Female connectors, and are available from parts houses and some computer stores. If you can't find any, and you don't have any old joysticks you can rip up, try the trick I mentioned last month (buying a Radio Shack DB-25 Female and cutting it up into two DB-9's). Connect a ribbon cable (or a wire bundle) to all nine pins and you're ready to go.

Here's the way the pins are numbered. You are looking at the plug end-on:

```
1 2 3 4 5          PIN 1 -- UP SWITCH
 6 7 8 9           PIN 2 -- DOWN SWITCH
                   PIN 3 -- LEFT SWITCH -- PTRIG(0)
                   PIN 4 -- RIGHT SWITCH -- PTRIG(1)
                   PIN 5 -- PADDLE(1)
                   PIN 6 -- FIRE BUTTON
                   PIN 7 -- SUPPLY VOLTAGE (+5)
                   PIN 8 -- GROUND
                   PIN 9 -- PADDLE(0)
```

(note that when I say PADDLE(0) I refer to the lowest of the two paddles on that plug) To detect a switch transition, connect the switch between ground (pin 8) and one of the switch pins (1,2,3,4,6). To read a pot, use the center terminal and one of the two side terminals of the pot, and connect them between supply voltage (pin 7) and one of the two PADDLE pins (5 or 9). This part is in the BASIC manual, but for you lazy bums out there, here's how to read the ports: If your switches are plugged into the first port, PRINT STICK(0) will return the following numbers when the appropriate switch is closed:

```
NO SWITCH CLOSED....15
UP CLOSED...........14
DOWN SWITCH.........13
LEFT SWITCH.........11
RIGHT SWITCH........ 7
UP & RIGHT.......... 6
DOWN & RIGHT........ 5
DOWN & LEFT......... 9
UP & LEFT...........10
```

PRINT STRIG(0) returns a 1 unless the switch is closed, when it spits out a 0. PTRIG works the same way. PRINT PADDLE(X) returns a number from 1 to 228 on the Xth paddle. Of course, you wouldn't use PRINT in your program, but it's a good way to check things out.

The neat thing about all this is the endless ways you can present switch closures and pot settings to the computer. Besides using sticks and paddles, try some of these:

-- Rig up a home security system, using security switches (up to 20) all over your house. Write a program that simulates a very expensive burglar alarm system (if a burglar breaks in, the computer forces him to play Tumble Bug).

-- Use magnetic reed switches (available at Radio Shack) that close or open when a magnet is brought near. Count revolutions by mounting a magnet on something spinning and put the switch nearby.

-- Use little relays to interface another project with a different supply voltage, or use the +5V and ground on pins 7 and 8 to power an IC project and drive the ports with CMOS Quad Analog Switches (4066's)

-- Make a security lock for the computer with a series of switches that must be pressed in sequence (or just use a certain pattern of joystick maneuvers).

-- Instead of rotary pots, try hooking up some sliders (linear motion pots) or a photoresistor (not a photocell) to detect light and dark. Shack also has real potentiometer joysticks that can be used (the pots in Atari's paddles are about 1 megohm, so anything less may not return the full range of values).

-- Build a Versa-Writer-type bit pad (like Steve Easton did) with two pots determining the location of a point.

-- Design your own controllers: duplicate Asteroid's arcade layout. Make a new kind of joystick or paddle (I've often wanted a cast-iron stick for when friends come over...).

-- Mercury tilt switches go off when they are tilted a certain way. Knife switches look impressive. Microswitches are easy to lose. The list goes on...

I think you get the idea. Just be careful and don't put anything other than switches and pots on the ports unless you know EXACTLY what you're doing. Stick with switches and pots to be safe -- I've presented only a few ideas above. Let me hear about your efforts.
Greg Leslie

ANALOG INPUT VIA JOYSTICK PORTS

One of the numerous newsletters and journals that I read is called "Hands On!" and is published 3 times a year by the Technology Center of the Technical Research Centers in Cambridge Massachusetts. The most recent issue, Spring 1982, had the following article of interest by Ken Williams and Michael McInerney. It is a description of how they utilized the game ports to make an MBI spectrometer:

"The Atari paddle and joystick port has nine pins. Numbering from the top left, as in Figure 1, pins 1-4 respond to the joystick, pins 5 and 9 correspond to two paddle inputs, and pins 7 and 8 are the +5V and ground, respectively. You will notice that the +5V and ground are very close to one another; loss of the current program will result if they are inadvertently connected.

The Atari paddle control itself is a simple potentiometer which is connected across the +5V and one of the paddle inputs. A range of the potentiometer between 0 and about 1M ohm produces a variation of between 0 and 228 in the value of the ATARI-BASIC PADDLE function. It is also possible to connect paddle pins 5 and 9 to the ends of the potentiometer and pin 7 to the center tap. In this way a wider variation of values can be achieved by reading a combination of paddle functions on the same jack. For example, PADDLE(0) - PADDLE(1) gives a number in the range -228 to +229.

The computer 'reads' the potentiometer resistance by incorporating it into a simple RC circuit. The timer, located in an Atari chip, oscillates with a frequency dependent upon the resistance; this frequency is stored by the paddle function. As far as the simple interfacer is concerned, the chip discharges the capacitor every cycle, which is the most important feature. This varying voltage may cause difficulties if anything other than a resistance is placed in the circuit.
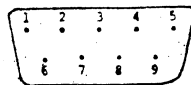
Thus, it is relatively simple to interface a large resistance, or anything that may be made to resemble a large resistance (e.g., phototransistor), to the Atari through its game paddle ports.

The Atari 800 has a total of eight PADDLE functions, distributed among the four paddle-port jacks. Thus, it is possible to monitor up to eight different transducers simultaneously and, if necessary, correlate these with an internal timer.

In this initial experiment, we decided to use a prism spectrometer to test this capability. We used a rather ordinary spectrometer, of a kind commonly found in the physics departments of most universities. We attached a 1M ohm potentiometer to the arms of the spectrometer to allow for reading the angle of refraction of a spectral line with respect to the light source. We also mounted a phototransistor next to the eyepiece in order to read light intensities of various spectral lines. The potentiometer and phototransistor data are read by separate paddle ports and correleated with software. It should be noted at this point that the phototransistor, in this case an FPT-100, acts as a resistance, so that it can be read in a way similar to the potentiometer.

The FPT-100 silicon phototransistor has an emitter-collector current dependent on the intensity of light - the higher the intensity, the higher the current. The transistor also has a very rapid response time. Initially, we tried connecting the emitter and collector across pins 5 and 7 in the same manner as the potentiometer.

The software associated with the prism spectrometer is as yet rather simple. The only real problem we have had so far with the software is the time it takes to gather data. BASIC is notoriously slow at gathering data and samples the ports every few milliseconds. We hope that in the future, this portion of the program will be written in machine language.

We have found it relatively easy to input data into the Atari by use of the paddle ports. The first version of our spectrometer demonstrates how much can be done with these ports. Our spectrometer, crude though it is at the moment, shows great promise. Anyone who is interested in finding out more about this proposal as it progresses is invited to write to the authors."

Mr. Williams and McInerney both teach at Eastern University in Illinois.

Clyde Spencer

1. (Joystick) Forward Input
2. (Joystick) Back Input
3. (Joystick) Left Input
4. (Joystick) Right Input
5. B Potentiometer Input
6. Trigger Input
7. +5 volts
8. Ground
9. A Potentiometer Input

Fig. 1. Atari paddle-port pin map

BEGINNER'S BOX
From: Huntsville ATARI
Users' Group Newsletter

The three "yellow" Console Keys or Game Keys as some folks call them 'write' a certain number into memory location 53279. That number, depends on which of these keys or combinations of these keys are being pressed. The memory location will hold the number 7 if NONE of the START, SELECT or OPTION keys are being pressed.

SEE THE FOLLOWING CHART:

```
-----------------------------------
KEY     1   2   3   4   5   6   7
-----------------------------------
START       X       X       X
SELECT  X           X   X
OPTION  X   X   X
-----------------------------------
```

Note that the 'X' means that key has been pressed. Since two keys have to be pressed at the same time, the numbers 1, 2 and 4 are seldom used, but are still valuable in that it would be difficult to 'accidentally' press two of the keys at any one time.

To use the Console Keys, try the following routine. Study it and you'll quickly see how its done and just as quickly you will see ways to use them in your own programs. It is a good way to help prevent errors since with only three keys to use the chance of an input error is substantially reduced.

```
10 GRAPHICS 0:CON=53279:POKE 752,1
20 POSITION 2,8:?" START=PURPLE"
30 POSITION 2,10:?" SELECT=GREEN"
40 POSITION 2,12:?" OPTION=BLUE"
50 IF PEEK(CON)=6 THEN SE. 2,6,4
60 IF PEEK(CON)=5 THEN SE. 2,12,4
70 IF PEEK(CON)=3 THEN SE. 2,9,4
80 GOTO 50
```

AC-DC COMPUTER

by Paul L. Lanctot

Would you like to run your ATARI computer on 12 volts DC? Well, awhile back I was reading in one of my many computer magazines an article on back-up power supplies--who makes them, how long they last, and how good they are. The back up power supplies allow computer operators to run their equipment in spite of local utility companies brownouts, blackouts, or other such things on the powerlines computer's do not like. Well it all sounded good until I got to the prices. Most of this things cost several hundred dollars. Now I said, I could do better then that, and so I did.

Most of the power supplies plugged into the household AC current. They contained a battey charger and a AC to DC power inverter. I just happen to have a 10 amp battery charger and a 300 watt power inverter (RADIO SHACK #22-130) at home. So the next thing I did was pull the battery from my car and hauled it up into my living room. I plugged the battery charger into the wall. Next, I placed the charger leads to the battery, insuring the positive lead was connected to postive terminal, the negative lead to the negative terminal. Then I wired the inverter to the battery. Making sure again that positive went to positive, negative to negative. The extension cord for the computer, disk drive and TV was then plugged into the inverter. Now I said a little prayer. This is a lot of money to waste if this thing blows up. Well on goes the battery charger, then on goes the power inverter. Hum, no smoke. Should I go all the way??? Oh well! On goes the TV, disk drive and computer. Now to load a program. So far so good, all is working properly. However, will it work on DC power alone? Out goes the battery charger plug from the wall. FAR OUT, the TV, disk drive and computer worked without a hitch. According to the manual with the inverter a full charged 90 amp-hour battery should run my system for 3 to 5 hours. So now I know. I can use my computer anywhere, anytime.

FORTH MEETING

The next FORTH MEETING will be held 02-10-83 at 7:30 the
home of Harry Hafele. 10451 Clary Dr., Dallas,Tx. 75218
348-7745.

ACUGD EDUCATION SIG

The next meeting of the ACUGD Education SIG will be held
Wed., Mar 2,1983 at the home of Tim Clarke, 13510 NOel
Rd., Apt 216, Dallas,Tx. 960-7372.

MEETING:

:HOLIDAY INN- 1735 N. 35E FRWY
:TAKE VALWOOD EXIT OFF 35E NORTH.
:CONFERENCE ROOM #1
:TIME: 2:00 PM
:DATE: MARCH 5,1983

MEETING AGENDA

```
1:00 TO 2:00    SALES
2:00 TO 2:30    BUSINESS MEETING
2:30 TO 2:45    GENERAL QUESTIONS
2:45 TO 3:15    TECHNICAL QUESTIONS
3:15 TO 3:45    BREAK,NEWSLETTERS AND SALES
3:45 TO 5:00    DEMOS ETC.
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