Introduction to OMNIVIEW

Congratulations on purchasing the most powerful 80 column system for the ATARI 8 bit computers! As of this writing there are a variety of programs that will work 80 columns with OMNIVIEW:

<u>Word processors</u>: **OmniWriter** is the one provided free with OMNIVIEW. We consider it overall the most powerful word processor for the ATARI. We are constantly improving it and upgrades are always available for $10.00.

AtariWriter Plus (130 XE version) will work on 130XE compatible computers. Send a copy of the disk (or the original plus a blank disk) to us with $10.00 for conversion to 80 columns.

Letter Perfect can be converted by you using the patches provided in this manual or we will do it for you if you will send us a copy of the disk with $10.00.

<u>Data base</u>: **Data Perfect** can be converted by you using the patches provided in this manual or we will do it for you if you will send us a copy of the disk with $10.00.

<u>Communications</u>: **OmniTerm** is provided free with OMNIVIEW and is useful for talking to a BBS.

VT100 emulator with built-in Kermit is useful for talking to mainframes and general communication tasks. It is available from us for $10.00.

<u>Others</u>: **Many others** that use the standard ATARI screen editor (DOS, Basic, MAC65, etc.) will work by simply turning on 80 columns while running the program.

Getting OMNIVIEW Installed

Before using OMNIVIEW we must get it installed in you computer. How difficult this will be depends on your computer and your proficiency with electronics. Almost anyone can do the installation in the 800. The installation in the 800XL is also not difficult if your machine is socketed. Installation in an 800XL without sockets or in a 130XE should only be attempted by a skilled technician. Follow the installation instructions for your model and then skip to the section on hooking up your monitor.

400/800 Installation Instructions

The OMNIVIEW for the 400/800 will plug onto either the OMNIMON piggyback board (on the 400 or 800) or onto Ramrod OS board (on the 800). Follow the instructions for installating whichever board you have and make sure the board works before plugging in OMNIVIEW! (However, if you purchased it with the Ramrod OS board it may already be plugged in.) Power up the system and make sure it acts normally. You might even try popping into OMNIMON, if present, by holding down OPTION and pressing RESET. Once you are confident that the board is working correctly then you can proceed to plug in the OMNIVIEW.

On the piggyback board you will replace the chip with the OMNIMON label with your OMNIVIEW chip. First note the orientation of the notch on the right end of the OMNIMON chip. You must plug the OMNIVIEW chip in the same orientation or you will burn it up! Carefully unplug the OMNIMON chip by inserting a flat blade screwdriver under the chip and gently rocking it back and forth until it is free. Now plug the OMNIVIEW chip in the socket being careful not to bend any pins. To get the pins to line up with the holes you may want to press each side of the chip against a flat surface to bend the legs in slightly.

On the Ramrod OS board the OMNIVIEW chip can be plugged into either socket Z9 or, if there is an OMNIMON in Z9, into Z10. However, if you plug it into Z10 then the board must be modified to add a toggle switch to select either Z9 or Z10. Follow the instructions under RAMROD UPDATES step 1B to install the switch. The notch in the chip should be toward the top of the board.

130XE Installation Instructions

Caution: This installation should be attempted only by a skilled technician! A chip must be desoldered which can lead to distruction of the board if not properly done. If only ATARI had used a socket for the OS chip!

1) Turn the computer upside down and loosen the 4 crosspoint screws holding the case together. Carefully turn the computer over and collect the screws as they fall out.
2) Lift off the top of the case and set it aside. Carefully unplug the keyboard and set it aside.
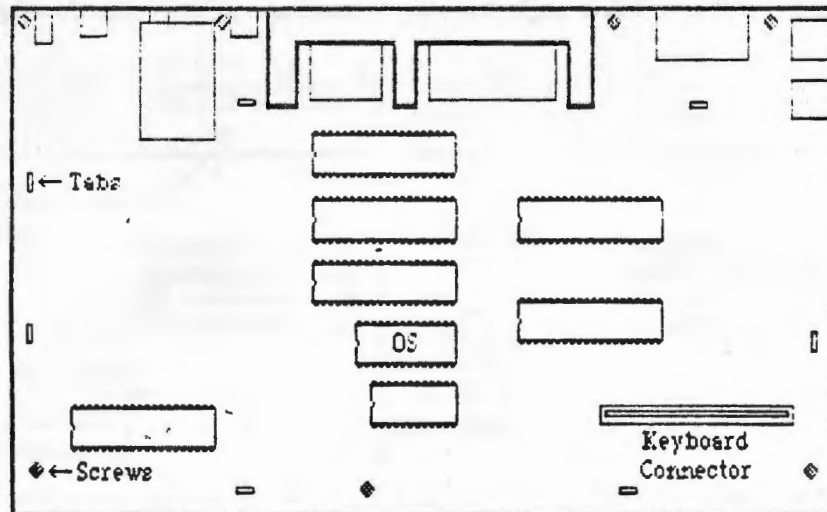
3) Straighten the 7 metal tabs around the periphery of the top shield, lift it off and set it aside.
4) Remove the 7 screws around the periphery of the motherboard and lift it out of the case.
5) The bottom shield can now easily be removed from the bottom of the motherboard. Set it aside.
6) Referring to the diagram, locate the 28 pin OS chip. Unsolder the chip. Nobody should attempt to do this unless they have a lot of soldering experience.
7) Solder a 28 pin socket in place of the OS chip and, noting the orientation of the notch, plug the OS chip back in. Test the computer by plugging the power and monitor cables back in and turning the computer on. If the screen comes up in BASIC then the socket installation was successful. Unplug the ATARI OS and plug OMNIVIEW XL/XE in its place. Optionally, a Ramrod XL/XE can be plugged into the socket and then both the OMNIVIEW XL/XE and the original OS plugged into the Ramrod XL/XE.
8) Complete the installation by reversing the disassembly instructions.

OMNIVIEW-XL Installation Instructions

<u>Tools Required</u>: Crosspoint screwdriver, flat blade screwdriver

1) Turn the computer upside down and remove the six crosspoint screws holding the case together.

2) Turn the computer upright and lift the top half of the case from the left, pivoting on the right edge, and lay it upside down to the right of the bottom half.

3) Now we wish to gain access to the area underneath the metal shield. If your computer has a single screw and tabs around the edge holding the shield down, go to 3A. If there are screws (with nuts) holding the shield down, go to 3B.

   3A) Simply remove the screw and straighten the tabs so that you can lift the shield from the front, pivoting about 30 degrees on the remaining two screws at the back. This will bend the two metal tabs at the back slightly but this is of little consequence (see diagram below). Go to step 4.
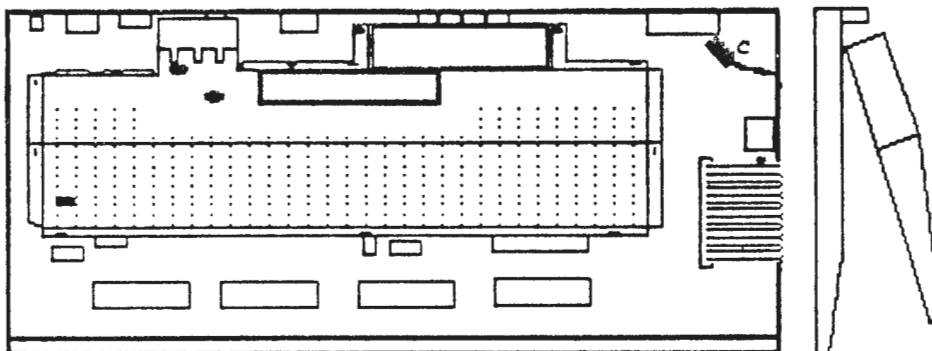
   3B) You will need to remove the motherboard from the bottom half of the case. In this case you will probably want to disconnect the keyboard cable by gently pulling it out of the connector on the motherboard. Remove the remaining screws holding the motherboard to the case (top right and left corners and between the joystick ports) and remove it by lifting from the left side and prying the case around the joystick ports on the right. It is a tight fit but it should pop out. Once the motherboard is free, you can remove the nuts and screws holding the shield to the motherboard. It is recommended that you leave the two at the back on either side of the expansion port. In this way you can lift the shield from the front to about a 30 degree angle, bending the back tabs slightly (see the diagram above).
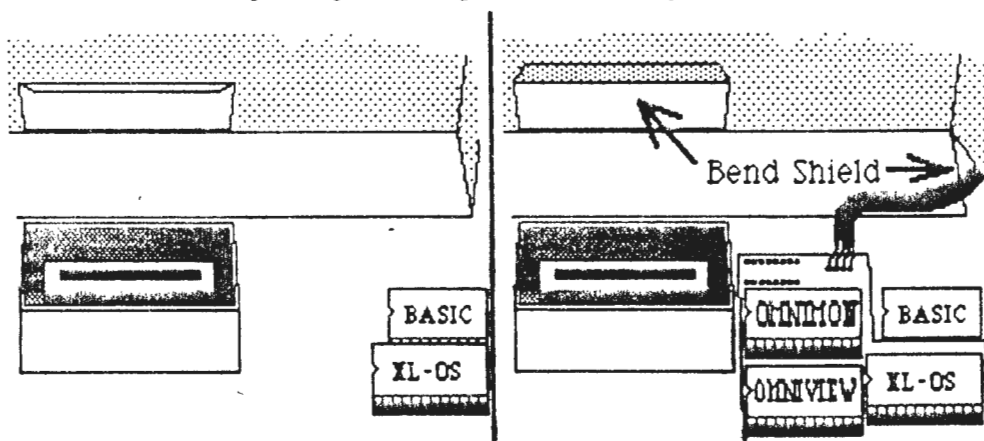
4) Now you are ready to install the OMNIVIEW-XL. Refer to the diagram above. If you have a RAMROD-XL, go to step 5. Else, locate the XL-OS chip, a 28 pin chip about 2 inches to the right of the cartridge slot. Remove it by inserting the flat screwdriver between the chip and the socket and gently prying and rotating the screwdriver. If the OS chip is soldered directly to the board (this should rarely be the case), you will need to have a skilled technician remove the chip and install a socket.

5) Insert the OMNIVIEW-XL chip into the empty socket on the motherboard or on the RAMROD-XL. **Make careful note of the orientation of the chip, otherwise you may burn it up!**

6) Complete the installation by reversing the disassembly instructions.

Hooking up your monitor

Some people are satisfied using OMNIVIEW with a composite color monitor
or even a TV set, especially if the color is turned off. However, the best
80 column output is achieved with either a monochrome monitor or a color
monitor with separate chrominance and luminance inputs (like the Teknika
MJ10, Commodore 1702 or 1802, etc.). But even if you have the right
monitor, **the output will not look good unless it is hooked up
correctly!** The ATARI monitor jack has three video outputs: composite,
chroma, and luma. If you have a monochrome monitor then you must use
the luma output. If you have a color monitor with separate chroma and
luma inputs then you must use these two outputs from the ATARI.

Monitor Jack: Audio 3 ●   ● 1 Luma
               Chroma 5 ●   ●   ● 4 Composite
                          2
                        Ground
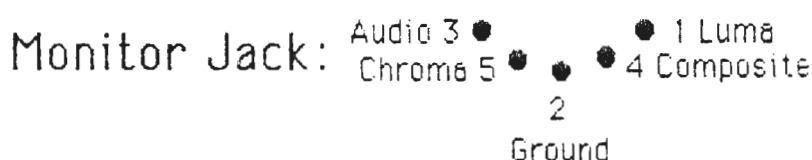
Depending on your cable, you may need to modify the connector that plugs
into the computer or, if your cable has multiple plugs, select the proper
plug at the monitor. When the monitor is hooked up correctly each pixel
should be distinct and of equal intensity.

Using OMNIVIEW

If you have installed everything, your computer is functioning normally,
and your monitor is hooked up correctly, then you are ready to start using
OMNIVIEW. If you only care about using one of the programs described in
the introduction, like OmniWriter, just load up the program and go. It will
turn on the 80 columns automatically. If you want to use 80 columns in
other programs that normally use 40 columns, or if you want to use some
of the other features, like the ramdisk handlers, then you must read on.
Read the next section if you have an 800XL or 130XE. Otherwise, skip to
the section on 400/800 OMNIVIEW features.

OMNIVIEW XL/XE/256 Features

Turning on 80 columns:
80 column emulation is activated from the keyboard by typing CTRL-A and
hitting RESET. To return to 40 columns, type a key without CTRL and hit
RESET. Don't try this if running the OS in RAM. This technique should work
with BASIC, DOS, and most programs that behave nicely when you hit
RESET. Other ways to turn on 80 columns are 'X=USR(49152)' from BASIC
or 'JSR $C001' from assembly language.

Installing the resident ramdisk handlers:
The resident Ramdisk handlers in OMNIVIEW XL/XE/256 allow you to use

the extra 64K RAM of the 130XE or the extra 192K RAM of the 800XL with the 256KXL upgrade as an ultra fast single density disk drive in conjuction with any DOS which uses standard SIO calls ($E459 and $E453) and does not hide itself underneath the cartridge or OS (e.g. ATARI 2.0S, MYDOS, SMARTDOS, etc.). In addition you will find it possible to use the Ramdisk with boot programs like Letter Perfect and Data Perfect.

The easiest method to activate the ramdisk is to load (with the binary load function of DOS) one the files on the OmniWriter disk called INSTALL1 through INSTALL4. These will install the ramdisk as drive 1 to 4 respectively. You could rename one of the files to AUTORUN.SYS if you want the ramdisk installed automatically on bootup. Once the ramdisk is installed it must first be formatted (as you would any new disk) before it can be used. Also, if it is to be used as drive 1 then the DOS files must be written to it.

Another method is as follows: Type a number (1 to 8) corresponding to the drive number you wish to assign the Ramdisk, hold down the START key, and press RESET. If you do not hit a number prior pressing START/RESET, drive 1 will be assumed. In Letter/Data Perfect this combination is also used to change the screen colors, so assign the Ramdisk as drive 3 if you do not wish to use it in these environments.

For example, in BASIC:
1) Type DOS to go to DOS. Now type 2 and START/RESET to install the Ramdisk as drive 2.
2) Since you are now back in BASIC, go to DOS again and format and write DOS files to drive 2.
3) Now type 1 and START/RESET to install the Ramdisk as drive 1 if you so desire.

Or from assembly language:

```
LDA #2 (drive #)
STA $94
LDA $D301
AND #$7F
STA $D301
JSR $CFAE
LDA $D301
ORA #$80
STA $D301
RTS
```

On a 130XE with OMNIVIEW XL/XE there is only enough room for a 512 sector ramdisk. An attempt to use more than 512 sectors of the Ramdisk will result in an I/O ERROR. If you have OMNIVIEW 256 in a machine with at least 256K of memory then you can have up to 1512 sectors in your ramdisk, depending on the DOS. If you want more than 720 sectors then you must tell your DOS that the ramdisk is double sided. The ramdisk will not work double density.

OMNIVIEW 400/800 Features

Turning on 80 columns:

If you are not using one of the programs that activates 80 columns automatically, you can do so from the keyboard by holding down the START and SELECT switches and then very briefly pressing the OPTION switch. Then press the BREAK key to clear out the line buffer. It is important that you hold down the OPTION switch as briefly as possible (more of a tap actually). This is because these three switches are monitored during the vertical blank interrupt (VBI). If the VBI detects the closure of all three switchs, it does a JSR $C001 to initialize OMNIVIEW. Holding the switches down longer than one VBI causes the VBI to be reentered, pushing more stuff on the stack and eventually causing the stack to overflow. A great way to lock up your computer! Other ways to turn on 80 columns are 'X=USR(49152)' from BASIC or 'JSR $C001' from assembly language.

Installing the ramdisk handlers:

If you have an AXLON compatible 128K board in your system then you can use the ramdisk handlers in OMNIVIEW to force almost any DOS to recognize it as a single density ramdisk.

The easiest way to activate the ramdisk is as follows:
1) Go into a DOS that uses the ATARI screen editor (that is, the cursor editing controls are active). If you are using a DOS that responds to a single keystroke you must get into a mode where you are entering a line of text, like when typing a filespec during the directory command.
2) Hold down the START key and type control-, (control-comma). That will install the ramdisk as drive 1.
3) If you wish the ramdisk to be something other than drive 1, type the drive *, put the cursor back on the number, and then type control-,.
4) Hit the BREAK key to abort the DOS command.
5) Format the ramdisk with the 'I' command of DOS.
6) If the ramdisk is drive 1 then you must also write DOS files to it with the 'H' command of DOS.

An even easier way if you also have the 8K OMNIMON in the system is to use it to install the handlers. Then switch back to OMNIVIEW and the ramdisk will stay active. The installation can also be accomplished from assembly language by storing the drive * in location $94 and doing a JSR $CF24.

Reversing the screen colors:

You can reverse the screen colors by holding down START and hitting RESET. Alternatively, you can hold down START during the entire boot process. However, you must wait until after the boot process has started before pressing it, otherwise the OS will try to boot the cassette recorder.

400/800 compatibility:

This feature ameliorates the worst problem associated with the 800XL and 130XE, namely that they won't run so much of the older ATARI software! It does this by having an ultra compatible 400/800 style OS which will copy itself into RAM, freeing up the $C000 page. There are still some highly protected games which, as a part of their misguided protection schemes (e.g., Electronic Arts), refuse to run if your machine's OS is enhanced in any way. That is their problem. Don't call us about their unethical practices. Complain instead to the publisher of the program.

To copy the OS into RAM (from $D800 to $FFFF), hold down the SELECT key while pressing RESET. To restore the OS to ROM, press RESET by itself. From this point on, the RAM version of the OS will be preserved, even if you switch the OS to ROM and back to RAM. Thus, any changes you may make to the OS in RAM remain in effect as long as you do not power down. In addition, if you hold down the SELECT key during powerup, the OS will be copied into RAM and it will stay in RAM even if you press RESET. Please note that the 80 column emulation is not available when running the OS out of RAM.

Basic Activation with OPTION:

The meaning of the OPTION key during powerup is just opposite of the original OS: hold down the OPTION key to activate BASIC. This seems to be the preference of most people.

Scroll control (CTRL-1):

One other convenience is that CTRL-1 has been replaced by the HELP key. Press the HELP key once to stop scolling and again to start scrolling.

Coldstart from the keyboard:

Press HELP and hit RESET. This is the same as powering up except that the contents of the ramdisk are preserved. It is also healthier for your computer than cycling power. However, watch out because HELP is also used to control scrolling. If you have just controlled scrolling with HELP and you want to do a warmstart, be sure to hit some other key before you hit RESET.

Changing screen colors:

It is possible to switch the screen colors in the 80 column mode by holding down the START key while typing a letter. If this does not work (as in Letter Perfect), try holding down the START key while pressing RESET. However, since this combination is also used to install the Ramdisk handlers, read the section on the ramdisk before using this second technique.

Technical Details about OMNIVIEW

OMNIVIEW uses ANTIC mode F (BASIC GR. 8), which gives you a resolution of 320 by 192 pixels. If you use a 4 by 8 character cell, this gives you exactly 80 columns by 24 rows. One drawback to this scheme is that it uses $1E00 bytes (almost 8K) of memory for the screen data. Here is a memory map of the screen data:

RAMTOP*256	-> RAMTOP holds the number of pages of RAM
RAMTOP*256 - $126	-> Unused
RAMTOP*256 - $1F0	-> Biginning of display list (after screen data!)
RAMTOP*256 - $1FFO	-> Beginning of screen data (SAVMSC)
RAMTOP*256 - $2001	-> Last byte of free RAM (MEMTOP)

Another drawback is that the format of the screen data is not nearly so convenient as BASIC GR. 0 (which is essentially stored as ATASCII). Each character must be translated to pixel data represented by bits in noncontiguous bytes in screen memory. Fortunately, you do not have to do this translation yourself. OMNIVIEW will do it for you.

There are basically two ways to write to the screen. The first is via the E: or S: screen editor. When you activate the 80 column mode, OMNIVIEW initializes the 80 column screen and installs the 80 column E: and S: devices in the handler address table at $31A in place of the 40 column devices. Afterwards, all CIO calls to E: and S: get vectored into OMNIVIEW. This includes OPEN, CLOSE, PUT BYTE and GET BYTE. (Yes, OMNIVIEW will even go read the pixel data and figure out what character it represents!) Since every effort was made to preserve the meanings of the E: variables (ROWCRS, COLCRS, LMARGN, RMARGN, OLDCHR, etc.) even programs which manipulate them have a good chance of working in 80 columns. One difference, however, is that the logical line is only 80 characters long in 80 columns. All of this makes it easy to interface to the 80 column screen. However, there is a penalty. It is relatively slow.

This leads us to the second method of writing to the 80 column screen. There are some special hooks directly into the screen output routines of OMNIVIEW that allow a much faster screen update than is possible by going through CIO. The most important one is at $CFBA (OUTCHJ). To use this subroutine you must first calculate the exact address within the screen data of the top row of pixels of the character cell you wish to write to. Do this with the following formula: ROWCRS*240 + COLCRS/2. Put this result in MLTTMP ($66), COLCRS in the Y reg, the character to output in the A reg, and do a JSR OUTCHJ. This is exactly what OmniWriter does to update the screen in the blink of an eye. If you would like to learn more about 80 column programming, the OmniWriter source files are available for $19.95 from CDY Consulting.

Here is a memory map of the screen data area:

```
RAMTOP*256                    ->RAMTOP HOLDS THE NUMBER OF PAGES OF RAM
RAMTOP*256 $126               ->FUTURE BUFFER FOR LAST LINE DELETED (LINBUF)
RAMTOP*256-$1F0               ->BEGINNING OF DISPLAY LIST
RAMTOP*256-$1FF0              ->BEGINNING OF DISPLAY DATA
RAMTOP*256-$2001              ->LAST BYTE OF FREE RAM (MEMTOP)
```

Here are the definitions of OMNIVIEW XL/XE variables:

Name	Addr	Description
DSTAT	$4C	USED TO SAVE STATUS
TEMP	$50	TEMPORARY REGISTER
HOLD1	$51	TEMPORARY REGISTER
LMARGN	$52	LEFT MARGIN (0-79)
RMARGN	$53	RIGHT MARGIN (0-79)
ROWCRS	$54	ROW CURSOR IS ON (0-23)
COLCRS	$55	COLUMN CURSOR IS ON (0-79); DISCERNS BETWEEN ODD AND EVEN CHARS DURING SCREEN OUTPUT (OUTCH1)
LFTMSK	$56	INVERSE VIDEO MASK FOR EVEN COLUMNS
RGTMSK	$57	INVERSE VIDEO MASK FOR ODD COLUMNS
SAVMSC	$58	2 BYTE POINTER TO BEGINNING OF DISPLAY DATA
OLDCHR	$5D	INTERNAL FORMAT OF CHARACTER UNDER CURSOR
OLDADR	$5E	2 BYTE POINTER TO CURRENT CURSOR POSITION (ALSO SEE COLCRS) WITHIN SCREEN DATA
ADRESS	$64	2 BYTE POINTER TO CURRENT CHARACTER
MLTTMP	$66	2 BYTE POINTER WHERE NEXT CHAR WILL BE OUTPUT (ALSO SEE COLCRS) WITHIN SCREEN DATA
RAMTOP	$6A	NUMBER OF 256 BYTE PAGES OF RAM AVAILABLE
BUFCNT	$6B	BUFFER COUNT DURING E: GET CHAR
BUFSTR	$6C	2 BYTE POINTER TO BEGINNING OF LOGICAL LINE DURING E: GET CHAR (ROW/COL)
DILIST	$70	TEMP 2 BYTE PTR USED DURING GENERATION OF DISPLAY LIST
TEMP1	$79	TEMPORARY REGISTER
INSDAT	$7D	TEMPORARY REGISTER
LINBUF	$7E	2 BYTE POINTER TO A LINE BUFFER JUST PAST DISPLAY LIST
GPRIOR	$26F	PRIORITY SELECTION REGISTER
HOLD3	$29D	TEMPORARY REGISTER
ESCFLG	$2A2	ESCAPE FLAG; USED TO DISPLAY CTRL CODES
TMPROW	$2B8	TEMPORARY STORAGE FOR ROWCRS
SCRFLG	$2BB	SCROLL FLAG; SET IF SCROLL OCCURRED
SHFLOK	$2BE	FLAG FOR SHIFT AND CONTROL KEYS
BOTSCR	$2BF	THE NUMBER OF TEXT ROWS AVAILABLE FOR PRINTING
MEMTOP	$2E5	2 BYTE POINTER TO THE TOP OF FREE MEMORY
CRSINH	$2F0	CURSOR INHIBIT FLAG; NON-ZERO TURNS CURSOR OFF
ATACHR	$2FB	LAST ATASCII CHARACTER READ OR WRITTEN
CH	$2FC	INTERNAL HARDWARE VALUE OF THE LAST KEY PRESSED
DSPFLG	$2FE	DISPLAY FLAG; NON-ZERO WILL DISPLAY CTRL CHARS
SSFLAG	$2FF	START/STOP FLAG; NON-ZERO WILL SUSPEND SCREEN OUTPUT

Use of OMNIVIEW XL/XE WITH LJK'S Letter Perfect

Any version of Letter Perfect which supports the Bit-3 board can, with the appropriate patches, be made to work with OMNIVIEW XE/XL. Some special fixed entry points were added to OMNIVIEW XE/XL to provide the necessary hooks and these can be used in your own software if needed.

Here are the patches to the 80 column side of Letter Perfect Version 3.0. Use OMNIMON or any sector editor to modify a backup of the original disk (use and sector copier to make the patches for you. Simply send a backup copy of the 80 column side of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting (214-235-2146).

```
CURSNJ  SCFB1  TURN ON CURSOR @ OLDADR (S5E)
CURSFJ  SCFB4  TURN OFF CURSOR @ OLDADR (S5E)
DELRTJ  SCFB7  CLEAR TO EOL BASED UPON MLTTMP (S66) AND COL # IN REG Y
OUTCHJ  SCFBA  OUTPUT CHAR IN ACC TO SCREEN @ MLTTMP (S66) AND COLCRS (S55)
SCROLJ  SCFBD  SCROLL SCREEN UP
SCRLDJ  SCFC0  SCROLL SCREEN DOWN
```

SECTOR $2D BYTE $30:
```
WAS  SEC
NOW  SD9
```

SECTOR $2D BYTE $53:
```
WAS  S65 EA 48 0A 0A 0A 85  64 65
     S64 68 4A 4A 4A 85 65
NOW  SEA EA 85 64
     S8A 48 20 86 25
```

SECTOR $2D BYTE $72:
```
WAS  SA5 69 04 29 7F 85 EA
     S20 86 25 20 BF 25
NOW  S8A 48 20 BD AA A5
     S58 85 CF 59
```

SECTOR $2E BYTE $00:
```
WAS  S20 4B 25 4C BF 25 EA
     SA5 55 25 0D 8D A5
NOW  S65 4C F7 25 BF A2 06
     S06 26 65 CA D0 F9 A5
     S58 18 65 64 85 65
```

SECTOR $2E BYTE $47:
```
WAS  SA9 00 20 FF 25 C8 C0 50
     S90 F3 60 A4 55 98 18 65
     S64 85 66 69 00 85 65
     S67 A9 13 80 A5 66
     S8D 81 D5 80 A5 A9
     SA5 67 82 AD 80 80
     S80 D5 80 81 10 FB 60
NOW  S8A 48 20 B7 CF 68 AA A0
     S8A 48 20 A4 55 98 69 4A
     S65 65 85 65
     S58 06 65 64 85 65
```

SECTOR $2F BYTE $00:
```
WAS  S48 78 68 8D 85 20 F9
     S25 28 20 D2 25 20 0F
     S8D 80 D5 66 8D 81 D5
     SA9 0E 8D 80 A5 67 8D
     S81 D5 A9 09 48 A9 0A
NOW  S8A 48 20 B7 CF 68 AA
     S59 20 28 20 D2 25 20
     S26 20 81 CF 85 20 85
     SD0 13 85 EA A8 CF 67
     S81 D5 A9 09 48 A9 0A
```

SECTOR $2F BYTE $40:
```
WAS  SA2 10 8E 08 D5 CA 8E
     SD5 BD CF 13 8D D5 CA
     S10 F4
NOW  SEA FF
```

SECTOR $2F BYTE $72:
```
WAS  S20 86 25
NOW  SEA EA EA
```

OMNIVIEW XL/XE with LJK's Letter Perfect Version 3.2, 3.3

Here are the patches to the 80 column side of Letter Perfect Version 3.2, 3.3. Use OMNIMONXL of any sector copier to modify a backup copy of the original disk (use any sector editor to modify a backup copy of the original disk). DO NOT MODIFY THE ORIGINAL DISK! For $10.00, CDY will do the patches for you. Simply send a backup copy of the 80 column side of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting (214-235-2146)

```
SECTOR $2D BYTE $39:
WAS SEC
                                      NOW SD9

SECTOR $2D BYTE $5C:
WAS S65 EA 48 0A 0A 0A 85
    S64 68 4A 4A 4A 85 65    NOW SEA 48 85 64 A9 00 85 65
                                 S8A 20 8F 25 68 AA 60

SECTOR $2D BYTE $7B:
WAS SA5 EA EA 69 04 29        NOW S8A 48 20 BD CF

SECTOR $2E BYTE $00:
WAS S7F 85 EA                 NOW S58 AA A5 59
    S20 8F 25 20 C8 A5           S06 4C 00 26 CF 06
    S20 54 25 4C 0D 80           S26 65 DB 25 20 1E
    S20 5E 25 A9 80 D5           S5E 80 CF 60 A5 85
    S80 64 8D 81 8D              S65 65 64 85 67 8D
    SA5 64 85 A5 8D              S68 18 A8 60

SECTOR $2E BYTE $50:
WAS S90 00 20 08 C8 C0        NOW S8A 48 20 CF CF 68 AA A0
    SA9 F3 60 A4 55 65           S50 38 65 98 A4 18 A0
    S64 85 66 A5 00 85           S65 64 66 A5 65 98 00
    S67 A9 13 80 A5 66           SD0 13 85 66 CA D0 85
    SA5 67 8D D5 12 80           SA5 67 1F 80 D5 F9 A5
    S8D D5 A9 8D D5              S68 65 65 64 EA 48 A5

SECTOR $2F BYTE $00:
WAS S60 D5 10 FB 60 02        NOW S20 C8 25 4C 54 60 08
    S26 78 68 D5 0F             S48 78 68 EA 25 2A 60
    S80 D5 66 DB A9             S25 20 60 DB 25 20 1E
    SA9 0E 80 A5 81 D5          S26 20 0F A5 60 A5 85
    SCA 10 80 A5 67 0A          SS5 D5 A5 67 20 8D 60

SECTOR $2F BYTE $49:
WAS SA2 10 8E D5 8E 80        NOW S20 01 C0 A5 58 9E EA EA
    SD5 BD CF 13 CA 81           S59 CA CA 86 9F EA EA EA
    S10 F4                       SA2 FF

SECTOR $2F BYTE $7B:
WAS S20 8F 25                 NOW SEA EA EA
```

OMNIVIEW XL/XE with LJK's Letter Perfect Version 6.0 thru 6.5

Here are the patches to Letter Perfect Version 6. +. Use OMNIMONXL or a sector editor to modify a backup copy of the original disk (use any sector copier to make the backup). DO NOT MODIFY THE ORIGINAL DISK! For $10.00 CDY will do the patches for you. Simply send a backup copy of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting.

```
SECTOR $62 BYTE $1A:
WAS S31 02 CA                 NOW SE6 02 EA

SECTOR $63 BYTE $0D:
WAS S65 CF 48 0A 0A 0A 85     NOW S6A EA 48 85 64 A9 00 85 65
    S64 68 4A 4A 4A 85 65         S8A 20 C6 08 68 AA 60

SECTOR $63 BYTE $0C:
WAS SA5 CF 69 04 29           NOW S6A 48 20 BD CF
    S20 C6 08 20 F2 07 85         S58 20 64 A5 59 65 4C

SECTOR $64 BYTE $66:
WAS S8D 85 D5                 NOW S20 60
    S81 D5 88 8C 80 D5 8D
                              NOW S20 07
                       BYTE $70:  WAS S4C
                       BYTE $78:  WAS S00
SECTOR $65 BYTE $0C:
WAS S20 0F 8C 80 D5 A5 66 8D  NOW S66 77 08 5E

SECTOR $65 BYTE $0C:
WAS SA2 A9 A0 0A              NOW S98 4A 18 65 64 85 66
    SA5 13 8D 80 D5 98 65         S65 69 00 85 67 60 85
    S8D 80 D5 81 65 D5 12         S98 48 8A 48 A5 65 85
    S67 8D D5 A9 1F 8D 60         SCF 20 CA D0 A5 BA CF
    SD5 AD 80 D5 10 FB           S07 4C 85 07 EA F2

SECTOR $6A, $6A BYTE $4D:
WAS SA2 A9 A0 0A              NOW SA2 06 64 26 65 CA D0
    S80 E3 07 29 F0 CF 20        S20 38 30 20 18 64 85
    S07 8D 81 D5 C8 8C 80        S6D 6E 65 65 65 CA D0
    S3B 30                       NOW S52 2E 49 2E 50 2E

SECTOR $79 BYTE $7B:
WAS S0D 84 0C                 NOW S0B 84 0A

SECTOR $6A BYTE $48:
WAS S42 69 74 20 33 20 75     NOW S4F 4D 4E 49 56 49 45
    S6C 6C 2D 76 69 65 20        S20 38 30 20 43 6F 6C
    BYTE $6B:
WAS S63 6F 6C 6D 6E          NOW S52 2E 49 2E 50 2E
```

OMNIVIEW XL/XE with Data Perfect Version 2.0 thru 2.5

Here are the patches to 80 column Data Perfect. Use OMNIMONXL or any sector editor to modify a backup copy of the original disk (use any sector copier, to make the backup). DO NOT MODIFY THE ORIGINAL DISK! For $10.00 CDY will do the patches for you. Simply send a backup copy of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting.

```
SECTOR $02 BYTE $06:
WAS S31
NOW SE6

SECTOR $04 BYTE $02:           BYTE S07:
WAS S30
NOW SE5
                               NOW SE6

SECTOR $05 BYTE $1E:
WAS S42 69 74 20 33 00 33 3E
    S20 20 41 75 73 69 6E
    S20 46 72 61 6B 6C 69
    S4E
NOW S4F 4D 4E 49 56 49 45 57 45
    S20 38 30 00 33 3E 20 20 20
    S41 75 73 74 69 74 69 6F 6F 36
    S30

SECTOR $09 BYTE $46:
WAS S30
NOW SE5

        S4B                    NOW SE6

SECTOR $8F BYTE $57:
WAS S48 4A 4A 4A 85 E1 68
    S0A 0A 0A 0A E0
NOW S85 E0 A9 00 85 E1 98 4A
    S20 6D 0D 68 A8 60

SECTOR $90 BYTE $51:
WAS S8D 85 D5 20 67 0D
    S00
NOW S20 54 0D EA EA EA
NOW S20

SECTOR $91 BYTE $0D:
WAS SF8 60 20 44 0D AD 83 D5
    S20                        BYTE S65:
    S0F 8C 80 D5 A5 66 8D
    S61 D5 88 8C
                               BYTE S7B:
WAS SA0 20 A0 0A
    S7B
NOW SF6 60 20 44 0D BD 80 04
NOW SA5 66 85 5E A5 67 85 5F
    S20 B1 CF 60
NOW S20 B4 CF 60

SECTOR $92 BYTE $00:
WAS S70 50 5B 39 19 04 18 18
    S7B 09 20 09 00 A2 10
    S8E 09 D5
                               BYTE S6D:
    S67 8D R1 D5 A9 00 85
    S6D 80 E5 A5 E1 69 12
    SE0 66 8D 81 D5 00 85
WAS SA9 13 8D D5 98 18 65
                               BYTE S46:
NOW S98 4A 18 65 E0 85 66 A5
    SE1 00 85 67 60 85 56
    S98 48 8A 48 68 A8 60 BA
    SCF 68 AA 68 A8 60
NOW SCA 8E 80 D5 10 F4
    S7B 09 20 09 00 20 01 C0 EA EA
    S8E 09 D5
    SEA D5 CA 10 F4
    S85 E1 60 20 01 C0 EA EA
    S59 65 E1
    SF9 A5 58 65 E0 R5 E0 A5
```

USE of OMNIVIEW XL/XE with ATR8000

OMNIVIEW XL/XE has a built in terminal emulator for use with the ATR8000 which provides a serial interface for communication with the ATR and most of the standard cursor controls necessary for operation with CPM programs. The terminal emulator which will be referred to as 'ATRMON' from this point on, can be called up at any time and it is even possible to switch back and forth between the ATARI and CPM environments.

Turning on ATRMON

First of all you must activate the 80 column OMNIVIEW XL/XE screen editor (e.g. with CONTROL-A RESET). Then hold down the START, SELECT, and OPTION buttons and type any letter on the keyboard. You should hear the drive(s) reset and the ATRMON header should appear after a couple of seconds. Now put in your CPM system disk and type 'B(return)' to boot up CPM. While ATRMON is active, the START button will allow you to switch screen colors. (By the way, even in ATARI mode you can switch screen colors by holding down the START button and typing any key. This also holds true of powerup, if you press the START button after the disk boot process has begun and hold it down until the boot is finished. This allows you to change the screen colors of Letter Perfect.)

Leaving ATRMON

Leave ATRMON in almost the same way you entered it, i.e., by holding down the START, SELECT, and OPTION buttons, but this time it is not necessary to type another key. You will then see the command 'GOATARI' appear on the screen. This is to fetch the extrinsic command 'GOATARI' which is used to reset the ATR from CPM so that the drives can once more be accessed in the ATARI environment. To create this file, use DDT as follow:

1) Under CPM, insert a disk with DDT on it and type 'DDT(return)' to enter DDT.

2) Type 'A100(return) JMP 0F00(return)(return) G0'

3) Back at the command level, type 'SAVE 1 GOATARI.COM(return)'

The short file 'GOATARI.COM' will have to be on any CPM disk from which you might want to return to the ATARI environment. The alternative is to reach behind the ATR and reset it whenever you return to the ATARI environment.