OMNIVIEW 80 Column Upgrade
by David Young

Requirements:OMNIMON piggy-back board or RAMROD OS board

Installation:
Make note of the orientation of the existing OMNIMON ROM and carefully unplug it by gently prying with a screwdriver, being careful not to gouge the etch underneath the chip. Plug in the OMNIVIEW chip in the same orientation. IF YOU PLUG IT IN BACKWARDS THE CHIP WILL BURN UP! If a switch is attached to the chip, mount it in a convenient location by drilling the appropriate size hole.

If this is the installation of an 8K OMNIVIEW in a piggyback board, there may be a tiny bit of interference between the end of the chip and the plastic housing of the wire connector between the two PC boards. If so, use some nippers to cut the two tiny pieces of board beneath the connector. Now, holding the big board with your left hand, bend the little board away from you with your right hand to about a 15 degree angle. This will stretch the connector around the edge of the board and cause the plastic housing to move slightly to the right. The end of the 8K chip should now clear the connector and seat down properly. Bend the little board out straight again.

If you are using a monochrome monitor, be sure to use the composite luminance output (pin 1) instead of the composite video (pin 4). The composite video output is of lower bandwidth and the resulting artifacting is quite annoying. If it is hooked up correctly, every pixel should be distinct and of equal intensity. If you are using a color TV or monitor, turn off the color and adjust the brightness and contrast.

Overview of OMNIVIEW

OMNIVIEW takes advantage of the high resolution graphics mode built into the ATARI to generate an 80 column screen editor essentially identical to the ATARI screen editor (E:, S:). Thus, you can use OMNIVIEW in any environment where you would normally use the 40 column "E:" (e.g., BASIC, Assembler/Editor, modem programs, etc.). The MAC65 assembler and screen editor work especially well. The 80 column "E:" of OMNIVIEW has been optimized for speed so that it is only slightly slower than 40 column "E:". In addition, the character font was specially designed to be legible on an ordinary TV set! A monitor is recommended, but not really necessary for casual 80 column operation. The Bit-3 version of LJK's 80 column Letter Perfect has been modified to support OMNIVIEW and other programs are sure to follow. In addition, OMNIVIEW has resident ramdisk handlers. AXLON Ramdisk owners may now use this powerful device in any environment which uses standard SIO calls, either in conjunction with or independently of the 80 column capability.

Use of OMNIVIEW 80 column E:

For 8K OMNIVIEW users, be sure the bank switch is in the position to select OMNIVIEW instead of OMNIMON. The 80 column mode can be activated from assembly language with 'JSR $C001' or from BASIC with 'X=USR(49152)'. Once activated, the 80 column E: acts just like the ATARI 40 column E: except for a few minor points. First, the logical line is 80 characters long (1 physical line) instead of 120. If you wish to edit a line longer than 80 characters, as you might in BASIC, hit SYSTEM RESET to take you back to 40 column mode. Secondly, you cannot set the tabs as you can in 40 column mode. Lastly, neither split screen nor line drawing is supported. However, there is a feature which will allow a mixture of 80 column text and graphics on the screen. This will be described later.

Thus, any program which uses pure E: in its simplest form (no split screen or line drawing) for its screen I/O should work in 80 column mode. One possible exception would be a program which relies on characteristics specific to a 40 column screen like, for instance, that the line will wrap at the 40th column. However, even programs which reference and manipulate internal E: variables (ROWCRS, COLCRS, LMARGN, RMARGN, OLDCHR, etc.) should work fine because every effort was made to preserve the meanings of these variables in 80 column mode.

I

Theory Behind 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 alone. This is rarely a problem and, when it is, you can always drop into 40 column mode anyway. 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. This gets especially tricky when E: goes to read a character from the screen! This requires a search of the character data table to find a match for the pixel data representing that character. You can see how this could be quite slow, but this part of the code has been optimized for speed and the small delay is hardly noticable. For example, it will take a fraction of a second longer for the machine to respond when you type a line of BASIC and hit RETURN.

Technical Details

When you activate 80 column mode with 'JSR $C001' or 'X=USR(49152)', OMNIVIEW initializes the 80 column screen and installs the 80 column E: and S: in the handler address table at $31A (HATABS). Afterwards, all CIO calls to E: and S: will get vectored into OMNIVIEW. By the way, when OMNIVIEW's E: GET CHAR routine fetches a character from the keyboard, it vectors through the K: entry in HATABS instead of cheating like the OS does and calling the keyboard handler directly. This would allow you to redirect the keyboard input if you so desire.

As mentioned earlier, there is a way to mix 80 column text and graphics on the same screen. While the first line of text is always the top row, the last is set with the variable BOTSCR ($2BF), which ranges from 0 to 23. If you were to set BOTSCR to anything less than 23 then you could use the remaining lower part of the screen for anything you wanted by simply modifying the display list. This opens up all sorts of exciting possibilities which were inconceivable with the other dedicated 80 column boards for the ATARI. For example, wouldn't it be nice to have a word processor which would allow you to draw diagrams in with the text? Some software developer ought to jump on that one and, by the way, OMNIVIEW source code is available for a fee. This would allow your program to run 80 columns independent of the OMNIMON hardware.

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 (SAVMSC)
RAMTOP*256 - $2001 -> LAST BYTE OF FREE RAM (MEMTOP)
```

Here are the definitions of OMNIVIEW variables:

```
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
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)
ADRESS   $64  2 BYTE POINTER TO CURRENT CHARACTER
MLTTMP   $66  2 BYTE POINTER WHERE NEXT CHAR WILL BE OUTPUT (ALSO SEE COLCRS)
RAMTOP   $6A  NUMBER OF 256 BYTE PAGES OF RAM AVAILABLE
```

```
BUFCNT    $5B  BUFFER COUNT DURING E: GET CHAR
BUFSTR    $6C  RETAINS START 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    $2BA FLAG FOR SHIFT AND CTRL KEYS
BOTSCR    $2BB 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
```

AXLON Ramdisk Handlers

The resident Ramdisk handlers in OMNIVIEW allow you to use your Ramdisk with any DOS which uses standard SIO calls ($E459 and $E453). Operation of the Ramdisk in conjunction with drives other than single density is possible if the DOS will support them (e.g., OSA+, DOS-XL, MYDOS, etc.). In addition, you will find it possible to use the Ramdisk with other boot programs which require a lot of disk access (e.g., DBMSs, word processors, games, etc.).

There are two techniques for installing the Ramdisk handlers in the current operating environment:
1)
This is the simplest way. It should work in any environment which uses the OMNIVIEW 80 col screen editor (E:), such as a DOS or BASIC. A keyboard command,"CTRL ," (hold down the CTRL key and type a comma), will install the handlers in the program currently in memory. It does so by searching memory for all occurrences of $E459 and $E453 and replacing them with hooks into OMNIVIEW. In this way all SIO calls are intercepted and examined to see if the Ramdisk is being addressed. If it is, the special handlers take over. Else, the call is passed on to SIO. In order to assign the Ramdisk a drive # other than 1, type a number 2 thru 5 and place the cursor over the number prior to executing the CTRL-comma command. For example, boot up a DOS with BASIC installed. Turn on 80 columns with X=USR(49152) and type DOS to go to DOS. Now we can install the Ramdisk as drive 1 by typing CTRL-comma. There will be a pause and when the cursor reappears, initialize the Ramdisk (I) and write DOS files to it (H).
2)
Ramdisk installation can also be accomplished from assembly language by storing the drive # in location $94 and doing a JSR $CF24. For example, the following 11 bytes appended to the end of a binary load file will automatically install the Ramdisk handlers (where drv# = 1 to 4): 94 00 94 00 drv# E2 02 E3 02 24 CF. Appended to the end of DUP.SYS, these load vectors will take the place of installation technique #1 when you boot up DOS.

For those of you with OMNIMONL in another bank, you can also install the Ramdisk handlers with the 'I' command and then switch over to OMNIVIEW. The Ramdisk handlers will remain active.

One other command unique to the 80 column mode of OMNIVIEW is the "CTLR ." (hold down CTRL and type a period). OMNIVIEW has a built in booter which will attempt to boot off of the drive # in location $123. Since this is initialized to the Ramdisk drive # at the time of installation, it will normally boot off of the Ramdisk. Thus, this is a quick way to return to the environment in the Ramdisk. You can activate the booter from assembly language with JSR $CF66.

Features of Advanced OMNIMON

For those of you who have 8K OMNIVIEW, the 80 column software resides in one 4K bank while OMNIMONA resides in the other 4K bank. 4K OMNIVIEW users should ignore this section, which describes the additional features of OMNIMONA over the standard version. Please refer to the OMNIMON! USER'S MANUAL for a description of the standard version of the monitor. To make room for these additional commands, the HELP command has been deleted:

1) Hex Conversion: H #
can be either in hex or decimal. Decimal #'s are terminated with a non-hex character. For example, 'H100T' yields '$64 = 100'.

2) Verify Memory: V addr#1 addr#2 #bytes
Compare the specified # bytes starting at the two blocks of memory specified by addr#1 and addr#2. Print the differences.

3) Happy upload and download and buffer default
The buffer default of $6000 no longer is valid so you must specify the buffer address on the first disk I/O operation (R or W). If the disk is read or written to with a sector # of $800 or greater, the Happy drive treats the sector # as an internal buffer address ($800-$13FF). On multiple reads or writes the sector # in incremented by $80 each sector. This feature should be used only if you know what you are doing!

4) Support for coldstart switch
This is support for the hardware mod which hooks the SYSTEM RESET switch into the RESET line of the CPU. This is accomplished by inserting a normally open momentary switch in series with a 47 ohm resistor between the pads provided on the motherboard next to R156 (R179 on 400). With this mod and the support in OMNIMONA it is possible to recover from system lockup by closing the switch and pressing SELECT/RESET. This will pop into the monitor with the PC reflecting the instruction the CPU was trying to execute when it locked up (probably an illegal one). At that point memory can be dumped to disk or whatever other action necessary to recover can be taken.

5) P command enhancement
The trace turned on by the P command can now be redirected to any output device. If it is desired to output to something other than the printer, store the device specification someplace in memory and point $125 to that location. The P command will then open up an I/O channel to that device and the next P command will close it. For example, if you were to store 'D:TEMP ' (notice the blank use as terminator) at $600 and store #0 #6 at $125, the P command would open up a disk file. This feature is especially useful in conjunction with the disassembler or the single-step.

_4_

Use of OMNIVIEW 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. Some special fixed entry points were added to OMNIVIEW to provide the necessary hooks and these can be used in your own software if needed:

```
CURSNJ   $CFB1    TURN ON CURSOR @OLDADR ($5E)
CURSFJ   $CFB4    TURN OFF CURSOR @OLDADR ($5E)
DELRTJ   $CFB7    CLEAR TO EOL BASED UPON MLTTMP ($66) AND COL # IN REG Y
OUTCHJ   $CFBA    OUTPUT CHAR IN ACC TO SCREEN @MLTTMP ($66) AND COL # IN Y
SCROLJ   $CFBD    SCROLL SCREEN UP
SCRLDJ   $CFC0    SCROLL SCREEN DOWN
```

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 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 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 $30:
WAS $EC                          NOW  $D9
SECTOR $2D BYTE $53:
WAS $65 EA 48 0A 0A 0A 0A 85     NOW  $EA EA 85 64 A9 00 85 65
    $64 68 4A 4A 4A 4A 85 65          $8A 48 20 86 25 68 AA 60
SECTOR $2D BYTE $72:
WAS $A5 EA 69 04 29 7F 85 EA     NOW  $8A 48 20 BD CF 68 AA A5
    $20 86 25 20 BF 25                $58 85 64 A5 59 85
SECTOR $2E BYTE $00:
WAS $20 4B 25 4C BF 25 A5 EA     NOW  $65 4C F7 25 BF 25 A2 06
    $20 55 25 A9 0D 8D 80 D5          $06 64 26 65 CA D0 F9 A5
    $A5 64 8D 81 D5 A9 0C 8D          $58 18 65 64 85 64 A5 59
    $80 D5 A5 65 8D                   $65 65 85 65 60
SECTOR $2E BYTE $47:
WAS $A9 00 20 FF 25 C8 C0 50     NOW  $8A 48 20 B7 CF 68 AA A0
    $90 F3 60 A4 55 98 18 65          $50 38 60 A4 55 98 4A 18
    $64 85 66 A5 65 69 00 85          $65 64 85 66 A5 65 69 00
    $67 A9 13 8D 80 D5 A5 66          $D0 13 85 EA 98 48 8A 48
    $8D 81 D5 A9 12 8D 80 D5          $A5 EA 20 BA CF EA EA EA
    $A5 67 8D 81 D5 A9 1F 8D          $68 AA 68 A8 60 85 67 60
    $80 D5 AD 80 D5 10 FB 60          $20 BF 25 4C 4B 25 EA 60
SECTOR $2F BYTE $00:
WAS $48 78 68 8D 85 D5 20 F9      NOW  $48 78 68 20 E1 25 28 60
    $25 28 60 20 D2 25 A9 0F              $25 28 60 20 D2 25 20 15
    $8D 80 D5 A5 66 8D 81 D5              $26 20 B1 CF 60 A5 66 85
    $A9 0E 8D 80 D5 A5 67 8D              $5E A5 67 85 5F 60 67 8D
    $81 D5 A9 09 48 A9 0A 8D              $81 D5 A9 09 20 B4 CF 60
SECTOR $2F BYTE $40:
WAS $A2 10 8E 08 D5 CA 8E 80     NOW  $20 01 C0 A5 58 85 9E A6
    $D5 8D CF 13 8D 81 D5 CA          $59 CA CA 86 9F EA EA EA
    $10 F4                            $A2 FF
SECTOR $2F BYTE $72:
WAS $20 86 25                    NOW  $EA EA EA
```

Here are the patches to Data Perfect Version 2. Use OMNIMON 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 (214-235-2146).

SECTOR $02 BYTE $06:
WAS $31   NOW $E6
SECTOR $04 BYTE $02:
WAS $30   NOW $E5
          BYTE $07:
WAS $31   NOW $E6
SECTOR $05 BYTE $1E:
WAS $42 69 74 20 33 00 33 3E   NOW $4F 4D 4E 49 56 49 45 57
    $20 20 41 75 73 74 69 6E $20 38 30 00 33 3E 20 20
    $20 46 72 61 6E 6B 6C 69 $41 75 73 74 69 6E 20 38
    $6E $30
SECTOR $09 BYTE $46:
WAS $30   NOW $E5
          BYTE $4B:
WAS $31   NOW $E6
SECTOR $8F BYTE $57:
WAS $48 4A 4A 4A 4A 85 E1 68   NOW $85 E0 A9 00 85 E1 98 48
    $0A 0A 0A 0A 85 E0 $20 6D 0D 68 A8 60
          BYTE $6F:
WAS $8D 85 D5 20 67 0D   NOW $20 54 0D EA EA EA
SECTOR $90 BYTE $51:
WAS $00   NOW $20
          BYTE $59:
WAS $F8 60 20 44 0D AD 83 D5   NOW $F6 60 20 44 0D BD 80 04
          BYTE $65:
WAS $A0 0F 8C 80 D5 A5 66 8D   NOW $A5 66 85 5E A5 67 85 5F
    $81 D5 88 8C $20 B1 CF 60
          BYTE $7B:
WAS $A9 20 A0 0A   NOW $20 B4 CF 60
SECTOR $91 BYTE $0D:
WAS $7B   NOW $83
          BYTE $46:
WAS $A9 13 8D 80 D5 98 18 65   NOW $98 4A 18 65 E0 85 66 A5
    $E0 85 66 8D 81 D5 A9 12 $E1 69 00 85 67 60 85 56
    $8D 80 E5 A5 E1 69 00 85 $98 48 8A 48 A5 56 20 BA
    $67 8D 81 D5 A9 1F $CF 68 AA 68 A8 60
          BYTE $6D:
WAS $70 50 5B 39 19 04 18 18   NOW $A0 06 06 E0 26 E1 88 D0
    $78 09 20 09 00 00 A2 10 $F9 A5 58 65 E0 85 E0 A5
    $8E 08 D5   , $59 65 E1
SECTOR $92 BYTE $00:
WAS $CA 8E 80 D5 BD 6D 0D 8D   NOW $85 E1 60 20 01 C0 EA EA
    $81 D5 CA 10 F4 $EA EA EA EA EA

If you want to install the Ramdisk automatically on bootup, change the 7 EA's at byte $06
to: A9 drv# 85 94 20 24 CF, where drv# = Ramdisk drive # (from #1 to #5).

OMNIVIEW 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 or 3.3. Use OMNIMON 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 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 $EC   NOW $D9
SECTOR $2D BYTE $5C:
WAS $65 EA 48 0A 0A 0A 0A 85   NOW $EA EA 85 64 A9 00 85 65
     $64 68 4A 4A 4A 4A 85 65 $0A 48 20 8F 25 68 AA 60
SECTOR $2D BYTE $7B:
WAS $A5 EA 69 04 29   NOW $8A 48 20 BD CF
SECTOR $2E BYTE $00:
WAS $7F 85 EA   NOW $68 AA A5
     $20 8F 25 20 C8 25 $58 85 64 A5 59 85
     $20 54 25 4C C8 25 A5 EA $65 4C 00 26 BF 25 A2 06
     $20 5E 25 A9 0D 8D 80 D5 $06 64 26 65 CA D0 F9 A5
     $A5 64 8D 81 D5 A9 0C 8D $58 18 65 64 85 64 A5 59
     $80 D5 A5 65 8D $65 65 85 65 60
SECTOR $2E BYTE $50:
WAS $A9 00 20 03 26 C8 C0 50   NOW $8A 48 20 B7 CF 68 AA A0
     $90 F3 60 A4 55 98 18 65 $50 38 60 A4 55 98 4A 18
     $64 85 66 A5 65 69 00 85 $65 64 85 66 A5 65 69 00
     $67 A9 13 8D 80 D5 A5 66 $D0 13 85 EA 98 48 8A 48
     $8D 81 D5 A9 12 8D 80 D5 $A5 EA 20 BA CF EA EA EA
     $A5 67 8D 81 D5 A9 1F 8D $68 AA 68 A8 60 85 67 60
SECTOR $2F BYTE $00:
WAS $80 D5 AD 80 D5 10 FB 60 08   NOW $20 C8 25 4C 54 25 EA 60 08
     $48 78 68 8D 85 D5 20 02 $48 78 68 20 EA 25 28 60
     $26 28 60 20 DB 25 A9 0F $25 28 60 20 DB 25 20 1E
     $8D 80 D5 A5 66 8D 81 D5 $26 20 B1 CF 60 A5 66 85
     $A9 0E 8D 80 D5 A5 67 8D $5E A5 67 85 5F 60 67 8D
     $81 D5 A9 09 48 A9 0A 8D $81 D5 A9 09 20 B4 CF 60
SECTOR $2F BYTE $49:
WAS $A2 10 8E 08 D5 CA 8E 80   NOW $20 01 C0 A5 58 85 9E A6
     $D5 8D CF 13 8D 81 D5 CA $59 CA CA 86 9F EA EA EA
     $10 F4 $A2 FF
SECTOR $2F BYTE $7B:
WAS $20 8F 25   NOW $EA EA EA

7

TURNING ON 80 COLUMNS:

It is possible to activate the 80 column emulator by holding down the START and SELECT switches and very briefly pressing the OPTION switch and then hitting the BREAK key immediately afterwards 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 switchs 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!

CHANGE SCREEN COLORS:

It is now possible to switch the screen colors in the 80 column environment by holding down the START switch and typing a letter. This will only work however in the E: environment. Letter Perfect, for example, does not use E: for its screen I/O. In such cases you can switch screen colors by holding down the START switch during the boot process. However, you must press the switch after the boot process has started, otherwise the OS will try to boot the cassette.

CHANGES TO RAMDISK SUPPORT:

Since the CTRL-, and CTRL-. commands to install and boot the Ramdisk, respectively, caused problems in certain environments, you must now hold down the START switch while typing them for them to take effect. Otherwise they have thier normal meanings, i.e. to print out certain graphics characters.

Here are the patches to Letter Perfect Version 6. Use OMNIMON 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 (214-235-2146).

SECTOR $62 BYTE $1A:
WAS $31 02 CA   NOW $E6 02 EA

SECTOR $63 BYTE $0D:
WAS $65 CF 48 0A 0A 0A 0A 85   NOW $EA EA 85 64 A9 00 85 65
    $64 68 4A 4A 4A 4A 85 65 $8A 48 20 C6 08 68 AA 60
            BYTE $2C:
WAS $A5 CF 69 04 29 7F 85 CF   NOW $8A 48 20 8D CF 68 AA A5
    $20 C6 08 20 F2 07 20 85 $58 85 64 A5 59 85 65 4C
    $07 4C $E0 07
            BYTE $42:
WAS $A9 13 8D 80 D5 98 18 65   NOW $98 4A 18 65 64 85 66 A5
    $64 85 66 8D 81 D5 A9 12 $65 69 00 85 67 60 85 CF
    $8D 80 D5 A5 65 69 00 85 $98 48 8A 48 A5 CF 20 BA
    $67 8D 81 D5 A9 1F 8D 80 $CF 68 AA 68 A8 60 20 F2
    $D5 AD 80 D5 10 FB $07 4C 85 07 EA EA
            BYTE $78: WAS $00   NOW $20

SECTOR $64 BYTE $66:
WAS $8D 85 D5   NOW $20 D0 07
            BYTE $6A: WAS $4C   NOW $60
            BYTE $70:
WAS $A0 0F 8C 80 D5 A5 66 8D   NOW $20 77 08 20 B1 CF 60 A5
    $81 D5 88 8C 80 D5 A5 67 $66 85 5E A5 67 85 5F 60

SECTOR $65 BYTE $0C:
WAS $A9 A0 A0 0A   NOW $20 B4 CF 60
            BYTE $17:
WAS $A2 10 8E 08 D5 A2 0D 8E   NOW $20 01 C0 A9 01 85 0C A9
    $80 D5 8D 02 08 8D 81 D5 $C0 85 0D EA EA EA EA EA
    $CA 10 F4 E8 $EA EA A2 00

If you want to install the Ramdisk automatically on bootup, change the 7 EA's at byte $22 to: A9 drv# 85 94 20 24 CF, where drv# = Ramdisk drive # (from #1 to #5).
            BYTE $3D:
WAS $20 C6 08   NOW $EA EA EA
            BYTE $46:
WAS $20 E3 07 29 20 F0 F9 A0   NOW $A2 06 06 64 26 65 CA D0
    $0C 8C 80 D5 A5 CF 20 8F $F9 A5 58 18 65 64 85 64
    $07 8D 81 D5 C8 8C 80 $A5 59 65 65 85 65 60

SECTOR $6A BYTE $4D:
WAS $0D 84 0C   NOW $0B 84 0A

SECTOR $79 BYTE $48:
WAS $42 69 74 20 33 20 66 75   NOW $4F 4D 4E 49 56 49 45 57
    $6C 6C 2D 76 69 65 77 20 $20 38 30 20 43 6F 6C 75
    $38 30 $6D 6E
            BYTE $6B:
WAS $63 6F 6C 75 6D 6E   NOW $52 2E 49 2E 50 2E

G

New OMNIVIEW XL Features

OMNIVIEW XL now has several new features which address the worst problem associated with the 600XL/800XL: they won't run so much of the existing ATARI software! The other outstanding features of OMNIVIEW XL remain the same, namely, 80 column emulation under Letter/Data Perfect, BASIC, MAC65, ATR8000 CPM, etc. and the Fastchip floating point package for significantly faster math operations. All together, these features represent an outstanding value for the 600XL/800XL owner.

Improved 400/800 Compatibility:
(Compliments of CalCom, P.O. Box 767, L.A., CA 90053)
The OMNIVIEW XL operating system runs more of the old software than anything else we have seen! Besides being coded closely to the older OSB (e.g., the interrupt vectors are identical), it also has the capability of copying itself into RAM, freeing up the $C000 page for your applications. This means 4K more of RAM for programs like VISICALC, modem programs, word processors, etc. It also means better compatibilty with highly protected games which look for ROM in the $C000 page as a part of their misguided protection schemes (e.g., Electonic Arts).

To copy the OS into RAM (from $D800 to $FFFF), hold down the SELECT key while pressing SYSTEM RESET. To restore the OS to ROM, press SYSTEM 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 the system doesn't crash or you 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 SYSTEM RESET. Please note that the 80 column emulation is not available when running the OS out of RAM.

There are two other features designed to increase compatiblity: the cursor speed and the OPTION key BASIC activation during powerup. The cursor speed is the same as the original XL OS (contrary to what our advertisements may say) to remain compatible with the SYNAPSE software (SYNCALC, SYNFILE, etc.) which speeds up the cursor. This is a compromise which will not please everyone, but it is the only way to remain compatible with this very popular software. Also, 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.

TURNING ON 80 COLUMNS:

It is possible to activate the 80 column emulator by holding down the SHIFT, CTRL, and A keys simultaneously while pressing SYSTEM RESET. This replaces the other method (SELECT/OPTION/RESET) mentioned elsewhere in the documentation. To return to 40 columns, press SYSTEM RESET by itself. Don't try this if you run the OS out of RAM!

CHANGE SCREEN COLORS:

It is now possible to switch the screen colors in the 80 column environment by holding down the START switch and typing a letter. This will only work however in the E: environment. Letter Perfect, for example, does not use E: for its screen I/O. In such cases you can switch screen colors by holding down the START switch during the boot process. However, you must press the switch after the boot process has started, otherwise the OS will try to boot the cassette.

*CTRL-1 = HELP*

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.
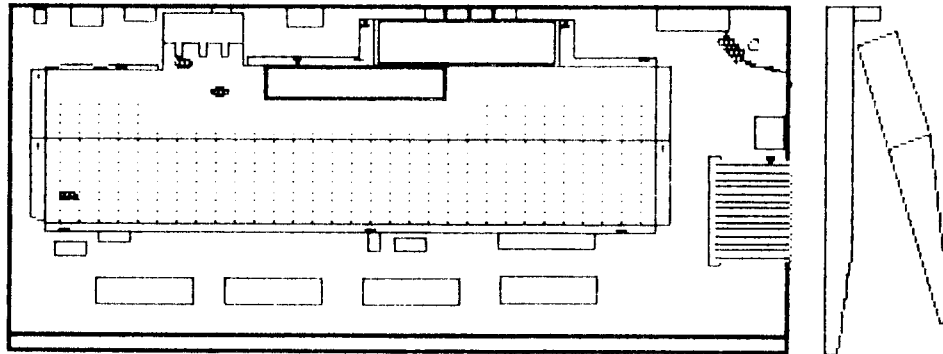
   3B) You will need to remove the motherboard from the bottom half of the case. In this case you will probably want to disconnect the keyboard cable by gently pulling it out of the connector on the motherboard. Remove the remaining screws holding the motherboard to the case (top right and left corners 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).
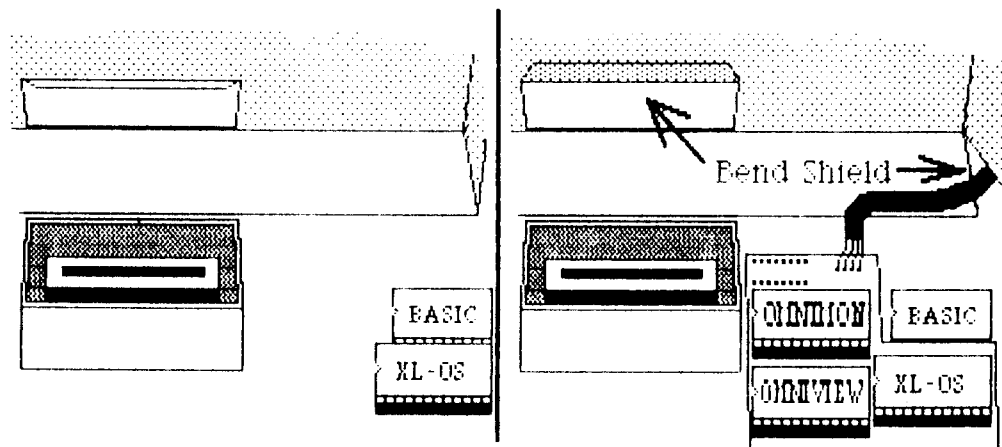
4) Now you are ready to install the OMNIVIEW-XL. Refer to the diagram above. If you have a RAMROD-XL, go to step 5. Else, locate the XL-OS chip, a 28 pin chip about 2 inches to the right of the cartridge slot. Remove it by inserting the flat screwdriver between the chip and the socket and gently prying 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.