DAFAX Processing Corp

Hardware and Software Support for the Lisa/Mac XL, and the Macintosh Office

14 North Drive • Malba, New York 11357 • 718•746•8220 or 800•782•7823

READ ME FIRST

DISCLAIMER

It is recommended that this product be installed by a qualified technician. *THERE ARE HIGH VOLTAGES IN AND AROUND THE INSTALLATION AREA.* In no event will Dafax Processing Corp. and/or The NetWorkers/NetSolutions and/or Orphan Technologies be liable for any bodily injury and/or damage incurred in the handling and/or installation of this product.

ROMSwitcher™ Installation Instructions Addendum

1. Please read the instructions carefully through to their conclusion, before proceeding with installation.

2. Be sure to discharge static electricity from your body prior to touching any components. No responsibility will be assumed for any components or chips damaged by static electricity.

3. In the top diagram on page 2, ROM 3 is located at position C-6 of the CPU Card.

4. Please note that the design of the ROMSwitcher piggyback board calls for one gold pin to be absent from each of the two sets of legs under the circuit board. They have not broken off.

5. When installing the switch under the case, be sure to spread the wires that are in the harness so that they do not overlap when fitted around the front edge of the computer. This will make the attachment of the front bezel cover much easier.

6. If you should encounter any difficulty in the boot-up process after initial installation or subsequent start-up, the cause of the problem is probably an intermittent contact between ROMSwitcher and the CPU Card. Please be sure that the ROMSwitcher piggyback board is firmly seated into the the two empty ROM sockets on the CPU Card (As far down into the sockets as possible). You may have to apply some gentle pressure to get it all the way down. Also, make sure that all six ROMS are properly and firmly seated in their respective sockets. Almost all boot-up problems are related to incorrect or insufficient seating of the piggyback board and/or ROMS.

7. An alternative method of switching between the ROMS is that while depressing the reset button on the back of the chassis (the screen will go black), one can toggle the switch without turning off the power with no damage to the computer. *WE STILL FEEL HOWEVER, THAT THE SAFEST WAY IS TO ; (1) TURN THE COMPUTER OFF; (2) SWITCH; (3) REBOOT.*

Known Incompatibilities

The only problem we have encountered at this time is the inability of FileMaker™ Plus to run properly under the Apple 3A ROMS. If you are using FileMaker™ or FileMaker™ Plus please try running one of the example files to fully understand the problem. You will note that the right edge of the window is cutt-off and not accessible. Then please call Forethought technical support and complain. There phone number is 1-800 MAC-WARE. We have already alerted them to the problem, but as of 2/1/87 have not been advised of a fix. If you should find any other programs that create problems under the 3A ROMS, please advise us so that we can alert the manufacturers. Thank You.

The ROMSwitcher

by
Orphan Technology

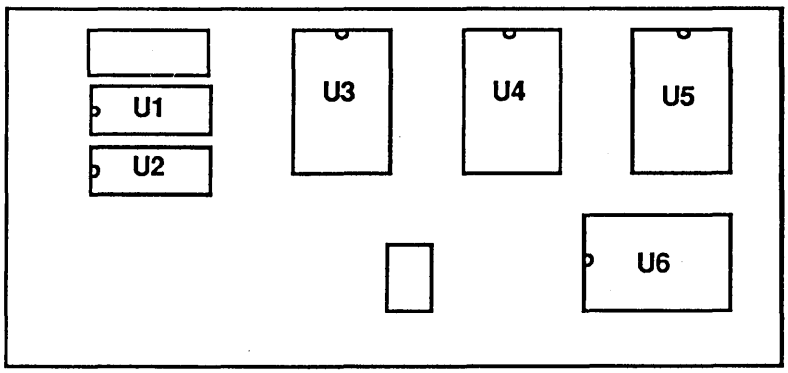
Note: This installation is to be done by qualified technicians only!

Warning!!!!

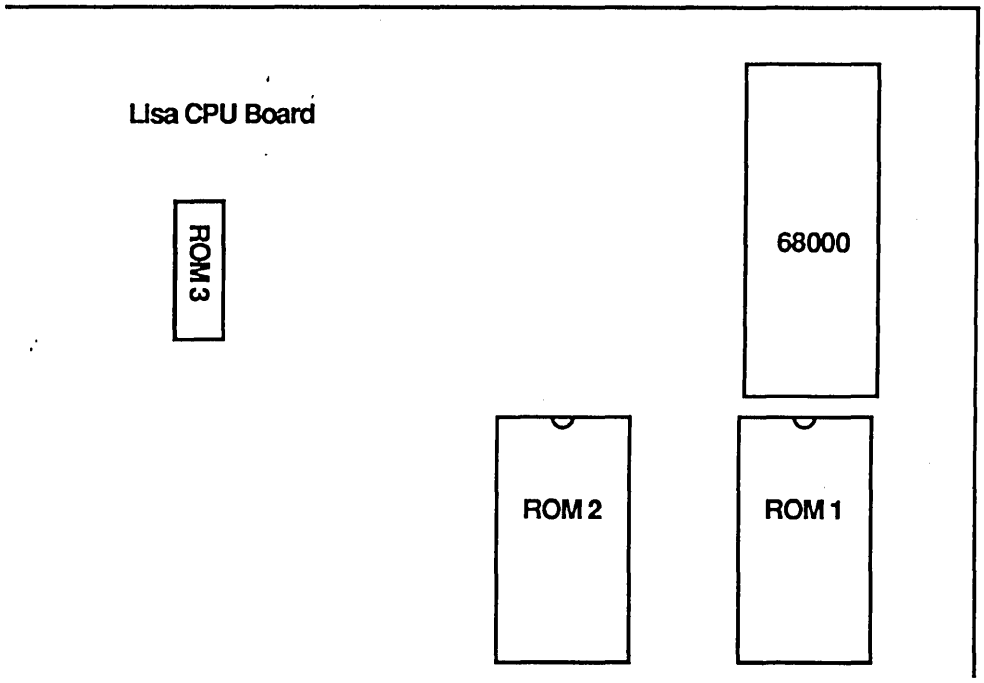
Never toggle the ROMSwitcher while the computer is on!!! Serious damage to your computer may result. Orphan Technology cannot be responsible for damage resulting from improper use.

A Great Deal Of Effort Has Gone Into The Design Of The Romswitcher To Make It Easy For The QUALIFIED TECHNICIAN To Install. No Soldering Or Cutting Of Wires Is ReQuired; As A Result, The Romswitcher May Be Removed And The Computer Returned To Its Original State. The Following Is A Step-by-step Guide For Installing The Romswitcher. We Recommend That Installation Be Performed By A Qualified Technician Only.

Below is a picture of the ROMSwitcher board for your Lisa/Mac X/L. The chips are numbered from U1 to U6. It is very important that you insert the correct chip into the correct socket. Failure to do so will render the board inoperable, and may harm your ROMs.



On the next page is a simplified view of the XLisa's CPU board. Remove the CPU board by opening the back of your Lisa and pulling out the card cage, as described in the Lisa Owner's Guide.Be certain to disconnect AC power from the XLisa before continuing.

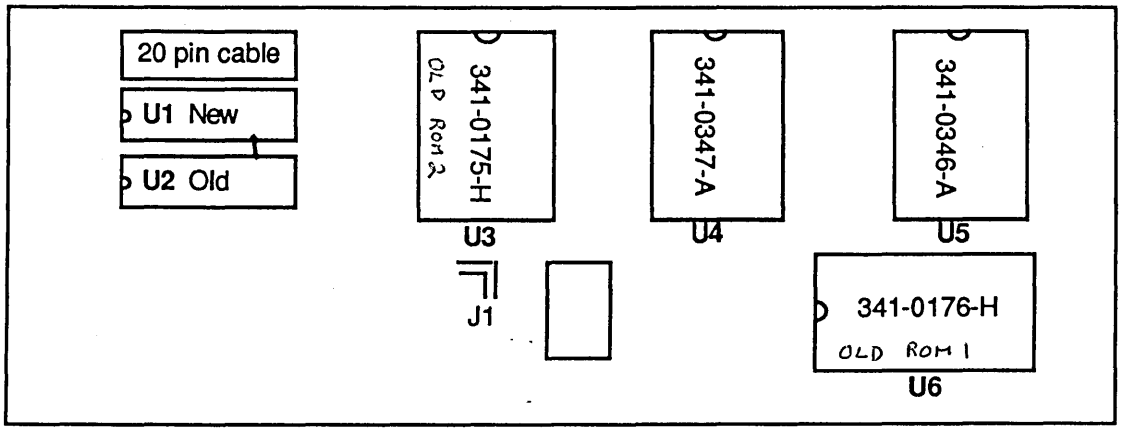


Installing the ROMS...

Carefully remove the chips marked ROM 1, ROM 2, and ROM3 by gently prying under each end easily with a small flat bladed screwdriver or with aIC extractor until they are free. Carefully insert ROM 1 into Socket U6, being sure not to bend any pins, and orienting the small depression in one end of the chip as shown in the drawing. Repeat for ROM 2, inserting it into Socket U3,and also for ROM 3, inserting it into Socket U2.

Insert the three ROMS from the Screen Fix Kit next. The 20-pin ROM goes into socket U1. The two 28-pin ROMs can be carefully inserted into the remaining sockets as shown below.

The following guide may be useful to you in determining which chip goes where:
Original ROM 1: 341-0176-H (may have a different letter on end, but should NOT be an"A"!)
Original ROM 2: 341-0175-H (same as above)
New ROM 1: 341-0346-A (must have an "A" on end!)
New ROM 2: 341-0347-A (same as above)



Now, the ROMSwitcher board is ready to be inserted into the XLisa CPU board. Verify that the long socket pins extending from the back of the ROMSwitcher are straight and centered. Straighten if necessary. Align the socket pins with the two empty 28-pin sockets (ROM1 & ROM2) on the XLisa CPU board. Slowly seat the socket pins into the empty sockets, being careful not to bend any of the pins. Some force may be required.
Next, plug the attached ribbon cable into the socket you removed the ROM 3 video state chip from, being extra certain that the cable end is inserted in such a manner as to ensure that pin 1 is connected correctly. Pin 1 shouldbe in the same corner of the socket as the white dot on the CPU board. (Upper Left)

A Helpful Note...

The ROMs must be inserted into the board FIRMLY! While you should be very careful to avoid bending the pins on the chips, take a minute now to ensure that all the chips are firmly seated. Virtually all the startup problems we have encountered are due to the chips being not correctly seated. Remember this step if your Lisa fails to come up when you first try to use it after installing the ROMSwitcher!

Now, carefully insert the CPU board back into the card cage. Don't worry about re-inserting the card cage yet.

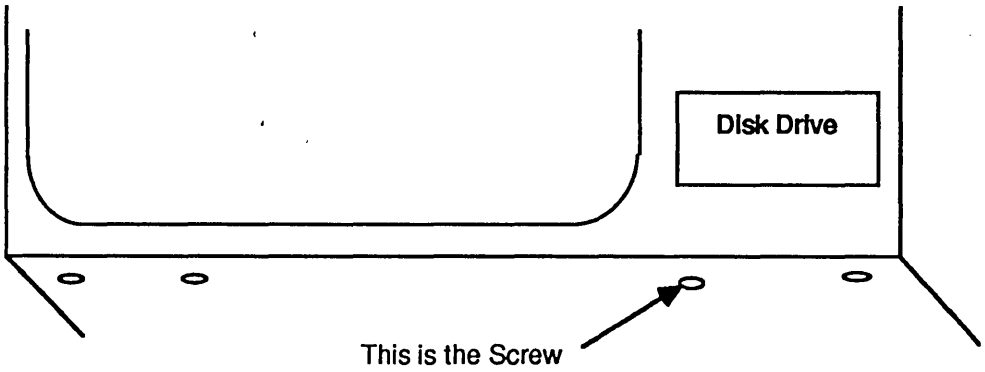
Installing the Switch

We cannot overemphasize the inherent danger in working around or near the rear of your Lisa's or any other computer's CRT (picture tube)!!! If you are not familiar with dealing with high voltage (20,000+ volts), get someone who is qualified to do this!!! This procedure should not be done by anyone who has never done it before!!! Improper procedure can be extremely hazardous to your health!!!! We cannot be responsible if you get hurt, nor do we want you to get hurt!!! When in doubt, get a qualified professional!!!

Now, we install the switch and related wiring to complete the installation of the ROM-Switcher. To install the new transformer that comes with the Screen Modification Kit, it is necessary to remove the top cover of the Lisa. If you look under the rear edge of the cover near where the back cover knobs are, you will see a small hole in the sheet metal about three inches from each side. If you look further into these holes, you will see a Phillips head screw. Loosen these screws until the rear edge of the top cover is loose. These screws will not come out, but as long as the top cover is free, you are done. Remove the front bezel cover of the Lisa by pushing the press tabs under the front of the machine and lifting it away from the chassis. Then, carefully lift the top cover off.

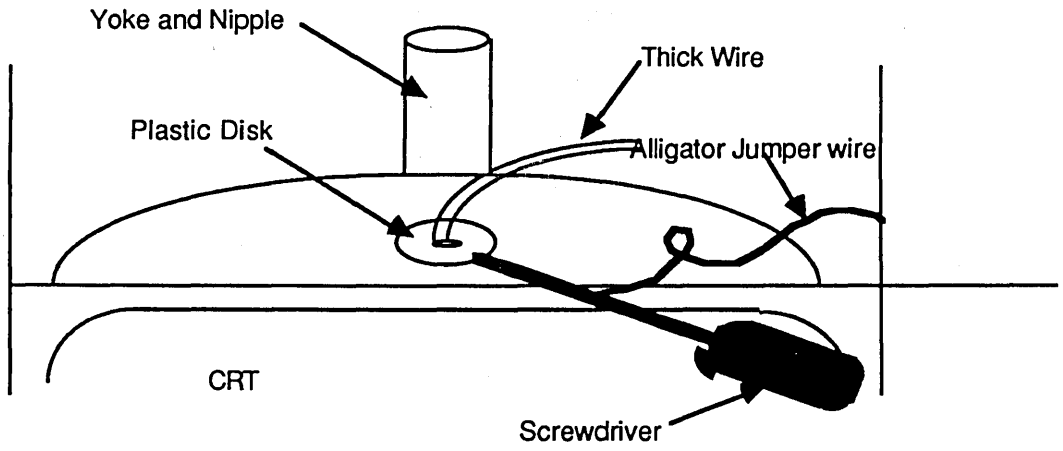
The first thing we are going to do is to install the switch. If you look carefully in the box that the ROMSwitcher came in, you will find a small screw. Don't lose this screw! Now, look under the front edge of the Lisa, near where the front panel attaches. You should see four Phillips head screws. We are going to use one of these to mount the switch. Remove the screw that is the second from the right as you face the front of the Lisa, (under the left side of the disk drive mount). Looking carefully, note that the plastic case ramps down to the hole that the screw was just removed from. Insert the switch mounting bracket over this ramp., lining up the bracket with the screw hole. Secure with the screw provided with the ROMSwitcher.

(See drawing on the next page.)



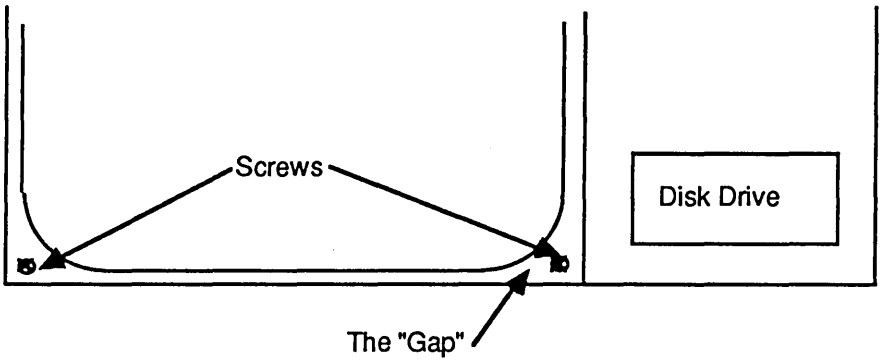
Installing The Transformer and Wire Harness...

Below is a drawing of the Lisa as seen from thefront with the top removed. The large glass tube is the CRT, and is charged with a high voltage, even after the Lisa is unplugged. To safely work around the back of the "jug", as it is also called, this charge must be drained off. Failure to perform this task correctly is potentially very dangerous, so be sure you know what you are doing.



To discharge the CRT, take a long narrow-bladed regular screwdriver and clip one end of a double-ended alligator clip jumper wire to it. Clip the other end of the jumper wire to the metal frame of the Lisa. Stand back from the bench so that you are not touching it with any part of your body. Pick up the screwdriver with one hand, and put the other hand in your pocket or behind your back. GENTLY work the tip of the screwdriver under the edge of the 2" plastic disk in the center on top of the CRT in the center. You may hear a loud, sharp crackle and see a spark as the CRT discharges. If you don't, continue towork the screwdriver towards the center of the disk until you contact the metal prong on the end of the large wire that goes into the center of the disk. If you do not get a crackle, don't worry. Remove the screwdriver and wait a couple of minutes and repeat the procedure until the CRT is fully discharged. DO NOT attempt to remove the plastic disk or wire! A slight charge may still be present, so avoid the wire and disk and the CRT as much as possible. Remove the screwdriver and leads when the CRT is discharged.

Now that the CRT has been safely discharged, we can continue. With the front panel of the Lisa removed, you can see the front of the CRT and the disk drive. On the bottom right side of the CRT there is a gap between the CRT and the metal chassis (frame). The switch cable will be inserted through this gap. Carefully stretch out the cable away from the mounted switch, noting which wires are the longest. Insert the small connector that is on the longest wire through the gap. Looking directly into the video compartment through the gap, you should see a square hole in the rear wall of the video compartment. The hole goes into the card cage compartment.



Continue pushing the inserted connector through the video compartment, through the square hole, and into the card cage compartment. Insert the four remaining connectors through the gap and into the video compartment one at a time. You might need to slightly loosen the four screws at the corners of the CRT to make the connectors fit.

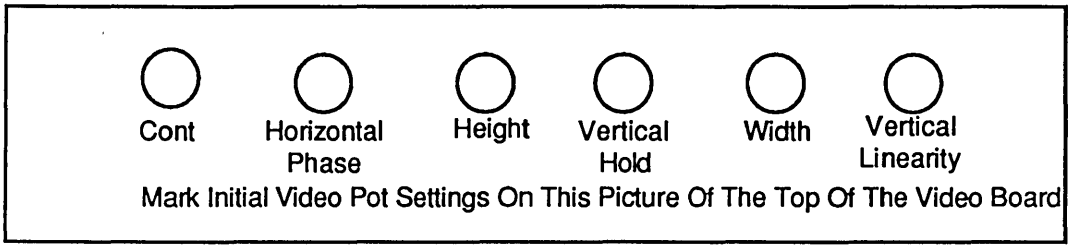
When you look into the video compartment (where the CRT is located), you will see a circuit board on the right hand side. About halfway down the left edge of the board, you should see a white plastic connector with two wires coming from it. One of these wires is green, and the other wire is yellow. Unplug the connector from the video board, being very careful not to touch the CRT. It will probably be very tight, and you will have to rock it back and forth GENTLY to unplug it. In its place, plug into the video board the connector on the switch cable that is marked with blue paint. Notice that the connectors are keyed to only fit one way. Take the connector that you removed from the video board and plug it into the cable connector with yellow paint.

Now, take the transformer that came with the Screen Kit from Apple (its the black round thing with four wires attached) and stick it to the sheet metal on the rear side of the video compartment near the video board. Plug the remaining connectors on the switch cable into the appropriately sexed connector on the transformer. These connectors are marked with red dots.

Insert the CPU board back into the card cage if you haven't already, being especially careful to make sure the ribbon cable doesn't snag. Find the switch cable wires and connector that you inserted through the back of the video compatment. Insert the card cage part of the way back into place, and insert the connector onto its pins, marked J1 on the schematic. You may need to lift the CPU board slightly, just make sure that you re-seat it firmly. Install the card cage firmly back into position. Replace the rear cover.

Replace the front bezel cover now also, keeping the wires from the switch as close as possible to the Lisa's case. The wires should fit in the gap where the front cover and the main case meet. Be careful that the wires don't get pinched or cut!!! Notice that the switch is marked LISA on one side and MAC on the other. Make a note for future reference.

Finally, you should have the ROMSwitcher installed, and the front and back covers on, with the top cover still removed. If you look along the top edge of the video board, you should see a rows of small knobs. These are the video adjustments, and you may need to make some minor corrections. You may not be able to have the video adjustments perfect under both environments, so you should decide which you are going to use more, MacWorks or the Lisa Office. Draw a picture of the current setting of the "pots" in case you make a mistake and want to start over.



Mark Initial Video Pot Settings On This Picture Of The Top Of The Video Board

Adjusting the video board is a realatively simple procedure. The most important thing to remember is to use a PLASTIC screwdriver to make the adjustments to prevent the possbility of creating a short-circuit. Our experience is that very little adjustment is necessary; the only pots that usually need to be adjusted are the Horizontal Phase pot and the Width pot. DO NOT adjust the Vertical Hold pot; it will cause your screen to "roll", and is very difficult to re-adjust!!! Only a slight turn is needed to make a large adjustment, so be very conservative on your initial attempts.

Set the ROMSwitcher to the environment you will be using most, and start up the Lisa. If you have an application such as MacDraw or MacDraft (or LisaDraw), draw a large circle and adjust the pots until you get a nice round circle, and the screen looks about right. Shut off the Lisa and switch to the other environment. Turnon the Lisa. Re-adjust the video pots until you get an acceptable screen adjustment. Alternate this procedure between environments until you are satisfied. As we mentioned earlier, almost nc adjustment was required on all the Lisas we have installed. It is important to be able to accept a compromise if you can't get a perfect adjustment under both environments.

A Note on Booting MacWorks From a Floppy Disk...

On some Lisas, when MacWorks is booted from a floppy, a blank screen appears and a list of each module is displayed as it is loaded. After all the modules are loaded, another message appears telling the user to click the mouse button to continue booting. Under the new (3A) ROMs, the writing may appear as unreadable garbage, and the system will appear to "hang" after the drive stops. THIS IS NORMAL! Click the mouse button, and MacWorks will boot normally. This problem only occurs when booting from a floppy, and is a leftover from the MacWorks development debugging process.

Software Compatibility...

As of this writing, there are no software incompatibility problems that we know of. In fact, Aldus Pagemaker appears to adjust itself to the new ROMS, and shows an improvement in screen appearance and kerning (character spacing). Should you encounter any software incompatibilities, please let us know.

The HELP! Section...

Below is a list of common problems encountered when installing the ROMSwitcher, and the most common solution.

- **After I install the ROMSwitcher, the Lisa won't come up, and the screen has horizontal lines all over it!!**

  The most common reason for this complaint is that the ROMs need to be reseated, or seated more firmly in their sockets. Try re-inserting each one, checking to be sure that they are fully inserted.

- **There is a light (or dark) vertical line down one side of the screen.**

  No problem. This condition is usually cured by adjusting the Horizontal Phase control on the video board. This will probably take several iterations between environments to get a satisfactory adjustment. (Note: on most Lisas, this is the only adjustment that has to be made.)

- **The connector on the video board is very tight, and I can't get it loose.**

  Sure you can. Continue to GENTLY rock the connector slightly back and forth until it comes loose. Patience and a steady hand are the solution here.

- **The screen is off-center now that I have had the ROMSwitcher installed.**

  This one is also relatively simple to fix, BUT should only be done by someone with the necessary experience. There are two tabs on the yoke of the CRT that can be moved slightly to center the image.

WELCOME

We at Orphan Technology are pleased to have you as our customer and would like to take this opportunity to thank you for your patronage and support. We value your input, and would appreciate your comments and suggestions for improvements on our products. Also, since we all would like to see more products available for the Lisa, we would like to hear your ideas for future products.
Please take thiis opportunity to fill out the registration form below, not only to register your warranty, but also to enable us to advise you on updates and new products.

LIMITED WARRANTY

The ROMSwitcher is warranted against defects in materials, circuitry, and/or workmanship for a period of ninety(90) days after date of original retail purchase. During the warranty period, Orphan Technology will repair (or at its option replace) this product. Shipment of the product to Orphan Technology, as well as properly packaging and insuring the product for shipment is the responsibility of the owner. This warranty does not apply if the product has been damaged by accident, abuse, misuse, misapplication or modification. No other warranties, either expressed or implied, are given.

Registration and Warranty Form

Name _____

Company _____

Title _____

Address _____

City, State, Zip _____

Serial Number (Found on ROMSwitch Board) _____

Date of Purchase_____(Proof of purchase must accompany warranty form)

COMMENTS:

_____

_____

_____

_____

_____

_____

Mail to: Orphan Technology
265 Prado Road #2
San Luis Obispo CA 93401

DAFAX Processing Corp

Hardware and Software Support for the Lisa/Mac XL, and the Macintosh Office

14 North Drive • Malba, New York 11357 • 718•746•8220 or 800•782•7823

ORIGINAL INVOICE

Name	Invoice #	Date	Purchase Order #

Company	TEL #	Paid By
		CASH
		Ship C.O.D.

Address	Shipping Date		
	Estimated	Actual	
			Ship Special

City	State	Zip	Ref	Tr-in

Code	Description of Item Ordered	Qty	BO	Unit Pr	Am't
	ROMSwitcher™ with 3A ROMs	1		$239.00	$239.00

Notes

Order Confirmation [ ] Payment Received [ ] Rec # [ ]

Sub Total	$239.00
Ship'g & Hand'g	
Special Ship'g	
NYS Tax 8.25%	$19.72
Total Amount	$258.72

Comments

THANK YOU FOR YOUR ORDER AND PAYMENT.

DAFAX Processing Corp

Hardware and Software Support for the Lisa/Mac XL, and the Macintosh Office

14 North Drive • Malba, New York 11357 • 718 • 746 • 8220 or 800 • 323 • 1751

MacWorks™ Plus !...The Next Generation Runs on the Lisa/Mac XL

May 20, 1988

Dear Lisa/Mac XL User,

We are happy to announce the imminent release of "***MacWorks™ Plus !***", which will enable us to run on the Lisa/Mac XL, all the software that currently runs on the Mac Plus, finally making us compatible with the rest of the Mac universe .

MacWorks™ Plus ! will enable all the new popular programs such as HyperCard™, FullWrite Professional™, WordPerfect™, Cricket Draw™, Cricket Graph 2.0™, Adobe Illustrator™, VersaCAD™ etc., and upgrades of established programs such as Claris' MacWrite™ 5.0, MacPaint™ 2.0, MacProject™ II, MacDraw™ II and Aldus' PageMaker™ 3.0 to be used on the Lisa/Mac XL.

MacWorks™ Plus ! has a faster QuickDraw™ routine and addresses the Lisa/Mac XL's Expansion Ports without additional software, for multiple Hard Disk recognition. It will also enable the latest System and Finder to be installed so that we will have better compatibility with all types of software and peripherals, such as Apple's new Postscript Laser Printers and ImageWriter™ LQ.

We hope to complete beta-testing of this major upgrade to the MacWorks™ Operating System within the next four weeks. The program is priced at $200. We will be mailing you our new "DAFacts" Newsletter and Price List as soon as ***MacWorks™ Plus !*** is ready for release.

Use the enclosed order form to place your order now. We will not deposit your check or process your credit card charge until we ship. If you would prefer us to phone you as soon as we are shipping , call our toll-free Order and Information line... 1-800 323-1751, now, giving us your name, phone number and best time to call, and we will be pleased to do so.

Thank you for your patience and continued support.

Sincerely,

Sam Neulinger, President

Computing in the potentially *Fast Lane*

By Samuel Neulinger

In previous columns I have tried to keep you informed, as accurately as possible, as to enhancements and products that were in the wings and likely to be coming to market. Lewis Guice and I together have been pressing developers and manufacturers not to turn their backs on new development for the Lisa/XL, but rather to seriously consider how their products can be modified to be compatible with the Lisa/XL. However, with Apple's sudden cold shoulder to anything relating to the Lisa/XL, and the withdrawal of their usual technical developer support (we think this will change after the trade-in offer expires), some manufacturers with whom we have talked have felt that until Apple modified its position, the obstacles would be too great, especially in light of all the other developments they were working on for the Mac Plus. But we persisted, prodded and sought alternatives, and were gratified to find some young developers, engineers and companies not previously involved directly with the Lisa/XL, who view this hiatus as a golden opportunity to step into the breach and forge ahead. If you've been wondering what those three expansion slots in your Lisa/XLs were going to be used for, besides Apple's Parallel Card.....read on!

Products currently under research

Products currently under research and development and the quarter of their estimated time of arrival include:

- 68020 Replacement CPU Chip (3–4 times speed enhancement; utilizing a much simpler and cheaper, less-frills solution (Est. Cost $1500–$2000) [1st-2ndQ/87]
- 30Mb Internal Hard Disk Replacement –OR–
- 30Mb Internal Hard Disk with 10Mb Built-in Tape Back-up [4thQ/86–1stQ/87]
- 4Mb RAM Upgrade [4thQ/86]
- SCSI Interface for Hard Disk and Tape Back-up [3rdQ–4thQ/86]
- Abaton Scan 300™ [Available Now — $2,495]
- "ROMSwitcher™" [Available Now — $129.95]
- "XL 800™" — 800K Internal Replacement Disk Drive [Soon to be released — $495]

Soon to be released

The **XL800™**, an 800K internal replacement disk drive, is the first hardware product from *NetSolutions*, a subsidiary of The NetWorkers. At this writing it will interface only on Mac XLs with the internal 10Mb Hard Disk. A model for the Lisa 2 and 2/5 should follow shortly. The **XL800** will read and write to both 400K and 800K disks under MacWorks and, most important, will read and write to 400K disks under the Lisa Operating System, The Workshop, and Unix environments. Interface to the system will be through a ROM chip exchange on the I/O board. Installation (as usual on the XL) is quite simple. The front panel is removed, the old drive unplugged, detached and removed, and the **XL800** substituted for it. The drive will be compatible with HFS when HFS becomes available under MacWorks, or through new ROMs. Also planned for the near future is an 800K external drive interfacing with the XL through one of the expansion slots, if demand warrants it. Now there's really no excuse for not backing up those larger-than-400K data files.

XL products out now

ROMSwitcher™, a product developed by Orphan Technology (a start-up development company), is an elegant solution to the pixel screen incompatibility problems that arise when both Lisa and MacWorks software are used on the same machine. In the past, if you wanted the convenience of a properly-proportioned full-size MacWorks screen and elected to install Apple's XL Screen Kit (3A ROMs), you could no longer run any Lisa software and needed to migrate all of your data to the MacWorks environment. This also meant that you were precluded from utilizing the Pascal Workshop, Unix, or Xenix.

The alternative to the XL Screen Kit modification has been **BitFixer™**, which allows proper proportioning of the screen under all operating systems, but has a number of limitations. When under MacWorks, it provides a significantly smaller rectangular screen view, only using about 60 percent of the screen. And BitFixer cannot take advantage of programs such as Aldus Corporation's PageMaker™, which automatically recognize the XL Screen Kit 3A ROMs and adjust themselves accordingly. Aldus recommends the screen modification kit for their XL users, because it is more accurate, i.e., closer to WYSIWYG (What You See Is What You Get), than with BitFixer. In addition, the 3A ROMs in the XL Screen Kit have the ability to refer to 4 Mb of memory, when that is available, while the H ROMs are only able to refer to 2Mb.

ROMSwitcher solves these problems by housing both sets of ROMs (F, G or H, and 3A) and their respective video chips on a separate piggyback board attached to the CPU board. An external toggle switch allows start-up (after power-down) under either set of ROMs. Installation is relatively easy, does not require any soldering, but might require

Exhibit 1

	MS Excel Standard Default Geneva 10 Cols. Rows	MS Word New York 12 Width Length Inches Lines	MacDraw Std. Default Width Length Inches	FileMaker Std. Default Width Length Inches
H ROMs	A–J+ 1–21+	8.6 18	8.0 4.25	7.875 4.0
3A ROMs	A–H+ 1–26+	7.2 23	7.75 5.0	6.5 4.75
Mac Plus	A–F 1–20	6.0 18	6.25 4.0	5.25 3.6

Mac Plus numbers are included in the chart for comparison, just in case some of you were not aware of the differences in screen information displayed between the Macintosh and the XL. The "+" sign indicates that you can also see half of the next row or column.)

installation by a technician (as does Apple's XL Screen Fix Kit), unless you are mechanically adept and understand the voltage hazards and the absolute necessity of discharging the CRT prior to working around the video board. Purchase of the XL Screen Kit ROMs will be required in order to utilize **ROMSwitcher**. If you have already converted to the XL Screen Kit ROMs, then F,G or H ROMs and the original video chip will be required. The original video chip also housed the ID for running 7/7 software; therefore, in order to run your original 7/7 software, you need the original chip or you need to have a new one burned for you. (Note that Apple does not require dealers to return the old chips when the XL Screen Fix Kit is sold.)

Under both sets of ROMs, the full screen is used to display your work, and the pixel ratio is adjusted automatically. However, on some XLs a minor adjustment of the ports might be necessary, and the resulting square/circle alignment in one of your two environments will be slightly less than perfect. In this case, you will need to make a choice about your priority for absolute alignment. I recommend that you choose the environment with the graphics program that you use the most, i.e. LisaDraw in Lisa, or one of the various programs in MacWorks. (This adjustment is also needed when installing the XL Screen Fix Kit installation, but because this installation is a one-way fix, the adjustment is only important at the time of installation.)

There is an interesting side benefit to having both ROMs available. Although the screen proportions are designed for the proportions of the Lisa and MacWorks modes, you can take advantage of the differing screen proportions to adjust the amount of information on your screen, especially in non-graphic programs. If you want more width for your information, start up with the original H ROMs on; this will offer you a screen size of 364x720 pixels. If you want more information to fit lengthwise and are willing to give up a little width, start up with the 3A ROMs. This trick works because the The XL Screen Kit (3A ROM) modification accomplishes its square pixel screen by dropping 112 pixels from the horizontal and adding 67 pixels to the vertical, for a screen size of 431x 608 pixels. I have included a chart showing the different configurations available for some popular programs. (See *Exhibit 1.*) Wherever possible, the title bar was double clicked, to attain the maximum screen size.

While it is not possible to switch back and forth between the H and the 3A ROMs while the computer is on, most of us have specific work habits and know in advance what will be required for specific applications, so where maximum screen size either horizontally or vertically is critical, we can plan accordingly.

The Abaton Scan 300™. Many of us wish that theThunderscan or any of the video digitizers could interface to the Lisa/XL. Yet, even if they could and even as good as these products are, most of them cannot, at their price, provide professional 300 DPI high resolution digitizing to match the quality output available from the Apple LaserWriter™. The Abaton Technology Corp.'s Scan 300™, now enables high–resolution (300 DPI) scanning of documents up to 8.5" wide by 14" long under MacWorks. It provides *Line mode* (for drawings and text), *Halftone mode, Mixed mode* and *size reductions.* Brightness, contrast and scaling are all adjustable under software control, and files are produced formatted for MacPaint™, PageMaker™, ReadySetGo™, MacPublisher™ or Postscript™. Interface is through the modem port of the Mac XL. Complete large–screen Desktop Publishing has now arrived!

Products in development

Orphan Technology is developing an SCSI interface system, dubbed the **"eXLent Solution™ SCSI Mass Storage System."** The system will include a controller card (to fit into one of the XL's three expansion slots) and a software installer for MacWorks. The card will have one SCSI connector port which will function as it does on the Mac Plus, i.e., additional SCSI devices can be added via piggybacking to the first device attached to the SCSI port. Plans are to initially market the card with its own SCSI Hard Disk, with at least 20Mb capacity, followed by a streaming tape backup unit. Only MacWorks will able to access the SCSI devices and will have to reside on the internal 10Mb HD of a Mac XL or be connected to the parallel port of

the Lisa 2 via either a 5Mb or 10Mb ProFile. However, Lisa Operating System users will still be able to use external ProFiles for their systems via the Apple Parallel Card. Until HFS is a reality under MacWorks, it will be necessary to use a program such as MacServe™ to be able to properly utilize file and disk management.

At the moment, the **4Mb RAM upgrade** is on hold. Because it needs access to the additional addresses available on the 3A ROM (Mac XL Screen Modification Kit), it might be held back commercially until it is clear what Apple will do in the way of a hardware upgrade. As it is currently designed, it would address 4Mb under MacWorks, and 2Mb under the Lisa Operating System when utilizing ROMSwitcher. (The 2Mb limitation under Lisa is imposed because only the 3A ROMs currently have the ability to access the additional 2Mb, but they do not allow the user to run the Lisa Operating System.) Patches to the CPU board and work on the memory boards would also be required, this being done by the supplier of the upgrade as a special all-inclusive package.

Research and development is being done right now on a **30Mb replacement internal hard disk** for the Mac XL. The old 10Mb drive would be unplugged and the new 30Mb plugged in. Another option would be a 30Mb replacement internal hard disk with a **10Mb Streaming Tape Back-up cartridge**; this would require modification of the front panel. No pricing information is available yet. Again, if HFS is not available when these drives are released, MacServe™ will be required for efficient operation of either of these drives.

In my last column, I touched briefly on the 68020 co-processor board with special emphasis on its estimated high cost. Since that time I have talked to several developers who feel that if we can stick to basics (i.e., an increase in plain raw operating speed) and refrain from trying to have more Macintosh compatibilty, the price might come in at under $2,000. This would achieve at least a threefold increase in basic operating speed, and with a math co-processor as an additional option, even greater speed. In addition, the 68020 could also theoretically provide an efficient inexpensive route for a 4Mb RAM upgrade, by being designed to include the ability to address up to 4Mb. The real key to bringing down the ultimate cost of this board would still be volume sales, both in the Macintosh environment and elsewhere. However, I now believe that there is a strong possibility that this product will actually come to market. Time will tell.

We who have decided to keep our Lisa/XLs have done so after much thoughtful consideration. We've wondered whether new technology will pass us by and have considered the cost, should we elect to keep and enhance our machines. On the other hand, the Lisa/XL does what we need it do, and does it very well indeed most of the time. It seems to me that this consideration, together with all the foregoing news about new XL tools, certainly make a strong case for our opting not to change. And, there is something profoundly satisfying in refusing to submit meekly to planned obsolescence...keeping and continuing to use and enjoy the excellent, elegant computer that we already own.

Sam Neulinger is President of Dafax Processing Corp., a value-added retailer, providing hardware and software support specific to the Lisa/Mac XL and the Macintosh Office. Sam has been involved with computers for over nine years, and he has been an avid admirer of the Lisa since its inception. He now uses a Lisa 2/10 exclusively and is Chairperson of the New York Macintosh Users Group (NYMUG) Lisa/XL SIG.

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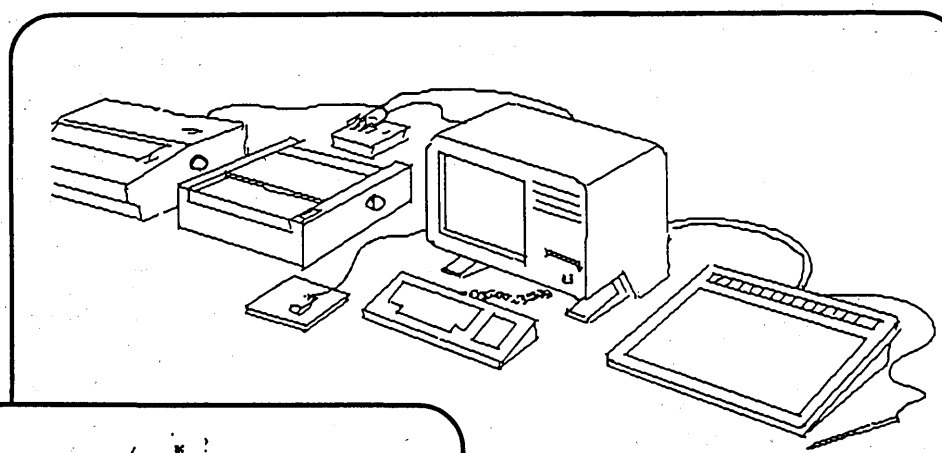
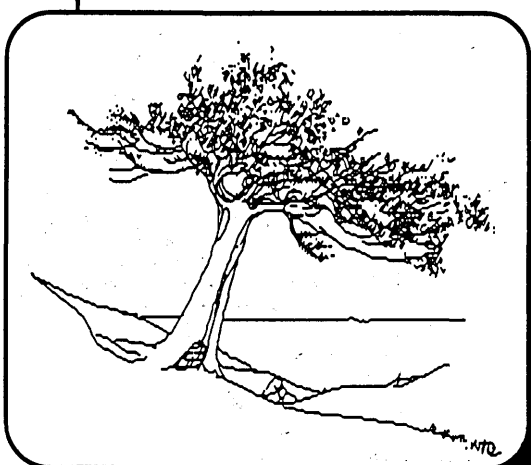




PenMac Works XL drawings by Walter Brooks, AIA

Features Inside:

Product Reviews and Announcements

- *PenMac Works XL:* Electronic Pen & Pad for the XL
- *Typing Tools:* TypeNow & Hayden: Speller
- *Computing in the Potentially Fast Lane:* Introduction of ***XL800 & ROMSwitcher***

7/7 World

- *LisaProject:* Project Planning Made Simple
- *LisaCalc and Stock Prices:* An Investor's Application
- *Lisa Error Codes:* What Do They Really Mean?

UNIX on the Lisa—Part II:

- *Comparison of XENIX and UniPlus+*

The ROMSwitcher

Macintosh graphics in their true perspective

by Walter T. Brooks

Reprinted from the Fall Issue of the LisaTalk Report

SUMMARY: ROMSwitcher is a new aspect ratio switch which allows Lisa/Mac XL users to use the Apple Mac XL Screen Kit for a properly proportioned full-size MacWorks screen, without losing access to the Lisa Operating System. Here, Walter Brooks demonstrates how ROMSwitcher is especially useful for architects and graphic artists.

Hardware Requirements
Lisa/Mac XL 2/10

Software Requirements
None

Recommended for applications such as:
MacPaint, FullPaint, MacDraw, MacDraft, or other CAD Software

Suggested Retail Price
$160.....$239 with 3A ROM Kit

ROMSwitcher Distributors and Sales

Dafax Processing Corp.
14 North Drive
Malba, NY 11357
Orders and Information
1-800 323-1751
In PA (215) 574-0357
Technical Support
In NY (718) 746-8220
1-800 782-7823

At last we can see the Macworld in its proper proportions! For a long time the good old globe that appeared as a fully blown basketball in Lisa, appeared as a deflated football in MacWorks, its air removed by the change in pixel configurations between the two environments. Squares appeared as rectangles, rectangles as squares, circles as ellipses, everything just a little out of proportion in a computer hall of mirrors. THE PROBLEM IS, OF COURSE, OUR OLD NEMESIS, THE PIXEL, the aspect ratio thereof, the width versus the height of the dots that compose the computer screen. Because the Mac XL has rectangular dots while the Macintosh software expects them to be square, configurations on the screen appear to be out of proportion.

There used to be only two solutions to this screen distortion problem. One could: (1) install the *Apple Macintosh XL Screen Kit* (3A ROMS), migrate all data to the MacWorks environment, and accept that they could no longer run any Lisa software; or (2) install *BitFixer*, another aspect ratio device (by All Star Computer Services) that allows proper screen proportion and use of both worlds, but limits screen size by as much as 40%. Good choices? Hardly!

But now there is a third solution, one of those "Why didn't I think of that?" devices that gives one the best of both worlds, and each of them true round. Called *ROMSwitcher*, it consists of an external toggle switch, installed conveniently and discreetly beneath the Lisa/Mac XL's screen, and a separate piggyback board that attaches to the CPU board inside the Lisa. Installation is relatively easy for a good technician. In spite of the six pages of excellent installation instructions, supplied by Orphan Technology for user installation, I would not recommend it. It's worth an hour of installation time, and considering the 20,000 voltage hazard in the picture tube, I advise users hand the screwdriver to the technician and stand clear! The end result is worth it!

What *ROMSwitcher* is doing is exactly what the name suggests: giving you a choice between the H ROMs of the Lisa and the 3A ROMs of MacWorks. But you will still need to install the Apple *Macintosh XL Screen Kit*. (If you have already converted to the *Screen Kit* ROMs, then F, G, or H ROMs and the original video chip that run your Lisa 7/7 software are also required.)

Installation Procedures

Installation consists of:

(1) Unplugging the Lisa and removing the card cage.
(2) Installing the new 3A ROMS and Video Chip on the ROM-Switcher board according to the diagrams in the instructions.
(3) Removing the high and low ROMs and the ID Chip from the CPU Board and installing them on the Piggyback board.
(4) Installing the piggyback board.
(5) Installing the flat ribbon cable to replace the Video ROM.
(6) Removing the top of the computer and Installing the Switch itself.
(7) The trickiest part of all: Discharging the CRT glass tube by draining off the charge. (This is where we need the experts!)
(8) Installing the Transformer from the Apple Screen Kit.
(9) Inserting the CPU Board back into the cage and inserting the connector into its pins.
(10) Replacing the rear and front covers. The ROMSwitcher is installed, the Lisa Switch position on the left, the Mac switch position on the right.

(11) By starting up the computer in both the Lisa and Mac modes, the video pots on the video board can be adjusted to give approximately square pixels in both environments.

(12) Installing the front cover. Installation complete. Now let us examine the end results:

Remember, on the old Lisa screen a LisaDraw circle looked like this:

And, on the old MacWorks screen, a circle looked like this:

Now on the Lisa Screen, using *ROMSwitcher*, a circle looks like this:

And, on the Mac Screen, using *ROMSwitcher*, a circle looks like this:

Not Bad! Now what you see is *really* what you get.

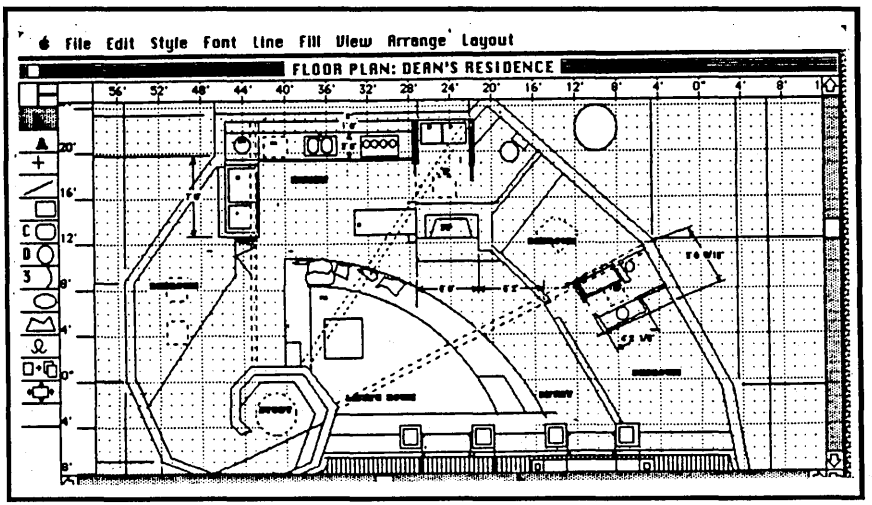
"What is the practicality of all this," you ask? Well, if we go into the real world of concrete and steel (as seen through the abstraction of architectural drawings) we can find our use. *Diagram A* shows a screen dump of a residence floor plan, originally drawn using the *MacDraft* software and prepared on MacWorks without the *ROMSwitcher*. Notice the general elongation of the plan (the large circle in the upper right-hand corner of the drawing shows as a vertically elongated elipse on the screen itself). This proportion is even more pronounced on the screen itself, and it is for this reason that we install *ROMSwitcher*. (Compare this screen dump with the printed version, *Diagram C* on page 16, where circles are in fact circular.)

Diagram B, on the other hand, shows a screen printout of the same floor plan using the same saved *MacDraft* drawing, only this time booted up to the newly-installed *ROMSwitcher* (with the switch in the MacWorks position). Lo and Behold: a wider, shorter screen! Now the vertical scale is the same as the horizontal scale, the screen itself, the screen dump, and the final printout are all in the proper proportion, and what you see is really what you get! Who said a picture is not worth a thousand words!

When *ROMSwitcher* is installed, it has two positions: one for MacWorks, the other for Lisa 7/7. While you must flip the switch to the Lisa mode in order to use Lisa 7/7 software, Mac software can be used when switched in either position. However, when using Mac applications in the Lisa position, there is, again, screen distortion. (Unfortunately, we can show no diagram to actually demonstrate this screen distortion; however, it is quite pronounced. The horizontal ruler at the top of the drawing will not match the vertical scale at the side. It is only upon printout that

Diagram A:
Screen printout of MacDraft Document without ROMSwitcher

Notice the general elongation of the plan, where circles are not true round and squares appear rectangular.



the rulers eventually match up.) Fortunately, this screen distortion is an illusion that disappears upon printout, where things eventually straighten themselves out. So, if for some reason you wanted the original *out* of proportion, the wider Mac XL screen can still be accessed with MacWorks while the switch is in the Lisa position. (The Lisa screen, on the other hand, displays garbage if it's opened in the MacWorks position).

With some applications, there are still sometimes advantages to this wider screen even if the pixels aren't square. For example, a spreadsheet can display more columns, a chart can show more rows, a drawing can show more detail in a horizontal position. For this reason, it might even be reasonable to install *ROMSwitcher* on a Lisa that is totally configured in Macintosh.

IMPORTANT: :It is not possible to switch between the two sets of ROMs while the machine is up and running even if the hard disk is shared. Doing so could theoretically damage the hard disk and/or the ROMs!

Also note that *ROMSwitcher* does not help improve the screen or printout distortions of the *PenMac Works XL Digitizing Tablet* as discussed in my review in *The Summer 1986 LTR*. (This will have to be addressed as a change in the screen aspect ratio in the Softweaver's *PenMac* software.)

Positives

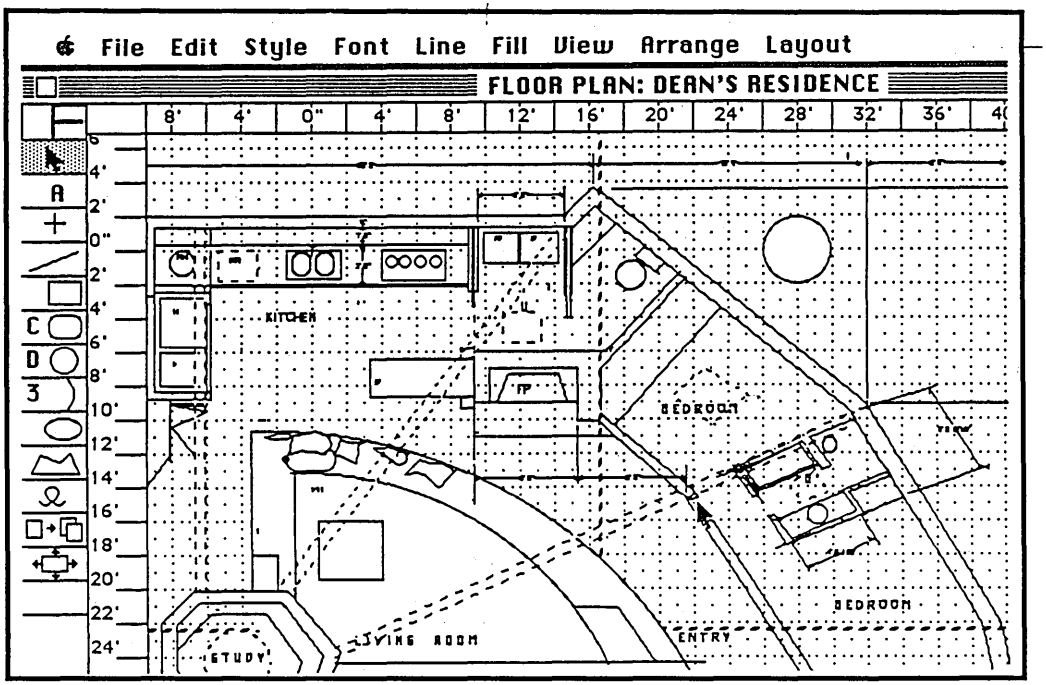
There are lots of positives:

1. Aldus Corp.'s PageMaker automatically recognizes the 3A ROMs in the Screen Kit and adjusts to them, showing an improvement in general screen appearance and in the process of kerning (the proportional spacing of characters).
2. The screen size in both the Mac and Lisa modes essentially stays the same (Full Screen). See note below under Negatives.
3. The 3A ROMs in Apple's Screen Kit have can refer to 4Mb of memory, while the Lisa H ROMs currently only refer to 2Mb.

Diagram B:

Screen printout of MacDraft Document with ROMSwitcher in Mac mode

Notice that circles are now true circles and squares are true squares.



Editor's Note:

Although the Apple Macintosh XL Screen Kit provides XL users with correct Macintosh screen proportion, installation requires removal of Lisa's H/88 or H/A8 ROMs, and thus precludes the use of any Lisa OS software. Even all-MacWorks users will find these ROMs necessary if their machine ever breaks down, as all Diagnostic Tests used to test the Lisa/Mac XL for hardware failures (i.e., CPU board, I/O board, hard disk, and internal drive) were created in the Lisa Operating System.

Machines lacking the Lisa H/88 or H/A8 ROMs cannot be effectively tested, and many companies which provide Lisa/Mac XL service warranties will not warranty machines without these ROMs. ROMSwitcher therefore provides the benefits of the Screen Kit (adjusted screen ratio) without the cost of losing the Lisa ROMs.

4. Because the *ROMSwitcher* supports the Lisa ROMs, it also supports the Pascal Workshop, UNIX, and XENIX, as well.

5. There is, as mentioned above, the added potential of having a choice of two display sizes on the screen in the MacWorks environment, allowing the screen to be tailored to a particular software application.

Negatives

There are just a few negatives:

1. On some Lisas, when the MacWorks diskette is booted, a blank screen appears displaying a list of each module as it is loaded. After all the modules are loaded, another message appears telling the user to click the mouse to continue booting. But, because of the new 3A ROMs, these messages may appear garbled. Do not despair. Click the mouse button again, and MacWorks will boot normally.

2. Although the screen area is essentially full-sized, there are small, black borders visible in both environments which, on the 9-1/2" x 6-3/4" screen, amounts to a slight screen loss, i.e., up to 5/16 inches in some cases, although it varies on individual machines. Of course, the Mac XL screen is still 200% larger than the Macintosh Plus screen. Let us not be greedy!

Conclusion

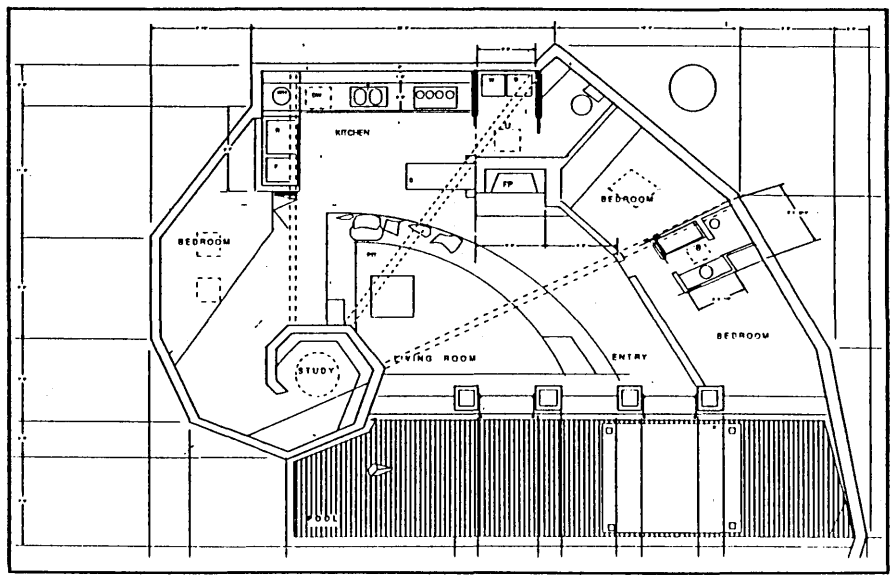
For anyone who draws charts, drawings, maps, technical plans, or graphics of any sort, ROMSwitcher is a must — the next best thing to a crystal ball. As in the rest of life, it is important to have the illusion, or share the delusion, that things are being seen in their proper proportion. The problem is that, with Life, it takes a long time to get the printout.

Walter Thomas Brooks, a practicing architect out of Berkeley, California, is the designer of many national award-winning buildings. His work, exhibited at major universities, has been published nationally. The plans shown here are for a constructed earth-sheltered residence in Brentwood, California.

Diagram C:

Final Architectural Printout

Created in MacDraft, by Innovative Data Designs, Inc.



Computing in the fast lane

Reprinted from the Fall Issue of the LisaTalk Report

by Sam Neulinger

Apple's trade-in program (which met with only moderate success), is now past, and we can get on with the business at hand: improving and obtaining maximum productivity from what we have. Hardware enhancements are only a partial answer; they provide efficient and direct solutions to particular problems, but in some cases they also require software integration in order to permit operation under the Lisa or MacWorks (or both) Operating Systems.

In talking with the many owners who phone, I am repeatedly surprised and delighted with the great numbers of them who are still doing most of their work under Lisa 7/7 software. We owe it to those users, who were the pioneers in the Lisa environment, to see to it that as much of the new technology as possible operate under the Lisa mode, as well as under MacWorks.

In this column I want to bring you up to date on the current status of new product development. Also, I want to share with you some tips and recommendations on obtaining significant operating speed improvement and avoiding trouble spots.

New Products

XL800K Drive:

The XL800™ internal replacement double-sided drive, developed by The NetWorkers and marketed by NetSolutions and Dafax, has finally arrived, enabling much more efficient disk and data management. (Introductory price is $495.) Now users can back up 800K at a time, rather than 400K, doubling disk-space usage, reducing the number of disks needed for backup, saving backup time, and allowing backup of larger files (i.e., over 400K and less than 800K). In addition, Mac XL users can read 800K disks formatted under MFS (Mac Filing System).

Although we are still diligently working on Version 2.0 of *XL800*, we expect this version will be able to read Mac+ HFS (Hierarchical File System) formatted disks and to be used under the Lisa 7/7 and Pascal Workshop, as well. So, for example, developers who are writing programs under the Pascal Workshop on the Lisa will be able to port programs larger than 400K directly to the Macintosh. We'll keep you posted on this as it develops.

In the meantime, for XL users who are also using Mac+, here's an easy trick for formatting a double-sided 800K disk as MFS on a Mac Plus or 512E. Simply start up with a disk that has the old version of the System on it, i.e., System 2.0 and Finder 4.1, insert a double-sided disk, and select "Erase Disk" from the "Special" menu under the Finder.

Aspect Ratio Fix:

The ROMSwitcher™ sold out of its initial production run, but by the time you read this article it should again be available from NetSolutions and Dafax at $239, including the required 3A ROMs. We were pleased to learn from those who purchased *ROMSwitcher* that, contrary to original expectations, in almost all cases screen alignment under each of the operating systems was perfect without any adjustment of the ports. It would seem that there was not as much manufacturing variation in the Lisa/XL line as was originally thought.

20Mb IRHDA (Internal Replacement Hard Disk Assembly):

Thanks to Sun Systems Remarketing, Inc., for the development and marketing of the IRHDA, NetSolutions and Dafax will not only be able to replace the internal 10Mb hard disk assembly (HDA) in the Lisa 2/10 (XL), but will also be able to install it in a Lisa 2, thereby essentially converting it into a 2/20 (XL). The IRHDA is considerably faster than the standard HDA and operates under both the Lisa OS and MacWorks. This is the drive that I referred to in my last article as the 30Mb replacement drive. Actually another 20Mb drive could be installed in the space provided, and as the new controller card has 2 ports, that option will be available later as an add-on.

Another option will be a 40Mb HD or any combination of the two i.e, a 20/20, 20/40 or 40/40, with tape backup as a probable later option. At this time, if two hard disk drives were installed, they

New Products (continued)

would act as logical drives, and both would be recognized under the same operating system. A future enhancement will be the ability to choose between the two drives so one can be configured under the Lisa OS and the other under MacWorks.

Installation is relatively simple. The front panel of the computer is removed, and the entire HDA assembly which consists of the 10Mb HD and 400K micro diskette drive, is unplugged and slid out of the chassis rails intact. The new **20Mb IRHDA** with its 400K drive is then slid back in and reconnected to the same cables. The **20Mb IRHDA** can also be ordered with the *XL800* already installed, instead of the 400K drive, thereby doubling the computer's total capacity at the same time. Lisa 2 upgrades will connect to the built-in parallel port at the rear of the mother board, where the ProFile™ is usually connected. The cost of the IRHDA is $1199, with the following rebates offered:

10Mb HDA with 400K drive
$400 (in working condition)
$300 (non-working)

10Mb ProFile w/ 400K drive
$400 (in working condition)
$300 (non-working)

5Mb ProFile with 400K drive
$200 (in working condition)
$150 (non-working)

As I mentioned in my last article, I feel it is absolutely necessary to partition the IRHDA into smaller volumes, using either **Finder's Helper** (more about that new product follows) or **MacServe** (Infosphere, Inc.). The Macintosh Filing System (MFS) simply cannot deal with the increased capacity of a 20Mb hard disk without help. (As most of you know, the standard 10Mb HDA also tends to bog down when there are too many files on it.)

Disk Management:

Finder's Helper is a new disk management program developed for The NetWorkers by Infosphere, Inc., and marketed exclusively by NetSolutions and Dafax at $100 as an enhancement to MacWorks XL. Many stand-alone users not requiring networking options felt that MacServe, although a powerful program in its own right, had features that had to be paid for that were not required by them. Finder's Helper is basically MacServe™ without its networking server capabilities. It has volume partitioning, disk cacheing, and backup and print spooling features. It can also act as a user on an AppleTalk™ network but cannot act as a server. Lewis Guice feels it is a fix to MacWorks XL, allowing for efficient disk management without overburdening the Finder, at a reasonable price.

continues

Operating Tips (Some Old, Some New)

Some of the most frequent causes of System bombs and quirks are:

1. The failure to close all open windows prior to quitting an application.
2. Too many open windows on the desktop. (Symptoms frequently appear when you try to insert a disk that you know has been initialized, but you are asked if you want to initialize it, or when you try to intialize a disk and you are told that initialization failed.)
3. Desk Accessories (DAs). The first question we ask when someone calls with a problem is, "What DA was being installed?" Many of the Public Domain DAs can create real problems if they are not written to exact Apple protocol.
4. Failure to use the "Shut Down" command under the "Special" menu on the desktop.
5. Not providing adequate AC line voltages to your computer. If possible, use a dedicated outlet. If not, make sure that you don't have photocopiers or other such equipment on the same circuit. Low and fluctuating voltages can create havoc with HDA's and ProFiles. The expensive alternative remedy is an uninterruptable power supply (UPS).

Operational Enhancements

Two products that do a remarkable job of improving performance on the Mac XL under MacWorks XL are (by the way, these work equally well on the Macintosh):

TurboCharger™ 2.0 Rev. D, by Nevins Microsystems, is a RAM cacheing program and more. Its "Quick Quit" feature permits you to return to the desktop immediately under most applications. It can be used with MacServe, provided volumes are opened "Private," as opposed to "Shared." With 1Mb, Turbo Charger offers considerable overall speed improvement; with 2Mb installed, the speed improvement is remarkable! **(Be sure you get Revision "D" or later.)** List Price: $59.95

DiskExpress™ Vn. 1.06 by ALSoft, Inc. Disk fragmentation is a major cause of floppy and hard disk blues. The more you use your floppy and hard disks and save back to them, the more fragmented they become as information is scattered over the many areas of the disk. This results in longer seeks by the heads to recover all the information from the various blocks on the disk. *DiskExpress* alleviates this problem by rearranging the blocks that have been scattered and putting them into contiguous blocks. Further, it puts all unused blocks together for optimum performance. It has many other features too numerous to name.

Be sure you get Vn. 1.06 or later. Also, be sure to back up your files or volumes before using *DiskExpress*—if a disk is copy-protected or power is interrupted, permanent loss of data could occur.

—SN

Products in Development

SCSI Adapter Card:

One of the problems inherent in developing new products is that more than one company might be working on the same or a similar product. In most cases, this is fine and the consumer is the ultimate beneficiary. In other cases, the immediate effect is a dilution of the market potential and perhaps spreading one's resources too thin.

Orphan Technology, who was working on a SCSI card, has decided to drop that project and concentrate on their *ROMSwitcher* product instead. In this particular case, the **20Mb IRHDA** and the new **20Mb & 40Mb ProFile™ Upgrades** (more about those products follow) do essentially what a SCSI interface would have done. More importantly, these products will provide the much-needed larger hard disk capacity under the Lisa Operating System which the SCSI interface, as it was being designed, would not allow. Further, it is felt that a SCSI interface would operate much more efficiently and speedily with at least part of the Mac's 128K ROMs structure as part of MacWorks.

As envisioned, the SCSI would have operated off a patch to MacWorks similar to 2Port Disk Install (2PDI), but the fact that MacWorks had to be on the internal HD before the SCSI interface could be operative, would have slowed it down too much. Also, the SCSI interface as it was being designed, did not allow for interface under the Lisa Operating System, whereas these new products do. I believe we will have SCSI in time, and hopefully under Lisa as well, but we will have to be patient. Bridge Technology, a new company in the Lisa/XL field, will include the SCSI interface as one of a new series of products it will be developing.

4Mb Upgrade:

The **Bridge Technology Ultra 4Mb Upgrade** is close to the point where it can be released but still requires a bit of fine tuning. Hopefully it will be demonstrated at the NetSolutions/ Dafax booth #506 at MacWorld Expo January 8, 9 & 10, along with the other products previously discussed. Two upgrades are planned. The first is a 4Mb capability for MacWorks XL only, (with *ROMSwitcher*, 2Mb under the Lisa OS); the other, at a later date, is 4Mb for both the Lisa OS and MacWorks XL, a combination which will also require *ROMSwitcher*. Both upgrades will probably require a retrofitting of the card cage.

Upon receiving the upgrade, you would remove your card cage, replace it with the new one, and send back your card cage for a rebate. AST RamStak™ owners would receive an additional rebate if they had previously purchased a 1.5Mb or 2Mb RamStak. Those users who already have 2Mb know what a difference the additional memory has made for them, and they are principally the ones who have been asking for additional memory beyond 2Mbytes.

20Mb & 40Mb ProFile Upgrades:

The **Bridge Technology 20Mb/40Mb ProFile Upgrades** will be available after the January 1987 MacWorld Expo, and will be marketed exclusively by NetSolutions and Dafax. The 20Mb unit should be faster than the standard ProFile and available first at $1049.

This upgrade will also enable all ProFile owners to upgrade their units on an exchange basis, resulting in a lower net cost to them. Rebates for ProFiles™ and HDAs will be the same as offered under the rebate schedule outlined above for the IRHDA. They will connect through the built-in parallel port of the Lisa 2 or through the Apple 2Port Parallel Card in the expansion slot of both the Lisa 2 or the 2/10 (XL). The nice feature about these units is that they will also operate under the Lisa Operating System (7/7, Pascal Workshop, UNIX and Xenix), as well as under MacWorks XL.

8Mhz Clock Speed:

In its preliminary research and development stage, the **Bridge Technology Mach 2 Upgrade** is probably the most exciting product that is being worked on. We have all long complained that the Lisa/XL was not up to the speed of the Macintosh, and now the MacPlus. I have argued that although that is true in the literal sense, it is not so under most practical operations. Within any application Macs are considerably faster because of their higher clock speed and built-in ROMs.

The Lisa/XL has a slower clock speed and is emulating the Mac under MacWorks, and therefore runs unavoidably slower. However, in any application where the file being worked on exceeds the standard window size of the Mac and scrolling is necessary in order to enter information or perform tasks, the fact that the entire window is visible and accessible under the Lisa/XL, compensates for her slower operating speed and in most cases the overall result is a speedier "apparent" execution on the Lisa/XL. Nevertheless, increased speed on the Lisa/XL would be most welcome.

The 68020 route was thought to be the only one to follow, since aside from increased speed, 4Mb could also be addressed relatively easily. However, since the 4Mb upgrade problem seems to have been solved in principle, other more economical approaches could be considered, especially since a 68020 option would require much more development time. The **Mach 2** is essentially a 68000 running at close to 8MHz, compared to the almost 5MHz at which the Lisa/XL now runs. It would involve swapping of some boards, but would be a relatively easy, user-installable upgrade. Hopefully this product will be available in the first quarter of 1987 at relatively modest cost.

continues

Products Under Research Only

Full-size high resolution screen:

The Lisa/XL large screen size has up to this point been its major advantage over the Macintosh. Now with the advent of the add-on full-size screens for the Mac, and the new Mac with its larger screen coming in 1987, Bridge Technology is researching incorporating a full-size high resolution screen into the Lisa/XL. Also being considered is an external large screen monitor option, offering switchable horizontal and vertical modes depending on the position of the external screen on the desktop.

The internal retrofit would require a major overhaul of the computer chassis, resulting in new sides, back and front panel, with the major benefit being the same desktop footprint, *plus* added internal space to the right of the new screen for additional components, such as tape backup units and other goodies.

16MHz Clock Speed:

For those users requiring maximum processing speed and power, a **16MHz 68020/68881** incorporating major enhancements at much higher cost than the **Mach 2** is being considered.

LaserWriter Driver for Lisa7/7:

The product most frequently requested by 7/7 users, a LaserWriter Driver is under consideration, and I will report on its progress in my next column.

Sam Neulinger is President of Dafax Processing Corp., a value-added retailer, providing hardware and software support specific to the Lisa/Mac XL and the Macintosh Office. An avid admirer of the Lisa since its birth, Sam now uses a Lisa 2/10 exclusively and is Chairperson of the New York Macintosh Users Group (NYMUG) Lisa/XL SIG.

New System Recommendations and Installation

The latest System and Finder working under MacWorks XL is System 3.2, Finder 5.3, Imagewriter Driver 2.3 (for IW I and IW II), Font/DA Mover 3.2, AppleTalk ImageWriter 2.3, LaserWriter Driver 3.1 and Laser Prep 3.1. If you are already using these new files then you are operating at maximum efficiency and speed. If not, then read on. If you are unable to obtain these latest System Files from your Apple Dealer, or do not have the latest versions of MacWorks XL and MacWorks System Disks, Dafax can update your MacWorks disks for you for a service fee of $10 per disk and/or provide you the New System Files described below for a handling charge of $10 per disk. Send a Check or Money Order for the appropriate amount. Be sure to include your MacWorks Disks if you want them updated.

MacWorks XL Version 3.0 is the latest version available. Use it to boot MacWorks XL and/or to update older MacWorks on a Hard Disk. Check the part number on the back of the label on the disk, it should be 682-0087-D. The MacWorks XL System Disk contains the Hard Disk Install Program enababling a hard disk to be formatted and made into a MacWorks XL Hard Disk (If you are going to use "Hard Disk Install" on a Hard Disk that has information on it, be sure to back up all your files as they will be erased). It's System Folder contains - System 2.0 and Finder 4.1. These will have to be replaced after your Hard Disk has been formatted and made into a MacWorks Hard Disk. Follow the instructions below. Check the part number on the back of the label on the disk, it should be 682-0103-B.

New System Disk #1 contains the new System Version 3.2, Finder 5.3 and other replacement programs. Once you have successfully installed MacWorks XL on your Hard Disk and have moved the System Folder from the MacWorks XL System Disk.....you can eject that disk by pressing - Apple-Shift-#1. Then insert this disk....open the System Folder...double click on the FINDER, while holding down the Option and Apple keys. That will make this disk the start-up disk. Highlight the System Folder of New System Disk #1, hold down the Shift key and click once on the Font /DA Mover also....then drag them unto the Hard Disk Icon. When you are asked if you want the items replaced...click O.K. To make sure that you have done this procedure properly, do a "Shut Down from the "Special Menu" then reboot. After the DeskTop reappears, go to the Apple Menu on the DeskTop and highlight "About the Finder", the dialog box will open indicating the amount of memory (RAM) you have in the lower left hand corner and the the version number of the Finder you have (5.3) in the lower right hand corner. Click on the box to make it disappear. You now have installed the latest System on your Hard Disk.

New System Disk #2 contains LaserWriter Drivers and a MacWrite document about the New System. If you are using a LaserWriter, replace your old drivers with these.

If you are going to use "Hard Disk Install" on a Hard Disk that has information on it, be sure to back up all your files as they will be erased. Remember to back up your files on a periodic basis. Get into the habit of doing it regularly. Dafax offers an "XL Utility Disk" containing various ShareWare and PD Programs. One of these is "XL Back", an automatic back up program for files larger than 400k. We charge a $10 Service Fee for handling and postage. If you use the program, the author asks you to send him a check for $20. Other programs may require similar honorary contributions if they are used.