

Chapter XXX

Good Things to Know About Lisa

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NOTE

THIS IS A PRELIMINARY CHAPTER FROM MY LISA LEGACY PAPER REVISION.
THIS CHAPTER MAY CHANGE IN THE FUTURE WHEN I COMPLETE THIS PAPER.

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X.1 INTRODUCTION

This chapter contains Lisa information from the Apple Technical Information Library as of 24 September 1995. This information may be found in Apple's CompuServe forum (GO APLTIL). I searched using the keyword "Lisa". 240 documents were found, but around 20 of these only mentioned the Lisa in passing and as such these extraneous documents are not present in this chapter.

Some of this information may be very useful to Lisa users who need rather specific notes about either the Lisa's software or hardware.

This information appears to have been created by Apple's Support Information Services (SIS) department.

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X.3 GOOD THINGS TO KNOW ABOUT LISA - APPLE DOCUMENTS

1 (Lisa)Mac XL : LisaTest V.2.2 - Error 3 in Step 7

Article Created: 27 September 1985
Article Last Reviewed: 17 July 1992
Article Last Updated:

PROBLEM DESCRIPTION: Lisa Test Error number 3 displayed during Step 7 when using version 2.2 indicates a "Parallel Port VIA Interrupt Failure".

CAUSE: The hard disk may be formatted for Macintosh software or have been partitioned for a shared Macintosh and Lisa environment when the 7/7 office system was installed. LisaTest version 2.2 does not operate with these configurations.

CURE: Use LisaTest 3.0 or later for Macintosh formatted hard disks. Use Mac XL/Lisa Modification Test Version 1.0 or later for Square Pixel Screen Driver.

If this cure does not resolve the problem, go to the Lisa 2/Macintosh XL Technical Procedures, for the troubleshooting procedures for this product.

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Keywords: hts

2 Anti-Theft Device for the Lisa

An anti-theft device for the Lisa is available from:

Anchor Pad of Northern California
1255 Post St., Suite 723
San Francisco, CA 94109
(415) 441-2593

Good Things to Know About Lisa

Keywords:

3 Apple Cluster Controllers: Specifications

I. Technical Specifications

1. Protocols:

- A. Systems Network Architecture/Synchronous Data Link Control (SNA/SDLC)
- B. Binary Synchronous Communication (BSC)

2. Cluster Controllers Emulated:

- A. SNA/SDLC: IBM 3274, 3276 MOD 12
- B. BSC: IBM 3276 MOD 2

3. Devices Emulated:

- A. Terminals:
 - 1. SNA/SDLC: IMB 3278-2
 - 2. BSC: IBM 3277
- B. Printer: 3287-1

4. Physical Unit Type: SNA/SDLC: PU (1-7 LU's)

5. Device Address:

- A. SNA/SDLC: PU2, address switch selectable
- B. BSC: Switch selectable

6. Transmission Speed:

- A. Full Duplex: Up to 9600 bps
- B. Printer: 300 to 9600 bps, Full duplex flow control (X-on/X-off)

7. Interface:

- A. Asynchronous:
 - a. Seven-bit ASCII
 - b. Full duplex
- B. Synchronous:
 - a. 8-bit EBCDIC

8. Power Requirements: 115 AC, 1 amp, 50/60 Hz

9. Physical Connection:

- A. Synchronous port: Serial high-speed synchronous modem
- B. Asynchronous port: Serial interface (DTE or DCE) for:
 - a. computer
 - b. printer
 - c. modem

10. Data Security:

- A. Monitors data flow from each port in both directions
- B. Automatically terminates when the transmission is interrupted

11. Diagnostics:

- A. A diagnostic line monitors every port
- B. Self-diagnostic test programs that may be run at any time
- C. Complete system test at power-on
- D. Results displayed on the Status Line

12. Environmental Requirements

- A. Operating temperature: 50 to 90 degrees F (10 to 35 degrees C)

II. Package

NOTE: For Datacomm approved dealers only

Order Numbers: Search on "Cluster" in the Product Prices Library

- 1. An Apple Cluster Controller
- 2. Power cord
- 3. Jumper package for configuration
- 4. Test loopback plug
- 5. Accessory Kit
 - a. Cluster Controller Operating Manual
 - b. Cluster Controller Installation Guide
 - c. Warranty and Product Registration Card

III. System Configuration

- 1. An Apple Computer
 - a. Macintosh or Macintosh XL
 - b. III
 - c. II, II Plus, IIe, or IIc:
 - 1. Not recommended
 - 2. Cable and pinout information on connecting your Apple II to an Apple Cluster Controller may be found by searching AppleLink's Technical Library on "Apple Cluster Controller and pinout"
- 2. Serial printer (optional)
- 3. Data cables to connect to a computer, printer or asynchronous modem
- 4. Data cables or a synchronous modem to connect to the IBM mainframe
- 5. Terminal software:
 - a. Apple III: Access III or Access 3270
 - b. Macintosh XL: LisaTerminal or MacTerminal (under MacWorks)
 - c. Macintosh: MacTerminal

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Keywords: SPECSHT

4 Apple Color Plotter: Configuration Table

This article last reviewed: 5 April 1990

System	SW-1	
	12345678	Cable Required
Apple III	10111100	590-0037 and 590-0166
Apple IIc		590-0037 and 590-0550
Macintosh	01111111	590-0169 *
Lisa	N/A	N/A
Apple IIc	01101100	590-0191 **
Super Serial ***	01101100	590-0037
High Speed Serial	N/A	N/A

Key

0 = off = closed

1 = on = open

* - A special plotter driver is necessary for the Macintosh.

The switch setting here is from an interface package for the Macintosh, "Plot-It" from Mesa Graphics, which works with MacPaint.

** - Using default port settings

*** - Apple II, II+, IIe require the Super Serial card

Apple III Driver Configuration:

Driver	Data Configuration Block											
	0	1	2	3	4	5	6	7	8	9	A	B
RS-232	08	22	00	00	00	00	13	11	DF	84	50	80
Printer	08	22	00	00	00							

Super Serial Card Configuration:

	1	2	3	4	5	6	7
SW1	Off	Off	Off	On	Off	On	On
SW2	On	Off	Off	On	Off	Off	Off

Jumper block should be pointing towards terminal.

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Keywords:

5 Apple II, Apple III, Lisa Family: Video Specs

Article Created: 15 November 1984

Article Reviewed/Updated: 26 June 1992

TOPIC -----

The following information is for the benefit of users who may wish to interface

Apple models to video projectors:

DISCUSSION -----

Apple II, II+, IIe, IIc

- | | |
|-----------------------------------|-----------------|
| 1. Number of lines in the raster. | 525 |
| 2. Whether interlaced. | No |
| 3. Signal type. | NTSC compatible |
| 4. Frame rate. | 60 hz. |

Apple III, III+

- | | |
|-----------------------------------|------------------------------------------------------------------------------------|
| 1. Number of lines in the raster. | 525 |
| 2. Whether interlaced. | No / Yes for III+ |
| 3. Signal type. | NTSC B/W, NTSC
color composite,
RGB Pure Video,
Composite Sync
Signals |
| 4. Frame rate. | 60 hz. |

Euro IIc, IIe, II+, Euro PAL color card

- | | |
|-----------------------------------|-----------------------------------------|
| 1. Number of lines in the raster. | 625 |
| 2. Whether interlaced. | No (IIc, IIe) |
| 3. Signal type. | Composite PAL
video
(unmodulated) |
| 4. Frame rate. | 50 hz. |

Lisa

- | | |
|-----------------------------------|-----------------|
| 1. Number of lines in the raster. | video output to |
| 2. Whether interlaced. | Conrac or |
| 3. Signal type. | Electrohome |
| 4. Frame rate. | monitor with |
| | 22.7 Khz scan |
| | rate |

Copyright 1984, 1992 Apple Computer, Inc.

Keywords: SPECSHT

6 Apple Products: Dates Introduced and Discontinued (9/95)

Whoever created this table forgot about the Lisa 1 :- (I've added it for completeness. They also forgot about the DMP printer which was introduced in 1982 and was the Lisa's first printer.

Article Created: 20 November 1992
 Article Reviewed/Updated: 5 September 1995

TOPIC -----

This article lists the date of introduction and, where applicable, the date when the model was discontinued for various Apple products. Dates which are missing will be added as they occur.

DISCUSSION -----

Begin_Table

COMPUTER SYSTEMS

=====

Apple II Series	Introduced	Discontinued
Apple II	August 1978	December 1982
Apple II+	June 1979	June 1983
Apple IIc	April 1984	September 1988
Apple IIc Plus	September 1988	November 1990
Apple IIe	January 1983	March 1985
Apple IIe Enhanced	March 1985	November 1993
Apple IIGS	September 1986	December 1992
Apple III Series	Introduced	Discontinued
Apple III	May 1980	September 1985
Apple III+	December 1983	September 1985
Lisa	Introduced	Discontinued
Lisa 1	January 1983	January 1984
Lisa 2	January 1984	January 1985
Lisa 2/5	January 1984	January 1985
Lisa 2/10	January 1984	January 1985
Macintosh	Introduced	Discontinued
Mac 128K	January 1984	October 1985
Mac 512K	September 1984	April 1986
Mac 512Ke	April 1986	August 1986
Mac Plus	January 1986	October 1990
Macintosh Classic	October 1990	October 1991
Macintosh Classic II	October 1991	September 1993
Macintosh Color Classic	February 1993	May 1994
Macintosh LC	November 1990	March 1992
Macintosh LC II	March 1992	March 1993
Macintosh LC III	February 1993	February 1994
Macintosh LC 475	October 1993	

Macintosh LC 520	June 1993	February 1995
Macintosh LC 550	February 1994	April 1995
Macintosh LC 575	February 1994	April 1995
Macintosh LC 580	April 1995	
Macintosh LC 630	July 1994	April 1995
Macintosh LC 630		
DOS Compatible	April 1995	
Macintosh Portable	September 1989	January 1991
Macintosh SE	March 1987	October 1990
Macintosh SE/30	January 1989	October 1990
Macintosh SE FDHD	August 1989	October 1990
Macintosh TV	October 1993	
Macintosh XL	January 1985	August 1986
Macintosh II	Introduced	Discontinued
-----	-----	-----
Macintosh II	March 1987	January 1990
Macintosh IIx	October 1988	October 1990
Macintosh IICx	March 1989	March 1991
Macintosh IICI	September 1989	February 1993
Macintosh IIfx	March 1990	April 1992
Macintosh IISI	October 1990	March 1993
Macintosh IIVx	October 1992	October 1993
Centris	Introduced	Discontinued
-----	-----	-----
Macintosh Centris 610	February 1993	October 1993
Macintosh Centris 650	February 1993	October 1993
Macintosh Centris 660AV	August 1993	October 1993
Quadra	Introduced	Discontinued
-----	-----	-----
Quadra 605	October 1993	October 1994
Quadra 610	October 1993	May 1994
Quadra 630	July 1994	April 1995
Quadra 650	October 1993	September 1994
Quadra 660AV	October 1993	September 1994
Quadra 700	October 1991	March 1993
Quadra 800	February 1993	March 1994
Quadra 840AV	August 1993	July 1994
Quadra 900	October 1991	May 1992
Quadra 950	May 1992	
Power Macintosh	Introduced	Discontinued
-----	-----	-----
Power Macintosh 5200/75 LC	April 1995	
Power Macintosh 5300/100 LC	September 1995	
Power Macintosh 6100/60	March 1994	January 1995
Power Macintosh 6100/60AV	March 1994	January 1995
Power Macintosh 6100/66	January 1995	
Power Macintosh 6100/66AV	January 1995	
Power Macintosh 7100/66	March 1994	January 1995
Power Macintosh 7100/66AV	March 1994	January 1995
Power Macintosh 7100/80	January 1995	
Power Macintosh 7100/80AV	January 1995	
Power Macintosh 7200/75	August 1995	
Power Macintosh 7200/90	August 1995	
Power Macintosh 7500/100	August 1995	
Power Macintosh 8100/80	March 1994	January 1995

Power Macintosh 8100/80AV	March	1994	January	1995
Power Macintosh 8100/100	January	1995		
Power Macintosh 8100/100AV	January	1995		
Power Macintosh 8100/110	November	1994		
Power Macintosh 8500/120	August	1995		
Power Macintosh 9500/120	June	1995		
Power Macintosh 9500/132	June	1995		

PowerBook	Introduced	Discontinued
-----	-----	-----
PowerBook 100	October 1991	July 1992
PowerBook 140	October 1991	August 1992
PowerBook 145	August 1992	June 1993
PowerBook 145b	June 1993	July 1994
PowerBook 150	July 1994	
PowerBook 160	October 1992	August 1993
PowerBook 165	August 1993	July 1994
PowerBook 165c	February 1993	December 1993
PowerBook 170	October 1991	October 1992
PowerBook 180	October 1992	May 1994
PowerBook 180c	June 1993	March 1994
PowerBook 190/66	August 1995	
PowerBook 190cs/66	August 1995	
PowerBook 520	May 1994	June 1995
PowerBook 520c	May 1994	
PowerBook 540	May 1994	October 1994
PowerBook 540c	May 1994	
PowerBook 550c*	May 1995	
(*Avail. in Japan Only)		
PowerBook 5300/100	August 1995	
PowerBook 5300c/100	August 1995	
PowerBook 5300ce/100	August 1995	
PowerBook 5300cs/100	August 1995	
PowerBook Duo 210	October 1992	October 1993
PowerBook Duo 230	October 1992	July 1994
PowerBook Duo 250	October 1993	May 1994
PowerBook Duo 270c	October 1993	May 1994
PowerBook Duo 280	May 1994	November 1994
PowerBook Duo 280c	May 1994	
PowerBook Duo 2300c/100	August 1995	

PowerBook Docking Stations	Introduced	Discontinued
-----	-----	-----
PowerBook Duo MiniDock	October 1992	
PowerBook Duo Dock	October 1992	
PowerBook Duo Dock II	May 1994	May 1995
PowerBook Duo Dock Plus	May 1995	

Performa	Introduced	Discontinued
-----	-----	-----
Performa 200	October 1992	April 1993
Performa 400	October 1992	April 1993
Performa 405	April 1993	
Performa 410	October 1993	
Performa 430	April 1993	
Performa 450	April 1993	
Performa 460	October 1993	
Performa 466	October 1993	
Performa 467	October 1993	

Performa 475	October	1993		
Performa 476	October	1993		
Performa 550	October	1993		
Performa 560	January	1994		
Performa 575	April	1994		
Performa 577	April	1994		
Performa 578	April	1994		
Performa 580	May	1995		
Performa 588	April	1995		
Performa 600	October	1992	October	1993
Performa 630	July	1994		
Performa 630CD	July	1994		
Performa 631	July	1995		
Performa 635	July	1994		
Performa 635CD	July	1994		
Performa 636	July	1994		
Performa 637CD	July	1994		
Performa 638CD	July	1994		
Performa 640				
DOS Compatible	May	1995		
Performa 5200CD	July	1995		
Performa 5210	May	1995		
Performa 5215	July	1995		
Performa 5220	May	1995		
Performa 6110	September	1994		
Performa 6112	September	1994		
Performa 6115	September	1994		
Performa 6116	July	1995		
Performa 6117	September	1994		
Performa 6118	September	1994		
Performa 6200	July	1995		
Performa 6216	July	1995		
Performa 6218	July	1995		
Performa 6220	July	1995		
Performa 6230	July	1995		

PRINTERS

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ImageWriters

ImageWriter 15"
ImageWriter I
ImageWriter II
ImageWriter LQ

Introduced

April 1984
June 1984
September 1985
August 1987

Discontinued

September 1987
December 1985
December 1990

LaserWriters

Color LaserWriter 12/600
LaserWriter
LaserWriter 16/600 PS
LaserWriter Plus
LaserWriter IISC
LaserWriter IINT
LaserWriter IINTX
LaserWriter IIf
LaserWriter IIg
LaserWriter Pro 600
LaserWriter Pro 630

Introduced

June 1995
March 1985
September 1994
January 1986
January 1988
January 1988
January 1988
October 1991
October 1991
January 1993
January 1993

Discontinued

February 1988
February 1988
July 1990
October 1991
October 1991
May 1993
October 1993
October 1993
September 1994

LaserWriter Pro 810	October 1993	November 1994
LaserWriter Select 300	February 1993	
LaserWriter Select 310	February 1993	January 1994
LaserWriter Select 360	October 1993	
Personal LaserWriter LS	March 1991	May 1993
Personal LaserWriter NT	July 1990	1994
Personal LaserWriter NTR	March 1992	September 1993
Personal LaserWriter SC	June 1990	September 1993
Personal LaserWriter 300	June 1993	1994
Personal LaserWriter 320	October 1993	

StyleWriters	Introduced	Discontinued
-----	-----	-----
Color StyleWriter Pro	February 1994	
Color StyleWriter 2200	June 1995	
Color StyleWriter 2400	September 1994	
Portable StyleWriter	June 1993	
StyleWriter	March 1991	January 1993
StyleWriter 1200	April 1995	
StyleWriter II	January 1993	

Other Printers	Introduced	Discontinued
-----	-----	-----
Apple Color Printer	January 1993	February 1994
Scribe	April 1984	August 1986
Silentype	January 1980	June 1984

OTHER PRODUCTS

=====

Scanners	Introduced	Discontinued
-----	-----	-----
Apple Scanner	August 1988	September 1991
Apple OneScanner	September 1991	June 1994
Apple Color OneScanner	January 1993	

Monitors	Introduced	Discontinued
-----	-----	-----
AppleColor High-Res RGB	March 1987	December 1992
AppleColor RGB	September 1986	January 1993
AppleVision 1710AV	August 1995	
Apple AudioVision 14	August 1993	
Apple Basic Color	February 1993	October 1993
Apple Color Plus Display	October 1993	
Apple High-Res Mono	March 1989	February 1991
Apple Multiple Scan 14	August 1995	
Apple Multiple Scan 15	July 1994	
Apple Multiple Scan 17	March 1994	
Apple Multiple Scan 20	March 1994	
Macintosh 12-inch Mono	December 1990	October 1993
Macintosh 12-inch RGB	October 1990	March 1993
Macintosh 16-inch Color	October 1991	April 1994
Macintosh 21-inch Color	October 1991	March 1994
Macintosh Color 14 Display	December 1992	
Macintosh Portrait Display	March 1989	December 1992
Macintosh Two-Page Mono	March 1989	December 1992
Performa Display	September 1992	July 1994
Performa Plus Display	September 1992	

Modems	Introduced	Discontinued
-----	-----	-----
Apple Personal Modem	September 1985	December 1990
Apple Modem 2400	July 1989	December 1992
PowerBook Data/Fax Modem	October 1991	November 1993
PowerBook Express Modem	October 1992	
PowerBook Express Modem II* (*Avail. in Europe Only)	October 1992	

PIE	Introduced	Discontinued
-----	-----	-----
Newton Message Pad	August 1993	March 1994
Newton Message Pad 100	March 1994	January 1995
Newton Message Pad 110	March 1994	January 1995
Newton Message Pad 120	January 1995	

End_Table

Article Change History:

05 Sep 1995 - Added new products.
 01 Sep 1995 - Added PIE products.
 24 Aug 1995 - Added new products.

Support Information Services

Copyright 1992-95, Apple Computer, Inc.
 Keywords: review, ktable

7 Apple Software and Hardware Diagnostic Part Numbers (9/95)

Article Created: 20 December 1985
 Article Reviewed/Updated: 7 September 1995

TOPIC -----

The article contains the most recent part numbers for all Apple diagnostics.

DISCUSSION -----

Begin_Table

PRODUCT P/N REV DESCRIPTION

APPLE TECHSTEP: Available Accessories

Z077-8668	Power Adapter, Apple TechStep, Europe
X077-8668	Power Adapter, Apple TechStep, Australia
JA077-8668	Power Adapter, Apple TechStep, Japan
B077-8668	Power Adapter, Apple TechStep, U.K.
699-0578	Carrying Case, Apple TechStep
590-4512	Cable, Stereo, Apple TechStep
590-4501	Cable, ADB, 2-meter
590-0623	Cable, SCSI, Apple TechStep
077-8405	Cable Wrap Kit, Apple TechStep
590-0552	Cable, Mini-Din 8, 2-Meter
077-8668	Power Adapter, Apple TechStep, U.S.

Service Parts Available for the Apple TechStep

661-0703	Assy, TechStep w/o Port or ROM Packs
076-0574	Port Pack, Apple TechStep
661-0150	ROM Pack, CPU Tests, Vol. 1, v1.01
661-0157	ROM Pack, SCSI HD Tests, v1.0
661-0147	ROM Pack, CPU Tests, Vol. 2, v1.0
661-0148	ROM Pack, CPU Tests, Vol. 3, v1.0
661-0149	ROM Pack, CPU Tests, Vol. 4, v1.0

APPLE II FAMILY DIAGNOSTICS STARTER KIT

077-8313 Apple II Diagnostics and Updates--REQUIRED
 (includes starter kit and one year of updates)

CONTENTS OF APPLE II FAMILY DIAGNOSTICS STARTER KIT

077-0100	B	Apple II Product Diagnostic, (5.25)
077-0217	A	Apple II Peripheral Diskette, (5.25)
077-0232	E	Apple IIe,IIc Diagnostic 4.0, (5.25)
077-0233	H	Apple IIe,IIc,IIc Plus,IIGS, IIGS 1MB Diagnostic 4.1, (3.5)
077-0234	F	Apple IIGS, IIGS 1MB Diagnostic 4.1, (3.5)
077-0274	C	Apple II Hard Disk Test 1.0 and SCSI Card Test 2.1 (5.25)
077-0316	A	Apple II Video Overlay Card Diagnostic, 1.0 (5.25)
077-0340	C	Apple II Hard Disk Test 1.0 and

077-8148 A SCSI Card Test 2.1 (3.5)
 077-8219 C Apple IIc Loopback Cable
 077-8324 A SCSI Loopback Test Card
 077-8324 A Apple 5.25 Floppy Drive Test Assembly,
 Version 1.0 (replaces 077-8216)
 590-0552 A Cable, APM/ImageWriter II to
 Apple IIGS/Macintosh Plus
 661-91097 A Apple IIe 80 Col/64K Card
 686-0027 A Profile Limited Data Recovery
 Program 2.0, (5.25)

NOTE: Subscriptions are Non-Refundable.

APPLE II FAMILY DIAGNOSTIC RENEWAL

011-7077 Renewal, Apple II Family Diagnostic
 Updates--REQUIRED

The Apple II Family diagnostics included in this package cover the following products:

CPUs: Apple II, Apple II+, Apple IIe, Apple IIc, Apple IIc Plus, Apple IIGS.

Monitors: Monitor II, Monitor IIc, Monitor ///, AppleColor Monitor 100, AppleColor Composite Monitor, ColorMonitor IIe/IIc, Apple Monochrome Monitor, AppleColor RGB Monitor, Flat Panel Display.

Drives: ProFile, Disk II, Disk ///, DuoDisk, UniDisk-Apple 5.25 Drive, Disk IIc, UniDisk 3.5, Apple 3.5, Hard Disk 20SC.

Printers: Daisy Wheel Printer, Dot Matrix Printer, ImageWriter, ImageWriter II, Scribe, Silentye.

Other: Apple II Memory Expansion Card, Apple II SCSI Card, Apple IIGS Memory Expansion Card, Apple II Workstation Card, Apple IIc Memory Expansion Card, Apple II Keyboards and Mice.

MACINTOSH FAMILY DIAGNOSTICS STARTER KIT

077-8312 Macintosh Diagnostics and Updates--REQUIRED
 (Includes starter kit and one year of updates)
 NOTE: This part number replaced 632-0582 as
 of November 14, 1988

CONTENTS OF MACINTOSH FAMILY DIAGNOSTICS STARTER KIT

073-0301 Macintosh Family Diagnostics Reference Guide
 073-0326 MacTest Pro Diagnostics User Guide
 073-0368 MacTest Pro Diagnostics Reference Guide
 077-0370 MacTest Pro-Application & Modules Nonbootable Disk
 077-0070 MacTest Pro-Macintosh CPU Tests, Vol. 1A
 077-0071 MacTest Pro-Macintosh CPU Tests, Vol. 1B
 077-0371 MacTest Pro-Macintosh CPU Tests, Vol. 2
 077-4221 MacTest Pro-Macintosh CPU Tests, Vol. 3
 077-0372 MacTest Pro-PowerBook Tests, Vol. 1
 077-0400 MacTest Pro-PowerBook Duo Tests, Vol. 1
 077-0082 MacTest Pro-Power Macintosh CPU Tests, Vol. 1
 077-0083 MacTest Pro-Power Macintosh Upgrade Card Tests
 077-0220 MacTest 7.0
 077-0243 MacTest SE

077-0244 MacTest II/IIx
077-0251 MacTest SE/30
077-0270 MacTest IICx/IIci
077-0329 MacTest Portable
077-0359 MacTest MP
077-0360 MacTest CL
077-0258 Macintosh Peripherals Tests, Vol. 1
077-0323 Macintosh Peripherals Tests Vol. 2
077-0363 Macintosh Peripherals Test, Vol.3
077-0268 Macintosh Hard Disk Test
077-0362 Macintosh 16"/21" Color Display Patterns
077-0322 Connect Test
077-0328 Modem Test
077-0242 NodeCheck
072-8220 AppleCAT LaserWriter Quick Reference
077-0247 AppleCAT LaserWriter Test
077-8209 AppleCAT LaserWriter Test Adapter Cable
077-8319 LaserWriter II Test Connector
689-0045 Using Your ImageWriter LQ
590-0552 Cable, APM/ImageWriter II to Apple IIGS and Mac Plus
678-5064 CD Rom Test Disc
678-5059 Caddy - Compact Disc
077-8219 SCSI Loopback Test Card
690-8132 Inter*Poll, Network Administrator's Utility
077-8129 DB9 Serial Port Plug (Set of 2)
590-0169 DB9m to Din 25m Cable
590-0553 MINI DIN 8M to DB9F Adapter Cable
077-0673 Blank 800K Diskette
077-0674 Blank 1.4 Diskette

MACINTOSH FAMILY DIAGNOSTIC RENEWAL

011-7091 Renewal, Macintosh Family Diagnostic
Updates--REQUIRED

The Macintosh Family diagnostics included in this package cover the following products:

CPUs: Macintosh, Macintosh Plus, SE, SE/30, Macintosh Classic/Classic II
Color Classic, Macintosh II/IIx/fx/IICx/IIci/IIsi/IIvx/IIvi/IIvm
Macintosh LC, LC II, LC III, LC 475, LC 520, LC 550, LC 575,
Performa Series, Macintosh Quadra 605, 610, 650, 660AV, 700, 800,
840AV, 900, 950, Macintosh Centris 610, 650, 660AV,
Apple Workgroup Server 60/80/95, PowerBook 100/140/145/145B/160/
PowerBook Duo 210, 230, 250, 270c, Macintosh Portable,
Apple Macintosh TV, Power Macintosh 6100/60, 6100/60AV, 7100/66,
7100/66 AV, 8100/80, 8100/80 AV

Diskette

Drives: Macintosh 800K, Apple 3.5, Apple PC 5.25, 1.4MB SuperDrive

SCSI

Drives: Hard Disk 20, Hard Disk 20SC, 40SC, 80SC, 160SC, 400SC, 500SC, 1 GB;
DDS-DC Drive, AppleCD SC, AppleCD SC Plus, AppleCD 150, AppleCD 300

Comm/

Network: LocalTalk, EtherTalk Card, AppleFax Modem, Portable Data Modem 2400,
Apple Data Modem 2400, Ethernet NB Card, Int'l XP 2400,
PowerBook FAX/Data Modem, Macintosh Express Modem

Printers: LaserWriter, LaserWriter Plus, LaserWriter II, ImageWriter LQ

Scanners: Apple Scanner, Apple OneScanner

Displays: 12-inch RGB displays; 12-inch Monochrome display; High Res Monochrome Monitor; High Res RGB Monitor; Macintosh 13-inch Color Display; Portrait Display; 16-inch Color Display; Two-Page Monochrome

Display; 21-inch Color Display; Macintosh SE/30 Display; Macintosh Classic Display; Macintosh Classic II Display; Color Compact Macintosh Displays; Macintosh Portable Display; PowerBook Displays, 14" AudioVision Display, Basic Color Display

Video

Cards: Macintosh II Video Card, Macintosh II Display Card 8*24; 8*24 GC Card, 2-Page Monochrome Display Video Card, Portrait Display Video Card, Monochrome Video Card, High Res RGB Video Card, 4*8 Video Card, Apple High Performance Video Card, Apple AV Card

Other

Cards: Mac SE PC Drive Card, Macintosh II PC Drive Card, Mac IIci Cache Card, Apple IIe Card, Workgroup Server PDS Card, Power Macintosh Upgrade Card

STARTER KIT HARDWARE DIAGNOSTIC TOOLS SOLD SEPARATELY:

Apple II Family:

077-0325 A Apple 5.25 Floppy Drive Test Reference Diskette

Apple IIe:

077-8219 C SCSI Loopback Test Card

Apple IIc:

077-8148 A Apple IIc Loopback Cable

Apple IIGS:

077-0317 A Apple II Video Overlay Card
Diagnostic; 1.0 (3.5)
077-8219 C SCSI Loopback Test Card
590-0552 A Cable, APM/ImageWriter II to
Apple IIGS/Mac Plus

Macintosh Family:

076-8354 A SIMM Removal Tool

Macintosh Plus:

077-8129 A DB 9 serial port plug (set of 2)--REQUIRED
077-8219 C SCSI Loopback Test Card
590-0552 A Cable, APM/ImageWriter to Apple IIGS and Mac Plus

Macintosh SE & SE/30:

077-8219 C SCSI Loopback Test Card
077-8265 A MINI DIN 8 Serial Loopback Plug
590-0551 A DB9M to MINI DIN 8M Cable
590-0553 B MINI DIN 8M to DB9F Adapter Cable

Macintosh II/IIx/IIfx:

076-0341 A IWM/SWIM IC Extraction Tool
077-8219 C SCSI Loopback Test Card
077-8264 A Macintosh II BUS Master Card
077-8265 A MINI DIN 8 Serial Loopback Plug
590-0551 A DB9M to MINI DIN 8M Cable
590-0553 B MINI DIN 8M to DB9F Adapter Cable

Macintosh IICx/IIci:

076-0341 A IWM/SWIM IC Extraction Tool
077-8219 C SCSI Loopback Test Card
077-8265 A MINI DIN 8 Serial Loopback Plug
590-0551 A DB9M to MINI DIN 8M Cable
590-0553 B MINI DIN 8M to DB9F Adapter Cable

Macintosh Portable:

590-0552 A Cable, APM, ImageWriter to Apple IIGS/Mac Plus

AppleColor Hi-Res RGB Monitor:

126-6605 A 330 F, 25V, Jitter Adjustment

AppleCD Products:

678-5064 A CD ROM Test Disc 2.0

LaserWriter/LaswerWriter Plus:

076-8354 A SIMM Removal Tool
077-8209 A AppleCAT LaserWriter Test Adapter Cable

LaserWriter II:

076-8354 A SIMM Removal Tool
077-8319 A LaserWriter II Test Connector

HARDWARE AND SOFTWARE DIAGNOSTIC TOOLS NOT INCLUDED IN STARTER KITS:

NOTE: The following tools listed as required are NOT included in the Diagnostic Starter Kits and Updates. Although not included, they are REQUIRED for support of the product listed.

Apple IIe:

890-5124 Loopback Plug, Communications Protocol Card

Apple III:

077-0009 A Clock Calibration Kit--REQUIRED
077-0013 B Apple/// Diagnostic Diskette--REQUIRED

Apple III Plus:

077-0032 A Apple/// Plus Dealer Diagnostic Diskette--REQUIRED

LISA:

077-8043 A Video Align Graticule, Lisa 1.0
077-8102 A Lisa Test for Lisa 1.0
077-8124 C Lisa 2/Macintosh XL Diag. 3.0--REQUIRED
077-8169 A Video Align Graticule for Mac XL/Lisa 2.0--REQUIRED

Macintosh XL:

077-0206 A Screen Mod. Kit Diagnostic 1.0--REQUIRED

Mac Plus:

077-0135 @ Macintosh Voltage Test Cable
077-8222 A SCSI Loopback Card to Mouse Port Cable

Macintosh II/IIx/IIfx/IIcx/IIci:

077-0104 A Twinax Cable w/DB 15 Connector
077-0105 A Twinax T-Connector
077-0106 A Twinax Terminator
077-0107 A Coax Cable
077-0109 A Token Ring Adaptor Cable
077-0256 * EtherTalk: Terminator Kit
077-0257 * EtherTalk: Thin Net Test Cable

Cluster Controller:

077-8156 A DataLine Monitor ROM Pack-Utilities
077-8157 A DataLine Monitor ROM Pack-SNA
077-8158 A DataLine Monitor ROM Pack-BSC

AppleLine:

970-0879 A Loopback Plug--REQUIRED

LaserWriter/Plus:

076-0121 A Power Checker, Laser--REQUIRED

LaserWriter II:

076-0121 A Power Checker, Laser--REQUIRED

Color Plotter:

686-0020 A Apple Plotter Interface Test

Apple Scanner:

077-8300 Apple Scanner Service Test Chart

End_Table

@ Recommended for Stocking

* These tools are required only if you support the EtherTalk Card

Article Change History:

07 Sep 1995 - Made minor corrections.
04 May 1995 - Corrected minor problem; reformatted.
27 Jun 1994 - Updated information, revised formatting.

Support Information Services

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Keywords:

8 Daisy Wheel Printer: Configuring it for all Apples (10/94)

Article Created: 04 December 1984

Article Reviewed/Updated: 13 October 1994

TOPIC -----

What are the configuration settings for the Apple Daisy Wheel Printer for all Apple systems?

DISCUSSION -----

Below are the switch settings for configuring a Daisy Wheel Printer to any Apple computer. (NOTE: To get at the switches in the rear of the printer, you must use a screwdriver to remove the top cover.)

System	Rear Panel Switches		Front	Cable Required (see key below)
	SW-1 12345678	SW-2 12345678	Switches 12345678	
Apple III	11100111	00001001	10000100	A+B
Macintosh	N/A	N/A	N/A	N/A
Lisa	11100111	00001001	10000100	A+B
Apple IIc	11100111	00001001	10000100	C*
Super Serial	11100111	00001001	10000100	B
High Speed Serial	00100111	00001001	10000100	B

Switch Setting Key: 0 = off = open; 1 = on = closed

Cable Key:

Letter Part number Comments

A	590-0029-00	Modem Eliminator
B	590-0037-B	DB-25 Pin to pin (1-8, 12, 13, 19, 20)
C	590-0191-A	5-pin DIN to DB-25

The pinouts for these cables are contained in separate articles in AppleLink's Technical Information Library.

* - Using default port settings

Apple III Driver, data configuration block:

```

-----
          0  1  2  3  4  5  6  7  8  9  A  B
RS-232  0E 00 10 10 10 00 13 11 DF 84 50 80
Printer 0E 00 10 10 10

```

Super Serial Card Configuration:

```

          1  2  3  4  5  6  7
SW1  Off Off Off On  Off On  On
SW2  On  On  Off Off On  Off Off

```

Jumper block should be pointing towards terminal.

Article Change History:

13 Oct 1994 - Reviewed for technical accuracy, revised formatting.

Support Information Services

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Keywords:

9 Daisy Wheel Printer: Specifications

Article Created: 20 February 1986

I. Technical Specifications

- A. Print Speed: 40 characters per second (average)
- B. Interface: Asynchronous Serial (RS-232C) OCITT-V-24
- C. Forms: Single sheet or continuous forms
 - Maximum width: 15 inches (38.1 cm)
- D. Fonts: 130-character "daisy" print wheels in various alphanumeric type styles, including: Courier 10 pitch, Prestige Elite 12 pitch, Gothic 15 pitch, and Executive/Boldface in English, French, German, and many other languages.
- E. Character Spacing in characters per inch (CPI):
 - 1. 10
 - 2. 12
 - 3. 15
 - 4. Proportional spacing
 - Maximum 198 characters per line
- F. Command set:
 - ASCII
 - space, backspace, carriage return, line feed, horizontal tab, form feed, end-of-text, acknowlegde, XON/XOFF
- G. Special Mode Commands:
 - Graphics mode, forward and backward print mode, program mode for hammer intensity and ribbon movement
- H. Weight and Dimensions:

	pounds	kilograms
1. Weight:	37.0	16.8
	inches	centimeters
2. Width:	23.22	59.0
3. Height:	6.87	17.5
4. Depth:	14.84	37.7

II. System Configuration

- A. Lisa system
- B. Apple III system
- C. Apple IIe or Apple II Plus system

-- with Apple II Super Serial Interface Card installed

III. Features

A. Snap-in ribbon cartridge

B. Switch-selectable features:

- horizontal and vertical formatting
- forms length selection
- automatic form feed

Apple Technical Communications

Keywords: SPECSHT

10 DART: Utility for Duplicating Floppy Disks (10/93)

Article Created: 13 August 1991

Article Reviewed/Updated: 6 October 1993

TOPIC-----

Is there a Macintosh utility program for duplicating Macintosh, Lisa, Apple II or MS-DOS 3.5-inch floppy disks?

DISCUSSION -----

DART (Disk Archive/Retrieval Tool) is an application that enables you to duplicate Macintosh, Lisa, Apple II, or MS-DOS disks, save disk images, and create disks from image files. DART 1.5 can read disk image files in DART, DiskMaker, or Disk Copy format. DART 1.5 image files are compressed, approaching a reduction in size comparable to that obtained by using a commercial compression utility. DART 1.5 is System 7.0 "savvy", and implements a custom Apple event mechanism to automate the conversion of older DART or Disk

Copy files to 1.5 format. The conversion process can be run by "remote control" (even across a network!) using an accompanying HyperCard stack. (For more information, please refer to the DART User Manual.)

Features of DART 1.5

- Data compression: more disk images can be archived in the same amount of space.
- Data checksumming for reliable disk duplication.
- Can read Disk Copy image files.
- Requires only 224K of RAM to run.
- Stack utility enables you to batch-convert DART 1.4 or Disk Copy files.
- Apple events support ("required" AE suite and custom 'cnvt' event.)
- System 7 "drag-and-drop" disk image creation.
- 32-bit clean.
- A/UX compatible.
- Color icons and balloon help.

Where to Obtain DART

The current version of DART may be downloaded from two locations on AppleLink:

1) The Apple SW Updates board. Use the following AppleLink path:

- Software Sampler
- Apple SW Updates
- Macintosh
- Utilities

2) On the AppleLink version of the Tech Info Library, posted as an enclosure to the article: "DART 1.5.3: Version Change History (10/93)"

Article Change History:

6 October 1993 - Added new description and features information.

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Keywords:

11 Dot Matrix Printer Configuration Table (7/94)

Article Created: 28 October 1985
 Article Reviewed/Updated: 13 July 1994

TOPIC -----

This article details the Dot Matrix Printer configuration table.

DISCUSSION -----

System	SW-1	SW-2	CABLE REQUIRED
	12345678	12345678	Part Number
Apple III	11001010	00000110	590-0042B
Macintosh	N/A	N/A	N/A
Lisa/Macintosh XL	11001010	00000110	590-0042B
Apple IIc	N/A	N/A	N/A
Centronics Card	11001011	00000110	57-30360
2PIC	11001010	00000110	590-0042B

NOTE: 0 = OFF = OPEN
 1 = ON = CLOSED

Apple III Driver Configuration

Driver	Data Configuration Block											
	0	_1_	_2_	_3_	_4_	_5_	_6_	_7_	_8_	_9_	_A_	_B_
PRINTER	60	40	00	00	64							

Parallel Interface Card (2PIC) Configuration

Switch Bank	_1_	_2_	_3_	_4_	_5_	_6_	_7_
SW1	Off	Off	Off	On	On	Off	Off

Article Change History:
 13 Jul 1994 - Reviewed for technical accuracy, revised formatting.

Support Information Services
 Copyright 1988-94 Apple Computer, Inc.
 Keywords: hts

Article Created: 21 September 1984

Article Reviewed/Updated: 01 September 1995

TOPIC -----

This article provides the electrical specifications for Apple hardware.

NOTE: This article has been revised and combines two previous articles titled, "Electrical Specifications of Most Apple Hardware" and "BTU Ratings for Most Apple Hardware".

DISCUSSION -----

The following Apple products are manufactured for use in the USA. In determining whether a particular product can be used internationally, there are three classes, depending on whether a product accepts a range in voltage, frequency or both (for more specific information, see the article, "Using U.S. Apple Equipment Internationally"):

1) Universal

These products can be used internationally out of the box. Some of Apple's products are self-configuring devices or "universal" within a certain range. They can accept a range in both voltage and frequency, and only require a plug adapter for the specific locale.

Example: The Quadra 800 accepts 100-240 volts, 47-63 Hz.

2) Frequency Independent

These products can be used internationally with a voltage transformer. Generally they are geared for U.S. 120 volt current, but are flexible as to the frequency they accept (for example, 47-63 Hz), and are known as "frequency independent." These products need a stepdown isolation transformer to adapt the voltage, and will handle the different frequency on their own.

Example: The U.S. Performa 200 accepts 120 volts, 47-63 Hz.

3) Frequency Dependent

These products generally cannot be used internationally. These are products that can work only within a narrow range in frequency; they are "frequency dependent." Transformers only transform voltage, so if the product requires a certain frequency, there's no practical way to convert both voltage and frequency.

These products can ONLY be used internationally in countries with the same frequency as the country for which the product was manufactured. Further, a voltage transformer will be required if the destination country has a voltage different from the home country.

Example: The U.S. Apple Color OneScanner accepts 108-132 volts, 58-62 Hz.

NOTE:

Computers with power outlets for peripherals do not condition the current as

it passes through. So, for example, a monitor requiring 120v-60Hz current could not be used in a 220v-50Hz environment even if the computer from which it gets its power is able to accept the local current.

The AC output of a Macintosh II is as follows: the monitor receptacle is rated for 3 amps steady state, 40 amps peak power. The power supply is fused for 6 amps to include the Macintosh II and monitor.

The amperage on the back of the computer is what should be used to calculate load on a circuit. Typical circuits in businesses and houses are 15 Amps (some are 20, but rarer, and an electric dryer is usually 30, an electric range may have DUAL 30 Amp circuits wired together). With that capacity, you could have the following configuration (from the back of the CPU):

```
CPU           5 Amps
Monitor       3 Amps
LaserWriter  7 Amps
Total:       15 Amps
```

Most of the time, the CPU will draw only 1-1.5 Amps, the Monitor about .5-1 Amp, and the LaserWriter about 2 Amps. The difference is sometimes referred to as Nominal (high) versus Actual draw.

These following values are accurate regardless of peripherals used with each device. For example, a Macintosh II with an EtherTalk NB Card, an 8-bit video card, and HD40 SC draws a maximum of 230 watts and 6 amps from the power outlet it is plugged into.

Begin_Table

Product	Watts (max)	Amps*	BTU/hr**	Volts	Hertz
---------	----------------	-------	----------	-------	-------

Apple II and Apple III Computer Systems

Apple II	60	.5	205.2	107-132	50-60
Apple II Plus	60	.5	205.2	107-132	50-60
Apple III	100	.83	342	107-132	60
Apple III Plus	100	.83	342	107-132	60
Apple IIe	60	.5	205.2	95-127	60
Apple IIc	25	.2	85.5	105-129	60
Apple IIc Plus	60	.5	205.2	90-130	50-60
Apple IIGS	60	.5	205.2	107-132	50-60

Macintosh XL and Compact Macintosh Systems

Lisa (Macintosh XL)	150	1.25	513	120	50-60
Macintosh 128K	60	.5	205.2	105-125	50-60
Macintosh 512K, 512Ke	60	.5	205.2	105-125	50-60
Macintosh Plus	60	.5	205.2	105-125	50-60
Macintosh SE	100	.83	342	90-270	47-63
Macintosh SE/30	75	.63	256.5	120-240	48-62
Macintosh Classic	76	.63	260	120	47-63
Macintosh Classic II	76	.63	260	120	47-63
Macintosh Color Classic	100	.83	342	90-240	47-63

Macintosh II Systems

Macintosh II	230	1.9	786.6	90-270	48-62
Macintosh IIx	230	1.9	786.6	90-270	48-62
Macintosh IICx	159	1.3	543.8	100-240	50-60
Macintosh IICi	159	1.3	543.8	100-240	50-60
Macintosh IIfx	230	1.9	786.6	100-240	48-62
Macintosh IIsi	160	1.33	547.2	100-240	50-60
Macintosh IIvx	230	1.9	786.6	100-240	50-60
Macintosh IIvi	N/A	N/A	N/A	N/A	N/A

Macintosh LC Series

Macintosh LC	50	.42	171	90-240	50-60
Macintosh LC II	50	.42	171	90-240	50-60
Macintosh LC III	50	.42	171	100-240	47-63
Macintosh LC 475	30	.25	102.6	100-240	47-63
Macintosh LC 520	60	.5	205.2	90-264	47-63
Macintosh LC 550	60	.5	205.2	90-264	47-63
Macintosh LC 575	60	.5	205.2	90-264	47-63
Macintosh LC 580	60	.5	205.2	90-264	47-63
Macintosh TV	60	.5	205.2	90-264	47-63

Performa Series

Performa 200	76	.63	260	120	47-63
Performa 400, 405, 430, 450	50	.42	171	90-240	50-60
Performa 475 & 476	30	.25	103	100-240	47-63
Performa 550	60	.5	205	90-264	47-63
Performa 575	60	.5	205	90-264	47-63
Performa 577	60	.5	205	90-264	47-63
Performa 578	60	.5	205	90-264	47-63
Performa 600	230	1.9	787	100-240	50-60

Quadra and Centris Series

Quadra 605	53	.44	181	100-240	47-63
Quadra/Centris 610	202	1.68	691	100-240	47-63
Macintosh 630 family	150	1.25	513	100-240	50-60
Quadra/Centris 650	230	1.9	787	100-240	50-60
Quadra/Centris 660AV	86	1.68	691	100-240	50-60
Quadra 700	230	1.9	787	100-240	50-60
Quadra 800	454	3.78	1553	100-240	47-63
Quadra 840AV	454	3.78	1553	100-240	50-60
Quadra 900	600	3.77	2052	100-240	50-60
Quadra 950	600	3.77	2052	100-240	50-60

Power Macintosh Series

Power Macintosh 6100/60	202	1.7	691	100-240	50-60
Power Macintosh 7100/66	230	1.9	787	100-240	50-60
Power Macintosh 8100/80	454	3.8	1553	100-240	50-60
Power Macintosh 6100/66	202	1.7	691	100-240	50-60
Power Macintosh 7100/80	230	1.9	787	100-240	50-60
Power Macintosh 8100/100	550	4.6	1881	100-240	50-60
Power Macintosh 8100/110	550	4.6	1881	100-240	50-60
Power Macintosh 7200	300	2.5	1026	100-130/ 220-270	50-60
Power Macintosh 7500	453	3.77	1549	100-130/ 220-270	50-60
Power Macintosh 8500	520	4.33	1778	100-240	50-60

Power Macintosh 9500	550	4.6	1881	100-240	50-60
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Apple Workgroup Servers

Workgroup Server 60	202	1.68	691	100-240	50-60
Workgroup Server 80	454	3.78	1553	100-240	50-60
Workgroup Server 95	600	3.77	2052	100-240	50-60
Workgroup Server 6150	202	1.7	691	100-240	50-60
Workgroup Server 8150	454	3.8	1553	100-240	50-60
Workgroup Server 9150	600	3.77	2052	100-240	50-60

Portable Macintosh Systems

Macintosh Portable	5	.125	.3	70-270	48-62
PowerBook 100	15/17	2	51.3	100-240	50-60
PowerBook 140	15/17	2	51.3	100-240	50-60
PowerBook 145,145B	15/17	2	51.3	100-240	50-60
PowerBook 150	15/17	2	51.3	100-240	50-60
PowerBook 160	15/17	2	51.3	100-240	50-60
PowerBook 165c	24	3.2	82.1	100-240	50-60
PowerBook 170	15/17	2	51.3	100-240	50-60
PowerBook 180	15/17	2	51.3	100-240	50-60
PowerBook 180c	24	3.2	82.1	100-240	50-60
PowerBook Duo 210	25	1.04	85.5	100-240	50-60
PowerBook Duo 230	25	1.04	85.5	100-240	50-60
PowerBook Duo 250	25	1.04	85.5	100-240	50-60
PowerBook Duo 270c	25	1.04	85.5	100-240	50-60
PowerBook Duo 280	25	1.04	85.5	100-240	50-60
PowerBook Duo 280c	36	1.5	123.1	100-240	50-60
PowerBook 520/520c	40	VBatt 1.0	137	100-240	50-60
		VMain 1.5			
PowerBook 540/540c	40	VBatt 1.0	137	100-240	50-60
		VMain 1.5			
Duo Dock	87	4.2	297	100-240	50-60
Duo Dock II	87	4.2	297	100-240	50-60
Duo Dock Plus	87	4.2	297	100-240	50-60

LaserWriter Printers

LaserWriter	760	6.3	2599.2	115	60
LaserWriter II	900	7.5	3078	90-126	50-60
LaserWriter IIISC	900	7.5	3078	90-126	50-60
LaserWriter IINT/NTX	900	7.5	3078	90-126	50-60
LaserWriter IIg/IIif	900	7.5	3078	90-126	50-60
Personal LaserWriter SC	600	5	2052	110-115	50-60
Personal LaserWriter LS	600	5	2052	110-115	50-60
Personal LaserWriter NT	600	5	2052	110-115	50-60
Personal LaserWriter NTR	600	5	2052	110-115	50-60
Personal LaserWriter 300	360	3.00	1231	100-115 (US)	50-60
Personal LaserWriter 320	120	1.0	410.4	100-115 (US)	50-60
LaserWriter Pro 600	560	4.67	1915	90-110	58-62
LaserWriter Pro 630	560	4.67	1915	90-110	58-62
LaserWriter Pro 810	560	4.6	1915	90-126	58-62
LaserWriter Select 300	450	3.75	1539	110-115	50-60
LaserWriter Select 310	450	3.75	1539	110-115	50-60
LaserWriter Select 360	450	3.75	1539	100-115	50-60
LaserWriter 4/600	450	3.75	1539	100-115	50-60
LaserWriter 16/600 PS	790	6.8	2701	100-120	58-62

Clr LaserWriter 12/600 PS 1100		9.2	3762	100-120	50-60
Other Printers					

Dot Matrix Printer	180	1.5	615.6	100-115	60
Daisy Wheel Printer	150	1.25	513	120	60
Color Plotter	33	.28	112.9	120	48-63
Scribe	60	.5	205.2	120	60
ImageWriter	180	1.5	615.6	120	60
ImageWriter II	180	1.5	615.6	120	60
ImageWriter LQ	180	1.5	615.6	120	60
StyleWriter	23	.19	78.7	110-120	48-62
StyleWriter II	19.5	.16	67	100-120	48-62
StyleWriter 1200	19.5	.16	67	100-120	48-62
Portable StyleWriter	23	0.19	79	100-115 (US)	50-60
Color StyleWriter 2200	31.5	1.0	107	120	60
Color StyleWriter 2400	45	.38	154	100-120	50-60
Color StyleWriter Pro	28	.23	95.8	90-132 (US)	50-60
Apple Color Printer	30	.25	103	120	60
Hard Disk Drives					

ProFile	120	1	410.4	110	50-60
Hard Disk 20	30	.25	102.6	85-270	47-64
Apple HD20/40/80/160 SC	30	.25	102.6	85-270	47-64
Apple External160/230/500	40	.33	136.8	85-270	47-64
Other Peripherals					

Apple Scanner	65	.54	222.3	120	58-62
Apple OneScanner	45	.38	153.9	120	58-62
Apple Color OneScanner	45	.38	153.9	120	58-62
HD40 SC Tape Backup	15	.125	51.3	85-270	47-64
AppleFax Modem	10	.08	34.2	120	60
Apple DataModem 2400	7	.06	23.9	110	60
AppleCD SC	40	.33	136.8	120	47-64
AppleCD SC Plus	40	.33	136.8	100-240	50-60
AppleCD 150	30	.25	102.6	100-240	50-60
AppleCD 300	33	.28	112.9	100-240	50-60
AppleCD 600e	33	.28	112.9	100-240	50/60
Apple PowerCD	15	.125	51.3	100-240	50-60
Apple II Monitors					

Color Monitor 100	70	.58	239.4	117	50-60
Color Monitor IIe	48	.4	164.2	108-132	50-60
Color Monitor IIc	48	.4	164.2	108-132	50-60
Monitor II	45	.38	153.9	115	50-60
Monitor IIc	35	.29	119.7	115	50-60
Monitor III	30	.25	102.6	115	50-60
AppleColor RGB	90	.75	307.8	108-132	50-60
AppleColor Monitor	75	.6	256.5	108-132	50-60
Macintosh Monitors					

12-Inch Monochrome Display	30	.25	102.6	90-270	47-63
12-Inch RGB Display	90	.75	307.8	110	50-60
Performa Display	85	.71	290.7	98-132	57-63
Performa Plus Display	85	.71	290.7	98-132	57-63

Apple Hi-Res Monochrome	40	.33	136.8	100-240	50-60
AppleColor Hi-Res RGB	160	1.3	547.2	85-270	47-63
14-Inch Color Display	55	.46	188.1	90-270	47-63
Portrait Display	75	.6	256.5	90-270	47-63
16-Inch Color Display	130	1.18	445	90-270	47-63
Two-Page Mono. Monitor	95	.8	324.9	90-270	47-63
21-Inch Color Display	165	1.38	564.3	120	47-63
Apple Basic Color Monitor	70	.58	240	100-125	50-60
AudioVision 14 Display	55	.46	188.1	100-240	47-63
Apple Color Plus Display	70	.58	240	100-125	50-60
Multiple Scan 15 Display	90	.75	307.8	90-134/ 198-260	47-63
Multiple Scan 17 Display	150	1.25	513	90-132/ 198-260	47-63
Multiple Scan 20 Display	165	1.38	564.3	90-132/ 198-260	47-63
AppleVision 1710AV	130	1.8/ 1.9	445	100-120/ 220-240	50-60

End_Table

Additional Information

"Current leakage" is the amount of current that is passed to earth ground. The current leakage of all Apple equipment meets the following specifications:

- As specified by the UL standard for Apple equipment distributed in the United States, the current leakage will be less than 5.0 milliamperes.
- As specified by the IEC 380 & 950 standards for Apple equipment distributed in France and most of Europe, the current leakage will be less than 3.5 milliamperes.

The PowerBook 500 series AC adapter has two separate outputs, VBatt and Vmain. The VBatt supply is used for charging the batteries while the VMain supply provides power for the PowerBook. Power from VBatt is automatically diverted to power the PowerBook if additional power is needed.

* Amps calculated based on efficiency of power supply, except for Macintosh PowerBooks (amps calculated at 7.5 volts) and Macintosh Duos (amps calculated at 24 volts).

** The BTU calculation is Watts X 3.42 = BTU/hour.

The BTU ratings for the Macintosh systems take into account any hard disk or expansion card(s) that may be installed internally.

Article Change History:

- 01 Sep 1995 - Edited LS16/600 PS for technical accuracy.
- 21 Aug 1995 - Edited CSW2400 for technical accuracy.
- 16 Aug 1995 - Added SW1200, CSW2200, LW4/600, LW16/600, CLW12/600, & CD600e
- 15 Aug 1995 - Added Power Macintosh 7200, 7500, 8500, 1710AV display.

Support Information Services

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Keywords: review, ktable, ktop20

13 ImageWriter I: Settings for All Apples (4/94)

Article Reviewed/Updated: 25 April 1994

TOPIC -----

This article gives the proper settings for all Apple computers connected to an ImageWriter I printer.

DISCUSSION -----

Apple II Family with Super Serial Card:

Interface:

The Super Serial Card

	1	2	3	4	5	6	7		1	2	3	4	5	6	7
ON				X	X	X		ON	X				X		
SW1								SW2							
OFF	X	X	X		X			OFF		X	X	X		X	X
	1	2	3	4	5	6	7		1	2	3	4	5	6	7

Jumper block points to terminal.

Cables:

Internal cable from Super Serial Card to back of machine: 590-0021
 Serial Cable from back of machine to printer: 590-0037

Printer Settings*:

	8	7	6	5	4	3	2	1
SW 1:			X	X				
	X	X			X	X	X	X
								OPEN
SW 2:				4	3	2	1	
						X	X	
						X	X	
								OPEN

Apple III and III+:

Interface:

Use .Printer Driver and set first byte in Device Configuration Block to 0E and use printer switch settings A. (9600 Baud) Or leave the settings in the Device Configuration Block at the Default values and use printer settings B. (1200 Baud)

Cables:

Modem Eliminator 590-0029
 Straight Through Cable 590-0037

Printer Settings*:

A & B SETTING

```

      8 7 6 5 4 3 2 1
SW 1:      X X
      X X      X X X X
              OPEN
  
```

A SETTING

```

      4 3 2 1
SW 2:      X X
      X X
              OPEN
  
```

B SETTING:

```

      4 3 2 1
SW 2:      X
      X X X
              OPEN
  
```

Macintosh:

Cables:

Accessory Kit Cable 590-0169

Printer Settings*:

```

      8 7 6 5 4 3 2 1
SW 1:      X
      X X      X X X X X
              OPEN
  
```

```

      4 3 2 1
SW 2:      X X
      X X
              OPEN
  
```

To Build your own cable:

Mac	1	3	5	7	9
Printer	1	7	3	20	2

Lisa:

Cables:

Modem Eliminator 590-0029
 Straight Through Cable 590-0037

Printer Settings*:

```

      8 7 6 5 4 3 2 1
SW 1:      X X
      X X      X X X X
              OPEN
  
```

```

      4 3 2 1
SW 2:      X X
  
```


X X
OPEN

Make sure the preferences are set. Power off the Lisa so they are saved.

- * The diagrams of these switches are presented as seen from the front of the Imagewriter I printer. The switches are toggle switches; X marks the toggle.

Article Change History:

25 April 1994 - Corrected Macintosh settings.

Support Information Services

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Keywords:

14 ImageWriter Printer Configuration Table

This article last reviewed: 02 November 1988

System	SW-1 12345678	SW-2 1234	CABLE REQUIRED Part Number
Apple III	11001100	1100	590-0029 and 590-0037B
Macintosh	11001100	1100	590-0169
Lisa/Macintosh XL	11001100	1100	590-0029 and 590-0037B
Apple IIc	11001100	1100	590-0191A
Super Serial	11001100	1100	590-0037B
High Speed Serial	11001100	0011	590-0037B

NOTE: 0 = OFF = OPEN
1 = ON = CLOSED

Apple III Driver Configuration

Driver	Data Configuration Block											
	0	1	2	3	4	5	6	7	8	9	A	B
RS232	0E	00	00	00	00	00	13	11	DF	84	50	80
PRINTER	0E	00	00	00	00							

Super Serial Card Configuration

	1	2	3	4	5	6	7
SW1	Off	Off	Off	On	Off	On	On
SW2	On	Off	Off	Off	On	Off	Off

NOTE: Jumper block should be pointing towards terminal.

High Speed Serial Card Configuration

	1	2	3	4	5	6	7
Switches	On	Off	On	On	Off	Off	Off

NOTE: The High Speed card must have the PROM P8 installed.

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Keywords: HTS,CNFG

15 Imagewriter: Configuring for a Lisa

Article Created: 26 September 1985

Article Reviewed/Updated: 17 October 1994

TOPIC -----

The following information shows how to configure a Lisa and an ImageWriter printer.

DISCUSSION -----

Cables:

--From back of machine: Modem Eliminator Cable (Part #590-0166)

--From printer: Serial and Communications Cable (Part #590-0037)

The loose end of these two cables are then joined.

Printer Switch Settings:

```
      8 7 6 5 4 3 2 1
SW1: | | |X| | | | |
      |X|X| |X|X|X|X|X|
```

```
      4 3 2 1
SW2: | | |X|X|
      |X|X| | |
```

Article Change History:

17 Oct 1994 - Reviewed for technical accuracy, revised formatting.

Support Information Services

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Keywords:

16 Installing LisaGuide as a Shell

If you wish, you may install LisaGuide as a shell so that you can access it from the hard disk instead of having to boot it from a diskette. To install LisaGuide as a shell, you'll need go into the workshop and copy all the files on the LisaGuide diskette to the ProFile EXCEPT:

```
{!CATALOG}
{!CATALOG}$R
{!SAVEDESKTOP} BOOT
{!TFCATALOG}
```

CAUTION: If you mistakenly copy these files, the Lisa will see your ProFile as a diskette!

Remember to set FilesPrivate to Yes with the System Manager before attempting to copy any files; then, copy to the ProFile all the files that start with "{" EXCEPT the ones listed above. Finally, change the name of LISAGUIDE.SHELL on your ProFile to SHELL.LISAGUIDE.

Your environments window on the hard disk will now give you the option of starting up LisaGuide the next time you power up.

Good Things to Know About Lisa

Keywords:

17 International Versions of Lisa Software

International versions (beginning with release 2.0) of the Lisa Office System differed from the U.S. versions only in the language used in the alert boxes, menus, etc.

One version of the Workshop was available worldwide. For example, France did not have a "French" version of the Workshop -- available to France was the same English version distributed to all countries.

Keywords:

18 Lisa 1/2-MB System: Error 815/315 while installing OS 3.0

Error 815/315 indicates your system is out of memory. This error appears when you initialize your hard disk before installing Lisa Office System Release 3.0 software on a 1/2 meg system. You will need to obtain a 512K Add-On Memory Board before you can successfully install the software; alternatively, you could obtain Lisa Office System Release 3.1, which allows you to install the Office System using 1/2 megabyte.

Apple Technical Communications

Keywords:

19 Lisa 2/10 10MB Hard Disk: Specifications

These are the specifications for the 10-megabyte hard disk in the Lisa 2/10:

Access time	50 msec
RPM	3100 +/- 1%
Latency	9 msec
Data transfer rate	5 MHz

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Keywords: SPECSHT

20 Lisa 2: Copying Office System Diskettes

The easiest way to backup your Office System diskettes is to use Office System 3.1. Release 3.1 allows you to duplicate a diskette to another diskette; it even prompts you when to insert your destination diskette. Office System 3.0 is unable to copy an Office System 1 diskette.

If you don't have access to a Lisa with Office System 3.1, but do have a version of the Workshop which is the same version of the Office System diskettes you're copying:

1. Enter the Workshop.
2. Type "S" to get into the System manager.
3. Set FilesPrivate to Yes; Quit the System Manager.
4. With the File Manager, Copy all of the files on the diskette to the ProFile with a unique prefix--e.g. Copy -LOWER=,ZX=
5. Swap microdisks so the destination diskette is in the drive. Copy all the files back to the diskette, this time stripping the unique prefix--e.g., Copy ZX=-,LOWER=
6. Create as many duplicates as you wish from the prefixed files on the hard disk.

Keywords:

21 Lisa 2: Failing To Respond On Large AppleTalk Networks

This article last reviewed: 9 November 1988

A number of Lisa 2s--not 2/10s--were produced with pull-up and pull-down resistors on the input line of the serial port that AppleTalk uses. These resistors can create a problem for Lisas that are part of large AppleTalk networks, such as one 1800' long and containing 32 nodes. In such complex networks, these Lisas can fail to "hear" messages addressed to them and consequently can fail to respond.

To remedy the situation:

--On the Lisa I/O board, part #690-0117, cut the trace running pin 3 of RP4 (the resistor pack located to the left of the batteries).

--Remove R38 (the 10K ohm resistor located above the upper left-hand corner of the battery pack).

The pull-up/down resistors are now disabled; the Lisa will now respond properly to the network.

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Keywords:

22 Lisa 2: Possible Problems With The Upgrade Kit

This article last reviewed: 9 November 1988

1. Symptom: Operating system error 10726, or error 82.
Problem: Bad motherboard-ProFile interaction.
Solutions:
 - A. Replace the motherboard with an upgraded one. (Upgraded motherboards are distinguished by resistor packs around the parallel port.) Also make sure that the system has an I/O board with the resistors clipped and the proper boot ROMs installed.
 - B. Use a different ProFile.
2. Symptom: CPU boot error 43.
Problem: Bad CPU-boot ROM interaction.
Solutions:
 - A. Replace CPU board with upgraded CPU board.
 - B. Use the original Lisa boot ROMs. The only noticeable differences between using the old (version D) boot ROMs and using later revisions are (a) slightly different icons displayed in the Startup Menu, and (b) an apparent option to boot from two drives, though only one drive exists. Careful, though! If you select the top drive, the system hangs and must be reset.
3. Symptom: Blank screen when attempting to boot system after retrofitting.
Problem: Incorrectly labelled or placed CPU ROMs.
Solution:

Verify that the CPU ROMs are installed according to the directions. If they are correctly installed, one or both may be mislabelled. In that case, simply use the old version D boot ROMs instead.
4. Symptom: System goes through self-test, then hangs.
Problem: System is trying to start from nonexistent drive
Solutions:
 - A. If you're using your old CPU ROM:
Reset the system and tell it specifically what drive to boot from. Preference settings, such as the correct time and the default startup device, may have been lost when you unplugged the sytem to swap the chips. Since Preference's startup default is drive 1 with the old CPU ROMs, the system probably hung while booting, since (of couse) there is no drive 1.
 - B. If you have the new CPU ROMs installed:
 - a. Reinstall the software.
 - b. Test the memory boards with LisaTest or the extended memory board test.
 - c. Test the memory board #2 by swapping it with with memory board #1 or with one from your spares kit.

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Keywords:

23 Lisa 3.0: Printing in 10 pitch on a Daisy Wheel Printer

A problem with the Lisa Office System 3.0 software prevents 10-pitch fonts from actually printing 10 characters per inch on a DWP; instead, these fonts print 9 per inch. This problem was fixed in Release 3.1.

Apple Technical Communications

Keywords:

24 Lisa 3.0: Using it with a 10 Megabyte ProFile

Lisa 7/7 (Version 3.0) incorrectly makes a 10 megabyte ProFile look like a 5 megabyte ProFile when it's used with Macintosh software. This problem is fixed in Version 3.1.

Apple Technical Communications

Keywords:

25 Lisa 7/7 (version 3.0): "UNABLE TO PRINT" message

When your Lisa informs you it's having difficulties printing your document, check everything suggested by both the dialog message and the manual, and then try the following.

1. Open Preferences and click on Connect devices. Select each of the connections (e.g., Serial A Connector), and set each to Nothing.
2. Re-select each of the connections in Connect Devices, and select what you physically have connected to the Lisa at that connection.
3. Click on Select Defaults in Preferences and make your printer the default printer.
4. Open your document and choose Format for Printer from the File/Print menu. Click on the "New Printer..." button, then select a printer different from what is currently selected (a new default printer). Finally, select Format for Printer and choose the printer you wish to print the document on.

Apple Technical Communications

Keywords:

The first time an application is opened during a session, Lisa sets up a process for both that application and all documents created by that application. The first time you print from an application, another process is opened. Because each process uses 200 blocks, using all seven applications requires 1,400 blocks of disk space. Printing requires up to another 1,400 blocks.

A five-megabyte ProFile containing both the Lisa 7/7 Office System and MacWorks can easily become taxed for storage space. The Office System alone takes up about 6,000 blocks (3 megabytes) and Macintosh software takes up another 2,000 blocks (1 megabyte), leaving less than 2,000 blocks for storing documents and all associated processes. In short, users who wish to run both 7/7 software and MacWorks from the same disk should do so from a 10-megabyte ProFile.

Keywords:

27 Lisa 7/7 Software: System Reboots During Office System Install

If, at any time during the installation of the Lisa Office system software, the system reboots, be sure the diskettes are not write protected. The colored tab must show through to the front of the micro diskette.

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Keywords:

Even though your Lisa Office System manual states (page 257) that you can protect your tools (applications) with passwords -- don't do it! If you protect a tool that hasn't been used since you powered up, when you attempt to use it, you will get a message that the tool is damaged or is having technical difficulties. You must remove the password before proceeding. LisaWrite and LisaList are exceptions: they seem to function regardless of whether you entered a password.

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Keywords:

29 Lisa 7/7: "Technical Difficulty" messages

If your Lisa frequently hangs, or if it often tells you it's having "Technical Difficulty", try reinstalling the software again. If the problem persists, check to see that you are using one of these acceptable versions of the CPU and I/O ROMs:

Lisa: 2.0: D/A8 or H/A8
Lisa 2/10: F/88 or H/88

Apple Technical Communications

Keywords:

30 Lisa 7/7: Compatibility with other released products

Released products compatible with Lisa 7/7:

Software:	By:	Compatible with:	Status:
Lisa Workshop	Apple Computer	*OS 3.0, 3.1	Released
Brock Keystroke Relational Database	Brock SW Products	OS 3.0, 3.1	Released
BPI Accounting General Ledger Accounts Receivable Accounts Payable Payroll	BPI Systems	*WS 2.0, 3.0, 3.1	Released Released Released Released
Desktop Calendar	Videx	OS 3.0, 3.1	Released
BASIC	Pterodactyl SW	WS 3.0,3.1	Released

We will update this list periodically to keep you abreast of new developments.

Apple Technical Communications

Keywords:

31 Lisa 7/7: Form feeds during printing

If the Lisa 7/7 document you wish to print is less than 1/2" from the top of the page, the Lisa will send a form feed to the printer and begin printing the document on the next page of paper. This feature replaces the dialog box in version 2.0 stating that "the paper is about to be rolled back, lift the bail...". We made this change so that Lisa 7/7 software would be able to support queued printing, which should be able to run unattended.

Apple Technical Communications

Keywords:

Various error numbers usually associated with hardware failures have appeared on Lisas with the 7/7 Office System. Typically, the user hasn't selected Erase when installing the 7/7 Office System. After you safely backup your documents, reinstall the software to erase the hard disk before using the system.

Keywords:

33 Lisa 7/7: Installing OS 3.1 & Pascal Workshop 3.0 on Hard Disk

To install Lisa 7/7 Office System 3.1 or 3.0 and Pascal Workshop 3.0 on a hard disk:

1. Backup any Office System or Macintosh documents from the hard disk.
2. Install the 7/7 Office System (release 3.0 or 3.1) as detailed in Chapter 6 of the Lisa Office System manual.
 - a. Select Erase when prompted.
 - b. Select Share if you wish to store Macintosh software on the hard disk
3. Install the Pascal Workshop as described in Chapter 1 of the Lisa Workshop manual. Select Don't Erase when prompted.
4. If you installed release 3.0 in step 2 above and want to upgrade to 3.1,
 - a. Get into the Workshop environment and insert the Release 3.1 Office System 2 diskette into the microdrive.
 - b. From the Workshop command line, type R.
 - c. When asked which file you wish to run, type: <-lower-StartUpdate.
 - d. Press the RETURN key.
 - e. You are then guided through the process of updating the system libraries. After answering a series of questions, follow the prompts to insert the necessary disks.
 - f. Since the update process changes the libraries on the startup disk,
 1. Restart the Lisa when you've completed step 4e.
 2. Replace the LisaWrite and LisaProject tools and stationary pads on the hard disk with the updated versions.

Keywords:

34 Lisa 7/7: Installing OS 3.1 and Macintosh software on hard disk

To install ONLY Office System 3.1 to share or not share the hard disk with Macintosh software:

1. Backup any Office System or Macintosh documents from the hard disk.
2. Follow the procedures in Chapter 6 or the Lisa Office System manual to install the Lisa 7/7 Office System 3.1.
 - a. When prompted to Erase or Don't Erase, select Erase.
 - b. When prompted to Share or Don't Share:
 1. Select Share if you want to store Macintosh software on the hard disk.
 2. Select Don't Share if you use your hard disk to store only Office System software.

Apple Technical Communications

Keywords:

35 Lisa 7/7: Installing the Office System

If the system reboots at any time during installation of the Lisa Office System software, make sure the diskettes are not write-protected. The red tab must show through to the front of the micro diskette for the Lisa Office system to use the diskette.

Apple Technical Communications

Keywords:

@KEYS:

LisaTerminal occasionally changes the parity while receiving a transmission from a host computer. You can detect this change of parity by the grey boxes that appear in the place of the anticipated characters. You must cancel the transmission, reset the parity, and begin again.

Keywords:

37 Lisa 7/7: LisaTerminal Problems

LisaTerminal doesn't have a soft break: pressing the break key drops the carrier. This was true in previous versions of the Office System as well.

Keywords:

38 Lisa 7/7: Printing Executive PS on a DWP

When you select to print a document on a Daisy Wheel Printer in Executive PS, the printer sometimes simply ejects a blank page. If this occurs, select Elite 12, Courier 10 or Gothic 15 instead; your DWP will then print properly.

Apple Technical Communications

Keywords:

39 Lisa 7/7: Problems printing proportional-spaced fonts on a DWP

Printing your Lisa 7/7 document in a proportional-spaced (PS) font, such as 12 Point, will yield the following results:

- A. If you're using a standard "fixed" printwheel, characters such as "w", "m" and "r" will be oddly spaced.
- B. If you're using a proportional-spaced print wheel, such as the Apple Modern 10/12 PS Printwheel, the odd spacing will be less apparent.

You can eliminate the odd spacing entirely by selecting a fixed pitch, such as 12 Point-15 Pitch, and using a fixed pitch printwheel, such as the Prestige Elite Printwheel.

Keywords:

The Lisa Office System Manual for 7/7 documents a procedure to get screen dumps to disk. When this SHIFT-OPTION-7 keystroke procedure is performed, the diskette drive makes the noise of a diskette access. Yet, after this access, there doesn't seem to be anything other than missing blocks on the diskette. And even though the workshop can recognize the file that the disk access created, this file is of little use without some software that is unavailable to the casual user. The tried and true SHIFT-OPTION-4 screen dump is still the best procedure for most users.

Apple Technical Communications

Keywords:

41 Lisa 7/7: Upgrade to OS 3.1 w/Pascal Workshop 3.0 on hard disk

To upgrade Lisa 7/7 Office System software to 3.1 if the hard disk already contains both the Lisa 7/7 Office System 3.0 and Pascal Workshop 3.0:

1. While in the Workshop environment, insert the Release 3.1 Office System 2 diskette into the microdrive.
2. From the Workshop command line, type R.
3. When asked which file you wish to run, type: " <-lower-StartUpdate".
4. Press the RETURN key.
5. You are then guided through the process of updating the system libraries. After answering a series of questions, follow the prompts to insert the necessary disks.
6. Since the update process changes the libraries on the startup disk,
 - a. Restart the Lisa when you've completed step 5.
 - b. Replace the LisaWrite and LisaProject tools and stationary pads on the hard disk with the updated versions.

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Keywords:

Lisa Office System:

Hard Disk: Office Systems 1.0, 1.2, 1.4, 2.0, 3.0, and 3.1 all require you to use at least a 5-megabyte hard disk.

Memory: Only Lisa 7/7 Version 3.1 will run with 1/2 megabyte of memory. All previous versions of the Office System require 1 megabyte of memory. If you're using Version 3.1, we highly recommend that you use a full megabyte of memory in order to improve system performance.

Workshop:

Hard Disk: Within certain limitations, you can operate Lisa Pascal Workshop 1.2 without a hard disk; we recommend that you use one, though, unless you aren't concerned about system performance. All subsequent versions of the Workshop require at least a 1/2-megabyte hard disk.

Memory: All versions of the Workshop require 1 megabyte of memory. Versions 1.2 and 2.0 appear to offer you, in the Preferences window, an option to run them with only 1/2 megabyte. If you choose this option, though, the system will hang if you then try to access either the Editor or Preferences.

MacWorks:

Hard Disk: MacWorks Versions B and later do not require a hard disk, though those versions will support one. If you opt not to use a hard disk, the system will simply behave like a Macintosh without an external drive.

Memory: All versions of MacWorks can run with either 1/2 or 1 megabyte of memory.

Apple Technical Communications**Keywords:**

43 Lisa and Macintosh XL: Restoring Corrupted Parameter Memory

In the Lisa 2, Lisa 2/5, and Macintosh XL (Lisa 2/10), parameter memory settings are stored in two locations:

parameter RAM on the I/O board, and
the hard disk used for system boot.

In all Lisas and Macintosh XLs, parameter memory in the RAM is held by standby power as long as the machine is plugged in. Only the Lisa 2s and 2/5s have batteries to maintain parameter memory when the unit is unplugged.

The state of parameter memory at any one time depends on which of the following five configurations is true:

1. Configuration:

Neither the system disk nor the RAM has valid settings, such as when the system comes out of the box.

State of Parameter Memory:

The parameter memory will be set when the software is loaded.

2. Configuration:

The RAM does not have valid settings but the disk has, such as after the system is unplugged.

State of Parameter Memory:

The settings on the disk will be copied to RAM during startup.

3. Configuration:

RAM has valid settings but the disk does not, such as when loading software from an old system to a new disk.

State of Parameter Memory:

The settings in RAM will be copied to disk during startup.

4. Configuration:

RAM and the disk have dissimilar valid settings.

State of Parameter Memory:

The settings in RAM overwrite the settings saved on disk.

5. Configuration:

RAM and the disk have identical valid settings.

State of Parameter Memory:

Nothing happens to parameter memory during startup.

Understanding these five possible configurations will help you track down certain problems that may occur with Preferences. For example, if you make the mistake of installing the unofficial Revision C of MacWorks (configuration 1), Preferences somehow gets corrupted in RAM. Under configurations 2 and 3, this corrupted information is copied to the disk. When another disk is started up (configuration 4), the corrupted RAM information is copied onto this disk as well. As a result, there may be no uncorrupted copy of Preferences on any of your disks by the time you notice the problem.

Workaround 1:

1. Unplug the system with the corrupted RAM.
2. Start up MacWorks XL Revision D.

Parameter settings will be copied from MacWorks XL Revision D to RAM, as in Configuration 2 above.

Workaround 2:

1. Unplug the system with the corrupted RAM.
On a Lisa 2 or 2/5:
 - a. Leave the system unplugged overnight, or
 - b. Take the I/O board out of the system, turn the battery switch to off, and leave the system for several hours.
2. Find a Profile with a working Lisa OS (Office System or Workshop).
3. Install a 2-port parallel card in one of the expansion slots.
4. Plug the system back in and start up from the Profile.
5. Select Preferences and make the appropriate changes.
6. Turn the system off.
7. Without unplugging the system (VERY IMPORTANT - just disconnect the Profile from the parallel card), start up the system from the disk with the copy of the corrupted RAM. This copies the parameter memory from RAM onto the disk, restoring the disk copy of RAM.

Keywords:

This article last reviewed: 9 November 1988

You might expect the German umlaut, not a standard ASCII character, to get the interpreter to generate a syntax error. Instead, the system hangs as if it were in an infinite loop; use the "pc 0" in the debugger to return to the command line. Avoid using option characters within the program text.

If a missing "&" in a multiline statement generates a syntax error instead of a system hang, something else may be wrong with the statement or with the system itself.

The renumbering of embedded numbers in 'REM' statements is often unsuccessful. Usually, the problem is that the number embedded in the 'REM' statement is both (a) the same as a line number in the program before or after the 'REM' statement itself, and (b) also a number that would be used in the renumbered sequence.

Lisa Basic+ supports two types of arrays, virtual and non-virtual (i.e. resident in memory). Both virtual and non-virtual arrays contain a limited number of elements: 2730 for real arrays and 16383 for integer arrays. (See the Basic+ User's Guide, page 9-2.) The system allocates a maximum of 32K of system memory to each non-virtual array dimensioned. Use the "LENGTH" command to tell you how much memory is available. With that amount, calculate the number of arrays you can dimension within the specific program.

Virtual array files (disk based) as well as arrays within the file can occupy more space than the available system memory. An example:

The maximum number of non-virtual arrays of maximum size with 504K of available memory is 16. Yet, if the program utilizes virtual arrays, the number of arrays that can be dimensioned is limited only by the amount of free disk space.

You can delete a file from within a basic program using the system statement 'Kill'. Refer to page 14-3 in the Basic Language manual for more details.

To transfer files with the file-manger to Slot 2 Channel 2:

- 1) press f for file-manager.
- 2) press t for Transfer.
- 3) in response to: WHERE? type -slot2chan2-

APPLE-. does terminate a LisaBasic program at the next logical stopping point; you can cause the program to resume by typing CONT. (Refer to page 3-11 in the Basic Language manual for details.) This method will NOT work, however, with a system hang due to, for instance, as an infinite loop; in such a case, you must implement the debugger in order to escape.

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Keywords:

45 Lisa Disks: "Disk Is Deteriorating" Message

The dialog box stating that the "Disk Is Deteriorating" indicates that bad blocks have been found on the diskette and that spare good blocks are starting to be used.

A directory on the diskette contains the addresses of good blocks that are used as spares. When you get about as many bad blocks on your diskette as you have spare good blocks, the error message is displayed and the diskette may soon become unreadable.

If you receive a message that the Disk is Deteriorating, it's time to put the documents onto another diskette. However, if the disk works fine in other drives, there may be something wrong with the drive.

Good Things to Know About Lisa

Keywords:

46 Lisa Disks: ProFile Memory Loss

If you suspect that you don't have as many blocks available to store your documents as you should, perform a "repair" of the hard disk. The Lisa 1 Owner's Guide describes the repair procedure on p. D53, while in the Lisa 2 Owner's Guide, it's on p. C24. When given the option to Install or Don't Install, click Don't Install.

Good Things to Know About Lisa

Keywords:

This article last reviewed: 8 November 1988

If you're unable to print to a printer which previously worked with your system, the Lisa's Video State ROM, part number 341-0229, may be defective.

To check for a defective Video State ROM, follow these steps:

1. Verify the proper configuration of Preferences with the printer switches and check the connection of the cables.
2. Borrow a functioning Lisa Video State ROM and ProFile from another system, then try to print again.
3. If your system now prints, replace the borrowed ROM with the original ROM.
4. If the problem persists, check the printer switches, cables, and Preferences. once again as well as the printer itself.
5. If the problem still occurs, you will have to apply to your local Technical Support address for a new Lisa Video State ROM. There is no charge for this ROM.

The Technical Support people will need the AppleNet number and the ROM's serial number. While the Lisa's serial number may be found on the serial number sticker located underneath the left corner of the CRT, you must also get the AppleNet number. You can get both these numbers from the Lisa by placing it in service mode and using the Lisa's Service Mode to read the numbers encoded on the serialized PROM.

IMPORTANT: If the CPU board is ever replaced on a system, be sure to take the Video State ROM from the old board and install it in the replacement board.

--> Placing the Lisa in Service Mode

1. After starting up your Lisa,
 - a. press either the SPACEBAR after hearing the audible "click" and before the "double-click",
 - or else
 - b. press the spacebar during the memory board test.
2. REMOVE any diskette from your drive, then select option 2 from the displayed "STARTUP MENU". A dialog box will display on the screen informing you there is no disk (as expected) in your drive. You are starting the Lisa from an unattached device: i.e., booting from upper drive when there is no disk in that drive.
3. After the Lisa gives you this error message, hold down the Apple key while

you press the "S" key. The Lisa enters the Service Mode and displays the Service Mode menu.

--> Obtaining the Serial Number and AppleNet number with Service Mode

1. Select display memory - "Display Mem"
2. When prompted for ADDRESS, type 240 <CR>.
3. When prompted for COUNT, type 20 <CR>.

The Service Mode window then looks something like this:

```
00000240  0F0F 0002 0802 0002 0000 0400 0300 0F0F
00000250  0000 0100 0004 0102 0002 0900 0000 0000
```

The serial number is embedded in the top 16-byte memory location, which the window displays as 16 hexadecimal pairs, 0F... and so on. Each hexadecimal pair is divided into two halves or "nibbles", e.g., the hex number 0F consists of nibble 0 and nibble F. The second nibble of each of the 16 hexadecimal pairs forms the basis for the serial number.

4. First remove every other nibble like this:

```
00000240  0F0F 0002 0802 0002 0000 0400 0300 0F0F
          240   F F  0 2  8 2  0 2  0 0  4 0  3 0  F F
```

5. Then group the numbers as follows:

Number of the Nibble in Hex	01 23 45 678 9ABC D EF
Address	240
	FF 02 82 020 0403 0 FF
	XX PP YY DDD SSSS X XX

Extract the serial number from this group of 16 nibbles as follows:

- a. Ignore nibbles 0,1,D,E and F, marked as XX or X above.
- b. Nibbles 2 and 3 are the two digit plant code (PP).
- c. Nibbles 4 and 5 are the two digit year code (YY).
- d. Nibbles 6, 7 and 8 are the day of the year code (DDD).
- e. Nibbles 9 thru C are the 4 digit serial number (SSSS).

You would submit this serial number, 02820200403, to Technical Support in the

Lisa form B02B820200403, where the letter B merely 1) separates the plant and year codes and 2) precedes the entire number.

6. The Applenet Number is similarly embedded in the first 8 bytes of the next line of the memory dump. So, using the same method as step 4 above, we get:

```
00000250  0000 0100 0004 0102 0002 0900 0000 0000
          250   0 0  1 0  0 4  1 2  0 2  9 0  0 0  0 0
```

Number of the Nibble in Hex	012 34567 89ABCDEF
Address	250
	001 00412 02900000
	PPP NNNNN XXXXXXXXX

7. To extract the Applenet Number:

- a. Ignore nibbles 8 through F, marked as XXXXXXXX above.
- b. Nibbles 0, 1 and 2 are the AppleNet prefix (PPP).
- c. Nibbles 3 thru 7 are the AppleNet number (NNNNN).

You would submit this AppleNet number, 00100412, to Technical Support with the Lisa Video State ROM serial number to obtain a new ROM at no charge.

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Keywords:

48 Lisa Migration Package: Where to Get It

Try the Logan, Utah address.

This article last reviewed: 10 September 1987

This product, which allows users to "migrate" their data from Lisa to Macintosh, is no longer available from Apple. It is available from:

Sun Remarketing
3663 North Hwy. 91
Smithsfield, UT 84335
(801) 752-7631
(800) 821-3221

Keywords:

49 Lisa Office System 3.1: Canon Inkjet Doesn't Print All Styles

A problem in Lisa Office System 3.1 prevents the Canon Inkjet from printing in typestyles other than plain text: styles such as bold and hollow are printed as plain. Color options, such as red backgrounds and black outlines, also don't print. The only workaround is to use Office System 3.0 software.

Keywords:

BASIC Workshop 3.0 is fully compatible with Lisa Office System Release 3.1.

If you wish to install the Office System 3.1 and BASIC Workshop 3.0:

1. Back up your documents currently stored on the hard disk.
2. Install the Office System 3.1. Follow the steps in Chapter 6 of the Lisa Office System manual. Select Erase, then select Share if you wish to share the hard disk with Macintosh software.
3. Install BASIC Workshop 3.0. Follow the steps in Chapter 1 of the Workshop manual. Select Don't Erase when prompted.

NOTE: Running StartUpdate is not required for the BASIC Workshop; as a matter of fact, running it will cause an error to be displayed. Although you must run StartUpdate to update Pascal 3.0, doing so will not harm BASIC.

Apple Technical Communications

Keywords:

There is only one version of the Migration software and it is intended to be used with Office System 7/7 Version 3.1.

When the Migration software is not properly installed, there are problems of functions not being available, such as the "Make Text File" option in the "File/Print" menu as per page 11 of the Macintosh XL Migration Kit manual. Drag copying the Migration Tool icon off of the second install disk without running the installation as described in the manual is a classic example of an improper installation of the Migration software

First off, make sure to install the Lisa-to-Macintosh application in the Lisa 7/7 or Lisa Workshop environment as per page 5 of the Macintosh XL Migration Kit manual. There are many files, invisible from the desktop, that are loaded during installation. Remember, installation requires you to boot the Lisa from the Install 1 diskette.

If error messages about unavailable functions appear while the Install disk is booting, replace the software with a new copy.

Apple Technical Communications

Keywords:

This article last reviewed: 19 November 1989

TOPIC -----

I set up a Lisa with Lisa Office System version 3.1.

The Lisa Office System, however, although marked as version 3.1, appears as version 3.0 when it is installed. What's going on?

DISCUSSION -----

When Apple revised the Lisa Office System software to 3.1, we didn't change the dialog screens that appear when you install the software. Therefore, each disk shows version 3.0.

However, after installing the OS and starting up from the volume onto which you installed the software, check the startup "Wait" message box. This should properly reflect that the Lisa Office System you installed is in fact version 3.1 -- or, as it is commonly called, Lisa 7/7.

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Keywords:

Article Created: 16 October 1986
Article Last Reviewed: 17 July 1992
Article Last Updated:

PROBLEM DESCRIPTION: RAM cache and mouse tracking indicators are empty even though the computer has successfully passed diagnostics. The system software is Finder 5.3 or System 3.2.

CAUSE: The I/O board is defective.

CURE: Remove and Replace the I/O board.

Follow the General Troubleshooting Procedures for Lisa/Macintosh XL if the problem still persists.

Copyright 1988 Apple Computer, Inc.
Keywords: hts

54 Lisa Pascal 3.0: Can't copy protected file; error 1130

Due to a problem in the Lisa Pascal 3.0 Workshop, the File Manager will not copy a file having the copy protection attribute set (i.e., a file attribute of P); instead, the Filer returns error 1130. The workaround for copying a protected program is to use the Generic Install program, merely a generic version of the Office system and Workshop install programs.

Apple Technical Communications

Keywords:

55 Lisa Pascal Compilers after v. 3.0: Using real numbers with them

In order to use real numbers with Lisa Pascal compilers with version numbers greater than 3.0, do the following:

1. Include in your program the statement:

```
uses {$U Lisa/SaneLib} SANE
```

2. Link your program with:

```
Lisa/SaneLibAsm
```

Do NOT link your program with IOSFplib.

Apple Technical Communications

Keywords:

To create your own environment shell, merely rename your stand-alone Pascal program to SHELL."something". Once your program is named SHELL.xxx, it appears in the environments window. You may then either start your program up from the environments window, or else set the default to have your program automatically start up when you first power up.

I recommend using Quick Port, now that it's available with Pascal release 3.0, rather than creating a shell for your program. Quick Port is much more versatile, allowing you to cut and paste to the other Lisa applications, print using the Office System print routines, and so on.

Good Things to Know About Lisa

Keywords:

Page 10-6 Pascal Language Manual indicates that a file closed with CRUNCH should move the EOF mark to the last place of access. This is not the case. If this function is important to users, they may need to write their own routines, insert their own EOF character, or possibly maintain an EOF pointer, which would suggest using block I/O.

Apple Technical Communications

Keywords:

From a Pascal program, you can indeed read the directory information of a diskette. Once you have detected the insertion of a diskette into the drive by using `KeybdEvent` (cf. Pascal Language Reference Manual, Appendix C), perform the following commands in order to mount and read the directory:

```
mount (error, volname, passwd, device)
reset_Catalog (error, pathname)
```

Then read the file names until done (error 848) by performing the command:

```
get_next_entry (error, prefix, filename)
```

Chapter 2 of the Operating System Reference Manual documents these and other file system calls that allow you to get information about the file: name, date, size, etc.

Keywords:

59 Lisa Pascal: Pictures

Set the `ClipRect` before drawing any pictures in Quickdraw. To do this, just include:

```
ClipRect(thePort^.portBits.bounds);
```

Keywords:

Quickdraw has no facility for printing graphics except to use the debugger to print contents of the screen. Refer to the Workshop Manual in the section named The Debugger for more information on printing using the debugger. See also the AppleLink article titled "Workshop 3.1 and Earlier: How to Get a Screen Dump."

To write your own routine to print graphics, use the printer ESC sequences. Remember as you are opening the printer to make sure you specify the actual port connected, instead of "-printer".

Keywords:

61 Lisa Pascal: Printing text from a program

Here is an example illustrating printing from a Pascal program:

```
program Print__Output;  
  var OutFile: text;  
  
begin  
  Rewrite (OutFile, '-printer'); {Declare the printer as a file named  
OutFile}  
  Writeln (OutFile, 'This is a test.') {Output goes to the printer}  
  Close (Outfile) {Close the file "printer"}  
end. {Print_Output}
```

Apple Technical Communications

Keywords:

62 Lisa Pascal: Problem Reading Directly Into Real Arrays

In versions 1.2 and 2.0 of the Lisa Workshop, there was a problem with reading directly into a real array:

```
READLN(FILE,STUFF[2])
```

where FILE is a file and STUFF is a real array. The problem is fixed in version 3.0.

Keywords:

63 Lisa Pascal: TextSize

TextSize in Pascal release 1.0 and 2.0 doesn't seem to work. Use pictures instead.

Keywords:

Here are the typestyles available to you from QuickDraw that are not described in the manual:

Font #0	system font
Font #1	small icons and symbols
Font #2	LisaDraw shading patterns
Font #3	more icons and symbols
Font #4	ps pitch, 12 point, sans serif
Font #5	ps pitch, 18 point, sans serif
Font #6	ps pitch, 24 point, sans serif
Font #7	15 pitch, 9 point, sans serif
Font #8	12 pitch, 12 point, sans serif
Font #9	10 pitch, 12 point, sans serif
Font #10	ps pitch, 12 point, serif
Font #11	ps pitch, 18 point, serif
Font #12	ps pitch, 24 point, serif
Font #13	12 pitch, 12 point, serif
Font #14	10 pitch, 12 point, serif
Font #18	calculator symbols
Font #19	20 pitch, unknown point, sans serif
Font #20	LisaGraph tic marks
Font #21	18 pitch, sans serif
Font #22	large icons and symbols
Font #49	LisaGuide icons and symbols

- * Pitch is the number of characters per inch; ps pitch is proportional spacing.
- * Point is the size of the characters (1 point = about 1/72 inch).
- * Serifs are the short decorative lines at the ends of strokes in classical typestyles.
- * Sans serif refers to typestyles without serifs.

Use the number of the font as the parameter of the TextFont procedure. Font numbers not listed comprise undefined characters.

Keywords:

It's not possible to create an intrinsic unit. Even though the manual gives you a minimum of information, you can compile a regular unit. You don't have to put it in a library to use it, as with the Apple II and Apple III. To compile a regular unit, just include the following compiler command at the beginning of your unit:

```
{ $U- }  
Unit Sample;  
  Interface  
  . . .  
  Implementation  
  . . .  
end.
```

Include the object code file in your program's USES statement.

Keywords:

Here are some suggestions on how to output from the serial ports using Pascal.

Even though the serial ports are not devices for file storage, they must be specified with a dummy file name. The Lisa handles all I/O devices this way. (See the Pascal Operating System Manual.)

```
reset (f, '-rs232a-xyz') where xyz is the dummy name
```

If you're writing a program to talk to some other type of device, such as a card reader or test equipment, review Chapter 2 in the System Software Manual, particularly the section named Device_Control. These procedures describe how to configure the drivers for either port in order to allow communication with other devices.

Keywords:

If you have a printer attached to a parallel expansion card in your Lisa and are planning to move that card to another slot (or remove it entirely), you must be sure to open the Preferences window and set the "Device Connection" for the old slot to "No Device" BEFORE you remove the card from that slot. If you move or remove the card without first reconfiguring Preferences appropriately, you'll leave behind a "phantom device connection"--that is, the Lisa will continue to think that there is a printer connected through the old slot. The next time you ask your Lisa to print a document, the Lisa will try to print the document on the "phantom" printer, fail, and end up giving you an "Error #1222" message. If you've received such an error message, your problem may be a phantom device connection. You won't be able to tell for sure, though, simply by opening the Preferences window: Preferences will only list slots that actually have cards in them. Instead, take these steps to discover whether you have a phantom device connection:

- Open any document.
- Pull down File/Print and choose "Format for Printer".
- Select settings for Print Method and Paper Size that don't match any printer you have ever had, such as Daisy Wheel with 14" x 11" paper.
- At the bottom of the dialog box, choose "Tell Me" (or, in Office System 2.0, "Ask Me")
- Click the OK button. A new dialog box will appear labeled "Intended Printer Unavailable" (or, in 2.0, "Intended Printer not in Preferences"). In the middle of the box will be a list of printers next to checkboxes. This list of printers will include any phantom device connections.

To fix the problem, re-install a parallel card in the slot with the phantom connection, open Preferences, set that slot's Device Connection to "No Device", and then remove the card.

Apple Technical Communications

Keywords:

For better or for worse, LisaBug is included in the Workshop in the form of two files: SYSTEM.DEBUG and SYSTEM.DEBUG2. In version 1.0 of the software, the mere presence of these two files enables the NMI key (non-maskable interrupt) in the Office System. In later releases of the software, the debugger may be invoked with the NMI key from the Workshop, or from the Office System if you've come directly from the Workshop without first powering down. It can be very distressing when uninitiated users press the NMI key (the minus sign on the keypad) and drop into LisaBug.

To deal with this problem with post version 1 software, power the system down when you're done working in the Workshop and before you use the Office System; alternatively, disable the debugger completely, as described below.

There are two ways to deal with this problem in version 1.0 of the Workshop: change the NMI key code or disable the debugger. The first option is very simple, but lasts only for the duration of the session. The next time you boot your system, the NMI key code is reinitialized to the minus sign on the key pad. To temporarily change the NMI key code for the session, use the following procedure:

1. Enter the debugger by pressing the NMI key (minus sign on key pad).
2. Enter the command "NM 0" RETURN in response to the debugger prompt of ">". This sets the key code from hex 21 (the minus key) to hex 0 (no key)*.
3. Type a "g" RETURN to go back to your starting point.

To respecify the NMI key, specify the key location--not the ASCII code --for the character you want. The table listing the key codes is in the Pascal Language Reference Manual.

To disable the debugger, you have three options:

- A. Delete SYSTEM.DEBUG and SYSTEM.DEBUG2.
- B. Change the names of the two files to something besides names starting with SYSTEM.xxxx. (This allows for easy restoration at a later time.)
- C. Transfer the two files to floppy, thus freeing up the disk space until you wish to restore the debugger.

Note: you must reboot the system before these changes are effective.

Good Things to Know About Lisa

Keywords:

69 Lisa Workshop: Increasing available memory

Approximately 550K bytes remain when Lisa runs the Workshop with all processes killed. To increase available memory over this limit, run an application as a shell by renaming PROGRAM.OBJ to SHELL.PROGRAM.

Apple Technical Communications

Keywords:

There are a couple of ways to use LisaBug to terminate an infinite loop if your program is in one:

When you find your program in an infinite loop:

1. Press the NMI key (minus key on the keypad) to enter the debugger.
2. If the domain is greater than zero--i.e., 1, 2 or 3--type a "G"o, then RETURN. This brings you back to your program then drops you back into Lisabug.

If the domain is zero or n, Type "UBR" RETURN. If that didn't change the domain to 1, 2 or 3, type "ID PC-4" RETURN, "G" RETURN, then depress the NMI key before proceeding. (It's sometimes hard to get a non-zero domain if the program is caught up in I/O.)

3. Type: "PC o" RETURN.
4. Then type "G" RETURN.

There is another situation that you may get into with procedures such as:

```
Procedure QUIT;  
begin  
    exit(PROGRAM_NAME)  
end;
```

You must include a reference to QUIT in the main program, or the Dead Code Analysis removes QUIT from the object code. To terminate the program, invoke Lisabug with the numeric keypad minus key (NMI), then enter the following immediate commands:

```
br  
ix movem.l d0-a6,-(a7)  
quit
```

You are returned to the Workshop shell when the program terminates.

Additional information on terminating loops may be found in the debugger section of your Workshop manual.

Good Things to Know About Lisa

Keywords:

In Transfer, there is a Break key for a hard break: it disconnects you. The easiest way to get around it is to send an XOFF from the keyboard or imbedded in your file (you would have to write a program to put it there). The file is then sent without filtering.

Apple Technical Communications

Keywords:

72 Lisa/Macintosh XL: Cable structure to Comrex CR-IIE

MACINTOSH XL	COMREX CR-IIE
2-----	2
7-----	7
6-----	20

4,5,6,8: Jumpered

Clinton Computer, MD

Keywords:

This article last reviewed: 24 February 1988

To line up the items in the table below, print it in Monaco 9.

BASIC LISA/MAC XL CONFIGURATION TABLE

Systems:->		LISA 2	MACINTOSH XL	MODIFIED
Basic		(LISA 2/5 if	(LISA 2/10)	MACINTOSH XL
Features:		connected to		(Screen Mod
(Below)		ProFile)		Kit Installed
INTERNAL HARD DISK	Present:	NO	YES	YES
	Notes:	Runs Lisa 7/7 Office System and MacWorks	Runs Lisa 7/7 Office System and MacWorks	Runs MacWorks only
MICRODISK DRIVE	Present:	YES	YES	YES
	Notes:	Requires Lisa Lite adapter board in disk drive chamber		
BUILT-IN PARALLEL PORT	Present:	YES	NO	NO
	Notes:	Can connect ProFile or other parallel device to motherboard	Must install parallel interface card in expansion chamber to access parallel device	Must install parallel interface card in expansion chamber to access parallel device
		Can install Mac Works and/or Lisa7/7/ Office on a connected ProFile	When using Lisa 7/7 Office System internal hard disk can access ProFile and other parallel devices	Internal hard disk runs MacWorks only: cannot access ProFile, but can access parallel printer if driver is installed
			When using MacWorks, internal hard disk cannot access ProFile, but can access parallel printer if driver is installed	
TWO	Present:	YES	YES	YES

BUILT-IN SERIAL PORTS	Notes:	Has three DB-25 connectors in back	Only two DB-25 connectors in back	Only two DB-25 connectors in back
8-AMP POWER SUPPLY - rated at 1.2 amps AC	Present:	YES	NO	NO
10-AMP POWER SUPPLY - rated at 1.8 amps AC	Present:	NO	YES	YES

Interpreting the Basic Lisa2/Macintosh XL Configuration Table

The top row (across) lists the system names for three basic configurations of the Lisa2/Macintosh XL. The first column (down) lists the names of basic hardware components. The YES or NO listed under each system indicates whether the hardware component is or is not a required part of that system. The "Notes" provide important information about software compatibility and hardware configuration for each system.

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Keywords: HTS,CNFG

This article last reviewed: 20 July 1988

To line up the items in the table below, print it in Monaco 9.

SYSTEM BOARDS COMPATIBILITY TABLE

Systems: ->	LISA 2	MACINTOSH XL	MODIFIED
	(Lisa 2/5 if		MACINTOSH XL
SYSTEM BOARDS:	connected to	(LISA 2/10)	(Screen
(below)	ProFile		Modification
			Kit Installed)
=====			
MOTHERBOARD		Same for MacXL and Modified MacXL	
Board Eng #	620-0108-X	620-X141	
Apple P/N	661-93106	661-93170	
Notes:	1. Has parallel connector	1. No parallel connector	
	2. Has 3 DB-25 connectors	2. Has total of 2 DB-25 connectors	
=====			
I/O BOARD		Same for MacXL and Modified MacXL	
Board Eng #	620-0117-X	620-X142-X	
Apple P/N	661-93198	661-93171	
Disk Controller ROM			
P/N	341-0290	341-0281	
Rev	B	D	
Location	1-A	2-A	
Notes:	1. Resistor at R-47 is NOT present	1. Resistor at R-47 IS present	
	2. Has batteries	2. No batteries	
=====			
CPU BOARD	Same for Lisa 2 and Macintosh XL		
Board Eng #	620-0119-X		620-0119-X
Apple P/N	661-03203		661-0298 or 661-03103
Boot ROMs			
P/Ns	341-1075 and 341-1076		341-0347 & 341-0346
Rev	H	H	3A 3A
Locations	13-D	14-D	13-D 14-D
Serialized ROM (Video State ROM)			
P/N	620-0003		341-0348
Notes:	1. The serialized ROM must be transferred to the		

| customer's replacement CPU board.
 | 2. The Macintosh XL (Lisa 2/10) CPU board can be used in
 | the Modified Macintosh XL, provided the correct boot
 | ROMs and serialized ROM are installed.

MEMORY BOARDS (2 identical)	Same for Lisa 2, Mac XL (Lisa 2/10), and Modified Mac XL
Board Eng #	620-01XX-X
Apple P/N	661-93105
VIDEO BOARD (2 identical)	Same for Lisa 2, Mac XL (Lisa 2/10), and Modified Mac XL
Board Eng #	620-0121-X
Apple P/N	661-93107

Interpreting the System Boards Compatibility Table

The top row (across) lists the system names for three basic configurations of Lisa 2/Macintosh XL. The first column (down) lists the names of the boards contained in the card cage and video chamber. The boxes under each system list the engineering numbers (printed near the edges of each board) and the Apple part numbers for each system board. The part numbers and rev. level for ROM on the CPU and I/O boards are included.

When inspecting or replacing system boards, use the System Boards Compatibility Table to make sure boards and ROM (part numbers and rev. level) match the information pertaining to the system you are working on.

NOTE: Any number can be in place of the "X" in the engineering numbers listed on the table.

NOTE: Refer to the Module Identification Manual for pictures of the system boards.

Copyright 1988 Apple Computer, Inc.

Keywords: HTS,CNFG

The signals available on Serial Port B of the Lisa are shown in Figure 3-9, page 3-24 of the Lisa Hardware Manual (for RS-232) and on page 3 of Macintosh Technical Notes #10 (for RS-422). This data is combined here.

Pin No.	RS-232 Name	RS-422 Name	Notes
1	Ground	Ground	
2	Transmit data	TxD-	
3	Receive data	RxD-	
4	Request to send		
6	Data set ready	HSK/DSR	TRxCB or CTSB
7	Ground	Ground	
19	AppleTalk receive data	RxD+	
20	Data terminal ready	TxD+/DTR	Connected to DTRB

Keywords:

This is a summary of ways to access the Environments window:

--From the Office System, press the on/off switch while holding down the Apple key. (Lisa 1 Owner's Guide, p. G26; Lisa 2 Owner's Guide, p. G55.)

--From the Workshop, (Q)uit the main command line. When prompted to leave the editor, etc., press "Y". Choose Another_Shell to display the Environments window.

--To boot the system up to the Environments window: press any key on the keyboard (except the Caps Lock key) after you hear the double click. (This double click occurs at the end of the self-tests.) If you asked to start up from a specific device by using the "Start Up From..." menu, press any key when you see the large hour glass displayed.

Keywords:

Article Created: 21 September 1984
Article Last Reviewed: 25 March 1992
Article Last Updated: 25 March 1992

TOPIC -----

When backing up a ProFile file to a disk I keep getting errors asking for new disks. Why is this happening?

DISCUSSION -----

When you attempt to back up a ProFile file to a disk with a pre-version 3.0 Lisa, you'll have problems if the file is larger than the disk (i.e., >400K): the Lisa continuously asks for new disks in an attempt to find a disk large enough to hold the entire file--which, of course, it never finds. We're told that the problem has been fixed in Version 3.0.

Copyright 1984, 1992 Apple Computer, Inc.
Keywords:

This article outlines known problems both with backing up Office Systems 1.0 and 2.0 and with restoring from backups of those Office Systems.

Preferences is destroyed by restoring the hard disk from backups. The only way to replace Preferences is to do a full Install (i.e., erase the hard disk and reinstall everything). Instead of restoring the hard disk, then, we advise that you simply duplicate the documents on the desktop individually from the backup disks to the hard disk.

The Lisa 2.0 Owner's Guide, p. B36, item number 7, reads: "Everything on Internal Hard Disk, the Internal Hard Disk, is about to be erased." This error message in the manual is not correct. It does not erase the hard disk; it erases the microdisks. The correct message is displayed on your screen.

Sometimes the backup has difficulties on the 3rd or 4th disk: typically, an error message is displayed stating that there isn't room on the diskette, even though the diskette has just been erased. This seems to happen most often when (a) it's been a long while since installation of the software, (b) the system has hung at one time and a Repair wasn't properly performed, or (c) Office System 2.0 is being used, and some of the files being backed up are very large. (Office System 2.0 has been known to have problems backing up very large files.) Usually, the only recourse is to completely reinstall your software.

Backing up a file larger than 728 blocks onto microdisks is not possible with releases 1.0 or 2.0: as the system tries to copy these large files, it repeatedly asks you to "Insert the next backup diskette" and yet does no copying to these diskettes, because it's looking for a large enough microdisk to back up your entire file. If you have Office Systems 1.0 or 2.0, then, simply make duplicates of any files larger than 728 blocks and place them on your hard disk or onto an additional ProFile instead of trying to back them up onto microdisks. Alternatively, upgrade to Office System release 3.0, which has no problem backing up very large files: it knows how to split a large file into portions and back up the portions onto a series of microdisks.

Good Things to Know About Lisa

Keywords:

Many users have received notices telling them that they must upgrade to Rev. H CPU ROMs to run Pascal 3.0. THAT NOTICE WAS IN ERROR! Acceptable ROM versions include:

Lisa 2: D/A8 or H/A8
Lisa 2/10: F/88 or H/88

--The first (alphabet) character indicates the revision of the CPU ROM; the following two characters identify the I/O ROM.

Other CPU ROM versions, such as A, B, C, E and G, should definitely be upgraded. If a user insists on Rev. H CPU ROMs, or if you need to upgrade old CPU or I/O ROMs, order them from your Apple Regional Service Center. The part numbers are:

	CPU ROMs	I/O ROM
Lisa 2:	341-0175, 341-0176	341-0290
Lisa 2/10:	341-0175, 341-0176	341-0281

NOTE: The ROM versions are both stamped on the chip itself and displayed in the upper right corner of the Lisa's screen when you boot the system.

Keywords:

This article last reviewed: 22 January 1991

TOPIC -----

Is there a product that converts Lisa documents to Macintosh format?

DISCUSSION -----

You need the Lisa to Macintosh Migration Kit, available from Sun Remarketing. It converts LisaDraw, LisaWrite, LisaProject, and LisaCalc files to their Macintosh counterparts.

For the address of Sun Remarketing, search this library under "Sun Remarketing".

Copyright 1991 Apple Computer, Inc.

Keywords:

Article Created: 30 January 1985

Article Reviewed/Updated: 17 October 1994

TOPIC -----

This article describes the conversion process for Lisa Workshop documents into LisaWrite.

DISCUSSION -----

Workshop ASCII files can be converted to LisaWrite documents. Once they are in LisaWrite format, the information they contain can be transferred to other applications, such as LisaCalc, using Cut and Paste. Convert Workshop files with the following procedure.

From the Workshop:

1. Initialize a diskette.
2. Copy the Workshop files to the diskette.
3. Rename the Workshop files with LisaWrite Office System names: e.g., {D200T1}, {D201T1}, {D202T1}, ...{D<200+N>T1}.

From the Office System:

4. Insert the diskette and repair it. This procedure forms a new catalog with containing all files on the diskette.
5. When you open the diskette, each of the documents appear with names such as "Document 200", "Document 201", and so on.
6. Open each of the documents; they should contain the text from the Workshop files.
7. Make a minor change (e.g., add, then delete a space) to force LisaWrite to rewrite the document, then Save and Put Away.

Article Change History:

17 Oct 1994 - Reviewed for technical accuracy, revised formatting.

Support Information Services

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Keywords:

This article last reviewed: 8 November 1988

Master tool diskettes are copy protected. The method still seems to confuse people to a fair degree. This article should cover any question you may have about Lisa's protection scheme.

The first time you duplicate a tool master diskette, that diskette AND its copy are tied to the specific Lisa you're using to perform the duplication: both diskettes are imprinted with that Lisa's serial number. This imprinting occurs almost immediately, so even if you abort the copy, both diskettes will probably already be tied to that Lisa. You may make as many copies of that master diskette as you like, but those copies will run only on the Lisa that made the first copy. Users can make as many back-ups as they feel necessary, while we are able to protect ourselves from unauthorized dissemination of Lisa software.

The original tool master diskette may be used on any Lisa, but you will not be able to copy the tool onto the ProFile.

The serial number that the diskettes are imprinted with is the one burned into the PROM located at position C6 on the CPU board. If the CPU board is replaced for any reason, it's very important that this PROM is transferred to the new board; otherwise, that Lisa's user will no longer be able to use applications stored on his or her hard disk. If that particular PROM itself is bad, request a new one from your Technical Support Center.

Files that are protected by this scheme will have the file attribute P when listed by the Workshop. This attribute cannot be changed.

Protected Lisa software distributed by Apple includes:

- All Lisa tools, except for LisaWrite and LisaProject 3.1. (Stationary pads, Office System diskettes and LisaGuide are not protected.)
- Pascal 1.0 and 2.0: PASCAL.OBJ, CODE.OBJ and EDITOR.OBJ are protected. (Pascal 3.0 is not protected.)
- COBOL 1.0, 2.0, and 3.0: overlay files are protected, as well as EDITOR.OBJ.
- BASIC-PLUS 1.0, 2.0, and 3.0: BASIC.OBJ and EDITOR.OBJ are protected.

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Keywords:

84 Lisa: Daisy Wheel Printer Error Numbers

Error	Meaning
1199	DMP selected in Format for Printer
648	No modem eliminator cable or Preference not set properly
3056	Generic printer problem - check cables, paper, ribbon, etc.

Keywords:

85 Lisa: Daisy Wheel Printer Settings

Switch 1: 11100111
Switch 2: 10010000
Numbered 8 to 1; 1 = On, 0 = Off
Space Parity
Local
EXT/ACK Handshaking
9600 Baud
Paper out on
Duplex & Auto CR/LF off
Bi directional print on
ASCII Standard

Use a "Modem Eliminator" cable, part number 590-0029, in series with the interface cable.

Keywords:

Dialog boxes have a default button distinguishable by its heavy outline. When you click outside the dialog box, the default button is automatically selected.

Good Things to Know About Lisa

Keywords:

87 Lisa: Dot Matrix Printer -- Error Numbers

Error	Meaning
0	Not configured in Preferences
1199	2 DMP's configured in Preferences
1222	More than 1 DMP in Preferences.
1885	Profile timeout error
648	Parallel DMP on Serial A or B
3056	Generic printer problem - check cables, paper, ribbon, etc.

Good Things to Know About Lisa

Keywords:

88 Lisa: Dot Matrix Printer -- Printer Buffer

An in-line parallel printer buffer that works right out of the box is available from:

Practical Peripherals, Inc.
31245 La Baya Drive
Westlake Village, CA 91362
(213) 991-8200

Good Things to Know About Lisa

Keywords:

89 Lisa: Dot Matrix Printer -- Printing Landscape

Printing landscape, normal resolution (low resolution) prints any of your documents 1/3 smaller than it appears on your screen.

Good Things to Know About Lisa

Keywords:

The Empty Folder pad is easily replaced if you happen to have lost it. Every initialized or repaired diskette contains one. Just make a duplicate of one those pads and place it onto the disk that lost it.

Good Things to Know About Lisa

Keywords:

Article Created: 14 May 1991
Article Last Reviewed: 27 May 1991
Article Last Updated:

TOPIC -----

When I try to boot a MacWorks disk on my Lisa, I get an error code 38.

This error is placed under an icon with a check in it. It only accesses the floppy for a brief moment and then gives the error code. It then prompts me to continue or to choose a startup device (STARTUP FROM...). When I continue, the above occurs again, over and over. If I choose a startup device, it gives me the option of the floppy only -- not the HD.

What's going on?

DISCUSSION -----

Error 38 is "No Boot File on Disk." It sounds like the MacWorks disk was erased. If the disk was good to begin with, you have a hardware problem with the floppy drive.

Copyright 1991, Apple Computer, Inc.
Keywords:

The most common error numbers are described both in the Lisa 1 Owner's Guide (Appendix 3, p. I7 and Appendix 6, p. I25), and in the Lisa 2 Owner's Guide (Appendix 3, p. G59, and on pp. C49-C58). These error messages usually simply indicate a general problem.

Other more specific error messages are located in the Workshop manual. There are three types of error numbers that can be displayed:

1. A single number: xxx

This may be located in the Workshop manual. The number means the error occurred in code located in the Filer. The only exception is if the number starts with a 6 (e.g., 648), in which case the error is related to printing.

2. Two numbers: xxx/xxx

The first number refers to a location in the lower levels of the operating system; the second number is the error code. Sometimes these numbers are reversed, so it's best to look up both in the Workshop manual.

3. Three numbers: xxx/yyy/zzz

- xxx: Indicates the system program that died.
- yyy: The error number indicating why it died.
- zzz: The actual code address where the error occurred.

If you get one of these three-number codes and the first one happens to be a 1033, the second number indicates the problem:

Error	Meaning	Solution
7	I/O problem	reinstall software
10	Parity Error	replace memory
21, 22	program error	none
26, 27	bad source, bad memory	

Here are some other errors that occur during startup. These error numbers in 10700 range are usually accompanied by a crossed out Lisa. Following is a list of these errors:

Error	Meaning
10725	Damaged file system or file contents
10726	Profile error, problem with boot tracks
10727	Memory Error
10728	Boot file is missing or damaged
10729	"
10730	"
10731	"
10732	"
10735	"
10736	"
10737	"

If you encounter one of the above errors:

1. Reinstall the startup software. Refer to p. D50 in the Lisa 1 Owner's Guide, p. C24 in the Lisa 2 Owner's Guide or p. 160 in the Lisa (7/7) Office System manual.
2. If step 1 doesn't work, repair the hard disk, then repeat step 1.
3. If step 2 doesn't work, you may have bad Office System diskettes. Obtain another set, then try steps 1 and 2 again.
4. If steps 1 thru 3 haven't worked, you'll need to reload the software. First, though, erase the information currently stored on your hard disk.

To save documents store on your hard disk:

1. Connect your Profile, if you're using one, to another Lisa and save any files if you can. If you're using a Lisa 2/10, start up your system with another ProFile, then save your documents to it.
2. Then reinstall your software on the hard disk, erasing the present software.

Good Things to Know About Lisa

Keywords:

Some systems (usually those containing old ROMs) emit a low-high error tone upon startup before starting the internal diagnostics. To proceed, merely power the Lisa off and back on.

Other errors, ones usually associated with hardware failures, sometimes appear on Lisas in the 7/7 Office System. Typically, you may have neglected to erase your hard disk before installing the 7/7 Office System. After you safely backup your documents, reinstall the software after first erasing the present contents of the hard disk.

Apple Technical Communications

Keywords:

When printer format settings are made for a document, other blank documents and stationary pads may also change their printing formats to the new settings.

This can only happen to documents or stationary pads, such as the LisaWrite stationary pad, that have never had text or data entered into them. The printer format settings of non-empty documents and stationary pads will not change unless specifically set by the Format for Printer dialog box while the document is open.

Apple Technical Communications

Keywords:

A full backup of the Office System 2.0 or 3.0 copies all of your files on the hard disk, including any Workshop files you may have stored there. Backing up a 5-megabyte ProFile may require as many as 20-25 microdisks, while an internal 10-Megabyte disk could require more. Release 1.0 copies only your Office System documents.

Keywords:

Because no computer system is infallible, it is important to periodically back up all important documents. This minimizes the risk of loss of data due to power failure, hard disk failure, system hangs, and so on.

There are 3 kind of backups:

- A. A full backup.
- B. An incremental backup.
- C. Individual duplication of the document onto a backup disk. (This is the method Apple recommends.)

To do a full or incremental backup (method A or B):

1. Insert your diskette.
2. Duplicate the hard disk, then move the duplicate to the diskette.
3. Follow the directions displayed on your screen.

Full and incremental backups are described on pp. D14-D16 in the Lisa 1 Owner's Guide, and on pp. B32-B37 of the Lisa 2 Owner's Guide.

To duplicate a document (method C):

1. Select the document.
2. Scroll open the File/Print menu; choose Duplicate.
3. A flashing duplicate of the document will appear on your screen next to the original. Move that duplicate to another folder, diskette, or drive.

Duplicating a document or folder is described on p. D11 in the Lisa 1 Owner's Guide and p. B68 in the Lisa 2 Owner's Guide.

Keywords:

An incremental backup theoretically copies only those files that have changed since the last backup. In Office Systems 1.0 and 2.0, the incremental backup does NOT work that way: it copies everything, just as if you had selected a full backup. Because of this problem, Apple recommends in the Lisa 2 Owner's Guide Release Notes: "Do not back up a hard disk icon to the diskette icon. Instead, make duplicates of the tools or documents you wish to back up, and then move the duplicates to the micro diskette icon."

At the end of an incremental backup with release 3.0 software, the error number 941/3 may be displayed. All documents that were changed since the last full backup are copied to the disk. These documents are accessible only from the desktop; they may not be used to restore the ProFile using the Office System 1 diskette's Restore routine. Lisa Office System version 3.1 corrects this problem, allowing you to restore your hard disk from backup diskettes if you wish.

Keywords:

98 Lisa: Line Frequency

The Lisa hardware manual wrongly states that the line frequency should be 60 Hz +/- 2. The actual number is 50-60 Hz +/- 2, which covers most reasonable power sources. This is true of all Lisa 2s.

Apple Technical Communications

Keywords:

Error	Meaning
10590	Memory error encountered on startup
1033/10	Error encountered in Office System
System Hang	Memory error encountered - mouse hang

Most memory errors are caused by parity errors, characterized by an unresponsive system and a frozen mouse pointer. Use LisaTest or the extended memory board test to help you determine which of the two memory boards failed.

Something else to keep in mind: memory is set up so that the starting address is on memory board 2, while the data and overflow are on memory board 1. This means that if you experience memory problems on startup, it is probably a result of a bad memory board 2. If you encounter memory errors during the use of an application, it is probably memory board 1. If the system has hung only once, don't be concerned until it happens again or until you get another memory error. Nevertheless, if you get an error during startup, the memory board that is crossed out is bad.

Keywords:

100 Lisa: Monitors

Conrac: Conrac Corp.
600 N. Rimsdale Ave.
Covina, CA 91722
(213) 966-3511

What to request: 23" Black and White
Cabinet Model SNA-23/C
22.7 KHz horizontal line rate
60 Hz vertical field rate
Under scan adjusted so all 4 corners are visible
Modified for fast vertical retrace
20 MHz video amplifier

Electrohome: Electrohome (U.S.A.) Limited
250 Wales Ave.
Tonawanda, New York 14150
(716) 694-3332

What to request: EDP-57 Monochrome Projection monitor
Projects up to 15' diagonal screen
standard is green P1 phosphor, other phosphors available

Good Things to Know About Lisa

Keywords:

101 Lisa: Page Numbering

The Lisa Office System numbers the pages of a documents differently, as follows:

LisaCalc, LisaGraph, LisaList:	1	3
	2	4
LisaProject	1	2
	3	4
LisaDraw (in portrait format)	1	3
	2	4
LisaDraw (in landscape format)	1	2
	3	4

Keep these facts in mind for those occasions when you wish to print specific pages of your document.

Good Things to Know About Lisa

Keywords:

102 Lisa: Printing

If you have difficulties printing to a printer connected to a parallel card in slot 3, try slot 2 or 1. Don't forget to change Preferences before you move the card.

Good Things to Know About Lisa

Keywords:

103 Lisa: Restart After Installing the Dictionary

Even though the Lisa often restarts after installing the dictionary, this restart does not necessitate repairing the hard disk. You may begin using the system immediately.

Keywords:

To print the current contents of the screen, hold down the SHIFT and OPTION keys while pressing the 4 on the keypad. Screen dumps of the Office System 1.0 software only print to the DMP, which must be connected to the upper port of the parallel card in slot 2. Versions newer than Release 1.0 support either the DMP or Imagewriter connected to any port, as long as they're selected in Preferences.

Virtually anything displayable on the screen may be printed--including, for instance, disk directories.

Apple Technical Communications

Keywords:

105 Lisa: Spontaneous Reset and Power Ups

A Lisa that resets itself spontaneously may have a bad I/O board. A Lisa that starts itself up has a bad power supply.

Keywords:

Two Port Parallel Card
661-93138

PIN	NAME	PIN	NAME
1	GND	14	GND
2	GND	15	PSTRB
3	RW	16	BSY
4	GND	17	CMD
5	DDO	18	PARITY
6	DD1	19	OCD
7	N.C.	20	GND
8	DD2	21	CRES
9	GND	22	DD3
10	GND	23	DD4
11	DD5	24	GND
12	DD6	25	CHK
13	DD7		

The meanings of the individual signals on the interface are:

- D0-D7: Eight bidirectional data lines. Bit D7 is the MSB.
- DRW: This line is driven high by the Lisa to indicate that data is expected to be input on the data lines. It is driven low to indicate that data is being output
- PARITY: Bidirectional line which must be configured on the basis of the data currently on the data lines to give odd parity
- PSTRB: Processor strobe line used as a signal by the Lisa to indicate valid data being output.
- CMD: This line is asserted by the Lisa to indicate that a command has been placed on the data lines.
- BSY: This line is asserted by the peripheral to indicate to the Lisa that it is busy and unable to process commands on the interface.
- OCD: The Lisa monitors this line. If it is high, it is assumed that no device is connected to the interface.
- CRES: This line is asserted by the Lisa when the peripheral is to be reset to its power-on state.
- CHK: This signal may be used to interrupt the CPU in the event that a fault condition has occurred in the device connected to the interface.

NOTE: These pinouts apply to both the upper and lower connector of a two port parallel card installed in a Lisa or Macintosh XL.

Keywords:

Anytime your system resets or falls victim to a power outage or any other kind of abnormal power down, you must "repair" your hard disk. Also consider repairing your hard disk when your system is acting strangely or if you're having difficulties locating or displaying your documents, even if they are located on a diskette. The repair is basically a disk clean-up: it closes any files left open, gets rid of unused scratch files, and then reconstructs the catalog files if necessary.

If you receive the message "the disk needs minor repairs", start up with the Office System 1 diskette to repair your hard disk. If you've just repaired the hard disk using the Office System 1 diskette, perform the "minor repair" as well when given the choice.

The Office System 1 repair is very thorough, while the minor repair merely reconstructs the catalog files.

Note: Repairing the hard disk will delete folders (but not documents) in Office Systems older than version 3.0.

Keywords:

Article Created: 13 August 1986
Article Last Reviewed: 17 July 1992
Article Last Updated: 17 July 1992

PROBLEM DESCRIPTION: The 10707 Error occurs upon booting the Office Systems I disk or ProFile hard disk.

BEFORE YOU START: Familiarize yourself with the Lisa (or Macintosh XL) Technical Procedures.

CAUSE: The disk is write-protected or the system software is damaged.

CURE: To unprotect the disk, slide the write-protect tab so that it covers the small rectangular opening (see the Lisa or Macintosh owner's manual if you are not sure how to perform this procedure).

If using a ProFile, boot the Office System 1 diskette. Choose the "Repair" option. If this fails, choose "Install" and reinstall the Office System. If this still fails, back up the customer's data, reinitialize the ProFile using the Install option, and install the Office System.

Copyright 1988, 1992 Apple Computer, Inc.

Keywords: hts

109 LisaCalc 3.0: Problems Handling Large Documents

LisaCalc has difficulty handling documents over 400 blocks long. If you try to build a file that large, an error may occur after you save and put away the document. If you attempt to redisplay it, you may see a dialog box saying "Unable to Redisplay the Document."

These problems have been fixed in Lisa Office System Release 3.1. The new LisaCalc size limit is approximately 700 blocks (350K). Larger documents still require much more time to calculate, update, print, and save.

Keywords:

110 LisaCalc 7/7: Format for Printer options change

When you select Preview Pages in your LisaCalc 7/7 document, any Printing Option selections you made revert to their previous setting. Check Preview Pages prior to setting your Printing Options.

Apple Technical Communications

Keywords:

Some confusion has arisen regarding the F-test formula, a type of Regression value. To begin with, the formula as listed in the LisaCalc manual on 167 is incorrect; it should be $F=(r/(k-1))/((1-r)/(n-k))$.

Another cause of confusion about this formula seems to arise from the fact that the result that the function returns is the coefficient of determination, also known as the "r-square value"; the r in the formula, then, is already the r-square value as returned by the regression function. It does not need to be squared in the formula.

Two more corrections to the Regression section in the LisaCalc 7/7 manual:

1. Page 154: The formula at the bottom of the page should read:
Correlation (B3:E7, H6:19).
2. On page 165, under Type of Regression Values: The fourth sentence incorrectly states that the correlation coefficients are sorted from the highest to the lowest index. In fact, they are listed in the order they appear in the data matrix.

Apple Technical Communications

Keywords:

112 LisaCalc 7/7: The NPV function is different

The NPV function has changed in the 7/7 version of LisaCalc. In the old version (2.0), the first value of the cashflow was counted as the payment for the first period and was thus discounted (annuity due). The formula looked like this:

$$v1/(1+discount)^1 + v2/(1+discount)^2 + \dots vn/(1+discount)^p$$

where v is the value of your cash flow, $discount$ is the discount percentage, n is the number of the payment, and p is the number of the period.

In the new LisaCalc 7/7, the first value of the cashflow is not counted as the first period and not discounted (annuity arrears). The formula looks like this:

$$v1/(1+discount)^0 + v2/(1+discount)^1 + \dots vn/(1+discount)^p$$

It's just another way of looking at the same function. Both are equally correct.

Apple TechComm

Keywords:

LisaCalc 7/7 doesn't have a specific calculation order -- it simply determines the approach that will make for the fewest possible passes. Therefore, you don't need to worry about placement of formulas in relation to the cells they involve.

LisaCalc 1.0 and 2.0, on the other hand, calculate first by rows, then by columns. They then check to see if both answers are the same. If they aren't the same, LisaCalc calculates by rows again then rechecks the answers. If Calculate Automatically is selected, this process is repeated until two successive calculations yield the same answers, or until 30 seconds has passed. If Calculate Manually is selected, the process is repeated indefinitely.

Keywords:

114 LisaCalc: Cell Selection

If you want to select a range of cells that is larger than the window (such as A1:A100), click in the Cells area at the top of your document (or press APPLE-G) and type the range. Pressing ENTER will select the range.

Good Things to Know About Lisa

Keywords:

NOTE: This information applies to versions 1.0 and 2.0.

Although LisaCalc lets you Cut the whole contents of a document, you can't then Paste it anywhere -- not even back into the document you Cut it from.

Instead of using Cut and Paste when the whole document is involved, use Copy and Paste.

Keywords:

When you cut cells, formulas that directly refer to those cells are set to ERROR. When you paste, the formulas will be adjusted to reflect the location of the new cells. If you cut a group of cells and the formulas that refer to them, then paste them to another location, the formulas are automatically adjusted.

Keywords:

117 LisaCalc: Entering a Cell's Coordinates

Here's how to enter a cell's coordinates without typing it: just point at the cell, and then press the OPTION key and the mouse button at the same time.

Keywords:

Apparently innocent formulas, like $A1+B1$, sometimes result in an Error if A1 or B1 is blank. The program has forgotten that blank cells are to be treated as zero in a formula. To get around this lapse of memory, just put a zero (0) in the blank cell.

Keywords:

119 LisaCalc: Find Missing Value

Find Next Missing Value does not always work. The problem occurs when the selected cell is in a column that never had any values in it. An alert box appears to report that there are no missing values below the selection. Be sure the selected cell is in a column that has another value.

Keywords:

120 LisaCalc: How to check for a blank cell

There are some instances which require a test for an empty or blank cell. To test for this condition, you need to compare the cell in question with another cell that you know will always be blank, such as in:

```
IF(D5=X255,'blank',G4-D5)
```

assuming that X255 is always empty.

Good Things to Know About Lisa

Keywords:

Please ignore the implication, on page D32 of the LisaCalc Manual, that you can enter more than one range for Range1 in your Lookup statement. In fact, when you enter the second range, LisaCalc assumes that this is Range2.

You can get around this if your Lookup table spans more than one row or column. Consider, for example, a Lookup table to look up a number in the range of 1 to 300. Obviously, this will be more than one column or row. In Cells B1:B254 you have numbers from 1 to 254. In the column to the right (C1:C254) you have the result to return. In Cell B255, instead of entering the value 255, enter 301, a number outside the range of the Lookup table. To the right of that you have a lookup that looks like this:

```
LOOKUP(A1,D1:D46,E1:E46) .
```

D1:D46 has the remaining numbers in your Lookup table, the results are to the right in column E. So in your main Lookup Statement you would have this:

```
Lookup(A1,B1:B255,C1:C255)
```

If the number you are looking for in A1 is 260, then the value returned will be the result of the Lookup in Cell C255.

Good Things to Know About Lisa

Keywords:

There are some techniques for managing the size of a spreadsheet:

1. Plan Ahead. You can enter the information more easily and, since making changes tends to increase the size of the sheet, planned entries will save you memory.
2. Structure the information to make the row and column lengths fairly even; avoid stretching your spreadsheet too oblong either way. LisaCalc keeps track of all the cells in the grid. Incidentally, this accounts for the printing of blank pages on occasion; since Lisa prints every cell in the grid, even if you haven't used them, the blank cells force a page feed.
3. Use Paste Adjusted formulas; unlike regular pasted or entered formulas, they don't take up as much accounting space on a pointer table. However, there are a few things to keep in mind when using Paste Adjust. First, it works best on long formulas pasted into large ranges; Paste Adjusting a small formula to a few cells won't save you any space. Second, LisaCalc, in the process of readjusting formulas, replaces the pointers in the spreadsheet with real formulas. Bigger than the pointer they replace, these Paste Adjusted formulas increase the size of your sheet once you start copying, cutting, pasting, and inserting rows or columns. The reason for this is that the adjusted cells contain a pointer to the original formula with an increment. Plan ahead!

Keywords:

123 LisaCalc: New vs. Used Rows and Columns

On a new Calc sheet, enter the following:

in cell A1 enter 20
in cell A3 enter 30
in cell A4 enter 50
in cell A5 enter 100
in cell A6 enter MIN(A1:A5)

The value will be 20.

Now, enter anything into any cell (other than A2) in row 2. The value in A6 changes to 0. The problem is that that LisaCalc makes a distinction between new and used rows or columns. To get around this, cut row 2 and insert another in its place.

Keywords:

@PUBDATE:840921
@AUTHOR:JH
@KEYS:

When an IF test uses real numbers, problems with round off can cause incorrect evaluations. For example, say you have the formula

```
IF(A1+A2=A3,"OK","NOT OK")
```

and cell A1 contains 2.1, A2 contains 1.2, and A3 contains A1+A2. Even though the values look identical, the formula will return "NOT OK", because values in an IF statement (A1+A2) have a different precision than values in a cell (A3).

So, when the two values are compared, they are not the same ("NOT OK"), even though logically they are. To avoid this situation, use integer numbers for equality tests -- or, when you use real numbers, add an INT function to your IF statement.

Keywords:

125 LisaCalc: Problems with rounding

In cell A2, enter the formula `INT(A1*100)/100`; in cell A1, enter the value 1.17. You would expect the result in A2 to be 1.17; however, due to difficulties in converting decimal to binary and back, the result returned is 1.16. If the intent of the above expression is to round to two decimal places, then use `ROUND(A1,2)` or `ROUND(INT(A1*100)/100,2)`. To compare the two cells to see if they are equal, use `IF(A2-A1<.0001,EQUAL,NOTEQUAL)`.

Apple Technical Communications

Keywords:

@PUBDATE:840921
@AUTHOR:EW
@KEYS:

There is a way of sorting in LisaCalc. Let's say, for example, that you wanted to sort a column of numbers (B1:B35) in Ascending order. To do this, you need to set up an additional column of formulas like this:

In the first cell (C1), put

```
search(B1:B35,cell<result,500,cell)
```

In the next cell (C2), put

```
search(B1:B35,cell<result and cell>C1,500,cell)
```

Now, Paste Adjust it to C3:C35, adjusting the C1. This will search the range B1:B35 and sort them in ascending order. The 500 value is any number larger than the largest number in the range. To sort in Descending order, the formulas would look like this:

In the first cell (C1), put

```
search(B1:B35,cell>result,1,cell)
```

In the next cell (C2), put

```
search(B1:B35,cell>result and cell<C1,1,cell)
```

and then Paste Adjust it to C3:C35, adjusting the C1.

Please keep a couple of things in mind when sorting:

1. This method will only sort a single row or column, NOT entire rows or columns as in LisaList.
2. If there are repeats of numbers in the range you are sorting, they will show up as NAs at the end of the list.

Good Things to Know About Lisa

Keywords:

I. LisaCalc: A6D0300

Available from Sun Remarketing,
P. O. Box 4059, Logan, Utah 84321
(801) 752-7631.

--Includes: LisaDraw, LisaList, LisaGraph, LisaWrite, LisaTerminal,
LisaProject and the Lisa Office System.

1. Maximum Size:

- A. Dimensions: 255 rows by 255 columns
- B. Visible: 15 columns (8 characters each) by 29 rows
- C. Memory (recommended limit): 400 blocks

2. Precision and Accuracy:

- A. Standard IEEE numerics for calculations
- B. 15 digits for high-precision calculations

3. Editing:

- A. Cut, Copy, Paste and Clear
- B. Insert new rows or columns
- C. Copy values or formulas from or into other models

4. Formatting:

- A. Left, right and center justification
- B. Variable column widths: 1 to 80 characters
- C. Numbers:
 - a. Integer, decimal, and exponential
 - b. Variable number of digits after decimal or exponent
- D. Money: commas, dollar signs, cents
- E. Negative money values may be displayed in brackets
- F. Fill Pattern

5. Functions:

- A. Addition, subtraction, multiplication, division
- B. Sum, average, minimum, maximum, count, exponent
- C. NPV, compound interest factor, annuity factor
- D. Absolute value, integer portion, round
- E. Log, natural log, square root, sum of squares
- F. Sin, asin, cos, acos, tan, atan
- G. Lookup
- H. Integer division with remainder
- I. Boolean: and, or, not, if-then-else
- J. Equal, not equal
- K. Greater and less than, greater than or equal, less than or equal
- L. NA, error

6. Date/Calendar:

- A. Specify dates as mm/dd/yy
- B. Specify date parts as a number of days, months or years
- C. Add, subtract and compare dates of date parts
- D. Many functions work with dates or date parts

7. Calculation Features:

- A. Automatic or manual:
 - Calculates until convergence is achieved

8. Data Exchange:

- A. Move data and models between LisaCalc documents
- B. Move data and text into LisaGraph and LisaWrite

9. Special Features:

- A. "Protection" guards cells from being changed
- B. Circle Missing Values: cells that are referenced in a formula but do not contain valid data are highlighted
- C. Up to 6 vertical or horizontal splits of the window

10. Features:

- A. Undo function: cancels effects of last operation
- B. Revert To Previous Version: undoes all changes made to the document since it was last saved
- C. Display more than one document on the screen at the same time
- D. Horizontal and vertical scrolling

11. Typestyles:

- A. Variety of sizes available

12. Printing:

- A. "What you see is what you get" fidelity
- B. Fit as many as 132 columns on an 8 1/2 x 11-inch page
- C. Automatic or manual page breaks
- D. Print formulas or values
- E. Print in horizontal or vertical formats
- F. Print one or multiple copies
- G. Print whole drawing or selected pages
- H. Background printing enables you to print one or more documents while working on another
- I. Works with the following printers:
 - a. Apple Dot Matrix Printer
 - b. Apple Imagewriter: normal or wide carriage
 - NOTE: Only version 3.1 of the Office System makes full use of the wide-carriage ImageWriter, letting you print on 14" x 11" paper.
 - c. Apple Daisy Wheel Printer
 - d. Canon Ink Jet Printer

13. Documentation: Reference guide which includes a tutorial.

Copyright 1985, 1992, Apple Computer, Inc.

Keywords: SPECSHT

128 LisaCalc: The Time It Takes to Save and Put Away

Yes, it takes a long time to save large Calc spreadsheets. Fifteen minutes or more is neither uncommon nor abnormal. If the sheet has Lookups, Ifs, and Searches, the sheet may take even longer to save. Simply be patient.

Keywords:

129 LisaCalc: Updating Documents From Earlier Releases

The new calculation algorithm in LisaCalc, release 3.0, may be unable to fully update a spreadsheet created with an earlier version of LisaCalc. If no data was included to calculate a value for a cell created using Paste Adjusting, then the formula may not be present in the updated spreadsheet. If this occurs, simply Paste Adjust the formula again.

Keywords:

130 LisaCalc: Using dates in formulas

To use a date in a formula, as for calculating cost per day, you need to transform the date part into a number. To accomplish this, use the INT function:

```
INT('12/4/84'-'1/3/84')*500
```

Good Things to Know About Lisa

Keywords:

131 LisaDraw, MacDraw, MacPaint: White letters on a black background

Need to put white letters on a black background? Well, just do the following.

MacPaint:

1. Select the text option from the pallet; select the font of your choice, then Outline or Shadow from the Style menu and type in your text.
2. Select the Paint Can from the pallet, then a shade of black. Move the pointer (now a small paint can) off to the side of your text and double click.

The Paint Can fills in the region around your text in black, leaving your typed characters white.

MacDraw or LisaDraw:

1. Type in your line, then change your letters to Outline or Shadow, with a fill of none.
2. Draw a box, circle, etc., over the top of your text.
3. While your box is still selected, select Send to Back from the Arrangement menu, then choose a fill of black.

The end result gives you white letters on a black background.
Icon, Volume 1

Keywords:

132 LisaDraw: 2.0 Stationery

Paper torn off the 2.0 LisaDraw stationary pad is 8 pages wide. To make a pad with fewer pages: select the preferred Drawing Size, draw a box, circle, line, etc, with lines white, shades none. Save your document, then select Make Stationary Pad from the File/Print menu. Throw away your old stationary pad if you wish.

Keywords:

133 LisaDraw: Centered Text

When you select certain objects in LisaDraw, such as rectangles and circles, then start typing, the text aligns in that object. This means that if you have "Align Centers" selected (the default), your text is centered in the object.

Keywords:

134 LisaDraw: Cut & Paste from LisaWrite

Text can be cut or copied from LisaWrite and pasted into LisaDraw; however, LisaDraw doesn't understand "wraparound", so the information is pasted in one long line. For example, a paragraph consuming 5 or 6 lines copied from LisaWrite is pasted into LisaDraw as one long line (up to approximately 225 characters if there's sufficient room).

Good Things to Know About Lisa

Keywords:

When printing a document, you might receive error message 3001 or 3007 as a result of having entered some text in your document then backspacing over a portion of it.

The BACKSPACE sometimes changes the type style of the text string to the system font, the font used for displaying Lisa menus and messages. Unfortunately, LisaDraw doesn't know how to print the system font.

The text typically displays normally, though it is sometimes displayed in the system font which is easily distinguished when the text contains a "V". Just compare the "V" with the V in the option Save from the File/Print menu. The system font V, just as in the pull down menus, slants towards the right.

The easiest way to resolve this problem is to "Select All" of the document with the Edit menu, change the type style to another type style. Change the type style back to what you originally selected if you wish. Then print as you normally would.

The other option is to locate, select and change the font of, or re-enter, the specific offending text. Look for the "V"s as described above, or select Print While You Wait. LisaDraw stops printing when it encounters the offending text string.

Keywords:

Two methods for spacing objects evenly are:

- Select all the objects you wish to space evenly, then select Align to Autogrid from the Arrangement menu.
- Make evenly spaced copies of an object by duplicating the object and moving it the distance you want. While the duplicate is still selected, duplicate this duplicate. Each subsequent duplicate moves the same distance as the first duplicate you moved.

Keywords:

137 LisaDraw: Location of Pasted Objects

When pasted into LisaDraw, objects are centered around the last mouse click. If you haven't clicked in the document, the object is centered on the first page.

Keywords:

138 LisaDraw: Pasting from LisaGraph

Remember that graphs pasted from LisaGraph to LisaDraw are grouped, sometimes in many layers. Therefore, to access a specific part of the graph, ungroup the objects until the one you wish can be selected individually.

Good Things to Know About Lisa

Keywords:

139 LisaDraw: Printing 18-point bold italic text

Even though 18-point bold italic appears to be fine on the screen, it may grow 10 to 15% in size when printed, possibly overrunning any boxes it may have been placed in or graphics it was placed close to.

Apple Technical Communications

Keywords:

140 LisaDraw: Printing Landscape, High Resolution

When you print LisaDraw documents in landscape high resolution, horizontal lines and text may be longer on paper than they appeared on the screen. This distortion is due to the difference in the pixel size between the screen and the printer.

If you are designing a document to be printed in landscape high resolution, compensate for the line length by drawing your horizontal lines a little shorter, position text in boxes a little to the left, etc.

Alternatively, print your landscape document in normal resolution

Keywords:

141 LisaDraw: Shading Arcs and Curves

The default shade for text in LisaDraw is white, as it is for all closed objects (circles, squares, etc.). The default shade for arcs and freehand curves is "none." Consider shading arcs and freehand curves to give them a larger selectable area, making them easier to select.

Keywords:

Shrinking and stretching objects in LisaDraw is described

on pp. B19-B21 and C75-C76 of the LisaDraw manual

on pp. 137-138 of the Lisa 7/7 manual

To prevent distorting your objects when you stretch and shrink them, use the handles in the middle (not in the corners) of each side, moving each of the handles the same distance from the center. For example, if you have a 2 x 2 square that you wish to increase to 4 x 4, take the handle at the middle of each side and move it an inch out from the center. To stretch or shrink several objects, group them first.

Keywords:

143 LisaDraw: Specifications

I. LisaDraw: A6D0300

--Includes: LisaCalc, LisaProject, LisaGraph, LisaList, LisaWrite, LisaTerminal and the Lisa Office System.

Available from Sun Remarketing,
P. O. Box 4059, Logan, Utah 84321
(801) 752-7631

1. Maximum Drawing Size: 32 sq. feet; about 60 pages
2. Palette Selections:
 - A. Rectangles: with and without rounded corners
 - B. Circles and ellipses
 - C. Lines:
 - a. Horizontal, vertical and diagonal
 - b. Thicknesses: fine, narrow, medium, wide
 - c. 36 patterns
 - d. Shades: black, grey, white
 - e. Arrowhead feature: one or both ends
 - D. Arcs
 - E. Polygons
 - F. Freehand
 - G. 36 patterns: for filling objects or defining shade of lines
3. Text Editing:
 - A. Add text to any part of drawing
 - B. Cut, Copy and Paste; same as in other Lisa applications
4. Graphics Editing:
 - A. Move any object or shape
 - B. Place objects in front of or behind others
 - C. Shrink or expand any object yet maintain its shape
 - D. Reshape freehand curves, arcs and polygons
 - E. Automatically smooth curves
 - F. Copy or delete any object
 - G. Change pattern of shading inside a shape or object
 - H. Rotate objects: left, right, horizontal, vertical
5. Colors and Shades:
 - A. 36 shades (for objects, text, lines)
 - B. 8 printable colors (Cannon Ink Jet Printer required to print colors)
6. Alignment Aids:
 - A. Grids:
 - a. Displayable on screen in various sizes
 - b. Able to align objects to grid
 - B. Rulers:
 - a. Horizontal and vertical
 - b. Increments: inches, centimeters, or custom
 - C. Align middles, centers, either side, top or bottom of object

- D. Align to Auto-Grid
- E. Measure distance between two points or the size of objects
- F. Group shapes or objects to move, copy or delete them together

7. Zoom

- A. Reduce to Fit
- B. Reduce 70%

8. Typestyles:

- A. Variety of fonts and sizes available
- B. Bold, italic, underline, outline, shadow or any combination

9. Features:

- A. Undo function: cancels effects of last operation
- B. Revert To Previous Version: undoes all changes made since document was last saved
- C. Display more than one document on the screen at the same time

10. Special Features:

- A. Move LisaGraph and LisaProject charts into LisaDraw for further customization
- B. LOCK allows you to protect objects from accidental editing

11. Printing:

- A. Prints in horizontal (landscape) or vertical (portrait) formats
- B. Prints single or multiple copies
- D. Printers supported:
 - 1. Apple Dot Matrix Printer
 - 2. Apple Imagewriter: narrow or wide carriage
 - 3. Apple Daisy Wheel Printer
 - 4. Cannon Ink Jet Printer
- E. Background printing: prints one or more documents while displaying another

12. Documentation: Reference guide (including tutorial).

Copyright 1985, 1992, Apple Computer, Inc.

Keywords: SPECSHT

144 LisaGraph: Changing Shades

To change the shading on the bars or legends in your bar charts:

1. Paste the graph into LisaDraw
2. Ungroup the objects until the object you want to modify can be selected individually.
3. Shade the bars.

Keywords:

145 LisaGraph: Coefficient of Determination

In the LisaGraph 7/7 manual, the bottom paragraph on page 82 states:

"Lisa places a number near the end point of the line on the right side of the chart, called the correlation coefficient or confidence factor (r-squared)."

This value placed at the end of the regression line is actually the r-square value or the coefficient of determination.

Keywords:

146 LisaGraph: Copying From LisaCalc

To copy rows from LisaCalc to paste into columns in LisaGraph (or columns into rows), make sure you select entire rows or columns by clicking on their headers. Selecting a random range of cells doesn't work. After pasting, cut or clear any superfluous information.

Keywords:

147 LisaGraph: Customizing the X axis

To customize the X axis, you must have a line graph or a scattergram graph selected. Customizing is described on pp. C89-C93 in the LisaGraph 1.0 or 2.0 manual, or p. 83 in the LisaGraph 3.0 manual.

Good Things to Know About Lisa

Keywords:

148 LisaGraph: More graphs on a page

If you want more than one graph on a page, paste the graphs into a LisaDraw document, then arrange them anyway you wish.

Good Things to Know About Lisa

Keywords:

149 LisaGraph: Specifications

I. LisaGraph: A6D0300

--Includes: LisaCalc, LisaProject, LisaDraw, LisaList, LisaWrite, LisaTerminal and the Lisa Office System.

Available from Sun Remarketing,
P. O. Box 4059, Logan, Utah 84321
(801) 752-7631

1. Graph Types:

- A. Bar
- B. Line
- C. Mixed bar/line
- D. Clustered bar (up to 8 bars per cluster)
- E. Scatter
- F. Pie

2. Maximum Size:

- A. Data Points: More than 2,000
- B. Plots up to 9 columns (sets) of data

3. Titles:

- A. Graph title and subtitle
- B. X and Y axis title
- C. Footnotes and legends
- D. Free-floating: text may be placed anywhere on graph

4. Data Entry:

- A. Simple table for data entry
- B. Copy and paste data from LisaCalc and LisaList

5. Editing:

- A. Cut, Copy, and Paste: same as in other Lisa applications
- B. Editing of data within cells
- C. Edit graph titles
- D. Insert new or delete row or column in data table
- E. Paste into LisaDraw for further customizing

6. Formatting:

- A. Grid lines: on or off
- B. Legends: on or off
- C. Graph sizes: 1/4, 1/3, 1/2 or full page
- D. Axis: ranges and increments created manually or automatically
- E. Table:
 - 1. Variable width columns
 - 2. Left, right or center alignments
 - 3. Integer, decimal, scientific or money formats

7. Typestyles:

- A. Table: A variety of fonts available:
- B. Titles: A variety of fonts available plus bold, italic, underlined, shadow, hollow or any combination of styles

8. Performance:

- A. Time required to replot: usually less than one second

9. Special Features:

- A. Undo function: cancels effects of last operation
- B. Revert To Previous Version: undoes all changes made to the graph since it was last saved
- C. Display more than one document on the screen at the same time
- D. Enlarge or shrink viewing areas for graph or data-entry table
- E. Enter text anywhere on the screen
- F. Copy graph and Paste into LisaDraw for further embellishments

10. Printing:

- A. "What you see is what you get" fidelity
- B. Print graph and/or table
- C. Print in horizontal or vertical formats
- D. Print single or multiple copies
- E. Works with many printers:
 - a. Apple Dot Matrix Printer
 - b. Apple Imagewriter: narrow or wide carriage
 - c. Apple Daisy Wheel Printer
 - d. Cannon Ink Jet Printer
- F. Background printing: enables you to print one or more documents while working on another

11. Documentation: Reference guide which includes a tutorial

Copyright 1985, 1992, Apple Computer, Inc.

Keywords: SPECSHT

150 LisaGraph: Two decimal places

If you wish to have numbers with two decimal places on the X or Y axis, be aware that LisaGraph always rounds the numbers up to the first decimal place for any increment except .05.

Good Things to Know About Lisa

Keywords:

IMPORTANT FACT: The LisaGuide diskette doesn't contain any system startup instructions, so if you try to start LisaGuide solely from the diskette, a crossed out Lisa icon and an error 10735 is displayed.

To boot LisaGuide: Startup From... the ProFile with your LisaGuide diskette in the drive.

If you're still unable to boot LisaGuide, your Office System or your LisaGuide diskette may be damaged. First, repair and reinstall the Office System startup software as described on p. D50 in the Lisa 1 Owner's Guide or p. C24 in the 2's guide; then, repair the LisaGuide diskette. If LisaGuide still doesn't boot, replace the diskette.

Good Things to Know About Lisa

Keywords:

152 **LisaList: Capacity**

The capacity of LisaList depends on the amount of disk storage space available. But each record (row) has a specific capacity of 990 bytes, with 100 fields (columns) per record.

Note: files that fit on the 5-1/4 disk may be too large to fit on a 3-1/2" microdisk under release 2.0; however, Lisa Operating System 3.0 splits the document among many diskettes if necessary.

Keywords:

153 LisaList: Error Too Many Time Components

Typing (or pasting) a time, such as 1:15 pm, into a cell may result in the error message: "Too many time components. Format is..." when your Data Format includes an am/pm (e.g., hh:0m am). The am and pm acts as if they need 4 spaces instead of 2. With a Data Format of hh:0m am, you may enter up to 4 numbers for the hours and minutes, but ONLY up to 2 characters if you include an am or pm. For example:

Your Type	LisaList Displays
555	5:55 pm
1155	11:55 am
13pm	1:00 pm
110pm	not acceptable: you have a total of 6 spaces available of which the pm needs 4.

When your Data Format is hh:0m:0s am you may enter up to 6 numbers, 4 if you enter the am/pm.

Remember, if the Data Format includes an am/pm and you don't specify which, LisaList interpretes the time as:

0	Midnight
1-6	pm
7-11	am
12	Noon
13-23	pm

Refer to your LisaList 7/7 manual, page 144.

Copyright 1985 Apple Computer, Inc.

Keywords:

People frequently use a Text format rather than a Number format for columns of numbers. LisaList, when sorting number formatted fields, sorts them in ascending or descending numerical order. When these numbers are formatted as text, they are sorted via a comparison of letters. This means that all of the numbers that start with 1 (10, 15, 100, 1000, etc.) sort together, the 2's are grouped together, and so on. The only way to reformat the information is to add another column with the proper format, then transfer the information. Sort orders and comparisons are discussed further in Appendix 4 of the LisaList manual.

Keywords:

I. LisaList: A6D0300

Available from Sun Remarketing,
P. O. Box 4059, Logan, Utah 84321
(801) 752-7631

--Includes: LisaCalc, LisaDraw, LisaGraph, LisaWrite, LisaTerminal,
LisaProject and the Lisa Office System.

1. Maximum Document Size: 50% of available storage space
2. Maximum Record (row) Size: 990 bytes
3. Maximum Number of Fields (columns) per Record: 100
4. Data Types:
 - A. Text (default)
 - B. Number
 - C. Date
 - D. Money
 - E. Time
 - F. Social Security number
 - G. Phone number
 - H. Zip code
5. Entering/Formatting Data:
 - A. Checked for proper data type
 - B. Automatically formatted
 - C. Formats may be changed (data type cannot be); previously entered data is reformatted
6. Editing:
 - A. Add or delete columns
 - B. Cut, Paste, Copy or Clear: cells or records
 - C. Reorder columns
 - D. Vary column width
 - E. Make columns you don't want in a particular report invisible
 - F. Rename any or all columns
7. Sorting:
 - A. Sort all data types in ascending or descending order
 - B. Multiple sort fields may be specified
8. Searching:
 - A. Criteria specified in a search table
 - B. Search on multiple criteria
 - C. Criteria:
 - a. equal to, not equal to
 - b. greater than, greater than or equal to

- c. less than, less than or equal to
- d. between

9. Typestyles:

- A. Variety of sizes available

10. Features:

- A. Undo function: cancels effects of last operation
- B. Revert To Previous Version: undoes all changes made to the graph since it was last saved
- C. Display more than one document on the screen at the same time

11. Special Features:

- A. Built-in file-recovery mechanism: protects data from power fluctuations and media failures

12. Printing:

- A. "What you see is what you get" fidelity
- B. Variety of type sizes available
- C. Horizontal or vertical formats
- D. Single or multiple copies
- E. Works with the following printers:
 - a. Apple Dot Matrix Printer
 - b. Apple Imagewriter: normal or wide carriage
 - c. Apple Daisy Wheel Printer
 - d. Canon Ink Jet Printer
- F. Background printing: enables you to print one or more documents while working on another

13. Documentation: Reference guide which includes a tutorial

Copyright 1985, 1992, Apple Computer, Inc.

Keywords: SPECSHT

Releases 1.0 and 2.0 of LisaProject do not allow resources to work on different tasks simultaneously. When your tasks do not have the dates you anticipated, rename your resources so that each resource has a unique name. For example, if "Joe" is working on two parallel tasks, rename the resource Joe 1 and Joe 2, so the program treats them as two different resources. Resources also impact the scheduling of tasks later on in the project, so keep an eye on them.

LisaProject 3.0 lets you schedule resources in parallel.

Keywords:

157 LisaProject 3.0: Copying and Pasting the Task Table

When copying and pasting the Task Table into documents such as LisaCalc and LisaList, the late finish dates (4th column) is pasted over the top of the early finish dates (2nd column). Since you cannot select and Copy just a portion of the Task Table, you will have to correct the early finish dates manually.

Apple Technical Communications

Keywords:

158 LisaProject 3.0: Largest Integer

In LisaProject, entered or calculated integers greater than 2,147,483,646 will be stored incorrectly--most likely as a negative number. Consider using multiples of hundreds or thousands of dollars whenever you suspect the cost of your project might exceed 2 billion.

Apple Technical Communications

Keywords:

159 LisaProject 7/7: selecting line cause display to jump

When you select a perfectly horizontal line connecting two tasks in a multipage LisaProject document, the screen display jumps to the first page of the document. To avoid this inconvenience, move one of the task boxes up or down until the dependancy line is no longer horizontal before selecting it.

Apple Technical Communications

Keywords:

While the Lisa applications library offers many attractive features, LisaProject draws the attention of many executive decision makers. Apple presents LisaProject as a powerful instrument to efficiently and effectively accomplish resource scheduling. But as one explores the subject beyond this point, many questions arise. What is PERT, and how does LisaProject use PERT to achieve its schedule? What is a critical path and what are its implications? How does one apply LisaProject in the real world? Although the complete answers to these questions go beyond the scope of this publication, we will briefly discuss some of the issues and provide further research avenues for the reader.

What is PERT? PERT (Program Evaluation and Review Technique) is a scheduling algorithm, developed and utilized extensively by the Air Force during the Second World War. It identifies the tasks, resources, and their associated time-frames needed to complete an objective. Simply put, PERT is a network model which determines the significance and timing of the tasks involved in completing a project. As opposed to the majority of linear programming models that seek to maximize/minimize an objective function, PERT's algorithm uses Lisa's date arithmetic to arrive at the estimated sums of elapsed time to complete a "leg" of the project. The individual times associated with each "leg" are then compared to determine the longest route. This longest "leg", then, is the "critical path". Each task along the "critical path" is identified as a mandatory activity which is essential to timely completion of the project, and therefore, is defined by the system as having no spare ("slack") time. Again, as opposed to linear programming tools, PERT neatly avoids "supoptimization" (scheduling of two or more resources during the same time period), while arriving at an optimal solution to the problem.

Management scheduling staffs can bring the project generation phase to a rapid finish. During the progress of the project, the "what if" capabilities offer myriad uses. Specifically, the "critical path" identification feature not only indicates the relevant priorities of tasks, but its corollary argument tells the manager which tasks he can relatively ignore. If task A, to give an example, is not on the "critical path", then one should not expend labor, money or other scarce resources to try to expedite it. Devoting further resources to task A just will not abbreviate the length of the entire project. Also, the planner may take the completed project and use it to clearly develop budgets by tagging dollar values to resource and task "classes" and using LisaCalc to crunch the numbers.

For readers who desire further information on these topics, see:

1. "PERT ORGANIZATION: A Technique for Evaluating Schedules", Publications, Inc., October 1981, pgs. 407-412. A six page discourse on the Boolean Matrix involved in PERT.
2. Elementary Systems Mathematics: Linear Programming for Business , Robert E. Machol, McGraw-Hill Book Co., NewYork, 1976. An exhaustive examination of mathematical programming techniques which are matrix oriented.
3. "Computerizing PERT for Business", Dun and Bradstreet , January, 1979, pgs. 87-95. How to apply computer generated PERT charts to everyday business situations.

Apple Technical Communications

Keywords:

161 LisaProject: Capacity

The maximum capacity of a LisaProject document is 60 pages, or more than 2,500 tasks with over 100 resources per task. LisaProject release 1 and 2.0 allow you to enter up to 20 vacation days, while release 3.0 accepts up to 40.

Good Things to Know About Lisa

Keywords:

Be careful not to draw lines connecting task boxes in LisaProject sloppily. For example, if you have 3 tasks that are supposed to follow one another, don't draw a line directly from the first task to the third; otherwise, the middle task may incorrectly be assigned the start date of the first task. In such a case, the second task may appear connected to other tasks when it really isn't. To avoid this problem, first connect the second task to the first, then connect the third task to the second.

Keywords:

163 LisaProject: Dates

If your task box has questions marks instead of dates, you've set a scheduled date that caused the program to push the dates outside of the calendar range.

Good Things to Know About Lisa

Keywords:

164 LisaProject: Duration

Make sure that when entering resources and durations, you TAB over to the next field, NOT space over to it. Otherwise, LisaProject assumes the duration to be zero.

Good Things to Know About Lisa

Keywords:

165 LisaProject: Extra Pages

To get rid of extra pages in LisaProject, Save and Put Away the document, then redisplay it. The extra pages should be deleted. If this doesn't work, try changing the print orientation (for example, change Portrait to Landscape), change it back, then save it and put it away. The extra pages should be gone when you reopen your document.

Keywords:

Resources listed on the Resource chart are sorted in the order they were entered, until you save and put away your project. They are then sorted from left to right as they appear on the chart. To sort your resources differently, create a task box at the left side of your project and enter the resources in the order you want. Save your document. When you redisplay your document, the resources are sorted in the same order as in the task box you created. Additions to the chart appear at the bottom of the resource chart.

Keywords:

167 LisaProject: Scheduled dates

When you enter a scheduled date for a task, LisaProject recalculates the dates to reflect it. However, if the date you entered is thought by the program to be illogical, LisaProject overrides it and enters its own date. The date is underlined just as if you had set it.

Good Things to Know About Lisa

Keywords:

I. LisaProject: A6D0300

--Includes: LisaCalc, LisaDraw, LisaGraph, LisaList, LisaWrite, LisaTerminal and the Lisa Office System.

Available from Sun Remarketing,
P. O. Box 4059, Logan, Utah 84321
(801) 752-76311.

Charts:

- A. Schedule
- B. Resource
- C. Task

2. Tables:

- A. Resource Cost Entry
- B. Task Cost Entry
- C. Cash Flow
- D. Task

3. Maximum Capacity:

- A. Task Boxes:
 - a. Quantity: 1,000
 - b. Duration: 199 days
 - c. Title: 50 characters
- B. Size: 32 square feet, Approx. 60 pages
- C. Resources:
 - a. Quantity: May enter hundreds per project or task
 - b. May be assigned to simultaneous tasks

4. Performance: Charts immediately redrawn when data is entered or changed

5. Costing:

- A. Fixed job cost assigned to a task, and/or
- B. Accumulative resource costs

6. Date/Calendar Options:

- A. Task dates: early and late start, early and late finish dates
- B. Vacation Days: up to 40
- C. Work Days: up to 7 per week
- D. Displayed Date: month/day/year
- E. Current date displayed in Resource and Task charts

7. Edit Options:

- A. Cut, Copy, or Paste: same as in other Lisa applications
- B. Proportionally shrink or expand task boxes or charts
- C. Enter titles and subtitles directly on the chart

8. Zoom:

- A. Reduce 70% or
- B. Reduce to fit

9. Typestyles:

- A. Variety of fonts, sizes and styles available
- B. Bold, italic, underline or any combination

10. Special Features:

- A. Move a LisaProject chart into LisaDraw to customize it further
- B. UNDO function cancels effects of last operation
- C. View more than one document on the screen at once
- D. Scroll horizontally or vertically
- E. Revert to Previous Version undoes all changes made to the document since it was last saved

11. Printing:

- A. "What you see is what you get" fidelity
- B. Automatic page breaks
- C. Print one or multiple copies
- D. Print whole document or selected pages
- E. Print in horizontal or vertical format
- F. Choose from many printers:
 - a. Apple Dot Matrix Printer
 - b. Apple Imagewriter: normal or wide carriage
 - c. Apple Daisy Wheel Printer
 - d. Cannon Ink Jet Printer
- G. Background printing: enables you to print one or more documents while working on another

12. Documentation: Complete reference guide which includes a tutorial

Copyright 1985, 1992, Apple Computer, Inc.

Keywords: SPECSHT

If your resource or task charts begin on a date other than the date set in your beginning milestone, then you've (most likely) created a task that has no predecessor, or you have encountered the "phantom task box" (very rare).

Large phantom task boxes have been discovered when the LisaProject document is copied and pasted into LisaDraw. The box has also been discovered in LisaProject just off the edge of the schedule. Since these task boxes are usually neither seen nor tied into the project, they take the start date as set by the calendar. When they do occur, there seems to be no way to eliminate them from your LisaProject document.

Good Things to Know About Lisa

Keywords:

170 LisaTerminal 7/7: Communicating with Unix's Emacs Editor

If you're using LisaTerminal's VT100 mode to communicate with an Emacs Editor, avoid using split windows; otherwise, a problem with the 7/7 software causes the Lisa's screen to be updated randomly. Alternatively, transmit a CTRL-I to erase and redisplay the current screen.

Apple Technical Communications

Keywords:

171 LisaTerminal 7/7: Configuring Preferences to Use a Modem

To use a modem from LisaTerminal 7/7, use Preferences to make the device connection a Serial Cable rather than a Modem. If you fail to do this, the system will constantly set LisaTerminal communications to Off-Line.

Keywords:

172 LisaTerminal 7/7: NULL character at beginning of each pasted line

LisaTerminal sends an ASCII 0 (NULL) character at the beginning of each pasted line. This does not occur when entering text from the keyboard.

The addition of the NULL character helps LisaTerminal compensate for wordwrapping, eliminating the need to have a return at the end of each line of text.

Apple Technical Communications

Keywords:

173 LisaTerminal 7/7: Record Separator function

LisaTerminal's Record Separator (RS) function doesn't work as documented in the manual: neither pressing "CTRL-6" nor the tilde key (upper left corner of keyboard) will send an RS.

Apple Technical Communications

Keywords:

174 LisaTerminal: Apple Modem cables

There is a deceptive similarity of the Apple modem cable (part number 540-0197) and the Macintosh printer cable (part number 590-0146). You will have problems when you use LisaTerminal and the Apple modem with the Macintosh printer cable.

Good Things to Know About Lisa

Keywords:

175 LisaTerminal: Capacity

The capacity of a LisaTerminal document is 1,500 lines. When you reach that limit, LisaTerminal gives you a message telling you to save the document and start on another. If you don't another document and simply continue to receive information, Lisa begins to have memory problems and you run the risk of losing your document.

Keywords:

176 LisaTerminal: Clearing the Screen

If you are having problems with clearing the screen, try setting the Columns Per Line from 80 to 132, then back to 80.

Keywords:

177 LisaTerminal: Cluster Controller

The Apple Cluster Controller maintains an interface between an IBM host and the Apple Computer by emulating IBM 3278-2 terminal functions and 3287-1 printer functions. The Controller comes in two flavors:

1. SNA/SDLC, which emulates an IBM 3274 or IBM 3276 Control Unit/Display Station, and
2. BSC (bisynchronous), which emulates an IBM 3271 Control Unit.

The cluster controller does not support low and high intensity displays; otherwise, the terminal and printer functions are completely emulated.

Good Things to Know About Lisa

Keywords:

178 LisaTerminal: Copy and Paste from LisaCalc

Before LisaTerminal can receive LisaCalc Copy or Paste information in the appropriate format (in columns), you need to set LisaTerminal's tabs to reflect the width of each column you want LisaTerminal to send. When you don't set the tabs, all of the information appears in one column with spaces between each entry. To set tabs in LisaTerminal, follow the procedure on pages 46-48 in the LisaTerminal manual.

Good Things to Know About Lisa

Keywords:

When you paste from LisaWrite to LisaTerminal, Terminal expects a carriage return after every line and truncates the line if it is too long. There is a way of getting around this:

1. Copy the LisaWrite document and paste into an off-line LisaTerminal document (one that isn't dialed into anything). The Lisa will put in carriage returns for you.
2. Copy it again, dial up, then paste.

There are two problems with this method.

1. The text breaks in the middle of words if you don't have word wrap set. To avoid this, you can set it to 132 characters. There will be less of a chance of breaking in the middle of a word. Alternatively, turn on word wrap.
2. A telecommunications service, such as The Source, may specifically require that the carriage return be within 80 characters. The problem is that LisaTerminal puts that return in the 81st position. Having LisaTerminal set for word wrap will alleviate the problem somewhat.

This information applies to versions 1.0 and 2.0 only. The problem is solved in version 3.0.

Good Things to Know About Lisa

Keywords:

180 LisaTerminal: Dialing up another Lisa

To dial up another Lisa, or any other computer, you need to have a modem that has an auto answer capability, such as Hayes Smartmodem or an Apple Modem.

1. Make sure that the compatibility settings are the same for both computers.
2. To see what you're typing, set the compatibilities at half duplex.
3. Dial the other modem's phone number. This modem will answer and send back the carrier. When your modem receives the carrier it will tell you that you're connected. Anything that you type or paste will be sent.
4. To terminate the connection, just hang up from the phone menu.

Good Things to Know About Lisa

Keywords:

181 LisaTerminal: Hang when line is busy

When LisaTerminal dials the number automatically and the line is busy or there is no answer, the system appears to hang. In fact, LisaTerminal runs a timeout loop in these situations and nothing stops that loop except cutting off the power. You must wait a minute; once the timeout loop ends, the apparent system hang is over and the Lisa behaves normally.

Good Things to Know About Lisa

Keywords:

182 LisaTerminal: Important Things to Know

1. You can't abort the pasting into LisaTerminal of a file to be transmitted.
2. You can't set LisaTerminal to respond automatically to a prompt from a host computer, such as an editor prompt for next line.

Keywords:

183 LisaTerminal: Manual Errata, Versions 1.0 - 2.0

Page 81 in Appendix 4: VT52 Compatible Mode, (Table)

READS:

Direct cursor address ESC PI Pc*

IT SHOULD READ:

Direct cursor address ESC Ylc* [NOTE: "ell" not "one"]

Apple Technical Communications

Keywords:

184 LisaTerminal: Maximum length of phone number

The LisaTerminal manual states that the phone number must not exceed 40 characters; however, when you enter a number, only the first 24 characters are displayed. Only the first 24 characters are dialed when the dial menu is used.

The practical limit, therefore, is 24 digits, not 40.
Apple TechComm

Keywords:

185 `LisaTerminal: Sending PF1`

Pressing the PF1 key in `LisaTerminal`'s VT100 mode causes `LisaTerminal` to send an ESC-P, not an ESC-1.

To send an ESC-1, hold down the tilde key (upper-left corner of the keyboard) then press the 1 key.

Keywords:

186 LisaTerminal: Setting the baud rate for an Apple Modem

The baud rate on the Apple 1200 modem is not unalterable, although how to alter the rate is not very obvious: you alter the rate by passing data to the modem at the rate you want the modem to transmit data. From whichever program you use to send data to the modem, it determines the baud rate of the data it receives and sets itself at that rate. For example, when you set the baud rate of the LisaTerminal program to 300 and instruct the program to auto-dial, LisaTerminal sends the auto-dial message to the modem at 300 baud; from the speed of this message, the modem assumes that you want to be communicate at 300 baud; the modem then alters its rate to 300 baud. Subtle, no? But here's the catch: if you change the baud rate in the program without turning off the modem first, the modem ignores the messages sent to it at the new baud rate. You must turn off the modem if you are going to change the baud rate.

Good Things to Know About Lisa

Keywords:

187 LisaTerminal: Specifications

I. LisaTerminal: A6D0300

--Includes: LisaCalc, LisaDraw, LisaGraph, LisaWrite, LisaList, LisaProject and the Lisa Office System.

Available from Sun Remarketing,
P. O. Box 4059, Logan, Utah 84321
(801) 752-76311

1. Terminals Emulated:

- A. VT100/VT52
- B. TTY
- C. 3278 (when used with Apple Cluster Controller or AppleLine)

2. Maximum Size:

- A. Document: 1500 lines (approx. 20 pages)
- B. Copy and Paste limit: 10 pages

3. Transmission Speed (baud):

- A. Serial Ports A or B: 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, 4800, 9600
- B. Serial Port B: 3600, 19200

4. Set-up Options:

- A. Parity: Even, odd or none
- B. Full- or half-duplex transmission
- C. Xon/Xoff
- D. Manual or automatic dialing (supported on Apple 300 or 1200 and Hayes-compatible modems)
- E. Auto-repeat on/off
- F. Auto-new line on/off
- G. Wraparound on/off
- H. Answer-back message on/off
- I. Margin bell
- J. On-line/local
- K. Serial Port A or B

5. Page Layout Options:

- A. Cursor: Block or bar shape
- B. Background: White or black
- C. 80 or 132 columns
- D. Status lights on/off
- E. Characters: Upper- and lowercase
- F. Tabs and rulers

6. Terminal Control:

- A. Function keys (such as RETURN, TAB, ESC)
- B. Cursor control codes (such as NUL, ENQ, FF, DEL)

- C. Supports all VT100 and VT52 function codes
- D. Special graphic character codes

7. Special Features:

- A. Supports communication while you use other Office System documents
- B. Cut and Paste text from and to other Lisa applications
- C. Dialog boxes and forms simplify the steps in configuring the program to communicate with other terminals.
- D. Save data with the Record Lines Off Top option; scroll back through the data (not available in 3278 mode)

8. Documentation: Reference Guide

Copyright 1985, 1992, Apple Computer, Inc.

Keywords: SPECSHT

188 LisaTerminal: VT100 Mode

When you want to emulate VT100 operation with LisaTerminal, set Lisa to "forget" lines that scroll off the screen. This mode appears to emulate VT100 functions more accurately. You can then set the Lisa to "remember" and download data or text, then set Lisa back for VT100 terminal operation. During this setting and resetting, Lisa does not clear that text which has been "remembered".

Keywords:

189 LisaTerminal: VT52 Errata

@PUBDATE:840921

@AUTHOR:JH

@KEYS:

In the LisaTerminal manual (versions 1.2 and 2.0), page 81 gives the chart for cursor control characters in the VT52 mode. The command for direct cursor address is incorrect. It should read:

Direct cursor address ESC Ylc(asterisk)

Keywords:

190 LisaTerminal:Receiving carriage return-linefeed

If you aren't receiving a line feed character from the computer that you're trying to communicate with, then you need to instruct the other computer to send them. The lack of line feeds is a problem with the other computer and not the with LisaTerminal. In the LisaTerminal manual it suggests that setting Auto New-line to On will resolve this problem. It doesn't.

Good Things to Know About Lisa

Keywords:

This article last reviewed: 9 November 1988

Under the following situations, LisaTest 2.2 can't test a hard disk formatted for Macintosh software:

1. If a Macintosh-formatted hard disk is attached to the system when you startup LisaTest 2.2. (The system will hang.)
2. If you connect your Macintosh-formatted ProFile after booting LisaTest, and afterwards choose test ProFile. (Error message #3 is displayed.)

Two later releases of LisaTest fix this problem:

1. LisaTest Version 3.0, which can test Macintosh-formatted hard disks.
2. Macintosh XL/Lisa Modification Test Version 1.0, which can test Macintosh-formatted hard disks and contains the square pixel screen driver for use on those Lisas or Macintosh XLs that have the Macintosh XL Screen Kit installed in them.

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Keywords:

There is a problem printing in Landscape mode in LisaWrite 2.0. Missing and partly formed characters are printed in the upper right portion of a write document printed 'while you wait'. (Versions 3.0 and 3.1 of Lisa 7/7 don't give you the option of printing 'while you wait', so the problem doesn't occur with these versions.)

The workaround is to print 'while you work'.

Keywords:

This article last reviewed: 7 April 1988

If you you begin printing a LisaWrite 3.0 document on a daisy wheel printer, then cancel the job (with the "Monitor the Printer" menu item), portions of the cancelled job will appear embedded in the text of your next printed LisaWrite document.

To obtain a clean printout of the second document, simply print it again.

Keywords:

194 LisaWrite Version 2.0: Underlining and Printing in Landscape

Underlining doesn't work when you print a document in landscape mode in LisaWrite version 2.0. Versions 3.0 and 3.1 corrects this omission.

Keywords:

Sometimes there are blank pages at the end of a document. To eliminate them, first click three times at the beginning of the blank page to see if anything is selected. Sometimes there are carriage returns that are carried at the end of the document. If nothing is selected, then all you need to do is save and put away the document. This will get rid of any truly unused pages.

Keywords:

Article Created: 30 January 1985

Article Reviewed/Updated: 17 October 1994

TOPIC -----

Those who wish to continue working with the Office System 2.0 software may be able to convert Lisa 7/7 LisaWrite documents to 2.0 if they need to. This article tells how.

DISCUSSION -----

PREREQUISITES:

The document must not contain:

- A. Any graphics (pasted from LisaGraph, LisaDraw, etc.).
- B. Eight or fourteen point text (including spaces, etc.).

PROCEDURE:

1. Save the documents you wish to convert to a diskette formatted for Lisa 2.0.
2. In the Workshop (version 3.0), run the DumpPatch program (refer to the Workshop manual for details) and change the second word of each document from 0005 to 0004.
3. Open the document from the 2.0 Office System, make a minor change (to force the application to rewrite the document), then select Save and Put Away.

The document should now be in Lisa 2.0 format, though we don't guarantee that this procedure will always work.

Article Change History:

17 Oct 1994 - Reviewed for technical accuracy, revised formatting.

Support Information Services

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Keywords:

On rare occasions, lines or possibly even pages of text may disappear from the screen of a LisaWrite document for no apparent reason. If the text has been cut, merely paste it back into the document. If the text hasn't been cut, open the page layout menu and select Don't Preview Pages. Your missing text should reappear after you select Save and Continue from the File Print menu.

There are also rare occasions when a line of text may not be printed at the bottom of a page. Selecting Save and Continue should correct the problem. If it doesn't, adjust the paragraph spacing in the line (with the Format menu) or insert a page mark (with the Page Layout menu), and then repeatedly choose Save and Continue until the line prints successfully.

Apple Technical Communications

Keywords:

Are you having problems with formats disappearing? Keep this in mind: all formatting is retained by the carriage return. Your constant loss of formats tells you that the carriage return isn't being carried to the next paragraph, and you must have clicked in the wrong place before starting to type. Make this easy fix:

1. Select a paragraph that is formatted correctly.
2. Copy that paragraph.
3. Select the paragraph to be fixed.
4. Select "Same as on Clipboard" from the Format menu.

Keywords:

To double underline:

1. Set the format to single-spaced paragraph.
2. Go down to the next line and type equal signs (=).
3. Select the equal signs.
4. Set the selected equal signs to both superscript and bold.
5. Change the type style to either 15 pitch, 12 pitch Elite or PS Executive.

In these type styles, the equal signs blend together, giving the appearance of double underlining of the text in the line above.

Keywords:

When you print a LisaWrite document on 8.5 x 11 inch paper, avoid setting the right margin past 8 inches (or past 10 inches if you're printing in landscape mode). If you set the right margin beyond these limits, when you attempt to print the document you'll get a dialog box stating that "There is information outside the printable area".

If this message appears when the right margin is set to 8" or less, ignore it: simply click OK to proceed with the printing. If the problem persists, select "All of Document" from the Edit menu. Text located past the right margin will then become visible. After you cut that text, the document will print.

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Keywords:

201 LisaWrite: Letterhead

If on the first page you want a larger top margin for a letterhead:

1. set your margins for the second page,
2. click at the beginning of the document,
3. use the RETURN key to space down the required amount.

If you don't want to do this with every document:

1. create a document
2. tear off a new document,
3. put in the required number of RETURNS at the top,
4. save and Put Away the document,
5. make a stationery pad out of the document.

From then on, when you tear off a piece of this stationery, click down near the bottom of the document; this skips the carriage returns for the letterhead and puts the cursor where you want to start typing.

Good Things to Know About Lisa

Keywords:

You can get rid of a page mark if it's alone on a line by pointing to the mark with the mouse and clicking the mouse 3 times; clicking 3 times on the page mark selects it for cutting it out or backspacing over it. If the mark is not alone on a line, then click on the line below and backspace over the mark. LisaWrite treats page marks just like carriage returns.

Good Things to Know About Lisa

Keywords:

With Preview Pages comes a variety of display problems (including showing the Page ruler and printing):

- pieces of text are displayed in the wrong place,
- the elevator disappears,
- text disappears,
- you cannot print a page in a specified range,
- LisaWrite doesn't display the document past page three.

If you are having such display problems, just avoid using Preview pages or the page ruler. If you are having problems printing a specific page, have that page displayed in the window before you print, or select a larger range. If a large portion of your document is gone, remember DON'T PANIC. That portion of your document is still there; it's just not being displayed. Select Don't Preview Pages, then Save and Put Away the document. When you open the document, it will come back whole.

Copyright 1984, Apple Computer, Inc

Keywords:

204 LisaWrite: Removing Hyphenated Words From the Dictionary

If you wish to remove hyphenated words from the dictionary:

1. Select "Write Dictionary to Document" from the Spelling menu.
2. Correct/delete the hyphenated words.
3. Select the dictionary portion of the document.
4. Select "Put in Dictionary".

Apple Technical Communications

Keywords:

I. LisaWrite: A6D0300

Available from Sun Remarketing,
P. O. Box 4059, Logan, Utah 84321
801) 752-7631

--Includes: LisaCalc, LisaDraw, LisaGraph, LisaList, LisaTerminal,
LisaProject and the Lisa Office System.

1. Maximum Document Size: depends on available disk space
2. Text Displayed:
 - A. 31 lines by 86 characters: with 8 Point, 15 pitch typestyle
3. Editing:
 - A. Inserting Text: select location with the mouse and type
 - B. Edit any text length:
 - a. Single characters, words or paragraphs
 - b. Entire documents
 - C. Cut, Copy, Paste and Delete
4. Search:
 - A. Search or search and replace
 - B. Global or selective
 - C. Optional "Wildcards"
5. Dictionary:
 - A. Capacity:
 - a. Standard dictionary: 80,000 words (not editable)
 - b. Personal dictionary: depends on available memory
6. Formatting:
 - A. Margin justification: left, center, right and justify
 - B. First-line margin for outdenting or indenting paragraphs
 - C. Line spacing: single, line and a half, double or triple
 - D. Spacing between paragraphs can be varied independently
 - E. Tabs: flush left, flush right, centered or decimal
 - F. Tab fill patterns: periods, dashes or underlines
 - G. Headers and footers:
 - a. Can be multiple lines long
 - b. Can be placed anywhere on the page
 - c. Optional page number
 - H. Page breaks: automatic or manual
 - I. "Conditional page": protects blocks of text or table from being broken across pages
7. Scrolling:
 - A. Next line

- B. Next screenful
- C. Go directly to any part of document

8. Special Features:

- A. Preview Function: displays the document as it will print
- B. Undo function: cancels effects of last operation
- C. Revert To Previous Version: undoes all changes made to the graph since it was last saved
- D. Display more than one document on the screen at the same time
- E. Split-Screen Feature: split the screen vertically or horizontally

9. Typestyles:

- A. Variety of fonts and sizes available
- B. Bold, italic, underline or any combination of styles
- C. All styles available in subscripts and superscripts

10. Printing:

- A. Maximum width:
 - a. Wide Carriage Imagewriter: 14"
 - b. Narrow Carriage Imagewriter: 14" in horizontal mode
- B. "What you see is what you get" fidelity
- C. Print in horizontal or vertical formats
- D. Print single or multiple copies
- E. Background printing enables you to print one or more documents while working on another
- F. Works with the following printers:
 - a. Apple Dot Matrix Printer
 - b. Apple ImageWriter: normal or wide carriage
 - c. Apple Daisy Wheel Printer
 - d. Canon Ink Jet Printer

11. Documentation: Reference guide which includes a tutorial

Copyright 1985, 1992, Apple Computer, Inc.

Keywords: SPECSHT

Setting tabs is described in the Getting Started or Tutorial section of the LisaWrite manual. The method described in the book is the most trouble-free, as long as you remember two things:

1. Press the TAB key as you're entering data.
2. When you're moving a tab on the tab ruler, all the tabs to the right will move with it.

Keywords:

Article Created: 20 December 1985
Article Last Reviewed: 17 July 1992
Article Last Updated:

PROBLEM DESCRIPTION: After swapping the hard disk assembly (Widget), the hard disk will not boot or is not recognized as being attached to system. But the hard disk will boot if the hard disk assembly is removed while leaving the cables connected.

CAUSE: 1. The hard disk/micro disk assembly fits snugly into the Mac XL's cabinet. A number of screws terminate inside the disk assembly mounting area. These two factors make it very easy to accidentally damage the grey flat cable or the drive power cable when sliding the disk drive assembly into the XL.

2. A screw projects from the right of the main body of the Lisa cabinet into the Disk Drive cavity. On some Lisas, this screw interferes with a comfortable installation of the drive cage forcing the right rear lip of a metal shield on the HDA down. This stresses the motherboard on the HDA causing potentiometers on the HDA's PCB to misadjust.

CURE: 1. Replace the hard disk's grey flat cable. When reinstalling the disk drive assembly, remove the XL's top to help you to guide the assembly into its mounting place without damage.

2. Cut off the offending screw and if permanent visible damage has occurred to the PCBs, replace the HDA.

If this cure does not resolve the problem, go to the Tech Procedures to obtain a General Troubleshooting procedure.

Copyright 1988 Apple Computer, Inc.

Keywords: hts

208 Macintosh XL and Lisa 2/10: Internal 800K disk drive

This article last reviewed: 30 September 1987

An 800K internal floppy disk drive can be installed in a Lisa 2/10 or Macintosh XL.

The product is available from DAFAX Processing Corp.

Keywords:

This article last reviewed: 31 August 1987

1. The Macintosh XL Screen Kit alters the video display of a Macintosh XL (Lisa 2/10 or Lisa 2) so that the video display pixels are square (as on the Macintosh screen) as opposed to the pixel ratio on the Lisa (2 units wide by 3 units tall). This eliminates the distortion experienced by XL users when running Macintosh software under MacWorks XL. The video display is changed from 720 x 364 to 608 x 431 pixels.

2. The kit contains 4 components:

1 transformer installed in line with the yoke of the CRT (yellow and green wires)

Video State ROM P/N 341-0348 installed in location C 6 (CPU Board)

Boot ROM (High) P/N 341-0347 installed in location D 13 (CPU Board)

Boot ROM (Low) P/N 341-0346 installed in location D 14 (CPU Board)

3. The version of the boot ROM that is displayed in the upper left corner of the XL while booting is 3A. On an XL the I/O ROM is still 88; on the Lisa 2 the I/O ROM is A8.

4. A new version of Mac XL Test, P/N 077-0206 is required to run diagnostics on a pixel modified Macintosh XL. Earlier versions of XL Test will not run properly on a modified XL.

5. A full screen dump on a Macintosh XL still wraps the right part of the screen around to the left side of the printer page, but due to the reduced number of pixels horizontally, 720 vs. 608, the printing does not actually overwrite the left side of the screen dump.

6. The pixel fix kit greatly improves the performance of Microsoft Chart. The printed graph does not show up in unexpected locations on the printed copy after it looked perfect on the screen of your XL.

7. Very important: Once the pixel fix kit is installed, the customer will be unable to run Lisa software. Since the first part of the Lisa-to-Mac migration is run under the Lisa Office System, which cannot be done on a system that has been modified with the Screen Kit, install the pixel fix after you use the migration utility to transfer your Lisa software to the Macintosh environment.

Copyright 1988 Apple Computer, Inc.

Keywords:

210 Macintosh1/2 XL(Lisa 2/5) : Clobbers Other Nodes On ATalk

Article Created: 22 April 1986
Article Last Reviewed: 17 July 1992
Article Last Updated:

PROBLEM DESCRIPTION: A Macintosh 1/2 XL (originally called Lisa 2/5) may suffer from noise problems on its receiving lines. This interferes with its ability to hear other network devices, so may think it is safe to broadcast even if another node is transmitting. This can result in collisions that clobber other node's transmissions. The problem only happens with units that have the old I/O PCBs (the ones with battery packs).

CAUSE: The old I/O PCB needs to be upgraded.

CURE: 1. Cut R38 (location 12E above the battery pack).
2. Cut the trace leading to pin 3 of RP4 (location 12F)

If the above cure doesn't fix the problem, refer to the Lisa Tech Procedures to obtain a troubleshooting procedure.

Copyright 1988, Apple Computer, Inc.
Keywords: hts

211 MacTerminal and LisaTerminal: Line feeds after carriage returns

It is the job of the sending device to provide line feeds after carriage returns if necessary. For example, when you're using your Macintosh to send text to another Macintosh, you must select New Line (a Terminal Settings option from the Settings menu); otherwise, the user on the other end will receive all the incoming text overwritten on one line.

In LisaTerminal, set Auto New Line to "on" to SEND a line feed after a carriage return. Auto New Line is an option in the Computer Compatibility box located in the Setup menu.

Keywords:

212 MacWorks 3.0: Boot Problem

When booting from the hard drive using MacWorks 3.0 the following Message may appear:

Cannot Build the DeskTop. Unlock the disk! O.K.

When you click O.K. the unit shuts down.

This is the result of a system with an old I/O Rom. Appropriate ROM versions are Mac XL: 88, Lisa 2: A8.
Apple Technical Support

Keywords:

213 MacWorks XL: Encountering Error -96 During Hard Disk Install

If you see error -96 during the Hard Disk Install of MacWorks XL, try to initialize the hard disk using either Lisa Workshop or Lisa 7/7 software. If that initialization fails, you must replace the hard disk unit of the Lisa or Macintosh XL.

Keywords:

214 MacWorks XL: Error on Hard Disk Startup

A problem with the released version of MacWorks XL can be worked around, even though the exact cause is not clear as yet.

After installing MacWorks on a hard disk dedicated only to Macintosh files, you may get the following error during the boot process: the expansion card icon appears with an X through it and a 2 inside it. There may also be the number 90 below it.

At this point, you have a choice of starting up from one of two disks: hard or floppy. The system will start up fine after you click on the hard disk icon; however, you must make this choice each time for start up. If you unplug the Macintosh XL to clear parameter memory and then reboot, it works fine, directly booting from the hard disk. But the same error message appears the next time you boot.

There are two workarounds: the first takes more time and the second takes more equipment.

First workaround:

1. Install Lisa office system.
2. Set preferences to boot from the hard disk.
3. Re-install MacWorks.

Second workaround:

1. Install a parallel card.
2. Boot Lisa.
3. Set Preferences to Boot from the internal hard disk.

Apple Technical Communications

Keywords:

215 MacWorks: Starting Up From a Hard Disk

There are several versions of MacWorks, each with a different start-up procedure. The two later versions let you access the built-in 10-megabyte hard disk (in a Macintosh XL) or a 5- or 10-megabyte ProFile connected to the built-in parallel port of a Lisa 2.

MacWorks: 682-0103-A

After the Macintosh XL starts up from this original version of MacWorks, the system can run almost any Macintosh application residing on diskette. But this version cannot access a hard disk.

MacWorks: 682-0103-B

MacWorks Revision B can access Macintosh software and files on diskette, as well as on a hard disk installed with the MacWorks Hard Disk Install program. Once you install MacWorks, you can access the hard disk by starting up from MacWorks XL and then inserting the System Diskette.

MacWorks XL: 682-0103-C and MacWorks: 682-0103-C

MacWorks Revision C is not an official release and could damage documents and data stored on the hard disk. If you use this or earlier versions of MacWorks, be sure to upgrade to MacWorks XL Revision D, available from Sun Remarketing, P. O. Box 4059, Logan, Utah 84321.

MacWorks XL: 682-0103-D

MacWorks XL lets you to start up from the hard disk. It also lets you use additional Macintosh software, such as Jazz and XL/Serve by Infosphere. This version supports AppleTalk and the LaserWriter. This version is identified by the product number on the diskettes and by the display "MACWORKS XL 3.0 COPYRIGHT 1985 - APPLE COMPUTER" that appears on the screen during startup.

MacWorks XL enables you to start up off the hard disk directly if:

1. You've previously used the accompanying hard disk install program to install MacWorks on the hard disk, and
2. The hard disk is being used exclusively for Macintosh software.

If the hard disk contains both Lisa and Macintosh software, you must first start up from MacWorks XL, but even this procedure is faster than with previous versions. Hold down the option key and start up the Macintosh XL if you want to start up with software from the microdisk drive.

The Hard Disk Install program that comes with MacWorks Versions B and D lets you initialize the hard disk to either 1) run exclusively Macintosh software, or 2) to run both Macintosh and Lisa software. To share the hard disk with Lisa software, you must first partition the hard disk with Lisa Office System software (selecting Share during the Lisa software install procedure); you must then use the Hard Disk Install program to initialize the Macintosh portion of the hard disk.

If you use BOTH 1) the built-in parallel port connected to a hard disk, or the built-in hard disk after it's been formatted exclusively for Macintosh software, AND 2) a Parallel Interface Card connected to a hard disk formatted for Lisa software, then you'll have to select the hard disk you want the system to start up from. The system will automatically start up from the hard disk last used, provided you haven't unplugged the system or changed the Preference settings. To start up from the other hard disk:

1. Press the On-Off button.
2. Wait for the memory board test.
3. Hold down the Apple key while pressing a number key as listed below:

To start up from:	press these keys:
Internal hard disk:	Apple 1
Built-in parallel port:	Apple 3
Interface card:	
slot one, lower port	Apple 4
slot one, upper port	Apple 5
slot two, lower port	Apple 6
slot two, upper port	Apple 7
slot three, lower port	Apple 8
slot three, upper port	Apple 9

Keywords:

216 MacWorks: Which Lisa boot ROMs to use

The same boot ROMs recommended for Lisa software are fine for systems running MacWorks. In addition, square pixel ROMs are available for systems running only MacWorks XL. They are:

SYSTEM	CPU	I/O	Sq PIXELS (CPU-I/O is the same)
-----	-----	-----	-----
Lisa 2/10-Mac XL	F, H	D (88)	A3
Lisa 2	D, H	B (A8)	A3
-----	-----	-----	-----

Although MacWorks has been thoroughly tested with the earlier ROMs, consider upgrading them if a system with earlier ROMs shows illogical errors, such as locked disk errors when initializing a disk, which may occur after loading new system files.

Apple Technical Communications

Keywords:

Article Created: 09 July 1985

Article Reviewed/Updated: 18 October 1994

TOPIC -----

For what operating systems is the Apple ProFile compatible?

DISCUSSION -----

ProFiles can be formatted for two main types of operating systems:

1. the Lisa Operating System for the Lisa

or

2. ProDOS for the Apple II, and SOS for the Apple III.

ProFiles are formatted at the factory with the Apple III SOS format and contain the Apple III System Utilities program. This format is completely compatible with the Apple II ProDOS format, and so can be used on either the Apple II or Apple III; additionally, these ProFiles can be used without difficulty on the Macintosh XL (running Lisa or Macintosh software).

Once a ProFile has been formatted by Lisa software, it will not be able to work any longer on an Apple II or III.

ProFiles don't need any special software to function with these systems other than the respective system formatters which accompany each system's operating system utilities, regardless of what system it was used on previously.

NOTES:

1. The Pascal ProFile Manager will not format a ProFile; the ProFile must already be formatted with ProDOS.
2. If you're unable to initialize a Profile for use with an Apple II or Apple III after it's been used with a Macintosh XL, check with a Level II service center: the ProFile may need reformatting.

Article Change History:

18 Oct 1994 - Reviewed for technical accuracy, revised formatting.

Support Information Services

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Keywords:

Article Created: 21 October 1991

Article Reviewed/Updated: 09 August 1995

TOPIC -----

This article lists all Macintosh cpus and which versions of System 7.1 and later they support. It also lists current versions of required enablers.

For information on System software previous to 7.1, search the Technical Information Library using search string "system software and 7.01."

DISCUSSION -----

Use the following chart to determine which version of system software you should be using on your Macintosh computer:

KEY:

! Not supported

OK Works with this version of system software

* Works with this version of system software, but requires a Macintosh System Enabler (see below)

Begin_Table

System 7 Compatibility

Macintosh	7.5.2	7.5.1	7.5	7.1.2P	7.1.2	7.1.1	7 Pro	7.1
128K, 512K, 512Ke, and XL/Lisa	!	!	!	!	!	!	!	!
Plus	!	OK	OK	!	!	!	!	OK
SE	!	OK	OK	!	!	!	OK	OK
SE/30	!	OK	OK	!	!	!	OK	OK
Classic	!	OK	OK	!	!	!	OK	OK
Classic II	!	OK	OK	!	!	!	OK	OK
Color Classic	!	OK	OK	!	!	!	*	*
II	!	OK	OK	!	!	!	OK	OK
IIx	!	OK	OK	!	!	!	OK	OK
IIcx	!	OK	OK	!	!	!	OK	OK
IIci	!	OK	OK	!	!	!	OK	OK
IIfx	!	OK	OK	!	!	!	OK	OK
IIsi	!	OK	OK	!	!	!	OK	OK
IIvi, IIvx	!	OK	OK	!	!	!	*	*
LC	!	OK	OK	!	!	!	OK	OK
LC II	!	OK	OK	!	!	!	OK	OK
LC III	!	OK	OK	!	!	!	*	*
LC 475	!	OK	OK	!	!	!	*	*
LC 520	!	OK	OK	!	!	!	*	*
LC 550	!	OK	OK	!	!	!	*	*

LC 575	!	OK	OK	!	!	!	*	*
LC 580	!	OK	OK	!	!	!	!	!
LC 630	!	OK	OK	*	!	!	!	!
Macintosh TV	!	OK	OK	!	!	!	*	*
Centris 610	!	OK	OK	!	!	!	*	*
Centris 650	!	OK	OK	!	!	!	*	*
Centris 660AV	!	OK	OK	!	!	!	*	*
Quadra 605	!	OK	OK	!	!	!	*	*
Quadra 610	!	OK	OK	!	!	!	*	*
Quadra 630	!	OK	OK	*	!	!	!	!
Quadra 650	!	OK	OK	!	!	!	*	*
Quadra 660AV	!	OK	OK	!	!	!	*	*
Quadra 700	!	OK	OK	!	!	!	OK	OK
Quadra 800	!	OK	OK	!	!	!	*	*
Quadra 840AV	!	OK	OK	!	!	!	*	*
Quadra 900,950	!	OK	OK	!	!	!	OK	OK
PowerMac 5200/75 LC	!	*	!	!	!	!	!	!
PowerMac 6100/60	!	OK	OK	!	*	!	!	!
PowerMac 6100/66	!	*	*	!	!	!	!	!
PowerMac 7100/66	!	OK	OK	!	*	!	!	!
PowerMac 7100/80	!	*	*	!	!	!	!	!
PowerMac 7200/75	*	!	!	!	!	!	!	!
PowerMac 7200/90	*	!	!	!	!	!	!	!
PowerMac 7500/100	*	!	!	!	!	!	!	!
PowerMac 8100/80	!	OK	OK	!	*	!	!	!
PowerMac 8100/100	!	*	*	!	!	!	!	!
PowerMac 8100/110	!	*	*	!	!	!	!	!
PowerMac 8500/120	*	!	!	!	!	!	!	!
PowerMac 9500/120	*	!	!	!	!	!	!	!
PowerMac 9500/132	*	!	!	!	!	!	!	!
Portable	!	OK	OK	!	!	!	OK	OK
PowerBook 100	!	OK	OK	!	!	!	OK	OK
PowerBook 140	!	OK	OK	!	!	!	OK	OK
PowerBook 145	!	OK	OK	!	!	!	OK	OK
PowerBook 145B	!	OK	OK	!	!	!	OK	OK
PowerBook 170	!	OK	OK	!	!	!	OK	OK
PowerBook 160	!	OK	OK	!	!	!	*	*
PowerBook 165c	!	OK	OK	!	!	!	*	*
PowerBook 180	!	OK	OK	!	!	!	*	*
PowerBook 180c	!	OK	OK	!	!	!	*	*
PowerBook Duo 210	!	OK	OK	!	!	!	*	*
PowerBook Duo 230	!	OK	OK	!	!	!	*	*
PowerBook Duo 250	!	OK	OK	!	!	!	*	*
PowerBook Duo 270c	!	OK	OK	!	!	!	*	*
PowerBook Duo 280	!	OK	OK	!	!	*	!	!
PowerBook Duo 280c	!	OK	OK	!	!	*	!	!
PowerBook 520, 520c	!	OK	OK	!	!	*	!	!
PowerBook 540, 540c	!	OK	OK	!	!	*	!	!

End_Table

System Enablers

System Enablers are required for the Macintosh models indicated below with System 7.1 or later. Macintosh computers which require System Enablers will

not operate properly with System 7.0.1 or earlier.

This chart shows the appropriate System Enabler for the indicated Macintosh computer:

Begin_Table

Macintosh Model	Enabler Name	Use Enabler only with System vers.	Current Enabler Version	Note

The Macintosh Plus, SE, SE/30, Classic, Classic II, LC, LC II, LC 580, Mac II, IIx, IIcx, IIsi, IIci, IIfx, Portable, PB 100/140/145/145B/170, Quadra 700,900 and 950 do NOT need a System Enabler.				
Color Classic	System Enabler 401	7.1	1.0.5	
IIvi	System Enabler 001	7.1	1.0.1	
IIvx	System Enabler 001	7.1	1.0.1	
LC III	System Enabler 003	7.1	1.1	
LC 475	System Enabler 065	7.1	1.2	
LC 520	System Enabler 403	7.1	1.0.2	
LC 550	System Enabler 403	7.1	1.0.2	
LC 575	System Enabler 065	7.1	1.1	
LC 630	System Enabler 405	7.1.2P	7.1.2P	
Macintosh TV	System Enabler 404	7.1	1.0	
Centris 610	System Enabler 040	7.1	1.1	
Centris 650	System Enabler 040	7.1	1.1	
Centris 660AV	System Enabler 088	7.1	1.2	
Quadra 605	System Enabler 065	7.1	1.2	
Quadra 610	System Enabler 040	7.1	1.1	
Quadra 630	System Enabler 405	7.1.2P	7.1.2P	
Quadra 650	System Enabler 040	7.1	1.1	
Quadra 660AV	System Enabler 088	7.1	1.2	
Quadra 800	System Enabler 040	7.1	1.1	
Quadra 840AV	System Enabler 088	7.1	1.2	
PowerMac 5200/75 LC	System Enabler 406	7.5.1	1.0	
PowerMac 6100/60	PowerPC Enabler	7.1.2	1.0.2	
PowerMac 6100/66	PowerPC Enabler	7.5	1.1.1	
PowerMac 7100/66	PowerPC Enabler	7.1.2	1.0.2	
PowerMac 7100/80	PowerPC Enabler	7.5	1.1.1	
PowerMac 7200/75	System Enabler 701	7.5.2	1.1	
PowerMac 7200/90	System Enabler 701	7.5.2	1.1	
PowerMac 7500/100	System Enabler 701	7.5.2	1.2	
PowerMac 8100/80	PowerPC Enabler	7.1.2	1.0.2	
PowerMac 8100/100	PowerPC Enabler	7.5	1.1.1	
PowerMac 8100/110	PowerPC Enabler	7.5	1.1.1	
PowerMac 8500/120	System Enabler 701	7.5.2	1.2	
PowerMac 9500/120	System Enabler 701	7.5.2	1.1	
PowerMac 9500/132	System Enabler 701	7.5.2	1.1	
PowerBook 150	PowerBook 150 Enabler	7.1.1	1.1	
PowerBook 160	System Enabler 131	7.1	1.0.3	A
PowerBook 165	System Enabler 131	7.1	1.0.3	A
PowerBook 165c	System Enabler 131	7.1	1.0.3	A
PowerBook 180	System Enabler 131	7.1	1.0.3	A
PowerBook 180c	System Enabler 131	7.1	1.0.3	A

PowerBook Duo 210	PowerBook Duo Enabler	7.1	2.0	B
PowerBook Duo 230	PowerBook Duo Enabler	7.1	2.0	B
PowerBook Duo 250	PowerBook Duo Enabler	7.1	2.0	B
PowerBook Duo 270c	PowerBook Duo Enabler	7.1	2.0	
PowerBook Duo 280	PowerBook Duo Enabler	7.1.1	2.0	
PowerBook Duo 280c	PowerBook Duo Enabler	7.1.1	2.0	
PowerBook 500 Series	PowerBook 500 Series Enabler 1.0	7.1.1	1.0.2	

----- Performa Computers -----

The Performa 200, 400, 405, 410, 430, 580, 640 and 6110-series do NOT require an Enabler.

Performa 450	System Enabler 308	7.1P6	1.0
Performa 460-467	System Enabler 308	7.1P6	1.0
Performa 475-476	System Enabler 364	7.1P6	1.1
Performa 550, 560	System Enabler 332	7.1P6	1.1
Performa 575-578	System Enabler 364	7.1P6	1.1
Performa 600	System Enabler 304	7.1P6	1.0.1
Performa 630-638	System Enabler 405	7.1.2P	7.1.2P

End_Table

Note:

- A - System Enabler 131 replaces System Enabler 111 and System Enabler 121
- B - Express Modem users should also install the Duo Battery Patch (Extension).

Article Change History:

- 09 Aug 1995 - Reformatted for readability.
- 08 Aug 1995 - Added new Power Macintosh computer enablers.
- 28 Jun 1995 - Broke out operating systems previous to 7.1.

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Keywords: review, ktable, sys7, sys75, kcompat

Article Created: 28 June 1995

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TOPIC -----

This article lists all Macintosh computers that can run system software previous to System 7.1.

For information on System software after 7.0.1, search the TIL using search string "system and enabler and matrix" to locate "System Software: 7.1 and Later Enabler Matrix"

DISCUSSION -----

Use the following chart to determine which version of system software you @L should be using on your Macintosh computer:

KEY:

! Not supported

OK Works with this version of system software

Macintosh	7.0.1	7.0	6.0.8	6.0.7	6.0.5	6.0.4	6.0.3	6.0.2
128K*	!	!	!	!	!	!	!	!
512K*	!	!	!	!	!	!	!	!
512Ke*	!	!	!	!	!	!	!	!
XL/Lisa*	!	!	!	!	!	!	!	!
Plus	OK	OK	OK	OK	OK	OK	OK	OK
SE	OK	OK	OK	OK	OK	OK	OK	OK
SE/30	OK	OK	OK	OK	OK	OK	OK	OK
Classic	OK	OK	OK	OK	!	!	!	!
Classic II	OK	!	!	!	!	!	!	!
Portable	OK	OK	OK	OK	OK	OK	!	!
II	OK	OK	OK	OK	OK	OK	OK	OK
IIx	OK	OK	OK	OK	OK	OK	OK	OK
IIcx	OK	OK	OK	OK	OK	OK	OK	!
IIci	OK	OK	OK	OK	OK	OK	!	!
IIfx	OK	OK	OK	OK	OK	!	!	!
IIsi	OK	OK	OK	OK	!	!	!	!
LC	OK	OK	OK	OK	!	!	!	!
LC II	OK	OK	OK	!	!	!	!	!
Quadra 700	OK	!	!	!	!	!	!	!
Quadra 900,950	OK	!	!	!	!	!	!	!
PowerBook 100	OK	!	!	!	!	!	!	!
PowerBook 140, 145,145B,170	OK	!	!	!	!	!	!	!

All the systems not listed above require System 7.1 or later. Use search string "system and enabler and matrix" to locate "System Software: 7.1 and Later Enabler Matrix" for more information.

*Note: These early Macintosh computers will not operate with System 6, use system 3.2 instead.

Article Change History:

07 Jul 1995 - Clarified information on later operating systems.

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Keywords: cnfg,supt,sys7,kcompat

220 Unix Software for Lisa

If you have questions about Unix and what software is available for that operating system, contact:

Santa Cruz Operations
500 Chestnut St.
Santa Cruz, CA 95060
(408) 425-7222

--OR--

Unipress Software
1164 Raritan Ave.
Highland Park, NJ 08904
(201) 985-8000

Good Things to Know About Lisa

Keywords:

When you open a document with a Lisa application, there must be enough disk space to retain the original document while you work - in the event you later choose "revert to previous version." Even more disk space is required to enable you to use "undo." This is why you may see the message "Not enough room to open file" when you try to read a Lisa 2.0 document stored on diskette by Lisa 7/7. If this happens, move the document to the hard disk, where you are likely to have more free storage space. You should then be able to work on your document with no problems.

Keywords:

222 Using LisaTerminal in the Background

Sometimes large documents take several minutes to transmit from the Lisa to the host computer, so you may set aside the LisaTerminal document to work on another document. In this other document, avoid using the options Cut, Paste, Copy from the edit menu. Until the paste has been completed, you run the risk of aborting the transmission.

Apple Technical Communications

Keywords:

Article Created: 21 September 1984

Article Reviewed/Updated: 03 January 1995

TOPIC -----

This article outlines which U.S. Apple products, when used away from their native power sources, either need transformers or are "universal" to operate.

In the following context, using a product "internationally" means using it in a country with electrical power different from that of the country of manufacture. In determining whether a particular product can be used internationally, there are three classes, depending on whether a product accepts a range in voltage, frequency or both:

1) Universal.

These products can be used internationally out of the box. Some of Apple's products are self-configuring devices or "universal" within a certain range. They can accept a range in both voltage and frequency, and only require a plug adapter for the specific locale.

Example: The Quadra 800 accepts 100-240 volts, 47-63 Hz.

2) Frequency Independent.

These products can be used internationally with a voltage transformer. Generally they are geared for U.S. 120 volt power, but are flexible as to the frequency they accept (for example, 47-63 Hz), and are known as "frequency independent." These products need a stepdown isolation transformer to adapt the voltage, and will handle the different frequency on their own.

Examples:

The U.S. Performa 200 accepts 120 volts, 47-63 Hz.

Performa Displays use a switching power supply which works independent of the input frequency. The European input frequency standard of 50 hz will not adversely affect these monitors. You can use the Performa Displays overseas with a voltage converter (isolation transformer.)

3) Frequency Dependent.

These products generally cannot be used internationally. These are products that can work only within a narrow range in frequency; they are "frequency dependent." Transformers only transform voltage, so if the product requires a certain frequency, there's no practical way to convert both voltage and frequency.

@L These products can ONLY be used internationally in countries with the same frequency as the country for which the product was manufactured. Further, a voltage transformer will be required if the destination country has a voltage different from the home country.

Example:

The U.S. Apple Color OneScanner accepts 108-132 volts, 58-62 Hz.

NOTE: Computers with power outlets for peripherals do not condition the voltage as it passes through. So, for example, a monitor requiring

120v-60Hz power could not be used in a 220v-50Hz environment even if the computer from which it gets its power is able to accept the local power.

This article also includes transportation, service, repair, and warranty tips.

Contents

- 1) Universal Devices
- 2) Voltage-dependent Devices
- 3) Frequency-dependent Devices
- 4) Voltage/Frequency-dependent Devices
- 5) Service and Repair Tips
- 6) Traveling Tips

DISCUSSION -----

1) UNIVERSAL DEVICES

The majority of Apple products manufactured after the Macintosh SE are self-configuring or "universal" between 100v and 240v, 50-60Hz. To use them in countries within the range, a plug adapter should be all that is needed. Note that some Apple products have a voltage selector to select between 110 or 220 volts.

To verify if a specific product is universal, check the FCC ID label for the voltage requirements or the Tech Info Library article titled "Electrical Specifications of Apple Hardware".

2) VOLTAGE-DEPENDENT DEVICES

The Apple products listed below are designed to operate at a line voltage ranging from 107V to 137V at 50 or 60Hz (cycles per second). If the destination country uses a line voltage of 220v, and the product only accepts 120v, you'll need a 220v to 110v stepdown isolation transformer. This type of transformer is the only one known to give a clean signal. Although converters are available in the U.S., there are reports that these devices have damaged some Apple products.

The transformer's wattage should be 150% of the total wattage of the system (computer, monitor, hard disk, printer, and so on). For example, if the system pulls 250 watts of power, use a transformer rated for a minimum of 375 watts. A 500-watt unit should be sufficient for an entire Apple system (CPU, monitor, and printer). The unit must have a third prong for a grounded outlet. Electrical shock to you or damage to the hardware may occur if the units are not grounded.

Non-universal Apple power supplies function correctly with voltages between 107V and 132V. If line voltage fluctuates outside these specifications, you'll need to use a power conditioner to ensure uninterrupted operation of your Apple equipment. Operating without the conditioner will probably not result in damage to the hardware, although the voltage fluctuation may cause your system to crash. In such an event, you'll lose any data in memory and may even lose data stored on the disk.

Voltage-Dependent Computers

Apple II, II Plus, IIc Plus
Apple IIGS (The Control Panel has a 50Hz setting.)
Lisa, Macintosh XL, Macintosh, Macintosh 512K, Macintosh Plus, Macintosh
Classic, Macintosh Classic II, Performa 200.

Voltage-Dependent Printers

StyleWriter & StyleWriter II
ImageWriter II INTERNATIONAL

(Note: The international ImageWriter II is voltage/frequency independent. Parts are available through service providers to convert domestic (U.S.) ImageWriter II printers to international power supplies.)

U.S./Japan: 110/115VAC, 50/60Hz (+/-2Hz):

LaserWriter II
Personal LaserWriter SC and NT
Personal LaserWriter LS
Apple LaserWriter Select 300 & 310
Personal LaserWriter NTR

U.S./Japan: 90-126VAC, 50/60Hz (+/-2Hz):

LaserWriter II_f and II_g

Voltage-Dependent Hard Disk Drives

ProFile

Voltage-Dependent Monitors

Monitor II, Monitor IIc, Monitor III

(These work with NTSC composite video only; screen may flicker at 50Hz.)

Macintosh 21-Inch Color Display
Apple Basic Color Monitor
Macintosh Performa Display
Macintosh Performa Plus Display

Other Voltage-Dependent Devices

AppleFax Modem (Japan: 100VAC +/-10%, 50/60Hz)

3) FREQUENCY-DEPENDENT DEVICES

If the country uses a line frequency other than 60Hz, then all AC-powered devices attached to your computer system (monitors, printers, plotters, hard disks, and so on) must be "frequency independent." That is, they must be able to operate on a line frequency of either 50 and 60Hz. Most products made by Apple are frequency independent EXCEPT those listed below.

Frequency-Dependent Computers

Apple IIe, IIc, III, III Plus

(Video output is compatible with NTSC standard only.)

Frequency-Dependent Printers

Use 60Hz only. Damage may occur with a 50Hz source:

LaserWriter
Scribe
Apple Color Plotter
Apple Color Printer
Domestic (U.S.) ImageWriter II and LQ

(Note: The international ImageWriter II is voltage/frequency independent (50/60Hz). Parts are available through service

providers to convert domestic (U.S.) ImageWriter II printers to international power supplies.)

Use 50 to 60 Hz (Using these printers on a 50Hz source can noticeably affect spacing between characters):

- Daisy Wheel
- Dot Matrix
- ImageWriter

Europe/Australia: 220-240VAC 50Hz (+/-2Hz) ONLY):

- LaserWriter II
- Personal LaserWriter SC and NT
- Personal LaserWriter LS
- Apple LaserWriter Select 300 & 310
- Personal LaserWriter NTR

Europe/Australia: 198-264VAC 50Hz (+/-2Hz) ONLY:

- LaserWriter IIf and IIg

U.S./Japan: 90-110VAC, 58/62Hz, 103.5-126VAC, 58/62Hz; Europe/Australia: 194-265VAC, 48/52 Hz:

- LaserWriter Pro 600 and 630

Other Frequency-Dependent Devices

- AppleFax Modem (U.S./Canada: 120VAC +/-10%, 60Hz)
- Apple Scanner (120VAC +/-10%, 58-62Hz)
- Apple OneScanner (120VAC +/-10%, 58-62Hz)
- Apple Color OneScanner (120VAC +/-10%, 58-62Hz)

4) SERVICE AND REPAIR TIPS

As of April 5, 1993, an Apple warranty is valid in any country in which Apple sells products. A defective unit may be returned to any Authorized Apple Service Provider worldwide for service under warranty.

There are advantages to buying the products where they'll be used. Although mouse devices, external drives, digital boards, and similar modules are the same as distributed in the U.S., the software and keyboards are different for each country. Further, having the entire workstation dependent on a single transformer is risky. If it fails and passes native current through to voltage and/or frequency dependent products, serious damage will result.

If you intend to take your Apple product with you, it is advisable that you buy and use the product well before your departure. Heavy use often turns up any problems that would have come up at more inconvenient times while traveling.

5) TRAVELING TIPS

When traveling with a computer in the U.S. or overseas, protect it from shock, heat, moisture, radiation, and theft. Special hard-shell shipping cases are advertised for most Apple systems and these protect the machines from environmental abuse. They often do not look like computer cases, and as such usually escape the notice of thieves.

X-rays and other magnetic radiation associated with X-ray machines are only a potential danger; there have been no reports of ROM damage and only isolated

reports of software media damage from these causes. Some ports X-ray all luggage; if the risk in losing software is too high, plan your travel logistics after you find out which ports will hand-check the computer.

Article Change History:

03 Jan 1995 - Reviewed for technical accuracy, revised formatting.

27 Jul 1994 - Removed listings of systems, referred to FCC ID label and Tech Info Library article on Electrical Specifications.

18 Jul 1994 - Added Macintosh 630 family, PowerBook 150.

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Keywords: review

--- End of Chapter ---