

Contents

Figures and tables / v

Preface vii

About this note / vii

Supplemental reference documents / viii

1 Macintosh LC Hardware / 1

Introduction / 2

Major features / 2

Design differences / 3

Compatibility issues / 6

New ADB implementation / 6

New SCSI and SCC implementation / 6

New sound input/output hardware / 6

No on-board mathematics coprocessor / 7

New color resolution and pixel density / 7

Color compatibility / 8

Hardware overview / 8

Main processor / 9

V8 gate array / 9

Address decode and memory mapping / 9

VIAs / 10

ROM / 11

Power-on overlay function / 11

RAM / 11

Video / 11

VRAM / 12

Monitors supported / 12

Video timing / 13

Sound interface / 17
 Sound input feature / 17
SCC and SCSI interfaces / 18

- Floppy disk interface / 20
- ADB microcontroller / 21
 - ADB interface / 21
 - Real-time clock and parameter RAM / 21
 - Power-on reset / 22
 - Keyboard reset and NMI / 22
 - Network booting / 22
- 68020 Direct Slot expansion / 23
 - Electrical description of the expansion connector / 23
 - Load/drive limits of the PDS expansion connector signals / 26
 - Expansion connector power budget / 28
 - Electrical design guidelines for the Macintosh LC 68020 Direct Slot expansion card / 29
 - Addressing guidelines / 29
 - Electrical design considerations / 29
 - Accessing I/O and memory devices from the expansion card / 30
 - Physical design guidelines for the Macintosh LC 68020 Direct Slot expansion card / 31
 - Specifications for 96-pin connectors / 36
 - External access opening / 37
 - Card installation / 37
- Internal video connection / 38

2 Macintosh LC Software / 41

- The Macintosh LC ROM / 42
- System software / 42

3 Sound Input / 43

- High-level user interface / 44
 - Default sound input hardware / 44
 - Adding and deleting Alert Sounds / 45
 - Cut/Copy/Paste / 45
- Sound input routines / 45

A Keyboards / 47

Figures and tables

1 Macintosh LC Hardware / 1

- Figure 1-1 Block diagram of the Macintosh LC computer / 5
- Figure 1-2 512 x 384 video timing / 14
- Figure 1-3 640 x 480 video timing / 15
- Figure 1-4 560 x 384 video timing / 16
- Figure 1-5 Expansion card selection logic / 30
- Figure 1-6 Expansion card design guide / 32
- Figure 1-7 Expansion card component location and height restrictions / 33
- Figure 1-8 Design guide for expansion card shield plate / 34
- Figure 1-9 Positioning the expansion card on the main logic board / 35
- Figure 1-10 96-pin expansion connector on main logic board / 36
- Figure 1-11 96-pin plug connector for a Macintosh LC expansion card / 37

- Table 1-1 Memory map summary / 10
- Table 1-2 Pinout for external video connector / 13
- Table 1-3 Serial port pinouts / 18
- Table 1-4 Pinouts for internal and external SCSI connectors / 19
- Table 1-5 Pinout for floppy disk internal connector / 20
- Table 1-6 ADB connector pinout / 21
- Table 1-7 Macintosh LC 68020 Direct Slot connector pinout / 23
- Table 1-8 Processor-direct expansion connector signal descriptions / 25
- Table 1-9 Non-processor-direct expansion connector signals / 26
- Table 1-10 PDS expansion connector signals, loading or driving limits / 28
- Table 1-11 Internal video connector pinout / 38

A Keyboard / 47

Figure A-1 Apple Keyboard II, ANSI layout (US legends) / 48

Figure A-2 Apple Keyboard II, ISO layout (International Z legends) /
49

