#0
About Apple II Technical Notes (June 1992)

Table of Contents

Technical Note #0 (this document) accompanies each release of Apple II Technical Notes. This release includes new Notes for the Apple IIgs #105, 106, 107 & 108, new ProDOS Note #30, new GS/OS Note #14, revised Notes for the IIgs #12, 14, 24, 25, 51, 52, 53, 66, 67, 71, 72, 74, 75, 76, 78, 83, 91, 93, 94, 98, 99, 100, 101, 102 and 103, ProDOS #23 and 24, Miscellaneous #14 and 15, and GS/OS #1, 9, 10 and 13 as well as an index to all released Apple II Technical Notes, File Type Notes, and Sample Code. If there are any subjects which you would like to see treated in a Technical Note (or if you have any questions about existing Technical Notes), please contact us at one of the following addresses:

Apple II Technical Notes
Developer Technical Support
Apple Computer, Inc.
20525 Mariani Avenue, M/S 75-3T
Cupertino, CA 95014
AppleLink: DEVSUPPORT
Internet: DEVSUPPORT@AppleLink.Apple.com

We want Technical Notes to be distributed as widely as possible, so they are sent to all Partners and Associates at no charge; they are also posted on AppleLink in the Developer Services bulletin board and other electronic sources, including the Apple FTP site (IP 130.43.2.3). You can also order them through Resource Central. As a Resource Central customer, you have access to the tools and documentation necessary to develop Apple II-compatible products. For more information about Resource Central, contact:

Resource Central, Inc. P.O. Box 11250
Overland Park, KS 66207
(913) 469-6502
Fax: (913) 469-6507
AppleLink: A2.CENTRAL
Internet: A2.CENTRAL@AppleLink.Apple.com
GEnie: RC.ELLEN

We place no restrictions on copying Technical Notes, with the exception that you cannot resell them, so read, enjoy, and share. We hope Apple II Technical Notes will provide you with lots of valuable information while you are developing Apple II hardware and software. The following pages list all Apple II Technical Notes that have been released.

This Technical Note batch was originally released in May 1992. Since that time, many of the contact addresses have changed and some typographical errors have been fixed. To note these changes, this document now bears the date June 1992. No content of any Notes has changed since May 1992.

Released Apple II Technical Notes (June 1992)

- Apple IIc
- Apple IIe

- Apple IIgs
- Apple II Miscellaneous
- AppleTalk
- HyperCard IIGS
- GS/OS
- ImageWriter
- Memory Expansion Card
- Mouse
- Pascal
- ProDOS 8
- SmartPort
- UniDisk 3.5
- Index

Apple IIc

1. Mouse Differences On IIe and IIc (11/88)
2. 40-Column and Double High-Resolution Graphics (11/88)
3. Foreign Language Keyboard Layouts (11/88)
4. Dvorak Keyboard Layout (11/88)
5. Memory Expansion on the Apple IIc (11/88)
6. Buffering Blues (11/88)
7. Existing Versions (11/88)
8. Single-Sided 3.5" Media and the Apple IIc Plus (5/89)
9. Detecting VBL (11/90)

Apple IIe

1. Overview of the Apple IIe (11/88)
2. Hardware Protocol for Doing DMA (11/88)
3. Double High-Resolution Graphics (11/88)
4. RDY line (11/88)
5. /INH line (11/88)
6. The Apple II Paddle Circuits (11/88)
7. Interfaces -- Serial, Parallel, and IEEE-488 (11/88)
8. Known Anomalies of Enhanced IIe ROMs (11/88)
9. Switch Input Changes (11/88)
10. The Apple IIe Card for the Macintosh LC (07/91)

Apple IIgs

1. How to Install Custom BRK and /NMI Handlers (11/88)
2. Transforming I/O Subroutines for Use in "Native" Mode (11/88)
3. Window Information Bar Use (1/91)
4. Changing Graphics Modes in Mid-Application (1/91)
5. Window and Menu Titles (11/90)
6. QuickDraw II Pattern Data Structure (7/89)
7. Halt Mechanism in IIgs SANE (11/88)
8. Elems Functions in IIgs SANE (11/88)
9. IIgs Sound Expansion Connector: Analog Input/Output Impedances (11/88)
10. InvalRgn Twist (11/88)
11. Ensoniq DOC Swap-Mode Anomaly (11/88)
12. Tool Set Interdependencies (5/92)
13. ROM 1.0 Modem Firmware Bug (11/88)
14. Standard File Screwiness (5/92)
15. InstallFont and Big Fonts (7/89)
16. Notes on Background Printing (11/88)

17. Application Memory Management and MMStartUp User ID (11/88)
18. Do-It-Yourself SCC Access (7/90)
19. Multichanel Out. with the Apple IIgs Note Synthesizer (11/88)
20. Catalog of APW Language Numbers (3/90)
21. DMA Compatibility for Expansion RAM (11/88)
22. Proper Use of Dynamic Segments (9/90)
23. Toolbox Use of DOC RAM (11/88)
24. Apple IIgs Toolbox Reference Updates (5/92)
25. Apple IIgs Firmware Reference Updates (5/92)
26. ROM Revision Summary (9/89)
27. Graphics Image File Formats (11/88)
28. Interface Card Design Guidelines (11/88)
29. Monochrome High-Resolution Mode (11/88)
30. Apple IIgs Hardware Reference Updates (9/90)
31. Redirecting Output in APW C (11/88)
32. /INH Line Anomaly (11/88)
33. ERRORDEATH Macro (11/88)
34. Low-Level QuickDraw II Routines (1/91)
35. Printer Driver Specifications (9/90)
36. Port Driver Specifications (9/89)
37. Free-Form Synthesizer Tips (11/88)
38. List Controls in Dialog Boxes (9/90)
39. Mega II Video Counters (7/89)
40. VBL Signal (7/89)
41. Font Family Numbers (11/90)
42. Custom Windows (11/88)
43. Undocumented Feature of CalcMenuSize (11/88)
44. GetPenState and SetPenState Record Error (11/88)
45. Parameters for GetFrameColor (9/89)
46. DrawPicture Data Format (11/88)
47. What SetDataSize Does (11/88)
48. All About AlertWindow (11/90)
49. Rebooting (Really) (1/89)
50. Extended Serial Interface Error Handling (1/89)
51. How to Avoid Running Out of Memory (5/92)
52. Loading and Special Memory (5/92)
53. Desk Accessories and Tools (5/92)
54. MIDI Drivers (11/90)
55. Avoiding ClrHeartBeat (7/89)
56. Managing Dynamic Segments (11/90)
57. The Memory Manager and Interrupts (12/91)
58. Keyboard Modifiers Register Anomaly (7/89)
59. Do Not Create Zero-Length Text Scraps (1/91)
60. Menu Manager Memorabilia (11/90)
61. Window Title Handles (7/89)
62. No Non-Solid Window Background Patterns (7/89)
63. Master Color Values (7/89)
64. Apple IIgs Installer and Installer Scripts (9/89)
65. Control-^ is Harder Than It Looks (9/89)
66. ExpressLoad Philosophy (5/92)
67. LaserWriter Font Mapping (5/92)
68. Tips for I/O Expansion Slot Card Design (9/89)
69. The Ins and Outs of Slot Arbitration (5/90)
70. Fast Graphics Hints (9/89)

71. DA Tips and Techniques (5/92)
72. QuickDraw II Quirks (5/92)
73. Using User Tool Sets (1/91)
74. A Faster List Manager Draw Routine (5/92)
75. BeginUpdate Anomaly (5/92)
76. Miscellaneous Resource Formats (5/92)
77. Print Manager & AppleTalk Configuration Files (1/90)
78. Bank Alignment and Memory Management (5/92)
79. Integer Math Data Types (5/90)
80. QuickDraw II Clipping (3/90)
81. Extended Control Ecstasy (11/90)
82. Controlling the Control Manager (11/90)
83. Resource Manager Stuff (5/92)
84. TaskMaster Madness (7/90)
85. Moving the Mouse (7/90)
86. Risking Resourceful Code (9/90)
87. Patching the Tool Dispatcher (9/90)
88. The Page One Stack in a 16-Bit World (9/90)
89. MessageByName -- Catchy Messages (9/90)
90. 65816 Tips and Pitfalls (11/90)
91. The Wonderful World of Universal Access (5/92)
92. Twisted Tales of TextEdit (11/90)
93. Compatible Printing (5/92)
94. Packing It In (and Out) (5/92)
95. ROM Diagnostic Errors (9/90)
96. Standard File Customization (11/90)
97. Picture Comments and Printing (11/90)
98. Aren't Windows A Pane (5/92)
99. Supplemental Scrap Types (5/92)
100. VersionVille (5/92)
101. Patching the Toolbox (5/92)
102. Various Vectors (5/92)
103. Inline Procedure Names Format (5/92)
104. Font Manager Fundamentals (12/91)
105. We Interrupt This CPU... (5/92)
106. ADB Addendum (5/92)
107. Tool Locator Tribulations (5/92)
108. Finder Funkiness (5/92)

Apple II Miscellaneous

1. 80-Column Screen Dump (11/88)
2. Apple II Family Identification Routines 2.1 (11/88)
3. Super Serial Card Firmware Bug (11/88)
4. AppleWorks Keys (5/89)
5. AppleWorks File Formats (5/89)
6. IWM Port Description (11/88)
7. Apple II Family Identification (11/88)
8. Pascal 1.1 Firmware Protocol ID Bytes (11/88)
9. AppleSoft Real Variable Storage (11/88)
10. 80-Column GetChar Routine (9/89)
11. Examining the $C800 Space from AppleSoft (5/89)
12. Apple II Firmware WAIT Routine (11/88)
13. (not used)
14. Guidelines for Telecommunication Programs (5/92)

15. Compatibility Across Apple II Models (5/92)
16. Apple II Parallel Interface Card Firmware (7/90)
17. Buried Treasures of the Video Overlay Card (9/90)

AppleTalk

1. Identifying AppleTalk (3/90)
2. ProDOS 8 Compatibility on the IIe and IIgs (11/88)
3. Avoiding Remote Printer Time-Outs (9/89)
4. Printing Through the Firmware (9/90)
5. SPCommand Calls and Error $0702 (7/89)
6. Apple IIe Workstation Card Anomalies (7/89)
7. MLIACTV Flag and the IIe Workstation Card (11/89)
8. http://web.pdx.edu/~heiss/technotes/atlk/tn.atlk.8.html (9/90)
9. The PAP Status Buffer (11/90)

HyperCard IIGS

1. Corrections to the Script Language Guide (3/91)
2. Known HyperCard Bugs (5/92)
3. Pitching Sampled Sounds (3/91)

GS/OS

1. Contents of System Software Distribution Disks (5/92)
2. GS/OS and the 80-Column Firmware (11/88)
3. Pointers on Caching (11/88)
4. A GS/OS State of Mind (7/89)
5. Resource Fork Formats (7/89)
6. Drivers and GS/OS Direct Page (11/90)
7. Behavior of SET_DISKSW (7/89)
8. Filenames With More Than CAPS and Numerals (7/89)
9. Interrupt Handling Anomalies (5/92)
10. How Applications Find Their Files (5/92)
11. About EraseDisk and Format (11/90)
12. All About Notify Procs (9/90)
13. GS/OS Reference Update (5/92)
14. The Console Driver Technical Note (5/92)

ImageWriter

1. Custom Font Selection (11/88)

Memory Expansion Card

1. Questions and Answers (11/88)

Mouse

1. Interrupt Environment with the Mouse (11/88)
2. Varying VBL Interrupt Rate (11/88)
3. Mode Byte of the SetMouse Routine (11/88)
4. Mouse Firmware Bug Affecting ServeMouse (11/88)
5. Check on Mouse Firmware Card (11/90)
6. MouseText Characters (1/89)
7. Mouse Clamping (11/88)

Pascal

1. (not used)

2. (not used)
3. (not used)
4. Pascal Declarations and the Directory Structure of a Blocked Volume (11/88)
5. (not used)
6. (not used)
7. (not used)
8. (not used)
9. (not used)
10. Configuration and Use of the Apple II Pascal Run-Time Systems (11/88)
11. (not used)
12. Disk Formatter Routine (11/88)
13. (not used)
14. Apple Pascal 1.3 TREESEARCH and IDSEARCH (11/88)
15. Apple II Pascal SHORTGRAPHICS Module (11/88)
16. Driver to Have Two Volumes on One 3.5" Disk (11/88)
17. SYSTEM.APPLE Patch V2.0 (3/90)

ProDOS 8

1. The GETLN Buffer and a ProDOS Clock Card (11/88)
2. Porting DOS 3.3 Programs to ProDOS and BASIC.SYSTEM (11/88)
3. Device Search, Identification, and Driver Conventions (11/88)
4. I/O Redirection in DOS and ProDOS (11/88)
5. ProDOS Block Device Formatting (11/88)
6. Attaching External Commands to BASIC.SYSTEM (11/88)
7. Starting and Quitting Interpreter Conventions (11/88)
8. Dealing with /RAM (11/88)
9. Buffer Management Using BASIC.SYSTEM (11/88)
10. Installing Clock Driver Routines (11/88)
11. The ProDOS 8 MACHID Byte (11/88)
12. Interrupt Handling (11/88)
13. Double High-Resolution Graphics Files (11/88)
14. Selector and Dispatcher Conventions (11/88)
15. How ProDOS 8 Treats Slot 3 (11/88)
16. How to Format a ProDOS Disk Device (11/88)
17. Recursive ProDOS Catalog Routine (11/89)
18. /RAM Memory Map (11/88)
19. File Auxiliary Type Assignment (11/88)
20. Mirrored Devices and SmartPort (11/88)
21. Identifying ProDOS Devices (3/90)
22. Don't Put Parameter Blocks on Zero Page (7/89)
23. ProDOS 8 Changes and Minutia (5/92)
24. BASIC.SYSTEM Revisions (5/92)
25. Non-Standard Storage Types (12/91)
26. Polite Use of Auxiliary Memory (1/90)
27. Hybrid Applications (1/90)
28. ProDOS Dates -- 2000 and Beyond (9/90)
29. Clearing the Backup Needed Bit (9/90)
30. Sparse Station (5/92)

SmartPort

1. SmartPort Introduction (11/88)
2. SmartPort Calls Updated (9/89)
3. SmartPort Bus Architecture (11/88)
4. SmartPort Device Types (11/88)

5. SCSI SmartPort Call Changes (11/90)
6. Apple IIgs SmartPort Errata (11/90)
7. SmartPort Subtype Codes (11/88)
8. SmartPort Packets (5/89)
9. Apple II SCSI Errata (7/90)

UniDisk 3.5

1. UniDisk 3.5 Internals (11/88)
2. UniDisk 3.5 ID Bytes (11/88)
3. STATUS Call Bug (11/88)
4. Accessing Macintosh Disks (11/88)
5. Architectural Differences Between 3.5" Drives (11/88)

Index

This and all of the other Apple II Technical Notes have been converted to HTML by Aaron Heiss as a public service to the Apple II community, with permission by Apple Computer, Inc. Any and all trademarks, registered and otherwise, are properties of their owners.

Back to the Technical Notes start page