

EXHIBIT FF

**TO DECLARATION OF S. MERRILL WEISS IN
SUPPORT OF PLAINTIFF ACACIA MEDIA
TECHNOLOGIES CORPORATION'S MEMORANDUM
OF POINTS AND AUTHORITIES IN OPPOSITION TO
ROUND 3 DEFENDANTS' MOTION FOR SUMMARY
JUDGMENT OF INVALIDITY UNDER 35 U.S.C. § 112
OF THE '992, '863, AND '702 PATENTS; AND
SATELLITE DEFENDANTS' MOTION FOR
SUMMARY JUDGMENT OF INVALIDITY OF THE
'992, '863, AND '720 PATENTS**

Chronology of Personal Computers

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References are numbered in [brackets], which are listed [here](#). A number after the dot gives the page in the source.

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1990

January

- o At the Consumer Electronics Show, Commodore gives a sneak preview of a proposed "interactive player", based on a variant of the Amiga 500, with 1 MB of RAM. The machine includes an integ CD-ROM drive, wireless controllers, and no keyboard. [441.17]
- o Motorola formally announces the 32-bit 25 MHz 68040 microprocessor. It incorporates 1.2 millio transistors, integrates the FPU, and includes instruction and data caches. [13] [338]
- o Apple Computer discontinues the Macintosh II. [75] [597.95] [701.136]
- o Microsoft releases *Microsoft Office* for Windows. [1268.135] (June 1989 [1886.68])
- o Hayes Microcomputer Products wins a US\$1.4 million lawsuit against Everex, Ven-Tel, and Omr regarding the validity of Hayes' patent on the "+++" escape sequence. [164.14]
- o Intel releases the 80387SX math coprocessor. [511.319]
- o Intel releases the 10 MHz 287XL and 287XTL (designed for laptop computers) math coprocessor coprocessors operate faster than previously released versions. [511.319]

(month unknown)

- o Wells American computer company closes. [648.190]

February

- o Adobe introduces the *Photoshop* image editing software. [1886.68]
- o Toshiba announces the T1000XE portable computer. It features 2 MB RAM, and 20 MB hard driv Weight is 6.2 pounds, price is US\$2699. [1207.154]
- o Chips and Technologies announces the M/PAX multiprocessor chip set. [659.5]

(month unknown)

- o Shearson Lehman Hutton produces a report on PC advances toward the year 2000, predicting a m between Compaq Computer and Hewlett-Packard in 1995. (*Compaq and HP do merge companies 2001.*) [1207.21]

March





- o The boards of directors of Mindscape and Software Toolworks agree for Software Toolworks to a Mindscape. [1524.26] (late 1980s [1537.28])
- o IBM introduces the PS/2 Model 65SX, with a 386SX processor. [1095.32]

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- Microsoft introduces the *Entertainment Pack* Volume 1 for *Windows*. [1049.136]
- Commodore offers Amiga 1000 owners US\$1000 to trade in their Amiga on a new Amiga 2000. [
- The FCC creates Part 15, Subpart B of its radio frequencies rules, covering all electronic equipme create radio signals, including personal computers. [769.352]
- Jean-Louis Gassee resigns as president of Apple Products. [593.41]
- Lotus Development ships *Lotus 1-2-3/G* for *OS/2*. This is the first major application available for [502.49] [548.159] [606.81]
- Hewlett-Packard introduces the LaserJet III laser printer. [795.142]
- Cyrix introduces the FasMath 83S87 math coprocessor, pin-compatible with Intel's 387SX. [511.3
- Apple Computer introduces the Macintosh IIfx. It features a 40 MHz 68030 processor, 68882 mat coprocessor, 4 MB RAM, 80 MB hard drive, 1.4 MB SuperDrive, 32 kB cache, 44.1 kHz stereo a choice of 8-bit to 24-bit graphics. Price is US\$9800. [18] [46] [75] [591.115] [593.350] [597.95]
- Adobe publishes the specifications for its PostScript Type 1 fonts. [680.168]
- IBM introduces the PS/2 Model 65, with a 16 MHz 80386SX, 2 MB RAM, and 60 MB SCSI hard [646.54]
- In a patent-infringement suit between Motorola and Hitachi, the judge imposes a temporary sales Motorola's 68030 processor. [558.17]

March 17

- In Washington, D.C., the AmiExpo trade show is held, over three days. [441.4] [1176.89]

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March 27

- Sierra acquires the Dynamix company. [1524.26]

(month unknown)

- In the film *Who Waits Below*, several VIC-20 computers appear. [1728.78]

April

- Microsoft introduces Russian *MS-DOS* 4.01 for the Soviet market. [123]
- Outbound releases the Outbound Mac-compatible portable. [559.73]

April 24

- At the Palladium in New York City, Commodore hosts Multimedia Live!, and announces the Ami computer. The system features a Motorola 16 or 25 MHz 68030, 68881 or 68882 math coprocessor, Enhanced Chip Set, Zorro III bus, 2 MB RAM, 40 or 100 MB hard drive, AmigaDOS v2.0, and AmigaVision authoring system. Prices are US\$3299 (16 MHz, 40 MB), US\$3999 (25 MHz, 40 MB), US\$4699 (25 MHz, 100 MB). [407.19] [1728.24,31]

(month unknown)

- ABC sells magazines *Compute!*, *Compute's Gazette*, *Compute's PC*, and *Compute's Amiga Resources* to General Media International. [1728.25]
- Sharp Electronics introduces the PC-6220 notebook computer. It weighs less than four pounds, and features a 12 MHz 80C286 processor, 2.5-inch 20 MB hard drive, B/W backlit triple supertwist 8: LCD VGA 640x480 resolution screen, 1 MB RAM (expandable to 3 MB), and a socket for a 80C coprocessor. Price is about US\$4000. [646.53] [908.87]

May

- Microsoft introduces the *Microsoft Project for Windows* project management software. [1049.145]
- Microsoft introduces *PowerPoint* presentation software for *Windows*. [1049.145]
- Asymetrix introduces *ToolBook for Windows*, an object-oriented visual development package. [10

- Intel introduces the 33 MHz 486 microprocessor. Speed is 27 MIPS. [62]
- US District Court Judge Vaughn Walker throws out five of six claims in Xerox' suit against Apple Computer, claiming infringement of the Star's system. [346.195] [594.47]
- The ComputerFest trade show (formerly called AppleFest) debuts in New York city. [642.10]
- The DPMI Committee releases the DPMI version 0.9 specification. [511.369]
- S3 announces plans to create a multiprocessor chip set. (*The project is scrapped a year later due to market interest.*) [659.5]
- Digital Research releases *DR DOS* 5.0. [146] [511.242]
- The PCMCIA card specification v1.0 is released. [147] (August [696.237]) (September [206.68])

May 18

- Universal Pictures releases the film *Bird on a Wire* to theaters in the USA.
 - An Apple Macintosh with red diskette appears a few times.
 - An IBM PC/XT appears briefly.

[2368]

May 22

- At the Center City at Columbus Circle in New York, Microsoft introduces and ships *Microsoft Windows* 3.0. This version allows addressing memory above 640 kB. Microsoft spends US\$3 million for op day marketing, as part of a US\$10 million promotional campaign. [15] [28] [45] [75] [123] [146] [346.239] [346.272] [379.256] [389.29] [477.161] [479.128] [548.159] [595.26] [606.81] [620.13] [618.296] [721.156] [769.4] [909.232] [1149.359] [1299.1] [1527.176] [1639.114] [1897.129]

(month unknown)

- John Dvorak quote: "I think *Windows* 3.0 will get a lot of attention; people will check it out, and before long they'll all drift back to raw *DOS*. Once in a while they'll boot *Windows* for some specific purpose, but many will put it in the closet with the Commodore 64." [648.20]
- IBM introduces the IBM T55D flat panel screen. It features 15-inch diagonal size with 1024x768 resolution. [1095]
- Creative Micro Designs releases three hard drives for the Commodore 64/128: 20 MB for US\$599.95, 40 MB for US\$799.95, and 100 MB for US\$1299.95. [1118.22]
- Ed Esber is forced to resign as president of Ashton-Tate. [618.264]

June

- Nolan Bushnell of Commodore International unveils Commodore's CDTV at the Summer Consumer Electronics Show. CDTV stands for Commodore Dynamic Total Vision. The unit hooks up to a television and plays CD-ROMs, text, video, stereo sound. This is the first available consumer product design for multimedia. Code-name during the product's development was "Baby". [539.A-18] [645.10] (January [1196.131])
- Adobe Systems introduces the *Adobe Type Manager for Windows* software. [1049.147]
- IBM introduces the IBM Personal System/1 computers, with 10 MHz 80286 processor, built-in VEGA monitor. Prices range from US\$999 to US\$1999. [138] [1312]
- Duo Computers announces the Duo FC, incorporating a PC-AT compatible and a Nintendo Entertainment System in one case. [539.10]
- Apple Computer announces that Claris shares would not be offered to the public, but that the company would become a wholly-owned subsidiary of Apple Computer. [419.75]
- A US District Court judge rules that Paperback Software's duplicating the menu interface of *Lotus 1-2-3* is a violation of copyright (the "look and feel" lawsuit was filed in 1987). [16] [161] [217]
- Microsoft ships *PowerPoint* 2.0 for *Windows*, the first application to use OLE (Object Linking and Embedding). [909.232]
- Jon Shirley resigns as President of Microsoft. He is replaced by former Boeing executive Michael Hallman. [346.272]
- The Federal Trade Commission begins an investigation of collusion of IBM and Microsoft for allegedly monopolistic practices in the PC software market. [548.347] [775] [1299.398] [1462.94] (1991 [1196.131])

(month unknown)

- o SCSI-2 is formalized. [1038.202] [1158.247]
- o Adobe announces Level 2 PostScript. [720.167]
- o U.S. Robotics introduces the Courier v.32bis modem. [235]
- o The INMOS T-9000 processor, designed for parallel computing in the Transputer architecture, appears [32]
- o Claris buys *Filemaker* from Nashoba Systems, and renames it *FileMaker II*. [861.21]
- o A judge rules that competitors to Intel can use the x86 designation for their processors. Intel decides another name for its new processors. [477.130]
- o Kaypro Corporation files for Chapter 11 bankruptcy. [648.190]
- o Hard drive maker MiniScribe files for Chapter 11 bankruptcy. [648.190]
- o IBM introduces the PS/2 Model 25 286. [1312]
- o Stac Electronics releases *Stacker* for DOS. [748.46]
- o Commodore International introduces the 64 Games System, in Europe. It is a Commodore 64 min keyboard, with the cartridge slot on top. [808.G-18]
- o Motorola and Hitachi reach an agreement on their lawsuits, allowing Motorola to resume sales of 68030 processor. [659.5]
- o Sharp begins shipping the Sharp PC-6220 notebook computer. [908.87]
- o Marc Porat, Andy Hertzfeld, and Bill Atkinson leave Apple Computer to form General Magic corporation [973]
- o Quote by Pete Peterson, executive vice president of WordPerfect: Microsoft is the "fox that takes across the river and then eats you.". [1149.397]
- o Quote by Paul Grayson, co-founder of Micrografx: "... there is only one person with fewer friends Saddam Hussein. And that's Bill Gates.". [1149.392]
- o Sun Microsystems co-founder Bill Joy makes a prediction that Microsoft will continue to dominate next 5-7 years, then there would be an industry breakthrough, by a company not yet existing. [170]
- o The MSX Turbo R personal computer is released in Japan. [2287.93]

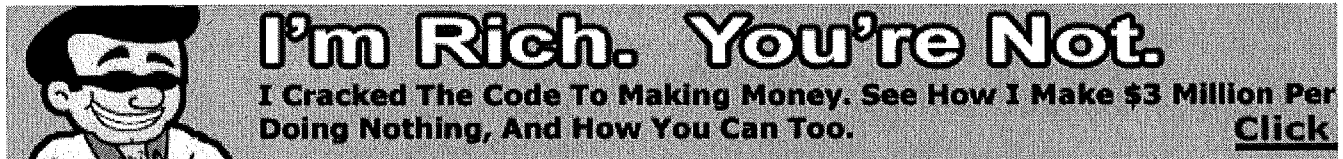
End of 1990 January-June. Next: 1990 July.

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Feedback -

1947-1968	1969-1971	1972-1974	1975	1976	1977	1978	1979	1980	1981
1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1992	1993	1994	1995	1996	1997	1998	1999	2000	2001

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2002	2003	2004	2005	2006	2007-end
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A list of **references** to all source material is available.

Other web pages of interest:




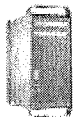
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