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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA DISTRICT OF CALIFORNIA

APPLE COMPUTER, INC., Plaintiff, v. BURST.COM, INC., Defendant.	Case No. C 06-0019 MHP **DECLARATION OF DR. STEPHEN B. WICKER IN SUPPORT OF APPLE'S MOTION FOR SUMMARY JUDGMENT OF INVALIDITY** Hon. Marilyn Hall Patel Complaint Filed: January 4, 2006 Trial Date: February 26, 2008

I, Dr. Stephen B. Wicker, declare as follows:

1. I have personal knowledge of facts stated in this Declaration, and if called upon as a witness, could and would testify competently thereto.

2. I have been retained by Weil, Gotshal & Manges on behalf of Apple Computer, Inc. ("Apple").

3. I am currently a Professor in the School of Electrical and Computer Engineering at Cornell University. My Curriculum vitae is attached as Exhibit 1.

4. I have reviewed U.S. Patent Nos. 4,963,995, 5,057,932, 5,164,839, and 5,995,705 (collectively "the-patents-in-suit"), as well as their respective file histories, and the Claim Construction Order of May 8, 2007.

5. I have also reviewed a number of references that are prior art to the Burst patents: U.S. Patent No. 4,506,387 ("Walter"); U.S. Patent No. 4,499,568 ("Gremillet"); U.S. Patent No. 4,541,012 ("Tescher"); U.S. Patent No. 4,667,088 ("Kramer"); U.S. Patent No. 4,790,003 ("Kepley"); the June 15, 1987 CompuSonics Form 10-K and 1985 CompuSonics DSP 2002 brochure; and Warren, "Peripheral Storage: Who's Got What" ("Peripheral Storage article").

6. For purposes of this declaration I am using the level of skill of a person of ordinary skill in the art in December 1988 that was described by Dr. Hemami in her "Claim Construction Expert Report," dated October 20, 2006. According to Dr. Hemami: "In general, a person of ordinary skill in the art would work in the area of digital communication of audio/video source information. A person in this area could be specialized in digital communications having a familiarity with compression technology, or such a person could be specialized in compression technology having a familiarity with digital communications. Such a person of ordinary skill in the art would have had at least a bachelor's degree in electrical engineering with a at least two to three years of experience working on digital communication of audio/video source information. Alternatively, such a person of ordinary skill in the art would have had a master's degree in electrical engineering with one year of experience working on digital communication of audio/ video source information. As another alternative, such a person of ordinary skill in the art would

have had a Ph.D. degree in electrical engineering in the area of digital communication of audio/ video information."

7. The process of digitizing audio data and/or video data was well-known, commonly used, and routine for persons of ordinary skill in the art well by the mid-1980's. I personally worked with A/D and D/A converters in undergraduate and graduate laboratories in 1982.

8. The compression of digital audio and/or video data was well known, commonly used, and routine for those of skill in the art by the mid-1980's. I studied these techniques as a graduate student and practicing engineer in the early- to mid-1980s.

9. The storage of digital data, including digital audio/video data, was well known, commonly used, and routine for those of skill in the art well by the mid-1980s. Use of magnetic disks (e.g. hard drives or "Winchester" disks, as they were known) for storage of digital data was well-known and routine in the mid-1980s. It was also well known and routine at the time to use external storage devices, connected for example via SCSI (Small Computer System Interface) cables, such as those described in "Peripheral Storage: Who's Got What" (which was cited by Burst during the prosecution of U.S. Patent No. 5,057,932). I studied and worked with these technologies as a graduate student and practicing engineer in the early- to mid-1980s.

10. The transmission of digital data, including digital audio/video data, was well known, commonly used, and routine for those of skill in the art well by the mid-1980s. A number of high bandwidth digital transmission mechanisms were well known and commonly used by persons of ordinary skill in the art by the mid-1980's, including Ethernet lines and T1 carriers in the public switched telephone network. There were also high bandwidth interfaces for transmission of digital data to storage devices, including for example the SCSI interface. I studied and worked with these technologies as a graduate student and practicing engineer in the early- to mid-1980s. In particular, I was a member of teams that designed and implemented several high bandwidth systems for wireless digital transmission between 1983 and 1987.

11. One of ordinary skill in the art in 1980s would have understood that for any given digital file representing a time-based source (e.g. a song or video), there is always a rate by

which you can send it faster than real-time. Any time a digital file is sent over a connection whose effective speed is higher than the effective data rate of the stored media, the transmission will be faster than real-time. This would have been the routine and predictable result of using known transmission or storage technology in its ordinary way to move or copy a digital file representing a time-base source over a connection whose effective speed is higher than the effective data rate of the stored media. For example, any time the content on a SCSI hard disk was backed up to a backup tape, the content on the SCSI hard disk would be transferred to the backup tape. If the hard disk contained a digital media file, and the effective speed of the connection was higher than the media data rate of the file, the transfer would be faster than real-time.

12. In the mid-1980's it was well known by persons of skill in the art that a file with fewer bits would take less time to transmit over a given transmission medium than a file with more bits. In other words it would have been obvious to a person of ordinary skill in the art that the transmission of any file over a given transmission medium would take less time when the file was compressed than it would take when that same file was not compressed.

13. **Kramer**. Kramer describes and illustrates in its figures a portable card used to store compressed music. The portable card contains inputs, storage, and outputs. Kramer also describes compression of the audio information "outside the illustrated system" using "differential pulse code modulation (DPCM)." Kramer at 3:9-20. It was well known and obvious to one of ordinary skill in the art in the 1980s that DPCM compression could be performed in a digital circuit, and that this could be done in a DSP chip or "compressor." Kramer also describes "encoding and replay systems." Kramer at 3:43. It would have been obvious and routine for one of skill in the art to use the compression, storage, and outputs described in Kramer in a common housing as a "encoding system" in order to compress music to be stored in anticipation of being copied onto a portable card as described in Kramer. For example, this could be accomplished by putting a sheet metal housing with input ports for an audio source around a DPCM encoder and at least one of the portable cards (which would store the compressed audio and then output it to another portable card). In that case, the sheet metal, input ports, compressor, storage, and output

would each be performing the same function it had been known to perform, and the combination would yield no more than one would expect.

14. **Kepley.** Kepley's Figure 2 depicts a set of components that it would have been obvious and routine for a person of ordinary skill in the mid-1980s to arrange inside a common housing. It was well known and obvious to one of ordinary skill in the art in the mid-1980s that DPCM compression could be used to compress voice information such as voicemail, and that DPCM compression could have been used to implement the "bandwidth compression" described in Kepley.

15. **Walter**. Walter describes a "central data station" that stores and transmits compressed digital video information much faster than real time. Walter at Abstract, 7:17-47. Walter also describes a "data receiving station" that receives the compressed digital video information much faster than real time and stores it "for an indefinite period of time for viewing at a later date." Walter at Abstract; 4:3-7:47. Walter discloses video data that is compressed using an "inter-frame differential pulse code modulation technique [that] is known in the art, [although] additional circuitry may be added to avoid problems caused by rapid motion in the picture." Walter at 7:25-34. Walter does not expressly state where the "circuitry" that performs this compression is located, but it would have been obvious and routine for one of skill in the art in the mid 1980s to have located this circuitry in the "central data station."[1] Doing so would have resulted in the completely predictable result of compressing the video data in the central data station. Components for both compressing video and for receiving compressed video are disclosed in Walter, and it would have been routine and straightforward for one of skill in the art in the mid 1980s to arrange these inside or outside a housing. For example, if one desired to quickly transfer a movie from a content provider such as a movie studio to the central data station

[1] Walter states that "the electrical data representing each video program is converted into compressed digital form," and discloses that this compression is performed in (unspecified) "circuitry." Walter at 2:16-19; 7:25-34. This circuitry must have an input of some sort in order to receive the audio/video information that is "converted into compressed digital form." Also, this input must be "coupled" to the circuitry for compressing the audio/video data. Accordingly, this compression circuitry necessarily has the claimed "input means" for receiving data to be compressed.

for subsequent distribution to customers, one could have included the disclosed components for receiving compressed video inside the central data station. Arranging the described components in this way would have been obvious and routine to a person of skill in the art in the 1980s, and would have produced the predictable result that the central data station could receive compressed video faster than real time, store it as described, and then retransmit it to a data receiving station as described.

16. Walter does not specifically mention using "magnetic disks" for storage; it describes "suitable high density memory devices." Walter at 2:13-18. However, magnetic disks were well known to those of skill in the art in the mid-1980s and would have been known to be "suitable high density memory devices." Magnetic disks are "random access" storage devices. Magnetic disks could have been used in their normal manner in the apparatus described in Walter to provide permanent storage of the compressed digital video information with completely predictable results.

17. While Walter does not expressly mention "output ports or terminals" or "input ports or terminals," it shows the interfaces for both receiving from and transmitting along fiber optic cables, and it describes the associated circuitry and devices. Thus, Walter does describe both "input ports" and "output ports," though it does not literally use those words.

18. **Tescher and Gremillet.** The Tescher patent describes compression of video data to a rate of 0.239 Megabits per second.[2] This compressed video bit rate is substantially less than the disclosed bit rate for audio data in Gremillet, which expressly describes sending that audio data faster-than-real-time. Because the compressed video in Tescher has a lower bit rate than the audio described in Gremillet, it would have been obvious to a person of ordinary skill in the art in the mid-1980s that using video compressed as described in Tescher, in combination with the Gremillet transmission system, would have resulted in the faster-than-real-time transmission of compressed video. This would be accomplished using the compression and

[2] Figure 1 in Tescher shows "a block diagram illustrating an encoder incorporating the invention." Tescher at 5:7-8. The encoder shown in Figure 1 in Tescher uses both "intraframe" and "interframe" compression, as required in the Court's claim construction order. Tescher at 1:40-45; 1:59-66; 2:32-43.

decompression described in Tescher exactly as described. It would have achieved the predictable and obvious result of sending the Tescher-compressed video faster-than-real-time using the transmission system in Gremillet. It would have been obvious to do this by locating the compression circuitry of Tescher in the "distribution centre" described in Gremillet, so as to compress the video and record it (instead of music) in the Gremillet's "bank of musical recordings."

19. Gremillet describes a "distribution centre 10 [that] comprises a bank 11 of musical recordings recorded at a faster speed than normal" on "a video disk or video recorder." Gremillet at 3:37-42. It would have been routine and obvious for one of skill in the mid-1980s to substitute a known magnetic disk or disk array for the video recorder, with completely predictable results. For example, the Burst patents that mention magnetic disks describe optical disks and magnetic disks as alternatives for storage of audio/video information. '932 patent at 6:37-39.

20. The music recorded in this "bank of musical recordings" must have come from somewhere, and it would have been obvious to one of skill in the art in the mid 1980s that it could be received through an input port or terminal from a standard audio device.

21. Gremillet discloses the components for receiving music faster than real-time at a customer's location, and for transmitting music faster than real-time from a "distribution center." If one desired to quickly transfer a song or movie from a content provider such as a record label or movie studio to Gremillet's "distribution center" for subsequent distribution to customers, one could have included the disclosed components for receiving music (or video, if combined with Tescher) inside the Gremillet's "distribution center." Arranging the described components in this way would have been obvious and routine to a person of skill in the art in the 1980s, and would have produced the predictable result that the "distribution center" could receive data faster than real time, store it as described, and then retransmit it to the customer's location as described.

22. **Analog to Digital Converter; Digital Source Information.** It would have been obvious and routine for a person of ordinary skill in the art to use an analog to digital converter, which was a common element of digital systems in the mid-1980's, in conjunction

with the systems described in the Kramer, Kepley, Walter, Gremillet, and Tescher references, because those references describe digital systems that operate on information (audio and video) that typically originates from the world as analog data. Indeed, one of ordinary skill in the art would have understood from this fact and the disclosures of each of these references that analog to digital conversion occurred. Kramer at 3:10-11 ("The music is encoded … into digital form"); Kepley 5:37-39 ("the hardware necessary to digitize voice and successfully buffer it …"); Walter at 2:15-17 ("the electrical data representing each video program is converted into compressed digital form"); Tescher 5:37-38 ("In the preferred embodiment eight bit digital samples are taken at a 10.7 MHz sampling rate"); Gremillet Fig. 2 (showing "A to D converter"); Furthermore, the results of using a digital to analog converter would have been entirely predictable (i.e. conversion of analog data to digital form). It also would have been obvious and routine for one of ordinary skill in the art in the mid 1980s that to use a digital to analog converter to convert audio/video source information into digital form prior to introducing it into the systems described in Kramer, Kepley, Walter and Gremillet, resulting in the use of "digital source information."

23. **Semiconductor memory**. One type of storage that was commonly used inside a computing device in the mid 1980s was random access memory (RAM). Random access memories comprising semiconductor chips were well-known to those of ordinary skill in the art well before the mid-1980's. One of ordinary skill in the art would have understood that the random access storage means identified in Kramer, Kepley, Walter, and Gremillet all either included or could have included semiconductor memory.

24. **Digital Editing**. The editing of audio and video files, as shown by the CompuSonics device (e.g. 6/15/87 CompuSonics Form 10-K, 1985 CompuSonics DSP 2002 brochure), was common in the field of digital systems prior to December 27, 1988. It would have been obvious and routine for a person of ordinary skill in the art to combine editing of digital audio or video files with the elements disclosed in Walter or Gremillet and Tescher, or with the "encoding system" of Kramer, in order to edit master recordings for distribution. The results of doing this are entirely predictable and the combination would have worked together in a known way: it would have edited the digital audio or video information. During editing, it is desirable

for the user to be able to "identify" or "monitor" what s/he is editing, be it through a display or speakers. Allowing the user to "identify" or "monitor" what is being edited was well known in the mid 1980s to one of skill in the art.

25. The CompuSonics system presented an editing means which was stored in Random Access Memory (RAM). The Court's construction of "editing means" requires the editing instructions to be located in ROM. It would have been obvious to one of skill in the art in the mid 1980s that software designed to operate in RAM could be loaded into ROM and run from ROM, with predictable results.

26. **Computer-Generated Audio/Video Information.** In allowing editing and modifying sound, the CompuSonics system shows the creation of computer-generated audio/video information. For example, the CompuSonics DSP 2002 brochure describes the function of "S-t-r-e-t-c-h a sound." This creates audio/video information that was generated by a computer. It would have been obvious and routine for a person of ordinary skill in the art to combine this or other types of computer generated audio/video information with the elements disclosed in Kepley, Walter, Gremillet and Tescher, or with the "encoding system" of Kramer. For example, computer-generated information could have been used with the voicemail system described in Kepley to inform someone who receives a voicemail when that voicemail was recorded. The results of using computer-generated source information are entirely predictable: it would be handled exactly he same way as other source information.

27. **Removable Recording Medium**. Removable recording media, including WORM optical disks, were well known to those of skill in the art by 1988, as shown for example in the Burst patents. '932 patent at 4:7-17. It would have been obvious and routine for one of skill in the art in 1988 to have combined a removable recording medium, such as a WORM drive or a backup tape drive, with the systems of Kepley, Gremillet, or Walter, if for example one wanted to have a mechanism for backing up data in the system.

I declare under penalty of perjury that the foregoing is true and correct. Executed in Ithaca, New York on the date below.

July 13, 2007
Date

Stephen B. Wicker