DECLARATION OF ROBERT MURPHY

1.   My name is Robert Murphy. I am over the age of twenty-one (21) years, of sound mind, and capable of making the statements set forth in this Declaration. I am competent to testify about the matters set forth herein. All the facts and statements contained herein are within my personal knowledge and they are, in all things, true and correct.

2.   I have been asked by Qualcomm Incorporated ("Qualcomm") to submit this declaration in support of its challenge to the validity of certain claims of U.S. Patent No. 6,651,134 ("the '134 Patent").

I.   EDUCATION AND EXPERIENCE

3.   I have over forty-five years of experience in the semiconductor industry, and have experience in the design of high speed, high complexity semiconductor products, including Full Custom Microprocessors, E2CMOS and BiCMOS PALs, CMOS and NMOS SRAMs (Static Random Access Memory), CCDs, DRAMs (Conventional and Pseudo-Static), and RAD Hard SOS CMOS.

4.   I earned a Bachelor of Science Degree in Electrical Engineering in 1974 from Drexel University, in Philadelphia, Pennsylvania. I earned a Master of Science Degree in Electrical Engineering in 1976 from the University of California, Los Angeles.

5.   From June 1974 to February 1978, I worked for Hughes Aircraft Co. in El Segundo, California. This began as a part-time position, where I worked as a Test Engineer testing space flight sub-assemblies, and later became an integrated circuit designer, all while obtaining my Master's Degree. While at Hughes Aircraft Co., in addition to other circuit designs, I designed charged coupled device (CCD) based memories that included the control circuitry, addressing scheme and related circuitry, as well as data input and data output paths. The CCD based memories used a CCD device as a memory cell to store data in a different manner than is done with a DRAM memory. In memories that use either a CCD memory cell or a single transistor based memory cell, such as is used in a DRAM memory, the memories must be addressed to either read or write data into the memory, must have the other usual control circuitry, and must have read data paths and write data paths to get the data into or out from the memory. As a result, the control circuitry, addressing scheme and related circuitry, and data input and data output paths for the CCD based memories are very similar to the control circuitry, addressing scheme and circuitry, data input and data output paths used in other semiconductor memories.

6.   From February 1978 to April 1982, I was a design manager with National Semiconductor Corp. in Santa Clara, California and West Jordan, Utah. My work during this time involved designing pseudo-static dynamic random

access memory (DRAM) that included sense amplifiers for the device. The pseudo-static DRAM used CCD devices for the memory cells, but used the same manufacturing processes and circuitry as typical DRAM.

7. About a year after my hire at National Semiconductor Corp., I transferred over to the static random access memory (SRAM) group where I learned about various SRAM operations including addressing, data outputting and controlling of the SRAM. As part of the work, I designed a four transistor (4T) cell 4K SRAM product. After the 4T cell 4K SRAM product was built, I was promoted to SRAM design manager. As the SRAM design manager, I was responsible for all SRAM designs. As part of my role as SRAM design manager, I resolved a SRAM yield crash in 62 days. I was responsible for the SRAM designs in production in the amount of 30,000 4 inch wafers per month.

8. From April 1982 to October 1983, I worked with RCA in Sommerville, New Jersey. There, I led an inter-divisional program to develop 2 micron CMOS technology, and also helped design a 64K SRAM (Static Random Access Memory).

9. From October 1985 through February 1989, I was again employed by National Semiconductor Corporation in Santa Clara, California. There, I achieved the position of design manager and chief technical contributor for their E2CMOS

PAL group. Significant design projects included the world's first BiCMOS PAL, and improved Ti-W fuse blowing circuitry.

10.   From February 1989 to June 1992, I worked with Weitek Corporation in Sunnyvale, California, achieving the position of Director of Engineering in 1990. While at Weitek, I was charged with, among other things, the responsibility for designing circuitry to implement high performance memory, output drivers, and electrostatic discharge (ESD) devices. Examples include a 40 MHz SPARC combined IU/FPU product and a floating point coprocessor compatible with the Intel i486.

11.   From June 1992 through April 1998, I was Director of Engineering at Silicon Graphics, Inc. ("SGI") in Mountain View, California. There, I was involved in the hiring, management, and direction of circuit engineers in processor and floating point chip designs. I also assisted in the design of phase locked loops ("PLL").

12.   In 1998, I founded a company, Firenza, LLC., that develops and licenses high performance building blocks for semi-custom and ASIC designs. A part of those designs that I have built are memory blocks. For example, I was hired to build memory blocks for a DVD controller chip that included a MIPs processor core. The memories included i-cache, d-cache, i-tag, d-tag and 22 dual port register

files. I have been self-employed in my own consulting business since founding Firenza, LLC.

13.　　My *curriculum vitae* is attached as EX1016.

II.　COMPENSATION

14.　　In consideration for my services, my work on this case is being billed to Qualcomm at an hourly rate of $600 per hour, independent of the outcome of this proceeding. I am also being reimbursed for reasonable expenses I incur in relation to my services provided for this proceeding.

III.　LEGAL CONSIDERATIONS

15.　　My understanding of the law is based on information provided by counsel for Qualcomm.

16.　　I understand that a reference anticipates a claim if it discloses each and every element recited in the claim, arranged as in the claim, so as to enable a person of ordinary skill in the art (POSITA) to make and use the claimed invention without the need for undue experimentation in light of the general knowledge available in the art. I understand that a U.S. Patent document is presumed to have sufficient description to include sufficient detail for a person of ordinary skill in the art to make and use the subject matter that document describes.

17.　　I understand that a claimed invention is obvious and, therefore, not patentable if the subject matter claimed would have been obvious to a POSITA at

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