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Attorneys for Plaintiffs
ADVANCED MICRO DEVICES, INC.
and ATI TECHNOLOGIES ULC

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

(1) ADVANCED MICRO DEVICES, INC., a Delaware Corporation,
(2) ATI TECHNOLOGIES ULC, a Canadian unlimited liability company,

Plaintiffs,

v.

Case No. 5:14-cv-1012

COMPLAINT FOR PATENT INFRINGEMENT

DEMAND FOR JURY TRIAL

1) LG ELECTRONICS, INC., a Korean entity,
(2) LG ELECTRONICS U.S.A., Inc., a Delaware entity,
(3) LG ELECTRONICS MOBILECOMM U.S.A., INC., a California entity,

Defendants.

Plaintiffs Advanced Micro Devices, Inc. and ATI Technologies ULC (collectively "Plaintiff" or "AMD") for their complaint allege as follows:

INTRODUCTION

This is an action against LG Electronics, Inc. and its U.S. subsidiaries and related entities LG Electronics U.S.A., Inc., and LG Electronics MobileComm U.S.A., Inc., (individually or collectively "Defendants" or "LG Electronics"), for patent infringement under the Patent Laws of the United States, 35 U.S.C. § 1 et seq., for infringing the following AMD patents:

(a) U.S. Patent No. 6,889,332 ("Helms '332 patent"), entitled *"Variable Maximum Die Temperature Based on Performance State,"* owned by Advanced Micro Devices, Inc.;

(b) U.S. Patent No. 6,895,520 ("Altmejd '520 patent"), entitled *"Performance and Power Optimization via Block Oriented Performance Measurement and Control,"* owned by Advanced Micro Devices, Inc.;

(c) U.S. Patent No. 6,897,871 ("Morein '871 patent"), entitled *"Graphics Processing Architecture Employing a Unified Shader,"* owned by Advanced Micro Devices, Inc.'s subsidiary, ATI Technologies ULC;

(d) U.S. Patent No. 7,327,369 ("Morein '369 patent"), entitled *"Graphics Processing Architecture Employing a Unified Shader,"* owned by Advanced Micro Devices, Inc.'s subsidiary, ATI Technologies ULC;

(e) U.S. Patent No. 7,742,053 ("Lefebvre '053 patent"), entitled "*Multi-Thread Graphics Processing System,*" owned by Advanced Micro Devices, Inc.'s subsidiary, ATI Technologies ULC;

(f) U.S. Patent No. 5,898,849 ("Tran '849 patent"), entitled "*Microprocessor Employing Local Caches for Functional Units to Store Memory Operands Used by the Functional Units,*" owned by Advanced Micro Devices, Inc.;

(g) U.S. Patent No. 6,266,715 ("Loyer '715 patent"), entitled "*Universal Serial Bus Controller with a Direct Memory Access Mode,*" owned by Advanced Micro Devices, Inc.;

(h) U.S. Patent No. 6,784,879 ("Orr '879 patent"), entitled "*Method and Apparatus for Providing Control of Background Video,*" owned by Advanced Micro Devices, Inc.'s subsidiary, ATI Technologies ULC; and

(i) U.S. Patent No. 7,095,945 ("Kovacevic '945 patent"), entitled "*System for Digital Time Shifting and Method Thereof,*" owned by Advanced Micro Devices, Inc.'s subsidiary, ATI Technologies ULC.

Collectively, the AMD patents generally cover technologies that provide critical functionalities in consumer electronic devices, meet and exceed myriad performance requirements while enabling attractive form factors demanded by users in mobile devices, and deliver an improved user experience in a wide variety of consumer products. Among other things, the AMD patents disclose technologies relating to semiconductors with innovative logic or design, improved graphics and video processing, ways to more effectively communicate across communications networks, improved user interface functionalities and capabilities, and consumer products incorporating or embodying the disclosed inventions.

THE PARTIES

1. Advanced Micro Devices, Inc. is a Delaware corporation with its principal executive offices at One AMD Place, Sunnyvale, California 94085. Advanced Micro Devices, Inc. is an innovative and pioneering technology company that designs

computer processors and related technologies for commercial and consumer markets. Advanced Micro Devices, Inc. designs and integrates cutting-edge technology that enables immersive graphics, high-definition video, and innovative features that power millions of electronic devices.

2. ATI Technologies ULC is a subsidiary of Advanced Micro Devices, Inc. and is incorporated in Alberta, Canada with its principal offices at 1 Commerce Valley Drive E, Markham, Ontario, L3T 7X6, Canada. ATI Technologies ULC supports Advanced Micro Devices Inc.'s design and development of cutting-edge technology that enables immersive graphics, high-definition video, and innovative features that power millions of electronic devices.

3. LG Electronics, Inc. ("LGI") is a Korean business entity with its principal offices at LG Twin Towers 20, Yeouido-dong, Yeongdeungpo-gu, Seoul, South Korea 150–721. On information and belief, LGI is a $50 billion global leader in consumer electronics, home appliances, and mobile communications, and is one of Asia's largest electronics companies. On information and belief, LGI designs, manufactures, has manufactured, uses, offers for sale, sells and/or imports into the United States a wide variety of consumer electronics products, including numerous televisions, smartphones, tablets, Blu-ray players, projectors, and smart appliances.

4. LG Electronics U.S.A., Inc. ("LGE") is a Delaware corporation with its principal place of business located at 1000 Sylvan Avenue, Englewood Cliffs, New Jersey 07632. On information and belief, LGE is a wholly-owned subsidiary of LGI. On information and belief, LGE is the U.S. sales arm for LGI and manufactures, has manufactured, uses, offers for sale, sells and/or imports into the United States a wide range of consumer electronics products, including numerous televisions, smartphones, tablets, Blu-ray players, projectors, and smart appliances, conducts primary market and product research for LGI, and enables regional customers to influence the direction of LGI's future technologies and products.

5. LG Electronics MobileComm U.S.A., Inc. ("LGM") is a California corporation with its principal place of business at 10225 Willow Creek Road, San Diego, California 92131, and at least one other place of business in the State of California at 2570 North 1st Street, #360, San Jose, California 95131. On information and belief, LGM is a wholly-owned subsidiary of LGE. On information and belief, LGM manufactures, has manufactured, uses, offers for sale, sells and/or imports into the United States various consumer electronics products, including smartphones and tablets, conducts primary market and product research for LGI and LGE, and enables regional customers to influence the direction of LGI and LGE's future technologies and products.

JURISDICTION

6. This is an action for patent infringement, over which this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

7. This Court has personal jurisdiction over each of the Defendants consistent with the requirements of California Code of Civil Procedure § 410.10 and the Due Process Clause of the United States Constitution. Each Defendant transacts substantial business in California (and in this District), or has committed and continues to commit acts of patent infringement in California (and in this District) as alleged in this complaint. In addition, on information and belief, LGM maintains places of business in the State of California at 10225 Willow Creek Road, San Diego, California 92131, and 2570 North 1st Street, #360, San Jose, California 95131.

VENUE

8. Venue is proper in this district pursuant to 28 U.S.C. §§ 1391 (b)-(d) and 1400(b) because Defendants are subject to personal jurisdiction in this District, have committed acts of patent infringement in this District, and/or have regular and established places of business in this District.

INTRADISTRICT ASSIGNMENT

9. This is a patent infringement action and is therefore exempt from Intradistrict Assignment under Civil L.R. 3–2(c).

FACTUAL BACKGROUND

10. Plaintiffs solely own all rights, titles, and interests in and to the following United States patents (collectively, the "AMD Patents"), including the exclusive rights to bring suit with respect to any past, present, and future infringement thereof:

(a) U.S. Patent No. 6,889,332 ("Helms '332 patent"), entitled "*Variable Maximum Die Temperature Based on Performance State,*" which was duly and legally issued on May 3, 2005, from a patent application filed December 11, 2001, with Frank P. Helms and Jeffrey A. Brinkley as the named inventors. Among other things, the Helms '332 patent discloses a system for adjusting available processor performance states as a function of thermal characteristics. The Helms '332 patent's scaling of maximum available frequencies based on thermal data increases device reliability by preventing overheating while also allowing for high levels of performance. The thermal mitigation techniques taught by the Helms '332 patent also enable the attractive form factors that consumers have come to expect from their mobile devices—thin, light smartphones and tablets made of inexpensive materials such as plastic or aluminum.

(b) U.S. Patent No. 6,895,520 ("Altmejd '520 patent"), entitled "*Performance and Power Optimization via Block Oriented Performance Measurement and Control,*" which was duly and legally issued on May 17, 2005, from a patent application filed March 2, 2001, with Morrie Altmejd as the first-named inventor. Among other things, the Altmejd '520 patent discloses a system for independently adjusting power to functional blocks in an integrated circuit based on utilization information. The Altmejd '520 patent allows, for example, a processor to distribute its workload across various functional blocks based on how busy the various functional blocks are in relation to one another. This, in turn, allows for an optimal balance between required processor performance and power consumption. The

Altmejd '520 patent allows for more aggressive performance in devices such as smartphones while improving battery life. The decreased need for battery power allows for smaller batteries in mobile devices, thereby allowing the thinner, lighter devices that consumers demand.

(c) U.S. Patent No. 6,897,871 ("Morein '871 patent"), entitled *"Graphics Processing Architecture Employing a Unified Shader,"* which was duly and legally issued on May 24, 2005, from a patent application filed November 20, 2003, with Steven Morein as the first-named inventor. Among other things, the Morein '871 patent discloses a unified shader architecture in a graphics processor. The Morein '871 patent's use of a unified shader architecture allows for smaller chip size, increases three-dimensional graphics performance and video performance, and provides for more efficient use of processor resources. These improvements result in better graphics performance and improved battery life in numerous consumer electronics devices that require high-quality graphics.

(d) U.S. Patent No. 7,327,369 ("Morein '369 patent"), entitled *"Graphics Processing Architecture Employing a Unified Shader,"* which was duly and legally issued on February 5, 2008, from a patent application filed April 29, 2005, with Steven Morein as the first-named inventor. Among other things, the Morein '369 patent discloses a unified shader architecture in a graphics processor that includes a parameter cache operative to maintain appearance attribute data for a corresponding vertex and a position cache operative to maintain position data for a corresponding vertex. The Morein '369 patent's unified shader architecture with parameter and position caches provides for more efficient use of processor resources, allows for increased bandwidth, and delivers reduced power consumption in three-dimensional graphics and video. These improvements result in better graphics performance, improved user experience, and improved battery

life in numerous consumer electronics devices that require high-quality graphics.

(e) U.S. Patent No. 7,742,053 ("Lefebvre '053 patent"), entitled "*Multi-Thread Graphics Processing System,*" which was duly and legally issued on June 22, 2010, from a patent application filed May 9, 2007, with Laurent Lefebvre as the first-named inventor. Among other things, the Lefebvre '053 patent discloses a unified shader architecture in a graphics processor capable of processing pixel and vertex command threads based on relative priorities or through multiple flexible processing engines. The Lefebvre '053 patent's use of a unified shader architecture with prioritized processing of commands allows for flexible allocation of finite processor resources to handle variable graphics workloads. This allows for more flexible graphics performance and improved user experience in consumer electronics devices that require high-quality graphics, including graphics processing from multiple input sources, as well as improved battery life and reduced cost.

(f) U.S. Patent No. 5,898,849 ("Tran '849 patent"), entitled "*Microprocessor Employing Local Caches for Functional Units to Store Memory Operands Used By the Functional Units,*" which was duly and legally issued on April 27, 1999, from a patent application filed April 4, 1997, with Thang M. Tran as the sole named inventor. Among other things, the Tran '849 patent discloses a processor architecture having dedicated local caches for functional units of the processor. The Tran '849 patent provides for dramatic improvement in graphics processing unit performance by overcoming limits imposed by texture memory bandwidth. The use of dedicated local caches in the architecture taught in the Tran '849 patent allows for the superior utilization of numerous shaders by avoiding idle time in those shaders. The use of dedicated local caches also reduces the

power consumption typically experienced when functional units must access data stored in shared memory that may be located off the chip. These technical improvements, in turn, result in faster graphics, increased power efficiency, and an improved audio/video experience for users.

(g) U.S. Patent No. 6,266,715 ("Loyer '715 patent"), entitled "*Universal Serial Bus Controller with a Direct Memory Access Mode,*" which was duly and legally issued on July 24, 2001, from a patent application filed June 1, 1998, with Bruce A. Loyer as the first-named inventor. Among other things, the Loyer '715 patent discloses a USB controller having a direct memory access ("DMA") mode, comprising a plurality of USB endpoints, each selectively programmed for one of a plurality of DMA channels during the DMA mode of the USB controller. Among other things, the Loyer '715 patent provides improved overall device performance through increased data transfer speeds, better power efficiency, and freeing the device's CPU to perform other tasks.

(h) U.S. Patent No. 6,784,879 ("Orr '879 patent"), entitled "*Method and Apparatus for Providing Control of Background Video,*" which was duly and legally issued on August 31, 2004, from a patent application filed July 14, 1997, with Stephen J. Orr as the first-named inventor. Among other things, the Orr '879 patent discloses a method and apparatus for control of background video on a display, which allows the user to control attributes of the video while the video continues to play in the background and another application remains in focus on the display. In modern devices, the Orr '879 patent allows users to multitask seamlessly, running applications on their televisions, smartphones, and other devices while simultaneously displaying and adjusting video content. The easier, friendlier user interface enabled by the Orr '879 patent provides a more efficient, user-friendly interface where users are able to adjust live video attributes

without requiring them to close out of or lose access to applications of interest that are in focus.

(i) U.S. Patent No. 7,095,945 ("Kovacevic '945 patent") entitled "*System for Digital Time Shifting and Method Thereof,*" which was duly and legally issued on August 22, 2006, from a patent application filed November 6, 2000, with Branko Kovacevic as the sole named inventor. Among other things, the Kovacevic '945 patent discloses a system and method for demultiplexing a received packetized, multiplexed data stream carrying multimedia programs. More specifically, the Kovacevic '945 patent enables the pausing of streaming video transmitted to an internet-enabled device. Further, the Kovacevic '945 patent enables the buffering of video data of streaming video transmitted to an internet-enabled device. The Kovacevic '945 patent provides a more user-friendly experience by allowing end users to time shift programs of interest by pausing playback and continuing to watch streaming internet content at the user's convenience.

11. Each of the AMD Patents is valid and enforceable.

12. The Defendants have actual notice of all of the AMD Patents and the infringement alleged herein at least upon filing of this complaint (if not earlier), pursuant to 35 U.S.C. § 287(a). On information and belief, Defendants had prior actual notice of at least the Helms '332, Altmejd '520, Morein '871, Morein '369, Lefebvre '053, Tran '849, Loyer '715, Orr '879, and Kovacevic '945 patents no later than July 2012.

13. Each of the Defendants has directly infringed, and continues to infringe, literally or under the doctrine of equivalents, one or more claims of the AMD Patents by acting without authority to make, have made, use, offer to sell, sell within the United States, or import into the United States consumer electronics products, including at least LG televisions, smartphones, tablets, Blu-ray players, projectors, and smart appliances, that embody or practice the patented inventions.

14. The above-described acts of infringement committed by Defendants have caused injury and damage to AMD, and will cause additional severe and irreparable injury and damages in the future.

FIRST CLAIM FOR RELIEF

Infringement of U.S. Patent No. 6,889,332

15. AMD incorporates by reference the allegations set forth in paragraphs 1 through 14 above as if specifically set forth herein.

16. Defendants have directly infringed one or more claims of the Helms '332 patent, literally and/or under the doctrine of equivalents, in violation of 35 U.S.C. § 271. The infringing products include, but are not limited to, for example, LG's products that incorporate features for adjusting available performance states as a function of thermal characteristics, including but not limited to smartphones such as the LG G2 (including model nos. VS980, LS980, D800, and D801), the LG G Flex (including model nos. LS995, D950, and D959), the LG Optimus F7 (including model nos. LG870 and US780), the LG Lucid 2 (VS870), the LG Mach (LS860), the LG Optimus F6 (including model nos. D500 and MS500), the LG Enact (VS890), the LG Optimus F3 (including model nos. P659, MS659, VM720, and LS720), the LG Optimus F3Q (D520), the LG Optimus G Pro (E980), the LG Optimus G (including model nos. LS970 and E970), the LG Spectrum 2 (VS930), the LG Intuition (VS950), the LG Spirit 4G (MS870), the LG Escape (P870), the LG Motion 4G (MS770), the LG Optimus Regard (LW770), the LG Viper (LS840), the LG Lucid (VS840), the LG Connect 4G (MS840), the LG Optimus Exceed (VS840PP), the LG Nitro HD (P930), and the LG Spectrum (VS920), as well as the LG G Pad 8.3 (V500) tablet and any and all other LG products that incorporate features for adjusting available performance states as a function of thermal characteristics, including LG products that incorporate these features that LG has indicated will be forthcoming. The infringement remains ongoing.

17. As a consequence of Defendants' infringement, AMD is entitled to recover damages adequate to compensate it for the injuries complained of herein, but in no event less than a reasonable royalty.

SECOND CLAIM FOR RELIEF

Infringement of U.S. Patent No. 6,895,520

18. AMD incorporates by reference the allegations set forth in paragraphs 1 through 14 above as if specifically set forth herein.

19. Defendants have directly infringed one or more claims of the Altmejd '520 patent, literally and/or under the doctrine of equivalents, in violation of 35 U.S.C. § 271. The infringing products include, but are not limited to, for example, LG's products that incorporate features for independently adjusting power to functional blocks based on utilization information, including but not limited to smartphones such as the LG G2 (including model nos. VS980, LS980, D800, and D801), the LG G Flex (including model nos. LS995, D950, and D959), the LG Optimus F7 (including model nos. LG870 and US780), the LG Lucid 2 (VS870), the LG Mach (LS860), the LG Optimus F6 (including model nos. D500 and MS500), the LG Enact (VS890), the LG Optimus F3 (including model nos. P659, MS659, VM720, and LS720), the LG Optimus F3Q (D520), the LG Optimus G Pro (E980), the LG Optimus G (including model nos. LS970 and E970), the LG Spectrum 2 (VS930), the LG Intuition (VS950), the LG Spirit 4G (MS870), the LG Escape (P870), the LG Motion 4G (MS770), the LG Optimus Regard (LW770), the LG Viper (LS840), the LG Lucid (VS840), the LG Connect 4G (MS840), the LG Optimus Exceed (VS840PP), the LG Nitro HD (P930), the LG Spectrum (VS920), and the LG Optimus L9 (including model nos. P769 and MS769), as well as the LG G Pad 8.3 (V500) tablet and any and all other LG products that incorporate features for independently adjusting power to functional blocks based on utilization information, including LG products that incorporate these features that LG has indicated will be forthcoming. The infringement remains ongoing.

20. As a consequence of Defendants' infringement, AMD is entitled to recover damages adequate to compensate it for the injuries complained of herein, but in no event less than a reasonable royalty.

THIRD CLAIM FOR RELIEF

Infringement of U.S. Patent No. 6,897,871

21. AMD incorporates by reference the allegations set forth in paragraphs 1 through 14 above as if specifically set forth herein.

22. Defendants have directly infringed one or more claims of the Morein '871 patent, literally and/or under the doctrine of equivalents, in violation of 35 U.S.C. § 271. The infringing products include, but are not limited to, for example, LG's television products that incorporate a unified shader architecture in for example an LG H13 system on chip ("SoC"), including but not limited to televisions such as the LG 55LA8600 Smart TV, the LG 55LA9700 Smart TV, the LG 55EA9800 Smart TV, the LG 60LA8600 Smart TV, and the LG 65LA9700 Smart TV, LG's products that incorporate the PowerVR Series 5 and PowerVR Series 6 graphics engines, including but not limited to smart appliances such as the WT6001HV Smart ThinQ washing machine, the WT6001HVA Smart ThinQ washing machine, the DLEX6001V Smart ThinQ dryer, and the DLGX6002V Smart ThinQ dryer, as well as any and all other LG television and smart appliance products that incorporate a unified shader architecture in a graphics processor, the LG Optimus L9 (including model nos. P769 and MS769) smartphone, and including LG products that incorporate these features that LG has indicated will be forthcoming. The infringement remains ongoing.

23. As a consequence of Defendants' infringement, AMD is entitled to recover damages adequate to compensate it for the injuries complained of herein, but in no event less than a reasonable royalty.

FOURTH CLAIM FOR RELIEF

Infringement of U.S. Patent No. 7,327,369

24. AMD incorporates by reference the allegations set forth in paragraphs 1 through 14 above as if specifically set forth herein.

25. Defendants have directly infringed one or more claims of the Morein '369 patent, literally and/or under the doctrine of equivalents, in violation of 35 U.S.C. § 271. The infringing products include, but are not limited to, for example, LG's television products that incorporate a unified shader architecture in a graphics processor that includes a parameter cache operative to maintain appearance attribute data for a corresponding vertex and a position cache operative to maintain position data for a corresponding vertex in for example an LG H13 system on chip ("SoC"), including but not limited to televisions such as the LG 55LA8600 Smart TV, the LG 55LA9700 Smart TV, the LG 55EA9800 Smart TV, the LG 60LA8600 Smart TV, and the LG 65LA9700 Smart TV, LG's products that incorporate the PowerVR Series 5 and PowerVR Series 6 graphics engines, including but not limited to smart appliances such as the WT6001HV Smart ThinQ washing machine, the WT6001HVA Smart ThinQ washing machine, the DLEX6001V Smart ThinQ dryer, and the DLGX6002V Smart ThinQ dryer, as well as any and all other LG television and smart appliance products that incorporate a unified shader architecture in a graphics processor that includes a parameter cache operative to maintain appearance attribute data for a corresponding vertex and a position cache operative to maintain position data for a corresponding vertex, the LG Optimus L9 (including model nos. P769 and MS769) smartphone, and including LG products that incorporate these features that LG has indicated will be forthcoming. The infringement remains ongoing.

26. As a consequence of Defendants' infringement, AMD is entitled to recover damages adequate to compensate it for the injuries complained of herein, but in no event less than a reasonable royalty.

FIFTH CLAIM FOR RELIEF

Infringement of U.S. Patent No. 7,742,053

27. AMD incorporates by reference the allegations set forth in paragraphs 1 through 14 above as if specifically set forth herein.

28. Defendants have directly infringed one or more claims of the Lefebvre '053 patent, literally and/or under the doctrine of equivalents, in violation of 35 U.S.C. § 271. The infringing products include, but are not limited to, for example, LG's television products that incorporate a unified shader architecture capable of processing pixel and vertex command threads based on relative priorities or through multiple flexible processing engines in for example an LG H13 system on chip ("SoC"), including but not limited to televisions such as the LG 55LA8600 Smart TV, the LG 55LA9700 Smart TV, the LG 55EA9800 Smart TV, the LG 60LA8600 Smart TV, and the LG 65LA9700 Smart TV, LG's products that incorporate the PowerVR Series 5 and PowerVR Series 6 graphics engines, including but not limited to smart appliances such as the WT6001HV Smart ThinQ washing machine, the WT6001HVA Smart ThinQ washing machine, the DLEX6001V Smart ThinQ dryer, and the DLGX6002V Smart ThinQ dryer, as well as any and all other LG television and smart appliance products that incorporate a unified shader architecture in a graphics processor capable of processing pixel and vertex command threads based on relative priorities or through multiple flexible processing engines, the LG Optimus L9 (including model nos. P769 and MS769) smartphone, and including LG products that incorporate these features that LG has indicated will be forthcoming. The infringement remains ongoing.

29. As a consequence of Defendants' infringement, AMD is entitled to recover damages adequate to compensate it for the injuries complained of herein, but in no event less than a reasonable royalty.

SIXTH CLAIM FOR RELIEF

Infringement of U.S. Patent No. 5,898,849

30. AMD incorporates by reference the allegations set forth in paragraphs 1 through 14 above as if specifically set forth herein.

31. Defendants have directly infringed one or more claims of the Tran '849 patent, literally and/or under the doctrine of equivalents, in violation of 35 U.S.C. § 271. The infringing products include, but are not limited to, for example, LG's televisions that incorporate a processor having dedicated local caches for functional units of the processor in for example an LG L9 system on chip ("SoC"), including but not limited to televisions such as the LG 42GA6400 TV, the LG 47G2 TV, the LG 47GA6400 TV, the LG 47GA6450 TV, the LG 47GA7900 TV, the LG 47LM8600 Smart TV, the LG 50GA6400 TV, the LG 55G2 TV, the LG 55GA6400 TV, the LG 55GA6450 TV, the LG 55GA7900 TV, the LG 55LM8600 Smart TV, the LG 55LM9600 Smart TV, and the LG 60GA6400 TV, as well as any and all other LG products that incorporate a processor having dedicated local caches for functional units of the processor, including LG products that incorporate these features that LG has indicated will be forthcoming. The infringement remains ongoing.

32. As a consequence of Defendants' infringement, AMD is entitled to recover damages adequate to compensate it for the injuries complained of herein, but in no event less than a reasonable royalty.

SEVENTH CLAIM FOR RELIEF

Infringement of U.S. Patent No. 6,266,715

33. AMD incorporates by reference the allegations set forth in paragraphs 1 through 14 above as if specifically set forth herein.

34. Defendants have directly infringed one or more claims of the Loyer '715 patent, literally and/or under the doctrine of equivalents, in violation of 35 U.S.C. § 271. The infringing products include, but are not limited to, for example, LG's products that incorporate a USB controller having a direct memory access ("DMA") mode, comprising

a plurality of USB endpoints, each selectively programmed for one of a plurality of DMA channels during the DMA mode of the USB controller, including but not limited to smartphones such as the LG G Flex (including model nos. LS995, D950, and D959), the LG G2 (including model nos. VS980, LS980, D800, and D801), the LG Connect 4G (MS840), the LG Nitro HD (P930), the LG myTouch (E739), the LG myTouch Q (C800), the LG Esteem (MS910), the LG Revolution (VS910), the LG Enlighten (VS700), the LG DoublePlay (C729), the LG Optimus F3 (including model nos. P659, MS659, LS720, and VM720), the LG Optimus F3Q (D520), the LG Optimus F6 (including model nos. D500 and MS500), the LG Optimus F7 (including model nos. LG870 and US780), the LG Optimus L9 (including model nos. P769 and MS769), the LG Optimus G (including model nos. LS970 and E970), the LG Optimus G Pro (E980), the LG Optimus Regard (LW770), the LG Optimus M+ (MS695), the LG Optimus Elite (including model nos. LS696 and VM696), the LG Optimus Plus (AS695), the LG Optimus Zip (LGL75C), the LG Optimus Slider (VM701), the LG Optimus Exceed (VS840PP), the LG Optimus Zone (VS410PP), the LG Enact (VS890), the LG Spectrum (VS920), the LG Spectrum 2 (VS930), the LG Intuition (VS950), the LG Lucid (VS840), the LG Lucid 2 (VS870), the LG Mach (LS860), the LG Spirit 4G (MS870), the LG Escape (P870), the LG Motion 4G (MS770), the LG Viper (LS840), the LG Venice (LG730), and the LG Splendor (US730), the LG G Pad 8.3 (V500) tablet, televisions such as the LG 55EA9800 Smart TV, the LG 55LA8600 Smart TV, the LG 55LA9700 Smart TV, the LG 60LA8600 Smart TV, the LG 65LA9700 Smart TV, the LG 42GA6400 TV, the LG 47G2 TV, the LG 47GA6400 TV, the LG 47GA6450 TV, the LG 47GA7900 TV, the LG 47LM8600 Smart TV, the LG 50GA6400 TV, the LG 55G2 TV, the LG 55GA6400 TV, the LG 55GA6450 TV, the LG 55GA7900 TV, the LG 55LM8600 Smart TV, the LG 55LM9600 Smart TV, and the LG 60GA6400 TV, Blu-ray and related media players such as the LG BP125, the LG BP135, the LG BP220, the LG BP320, the LG BP325W, the LG BP330, the LG BP335W, the LG BP520, the LG BP530, the LG BP620, the LG BH4120S, the LG BH6720S, the LG BH6730S, the LG BH6820SW, the LG BH6830SW, the LG BH9220BW, and the LG BH9230BW, projectors such as the LG

PA75U and the LG HECTO, smart appliances such as the WT6001HV Smart ThinQ washing machine, the WT6001HVA Smart ThinQ washing machine, the DLEX6001V Smart ThinQ dryer, the DLGX6002V Smart ThinQ dryer, and the FLX31995ST Smart ThinQ Refrigerator as well as any and all other products that incorporate a USB controller having a direct memory access ("DMA") mode, comprising a plurality of USB endpoints, each selectively programmed for one of a plurality of DMA channels during the DMA mode of the USB controller, including LG products that incorporate these features that LG has indicated will be forthcoming. The infringement remains ongoing.

35. As a consequence of Defendants' infringement, AMD is entitled to recover damages adequate to compensate it for the injuries complained of herein, but in no event less than a reasonable royalty.

EIGHTH CLAIM FOR RELIEF

Infringement of U.S. Patent No. 6,784,879

36. AMD incorporates by reference the allegations set forth in paragraphs 1 through 14 above as if specifically set forth herein.

37. Defendants have directly infringed one or more claims of the Orr '879 patent, literally and/or under the doctrine of equivalents, in violation of 35 U.S.C. § 271. The infringing products include, but are not limited to, for example, LG's products that incorporate control of background video on a display, which allows the user to control attributes of the video while the video continues to play in the background and another application remains in focus on the display, including but not limited televisions such as the LG 55LA8600 Smart TV, the LG 60LA8600 Smart TV, the LG 42GA6400 TV, the LG 47G2 TV, the LG 47GA6400 TV, the LG 47GA6450 TV, the LG 47GA7900 TV, the LG 47LM8600 Smart TV, the LG 50GA6400 TV, the LG 55G2 TV, the LG 55GA6400 TV, the LG 55GA6450 TV, the LG 55GA7900 TV, the LG 55LM8600 Smart TV, and the LG 60GA6400 TV, smartphones such as the LG G2 (including model nos. VS980, LS980, D800, and D801), the LG G Flex (including model nos. LS995, D950, and D959), the LG Optimus F7 (including model nos. LG870 and US780), the LG Lucid 2 (VS870), the LG

Mach (LS860), the LG Optimus F6 (including model nos. D500 and MS500), the LG Enact (VS890), the LG Optimus F3 (including model nos. P659, MS659, VM720, and LS720), the LG Optimus F3Q (D520), the LG Optimus G Pro (E980), the LG Optimus G (including model nos. LS970 and E970), the LG Spectrum 2 (VS930), the LG Intuition (VS950), the LG Spirit 4G (MS870), the LG Escape (P870), the LG Motion 4G (MS770), the LG Optimus Regard (LW770), the LG Optimus L9 (including model nos. P769 and MS769), the LG Venice (LG730), the LG Splendor (US730), the LG Optimus Plus (AS695), the LG Optimus M+ (MS695), the LG Optimus Elite (including model nos. VM696 and LS696), the LG Viper (LS840), the LG Lucid (VS840), the LG Connect 4G (MS840), the LG Optimus Exceed (VS840PP), the LG Nitro HD (P930), the LG Spectrum (VS920), the LG myTouch Q (C800), the LG myTouch (E739), the LG DoublePlay (C729), the LG Esteem (MS910), the LG Revolution (VS910), the LG Optimus Zone (VS410PP), the LG Enlighten (VS700), the LG Optimus Slider (VM701), and the LG Optimus Zip (LGL75C), as well as the LG G Pad 8.3 (V500) tablet and any and all other LG products that incorporate control of background video on a display, which allows the user to control attributes of the video while the video continues to play in the background and another application remains in focus on the display, including LG products that incorporate these features that LG has indicated will be forthcoming. The infringement remains ongoing.

38. As a consequence of Defendants' infringement, AMD is entitled to recover damages adequate to compensate it for the injuries complained of herein, but in no event less than a reasonable royalty.

NINTH CLAIM FOR RELIEF

Infringement of U.S. Patent No. 7,095,945

39. AMD incorporates by reference the allegations set forth in paragraphs 1 through 14 above as if specifically set forth herein.

40. Defendants have directly infringed one or more claims of the Kovacevic '945 patent, literally and/or under the doctrine of equivalents, in violation of 35 U.S.C. § 271. The infringing products include, but are not limited to, for example, LG's

televisions that are capable of receiving and demultiplexing a multiplexed, packetized stream of data carrying multimedia programs, including but not limited to televisions such as the LG 42GA6400 TV, the LG 47G2 TV, the LG 47GA6400 TV, the LG 47GA6450 TV, the LG 47GA7900 TV, the LG 47LM8600 Smart TV, the LG 50GA6400 TV, the LG 55G2 TV, the LG 55GA6400 TV, the LG 55GA6450 TV, the LG 55GA7900 TV, the LG 55LA8600 Smart TV, the LG 55LA9700 Smart TV, the LG 55LM8600 Smart TV, the LG 55LM9600 Smart TV, the LG 55EA9800 Smart TV, the LG 60GA6400 TV, the LG 60LA8600 Smart TV, and the LG 65LA9700 Smart TV, as well as LG smartphones that are capable of demultiplexing a multiplexed packetized stream of data carrying multimedia programs, including but not limited to smartphones such as the LG G2 (including model nos. VS980, LS980, D800, and D801), the LG G Flex (including model nos. LS995, D950, and D959), the LG Optimus F7 (including model nos. LG870 and US780), the LG Lucid 2 (VS870), the LG Mach (LS860), the LG Optimus F6 (including model nos. D500 and MS500), the LG Enact (VS890), the LG Optimus F3 (including model nos. P659, MS659, VM720, and LS720), the LG Optimus F3Q (D520), the LG Optimus G Pro (E980), the LG Optimus G (including model nos. LS970 and E970), the LG Spectrum 2 (VS930), the LG Intuition (VS950), the LG Spirit 4G (MS870), the LG Escape (P870), the LG Motion 4G (MS770), the LG Optimus Regard (LW770), the LG Optimus L9 (including model nos. P769 and MS769), the LG Venice (LG730), the LG Splendor (US730), the LG Optimus Plus (AS695), the LG Optimus M+ (MS695), the LG Optimus Elite (including model nos. VM696 and LS696), the LG Viper (LS840), the LG Lucid (VS840), the LG Connect 4G (MS840), the LG Optimus Exceed (VS840PP), the LG Nitro HD (P930), the LG Spectrum (VS920), the LG myTouch Q (C800), the LG myTouch (E739), the LG DoublePlay (C729), the LG Esteem (MS910), the LG Revolution (VS910), the LG Optimus Zone (VS410PP), the LG Enlighten (VS700), the LG Optimus Slider (VM701), and the LG Optimus Zip (LGL75C), as well as the LG G Pad 8.3 (V500) tablet and any and all other LG products that are enabled to receive and play back streaming internet video content derived from a multiplexed packetized stream of data, including

LG products that incorporate these features that LG has indicated will be forthcoming. The infringement remains ongoing.

41. As a consequence of Defendants' infringement, AMD is entitled to recover damages adequate to compensate it for the injuries complained of herein, but in no event less than a reasonable royalty.

PRAYER FOR RELIEF

WHEREFORE, AMD respectfully requests that this Court:

A. enter judgment that each of the Defendants has infringed one or more claims of one or more of the AMD Patents;

B. enter judgment that Defendants' infringement of the Helms '332, Altmejd '520, Morein '871, Morein '369, Lefebvre '053, Tran '849, Loyer '715, Orr '879, and Kovacevic '945 patents has been willful, deliberate, and intentional;

C. enter an order, pursuant to 35 U.S.C. § 284, awarding to AMD damages adequate to compensate for Defendants' infringement of the AMD Patents (and, if necessary, related accountings), in an amount to be determined at trial, but not less than a reasonable royalty;

D. enter an order, pursuant to 35 U.S.C. § 284, trebling damages awarded to AMD to the extent Defendants' infringement of the Helms '332, Altmejd '520, Morein '871, Morein '369, Lefebvre '053, Tran '849, Loyer '715, Orr '879, and Kovacevic '945 patents is determined to have been willful;

E. enter an order, pursuant to 35 U.S.C. § 285, deeming this to be an "exceptional case" and thereby awarding to AMD its reasonable attorneys' fees, costs, and expenses;

F. enter an order that Defendants account for and pay to AMD the damages to which AMD is entitled as a consequence of the infringement;

G. enter an order awarding to AMD pre- and post-judgment interest at the maximum rates allowable under the law; and

H. enter an order awarding to AMD such other and further relief, whether at law or in equity, that this Court deems just and proper.

DATED: March 5, 2014

ROBINS, KAPLAN, MILLER & CIRESI L.L.P.

By: /s/ David Martinez

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DEMAND FOR JURY TRIAL

Pursuant to Rule 38 of the Federal Rules of Civil Procedure and Local Rule 3–6 of this Court, Plaintiffs hereby demand a trial jury as to all issues so triable.

DATED: March 5, 2014

ROBINS, KAPLAN, MILLER & CIRESI L.L.P.

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