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11 *Pro hac vice admission to be sought

12 *Attorneys for Plaintiff and the Putative Class*

13 **IN THE UNITED STATES DISTRICT COURT**
14 **FOR THE NORTHERN DISTRICT OF CALIFORNIA**
15 **SAN JOSE DIVISION**

16 TONY DICKEY, individually and on
behalf of all others similarly situated,

17 *Plaintiff,*

18 v.

19 ADVANCED MICRO DEVICES, INC., a
20 Delaware corporation,

21 *Defendant.*

Case No.

COMPLAINT FOR:

- 1. **Violations of Cal. Civ. Code §§ 1750 *et seq.*;**
- 2. **Violations of Cal. Bus. & Prof. Code §§ 17200, *et seq.*;**
- 3. **Violations of Cal. Bus. & Prof. Code §§ 17500, *et seq.*;**
- 4. **Fraudulent Inducement;**
- 5. **Breach of Express Warranties;**
- 6. **Negligent Misrepresentation; and**
- 7. **Unjust Enrichment.**

DEMAND FOR JURY TRIAL

CLASS ACTION

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1 Plaintiff Tony Dickey (“Plaintiff” or “Dickey”) brings this class action complaint
2 (“Complaint”) against Defendant Advanced Micro Devices, Inc., (“AMD” or “Defendant”) based
3 on its deceptive marketing of certain of its central processing units (“CPUs”). Plaintiff, for his
4 Complaint, alleges as follows upon personal knowledge as to himself and his own acts and
5 experiences, and, as to all other matters, upon information and belief, including investigation
6 conducted by his attorneys.

7 NATURE OF THE ACTION

8 1. AMD is one of two major companies that design and produce CPUs¹ for personal
9 computers. Competing against rival Intel Corporation, AMD battles for consumer sales by
10 emphasizing key CPU specifications in its marketing and advertisements. For many years, CPUs
11 were compared against each other based on their “clock” speeds (in units of Megahertz (“MHz”)
12 and Gigahertz (“GHz”)).

13 2. More recently, though, both manufacturers (AMD and Intel) have moved away from
14 MHz and GHz towards a new metric called a “core.” A core is an independent processing unit,
15 which, like early CPUs, performs one calculation at a time. To increase performance, manufacturers
16 began making CPUs with two or more cores on one physical chip, creating “multicore” CPUs. Each
17 core in a multicore CPU is able to operate (*e.g.*, perform calculations and execute instructions)
18 independently from other cores. An eight-core CPU, then, can perform eight calculations
19 simultaneously and independently. Therefore, if one core is bogged down with a complex or
20 defective process, the other cores can handle other calculations or processes so that the computer
21 can continue performing at rapid speed.

22 3. AMD’s recent marketing reflects its shifting focus to selling multicore CPUs.
23 AMD’s advertising has highlighted the number of cores in its CPUs and consistently conveyed to
24 consumers that multiple cores in a single CPU allow consumers to perform several simultaneous
25 tasks.

26 ¹ A CPU is an integrated circuit which “generally consists of hundreds of millions or billions
27 of transistors that process data and control other devices in the system, acting as the ‘brain’ of the
28 computer.” AMD, *10-K Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange
Act of 1934*, 4 (“AMD 10-K”), true and accurate excerpts of which are attached hereto as Exhibit A.

1 District.

2 **JURISDICTION AND VENUE**

3 10. The Court has jurisdiction over this action pursuant to 28 U.S.C. § 1332(d)(2),
4 because (i) at least one member of the Class is a citizen of a different state than the Defendant, (ii)
5 the amount in controversy exceeds \$5,000,000, exclusive of interests and costs, and (iii) none of the
6 exceptions under that subsection apply to this action.

7 11. This Court has personal jurisdiction over Defendant because Defendant conducts
8 business in California, is headquartered in California, and because the events giving rise to this
9 lawsuit occurred, in substantial part, in California.

10 12. Venue is proper in the United States District Court for the Northern District of
11 California pursuant to 28 U.S.C. § 1391(b) because Defendant maintains its headquarters and
12 conducts significant business in this District.

13 **INTRADISTRICT ASSIGNMENT**

14 13. Pursuant to Civil Local Rule 3-2(e), this case shall be assigned to the San Jose
15 Division.

16 **CHOICE OF LAW**

17 14. California law governs the substantive legal issues in the instant matter. AMD's
18 "Terms of Use / Copyright" state that "[a]ny claim relating to the Materials shall be governed by the
19 internal substantive laws of the State of California, United States of America."³ Moreover, the
20 instruction manual that accompanies every AMD Bulldozer processor incorporates AMD's "Terms
21 of Use."⁴

22 15. AMD's conduct at issue herein also occurred in California. AMD is headquartered in
23 California, and the advertisements at issue here were, on information and belief, drafted in and

24 ³ A true and accurate copy of AMD's "Terms of Use / Copyright" is attached hereto as
25 Exhibit B.

26 ⁴ A true and accurate copy of AMD's form "AMD Processor" document is attached hereto as
27 Exhibit C (stating that "[f] or more information please visit www.amd.com," and that consumers
28 should reference what is "set forth in AMD's Standard Term and Conditions of Sales ...").

1 disseminated from California.⁵

2 **FACTUAL BACKGROUND**

3 **I. An Introduction to AMD and CPU Core Technology**

4 16. AMD was founded in 1969 in Sunnyvale, California and has grown into a global
5 semiconductor manufacturer with facilities around the world. Today, it is the second-largest
6 supplier of the CPUs found in personal computers and laptops (“PCs”), behind only Intel
7 Corporation (“Intel”).

8 17. Since its inception, AMD has battled with Intel over market share of the consumer
9 PC CPU market. Early on, personal computer CPUs were limited to performing only a single
10 calculation (*i.e.*, processing one instruction) at a time. As such, AMD and Intel focused their
11 advertisements on how fast their CPUs could perform a single calculation, in units of “clock” speed.
12 A CPU’s high Megahertz (MHz) and then Gigahertz (GHz) speeds were indicative of high
13 performance.

14 18. As advertised clock speeds began to plateau, CPU manufacturers began to increase
15 (and then advertise) the number of “cores” in their CPUs. AMD and Intel increased the core-count
16 of their CPUs by essentially joining two or more CPUs into one physical processor (called a “die”).
17 A core, as it is understood in the industry, is a processing unit that is capable of performing
18 calculations independent from other cores. A two-core CPU, then, can multitask—that is, perform
19 two calculations simultaneously and independently (just as two separate CPUs) at a certain clock
20 speed. For instance, a CPU advertised as being an “8-core 3.4 GHz CPU” is representing that it has
21 eight independent cores, each performing calculations at 3.4 gigahertz.

22 19. Through its marketing, AMD consistently disseminated the common meaning (and,
23 with Intel) helped create the consumer expectation that a core is an independent processing unit. For
24 example, AMD uses the common definition of a core in its investor filings:

25 “ ... semiconductor companies are designing and developing multi-core [CPUs], where

26 ⁵ *Search | LinkedIn*, www.linkedin.com/vsearch/p?keywords=marketing&postalCode=94101&openAdvancedForm=true&locationType=I&countryCode=us&distance=100&f_CC=1497
27 (last visited Oct. 26, 2015) (showing 92 public profiles of AMD marketing employees within 100
28 miles of San Francisco, California).

1 multiple processor cores are placed on a single die or in a single processor. Multi-core
 2 [CPUs] offer enhanced overall system performance and efficiency because computing
 tasks can be spread across two or more processing cores, each of which can execute a
 task [*i.e.*, a calculation] *at full speed.*”⁶

3 20. AMD used the same definition in 2007 when stated that its then new “Dual-Core
 4 processor puts the power of dual-core technology on the desktop. Dual-core processors contain *two*
 5 *processing cores, residing on one chip, that perform calculations on two streams of data ...*”⁷ and
 6 that “[w]ith dual-core technology *there are two complete processor cores in one physical package*
 7 *... .*”⁸

8 21. And, in 2010, AMD reinforced the consumer expectation that cores are processors
 9 independent from each other, stating that its CPUs are offered “[w]ith the power of four processor
 10 cores on a single chip, [and] deliver[] industry-leading multitasking performance.”⁹ Even today,
 11 AMD defines a core as being “two or more processors on a single chip.”¹⁰

12 22. Similarly, Intel—AMD’s main competitor, and effectively the only other brand of
 13 CPUs cross-shopped by consumers—defines a core as such as being “a hardware term that
 14 describes the number of independent central processing units in a single computing component (die
 15 or chip).”¹¹

16 23. However, since launching its “Bulldozer” CPUs, AMD has deceived consumers by

17 ⁶ *AMD 10-K*, 4, *supra* (emphasis added).

18 ⁷ *Amazon.com: AMD Athlon 64 X2 Dual-Core 5600+ 2.8 GHz Processor, Socket AM2:*
 19 *Electronics*, http://www.amazon.com/gp/product/B000MNA082?ie=UTF8&ref_=de_a_smt&showDetailTechData=1#technical-data (last visited Oct. 26, 2015) (emphasis added).
 (describing dual-core AMD CPU released in 2007).

20 ⁸ *AMD Athlon 64 X2 5200 Brisbane Dual-Core 2.7GHz Socket AM2 65W ADO5200DOBOX*
 21 *Processor - Newegg.com*, www.newegg.com/Product/Product.aspx?Item=N82E16819103210 (last
 visited Oct. 26, 2015) (emphasis added) (describing dual-core AMD CPU released in 2007).

22 ⁹ *AMD Phenom II X4 970 Black Edition Deneb Quad-Core 3.5GHz Socket AM3 125W*
 23 *Desktop Processor HDZ970FBGMBOX - Newegg.com*, [www.newegg.com/Product/
 Product.aspx?Item=N82E16819103894](http://www.newegg.com/Product/Product.aspx?Item=N82E16819103894) (last visited Oct. 26, 2015) (describing four-core AMD
 CPU released in 2010).

24 ¹⁰ *See e.g., AMD Processors for Business*, [www.amd.com/en-us/innovations/software-
 technologies/processors-for-business](http://www.amd.com/en-us/innovations/software-technologies/processors-for-business) (last visited Oct. 26, 2015); *Multi-Core Processing with AMD*,
 25 <http://www.amd.com/en-us/innovations/software-technologies/processors-for-business/multicore>
 (last visited Oct. 26, 2015).

26 ¹¹ *ARK | Intel® Core™ i5-6600 Processor (6M Cache, up to 3.90 GHz)*, [ark.intel.com/
 27 products/88188/Intel-Core-i5-6600-Processor-6M-Cache-up-to-3_90-GHz](http://ark.intel.com/products/88188/Intel-Core-i5-6600-Processor-6M-Cache-up-to-3_90-GHz) (last visited Oct. 26,
 28 2015).

1 advertising Bulldozers as having eight cores—two more than the competition—when they really
 2 only have four complete cores.

3 **II. AMD Falsely Advertises Its Bulldozer Chips As Having Eight “Cores.”**

4 24. With its Bulldozer product line, AMD aimed to further convince consumers that a
 5 high core-count in a CPU is equal to high performance, emphasizing that it offers more cores than
 6 the competition. A close inspection of the Bulldozer’s CPU architecture and technical literature,
 7 however, reveals that AMD has uniformly overstated the number of cores in its processors.

8 A. *AMD advertises its Bulldozer CPUs as having eight “cores.”*

9 25. Since launching the Bulldozer CPUs, AMD’s marketing online and on packaging has
 10 centered on their number of purported cores in each Bulldozer CPU. For example, on its website
 11 www.amd.com, AMD advertises the following for its Bulldozer chips:

12 Take your PC’s megatasking abilities to extreme
 13 levels with the first native 8-core desktop
 14 processor built with dynamic, tuneable
 15 performance to handle multiple intensive apps
 16 without breaking a sweat.



17 **AMD FX 8-Core Black Edition FX-9590 (ex-Mic-US-861229)**
 18 ★★★★★
 19 ■ **Manufacturer:** AMD
 20 ■ **Processor Line:** AMD FX 8-Core Black Edition²
 21 ■ **Processor Model:** FX-9590
 22 ■ Cores: 8
 23 ■ **Frequency:** 4700
 24 ■ **Socket:** AM3+

17 **(Figure 1)** (emphasis added.)¹²

18 **(Figure 2)** (emphasis added.)¹³

19 26. AMD makes similar representations at online retailers’ webpages for the Bulldozer
 20 processors. For example, AMD caused the NewEgg.com and Amazon.com product page
 21 descriptions to prominently include the number of cores in the title for the Bulldozer processors:

22 **AMD FX-9590 Vishera 8-Core**
 23 **4.7GHz Socket AM3+ 220W**
 24 **FD9590FHHKWF Desktop**
 25 **Processor - Black Edition**

26 **(Figure 3, AMD’s Newegg.com page)** (emphasis added.)¹⁴

26 ¹² *AMD FX Processors*, <http://www.amd.com/en-us/products/processors/desktop/fx> (last visited Oct. 26, 2015).

27 ¹³ *AMD FX 8-Core Black Edition FX-9590| Processors* |, <http://shop.amd.com/en-us/components/processors/ecxMicUS861229> (last visited Oct. 26, 2015).

Amd FD9590FHHKWOF Fx-9590
 Oem Fx-series 8-core Black Edition
 by AMD

(Figure 4, AMD’s Amazon.com page) (emphasis added.)¹⁵

27. Beyond webpage titles, AMD provides the same online retailers descriptive marketing copy for its Bulldozer processors. For instance, AMD repeatedly emphasizes that the Bulldozer processors have eight cores:

Features



Overclock and keep cool with up to eight cores and 5 GHz of the most advanced technology you can buy.1The AMD FX-series processor unleashes up to 5 GHz of performance and contains up to eight powerful cores, so you can game, overclock and get the max out of your experience.

- Control up to eight cores and 5 GHz of relentless power

AMD FX 8-Core Processors

- The industry's first and only native 8-core desktop processor for unmatched multitasking and pure core performance with "Bulldozer" architecture.

Product Brief



This is FXing Serious.

We call it the new AMD FX 8-Core Processor Black Edition and it's unlocked for your overclocking pleasure.Experience unmatched multitasking and pure core performance with the industry's first 32nm 8-core desktop processor. Get the speed you crave with AMD Turbo CORE Technology to push your core frequencies to the limit when you need it most.

Maximum Performance

- The industry's only 8-core desktop processor

Core Name	Vishera
# of Cores	<u>8-Core</u>

Innovative Architecture

- The industry's first and only native 8-core desktop processor for unmatched multitasking and pure core performance with "Bulldozer" architecture

(Figure 5, showing AMD’s representations on Newegg.com) (emphasis added.)¹⁶

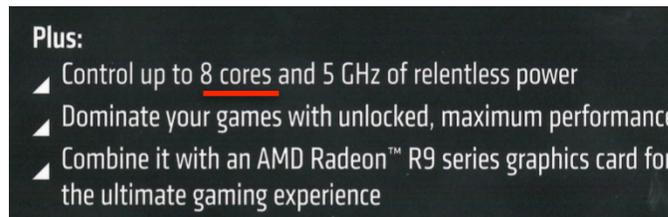
28. AMD similarly ensured that its marketing at brick-and-mortar stores emphasized the

¹⁴ AMD FX-9590 Vishera 8-Core 4.7GHz Socket AM3+ 220W FD9590FHHKWOF Desktop Processor - Black Edition - Newegg.com, www.newegg.com/Product/Product.aspx?Item=N82E16819113347 (last visited Oct. 26, 2015).

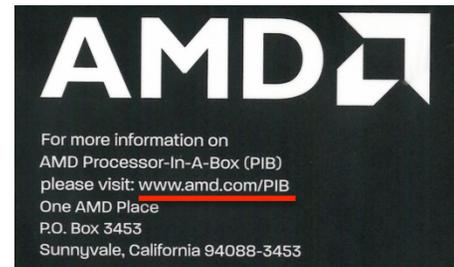
¹⁵ Amazon.com: AMD Athlon 64 X2 Dual-Core 5600+ 2.8 GHz Processor, Socket AM2: Electronics, *infra*.

¹⁶ AMD FX-9590 Vishera 8-Core 4.7GHz Socket AM3+ 220W FD9590FHHKWOF Desktop Processor - Black Edition - Newegg.com, *supra*.

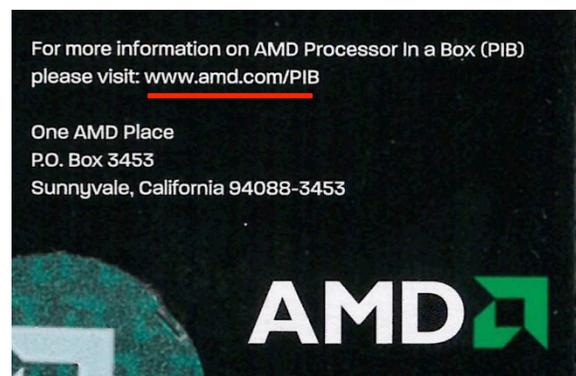
1 Bulldozers’ core-count. For example, AMD prominently displays that the FX-9590 Bulldozer CPU
 2 has “8 cores” on the product’s packaging, including on two different product seals that must be
 3 broken before consumers can access the processor (*i.e.*, consumers must view the representation
 4 before using the product). See Figures 6–8.



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 8 (Figure 6, showing the FX-9590 Bulldozer’s retail packaging) (emphasis added.)¹⁷



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 15 (Figure 7, showing product seal and incorporation of www.amd.com) (emphasis
 16 added.)



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 23 (Figure 8, showing secondary product seal and incorporation of www.amd.com)
 24 (emphasis added.)¹⁸

25 29. Taken together, AMD’s marketing and advertisements for the Bulldozer

26 ¹⁷ Figures 6 and 7 are excerpts taken from AMD’s FX9590 Bulldozer processor’s packaging, a
 true and accurate reproduction of which is attached hereto as Exhibit D.

27 ¹⁸ Figure 8 is an excerpt taken from AMD’s FX9590 Bulldozer processor’s secondary
 28 packaging, a true and accurate reproduction of which is attached hereto as Exhibit E.

1 processors—including those appearing on every processor’s packaging—make clear that the
2 Bulldozer CPUs have “8-cores.” However, as explained below, AMD has overstated the number of
3 cores within its Bulldozer processors.

4 *B. AMD’s Bulldozer CPUs Do Not Have Eight Cores.*

5 30. Despite Defendant’s claims, AMD’s Bulldozer CPUs do not have eight cores as
6 advertised. Instead, AMD designed its Bulldozers around four component-sharing “modules” rather
7 than eight independent cores. A technical inspection of the Bulldozer processors and a review of
8 trade publications demonstrate that Bulldozers are missing key components compared to true eight
9 core CPUs. As a result, they cannot perform in the same way and at the same speed.

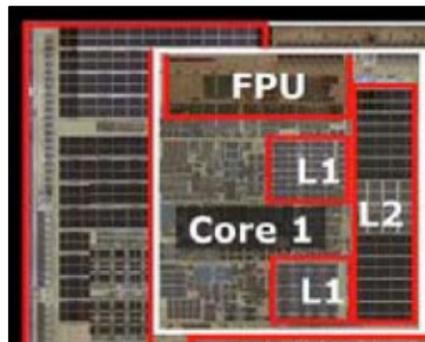
10 31. The foundation of every AMD Bulldozer processor is AMD’s “module” technology
11 that contains two processing units.¹⁹ In its marketing, AMD represents that each module contains
12 two cores, but that is not the case because a Bulldozer module begins as a single core, to which
13 AMD adds some—but not all—of the components from another core. As described above, a core is
14 a processing unit (what once was a single CPU) that is independent from other processing units on
15 the same physical chip or die. AMD’s decision to provide each module with only *some* (but not all)
16 of the components of two cores means a module contains only one complete core, not two as
17 advertised. While two cores can simultaneously process two instructions independently from each
18 other, AMD’s Bulldozer modules cannot.

19 32. A visual comparison of a module to a core reveals that a module does not contain
20 two cores. Figure 9 shows a pre-Bulldozer AMD CPU design. There, a sing core has a dedicated
21 (not shared) floating-point unit (“FPU”)²⁰ along with L1 and L2 cache. Similarly, Figure 10 shows

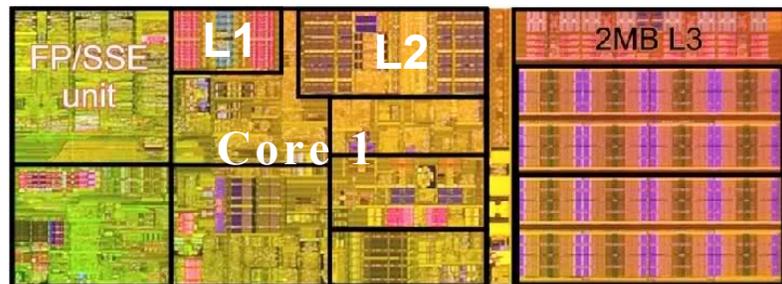
22 ¹⁹ AMD subsequently released “Piledriver” and “Steamroller” processors that contain and
23 were built using Bulldozer module technology.

24 ²⁰ A floating point unit is a sub processor purpose-built to perform calculations related to
25 “floating points,” or non-integer number (*i.e.*, numbers with decimal places). L2 cache is a bank of
26 computer memory that serves as a repository for a processing unit.
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1 a current Intel design where a single core has a dedicated (not shared) FPU and L1 and L2 cache.²¹
 2 With these designs, each core can process an instruction independently from other cores because it
 3 has its own dedicated cache and FPU, among other components. These processing units, then fit
 4 into the standard definition of a core. And, an 8-core CPU built with these designs will have eight
 5 copies of the cores shown above on one physical processor or die, and contain eight FPUs and eight
 6 sets of L1 and L2 cache.



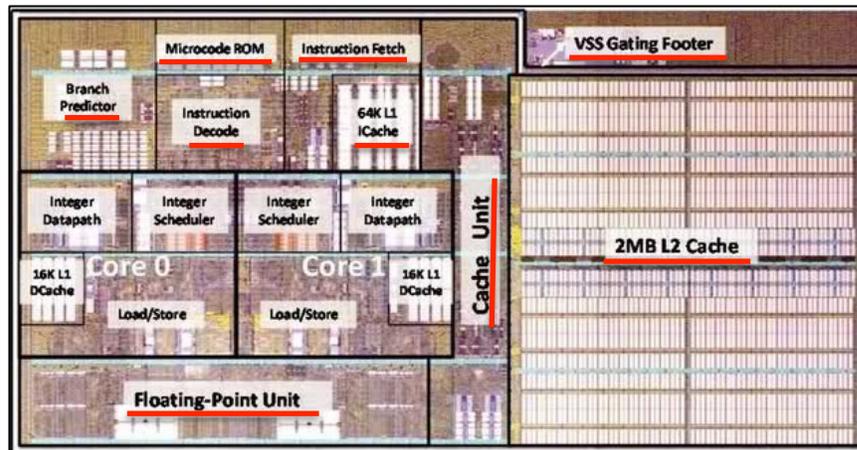
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12 (Figure 9, showing AMD's Phenom II core with a separate and dedicated (non-
13 shared) floating-point unit and L2 cache, among other components.)



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18 (Figure 10, showing Intel's Westmere core with a separate floating-point unit and
19 L2 cache, among other components)

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21 ²¹ In addition to its multi-core processors, Intel offers a "Hyper-Threading" feature on its
22 CPUs. Hyper-Threading is a technology used by Intel to create virtual cores. Specifically, engineers
23 found that by adding additional components to a CPU, it may be possible to cause one core to
24 process two instructions rather than one. By including Hyper-Threading, Intel increased
25 performance of a single core. However, Hyper-Threading does not offer the same performance as
26 two "physical" (*i.e.*, actual) cores.

27 Importantly, Intel does not market its CPUs with Hyper-Threading as having more cores
28 than a chip without Hyper-Threading. That is, Intel does not count Hyper-Threading's virtual cores
as additional "physical cores." For example, Intel advertises its Hyper-Thread enabled Core i5 chips
as having "2 cores" but being capable of executing "4 threads," what it defines as "a software term
for the basic ordered sequence of instructions that can be passed through or processed by a single
CPU core." See ARK | Intel® Core™ i5-5250U Processor (3M Cache, up to 2.70 GHz),
http://ark.intel.com/products/84984/Intel-Core-i5-5250U-Processor-3M-Cache-up-to-2_70-GHz
(last visited Oct. 26, 2015).



(**Figure 11**, showing a Bulldozer module with two module processing units marked as “Core 0” and “Core 1” and sharing a single floating point unit and L2 cache) (emphasis added, showing shared components.)²²

33. But as Figure 11 reveals, AMD designed its module processing units to share common components. As such, AMD’s advertised “cores” are not independent from each other and are not really cores. For instance, AMD’s Bulldozer module processing units share a single FPU. If one module processing unit performs a floating point calculation, the other must wait until that resource is free for its own floating point calculation, creating a bottleneck. The same is true for the L2 cache, and other shared sub-components. A Bulldozer CPU advertised as having “eight cores,” then, has eight module processing units but only four FPUs, four sets of L2 cache, and four sets of other important core components. As such, the “eight core” AMD Bulldozer CPU does not have eight cores under the industry standard definition.

34. Technical trade publications (*i.e.*, publications not read by average consumers) have also taken note of the differences between AMD’s Bulldozer module processing units and actual cores. One industry publication stated that “the Bulldozer module doesn’t incorporate two complete cores” as advertised.²³ The publication “estimated that a Bulldozer module could [at most] average 80% of [the performance of] two complete cores.”²⁴

²² *Intel & AMD, Architectural Discussion, How Far Ahead Is Intel? - CPUs, Motherboards, and Memory - Linus Tech Tips*, <http://linustechtips.com/main/topic/48571-intel-amd-architectural-discussion-how-far-ahead-is-intel/> (last visited Oct. 26, 2015).

²³ *Per-Core Performance - AMD Bulldozer Review: FX-8150 Gets Tested*, www.tomshardware.com/reviews/fx-8150-zambezi-bulldozer-990fx,3043-3.html (last visited Sept. 22, 2015).

²⁴ *Id.*

1 35. The publication went on to state that, according to Microsoft (the developer of the
2 Windows operating system), “**modules have performance characteristics more similar to**
3 **[Hyper-Threading] than physical cores, so [it] is looking to detect and treat them the same as**
4 **Hyper-Threading in the future.**”²⁵ That is to say, Microsoft recognized that a module did not have
5 two cores, but only two module processing units (which are not the same) and compared a module
6 to an Intel core with “hyper-threading” technology, as described in footnote 24.

7 36. In fact, when not marketing to consumers, AMD acknowledges that a module is not
8 equal to two cores. In 2013, AMD released a technical video of one of its engineers describing the
9 Bulldozer design.²⁶ In the video, the engineer states that AMD’s modules have “additional sharing”
10 when compared to existing cores and that *modules*, rather than module processing units, have
11 “everything necessary to schedule a code on these processors.”²⁷ That is, an “8 core” Bulldozer
12 CPU with four modules really only has four actual cores.

13 C. *Misrepresenting a CPU’s Core-count is Material.*

14 37. As the AMD engineer put it: Bulldozer module processing units share more
15 resources than a core. In practice, AMD’s choice to design the Bulldozer module processor units to
16 share components creates a performance bottleneck compared to CPUs with actual cores.

17 38. When it was released in 2011, AMD advertised its 3.3 GHz FX-8150 Bulldozer
18 processor²⁸ as being the “first-ever eight-core desktop processor” for consumers.²⁹ Intel’s
19 competing chip at the time was its four core Intel Core i7-2600K running at 3.3 GHz.³⁰ As these
20 specifications suggest, the competing chips operate at the same clock speeds, but AMD seemingly
21 bests Intel on core-count. As such, consumers in the market for CPUs would identify the AMD chip

22 ²⁵ *Id.* (emphasis in original).

23 ²⁶ AMD, “*Bulldozer*” *Processor Topology*, May 28, 2013, www.youtube.com/watch?v=4EAuVsXWQ0s (last visited Oct. 26, 2015).

24 ²⁷ *Id.*

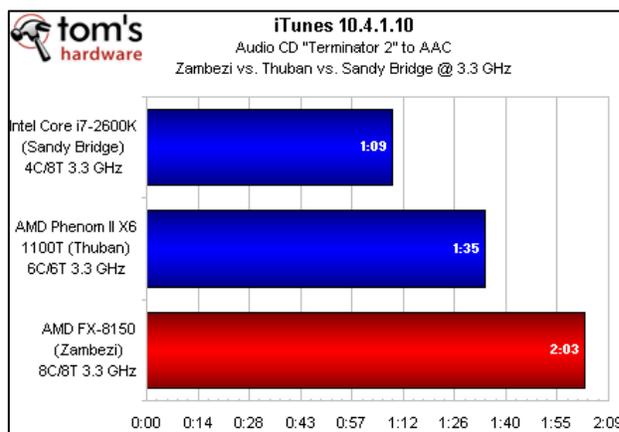
25 ²⁸ *The Bulldozer Review: AMD FX-8150 Tested - Print View*, *supra*.

26 ²⁹ AMD, *Unlock Your Record Setting AMD FX Series Processor Today*, (10/12/2011) <http://www.amd.com/en-us/press-releases/Pages/unlock-your-record-setting-2011oct12.aspx> (last visited Oct. 26, 2015).

27 ³⁰ *The Sandy Bridge Review: Intel Core i7-2600K, i5-2500K and Core i3-2100 Tested*, <http://www.anandtech.com/show/4083/the-sandy-bridge-review-intel-core-i7-2600k-i5-2500k-core-i3-2100-tested> (last visited Oct. 26, 2015).

1 as the better offering because it offers double the number of cores at the same speeds—therefore it
 2 would be expected that AMD’s CPU would be twice as fast as Intel’s. But as described above, the
 3 Bulldozer does not contain eight cores, only four modules, and its performance is less than it would
 4 be for a true eight-core CPU.

5 39. For instance, Figure 13 is a chart from a representative technical review of a
 6 Bulldozer processor compared against a Intel’s processors (lower is better). There, the “8-core” FX-
 7 8150 Bulldozer processor is 96% slower than the 4-core (with Hyper-Threading) Intel Core i7-
 8 2600K.³¹ In fact, the reviewer discovered that the new “8-core” Bulldozer chip was often *slower*
 9 than AMD’s older 6-core processor.³²



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 17 (Figure 13, showing AMD’s Bulldozer “AMD FX-8150,” taking 2:03 minutes to
 18 complete a task, markedly slower than Intel’s “Core i7” at 1:09 minutes and AMD’s
 19 pre-Bulldozer chip, the “Phenom II” at 1:35 minutes.)³³

20 40. The reason AMD’s “8-core” Bulldozer was slower than Intel’s 4-core CPU and its
 21 own 6-core CPU is that it does not have “8-cores,” but only eight module processing units with
 22 shared components. Average consumers in the market for a CPU lack the requisite technical
 23 expertise to understand the underlying design of the Bulldozer processors. Instead, average

24 ³¹ *Id.*

25 ³² *Id.*

26 ³³ *Per-Core Performance - AMD Bulldozer Review: FX-8150 Gets Tested*,
 27 <http://www.tomshardware.com/reviews/fx-8150-zambezi-bulldozer-990fx,3043-6.html> (last visited
 28 Oct. 26, 2015); *see also The Bulldozer Review: AMD FX-8150 Tested - Print View*,
<http://www.anandtech.com/print/4955/the-bulldozer-review-amd-fx8150-tested> (last visited Oct. 26,
 2015) (stating that in some instances, “Bulldozer simply does not perform,” and even in other cases,
 “the improvement over the previous generation [AMD six-core CPU] simply isn’t enough to justify
 an upgrade.”)

1 consumers trust AMD to convey accurate specifications in its marketing.

2 41. And although AMD knew that average consumers were unable to discern the
3 falsehood of its representations at the time of sale, AMD misled consumers who desired a processor
4 with eight cores by advertising inflated core-counts of its Bulldozer CPUs. As a result, tens of
5 thousands of consumers have been deceived by AMD's marketing and purchased Bulldozer
6 processors believing AMD's representations about its core-count to be true.

7 **III. Plaintiff Dickey's Experience With His FX-9590 Processor.**

8 42. On March 10, 2015, Plaintiff navigated to AMD.com. On AMD's website, Plaintiff
9 saw representations identical to those in Figures 1 and 2. Specifically, Plaintiff saw representations
10 that the FX-9590 Bulldozer chip was "the first native 8-core desktop processor" and had "8-
11 core[s]."

12 43. Plaintiff then navigated to www.Newegg.com where he saw AMD's representations
13 claiming that the Bulldozer processor had "8 cores." The representations he saw were created by
14 AMD and provided by it to Newegg.com. Specifically, Plaintiff saw representations on
15 Newegg.com that the FX-9590 Bulldozer was the "first native 8-core desktop processor" and "the
16 industry's first and only native 8-core desktop processor for unmatched multitasking and pure core
17 performance with 'Bulldozer' architecture," identical to the representations in Figures 3 and 5.

18 44. After viewing the representations, and on March 10, 2015, Plaintiff purchased two
19 FX-9590 Bulldozer processors on Newegg.com for \$299.99. Plaintiff then read the representations
20 that AMD created for the processors' packaging when he received the FX-9590 processors in the
21 mail but prior to opening and using the product. Specifically, Plaintiff read AMD's representations
22 that the FX-9590 Bulldozer was an "8-core" processor, as shown in Figures 6-8.

23 45. Plaintiff then began using the AMD FX-9590 Bulldozer processors. However, as
24 described above, the FX-9590 Bulldozer processors Plaintiff purchased did not have eight cores
25 each. Instead, they each only contained four Bulldozer "modules," which at best could constitute
26 four cores. As a result, Plaintiff's AMD FX-9590 Bulldozer processors did not perform as well as a
27 CPU with the same clock speed but with eight true cores.

1 The following people are excluded from the Class: (1) any Judge or Magistrate presiding over this
 2 action and members of their families; (2) Defendant, Defendant's subsidiaries, parents, successors,
 3 predecessors, and any entity in which the Defendant or its parents have a controlling interest and its
 4 current or former employees, officers and directors; (3) persons who properly execute and file a
 5 timely request for exclusion from the Class; (4) persons whose claims in this matter have been
 6 finally adjudicated on the merits or otherwise released; (5) Plaintiff's counsel and Defendant's
 7 counsel; and (6) the legal representatives, successors, and assigns of any such excluded persons.

8 50. **Numerosity:** The exact number of members of the Class is unknown and is not
 9 available to Plaintiff at this time, but individual joinder in this case is impracticable. The Class
 10 likely consists of tens of thousands of individuals. Class members can be easily identified through
 11 Defendant's or its agents' records.

12 51. **Commonality and Predominance:** There are many questions of law and fact
 13 common to the claims of Plaintiff and the other members of the Class, and those questions
 14 predominate over any questions that may affect individual members of the Class. Common
 15 questions for the Class include but are not limited to the following:

- 16 a) Whether Defendant intentionally misrepresented the core-count of its
- 17 Bulldozer Processors;
- 18 b) Whether Defendant's conduct described herein was willful;
- 19 c) Whether Defendant's conduct described herein constitutes a violation of

20 *also AMD FX-Series microprocessor family*, [http://www.cpu-world.com/CPUs/Bulldozer/TYPE-](http://www.cpu-world.com/CPUs/Bulldozer/TYPE-FX-Series.html)
 21 [FX-Series.html](http://www.cpu-world.com/CPUs/Bulldozer/TYPE-FX-Series.html) (last visited Oct. 26, 2015).

22 In addition, and as shown in Figure F, the Bulldozer Processors were marketed in the same
 23 way. Marketing for each contains the core-count within the product name, product description,
 24 product details, and on the box. Moreover, AMD overstated the core-count for each processor in the
 25 same way: AMD counted each module as two cores even though a Bulldozer module processing
 26 unit is not equal to a core. And, in one of its Form 10-Ks, AMD states the following about its FX
 27 processors: "Our CPUs for desktop PC platforms also consist of the following: AMD FX processors
 28 based on the 'Bulldozer' and 'Piledriver' x86 multi-core architecture" *Advanced Micro Devices*
- SEC Filing,

<http://ir.amd.com/mobile.view?c=74093&v=202&d=3&id=aHR0cDovL2FwaS50ZW5rd2l6YXJkLmNvbS9maWxpbnmcueG1sP2lwYWdlPTg3NDQwODgmRFNFUT0xJINFUT04JINRREVTQz1TRUNUSU9OX1BBR0UmZXhwPSZzdWJzaWQ9NTc%3D> (last visited Oct. 26, 2015).

1 California's Consumers Legal Remedies Act (Cal. Civ. Code. §§ 1750, *et*
2 *seq.*);

3 d) Whether Defendant's conduct described herein constitutes a violation of the
4 Unfair Competition Law (Cal. Bus. & Prof. Code §§ 17200, *et seq.*);

5 e) Whether Defendant's conduct described herein constitutes a violation of the
6 False Advertising Law (Cal. Bus. & Prof. Code §§ 17500, *et seq.*);

7 f) Whether Defendant's conduct described herein constitutes fraud in the
8 inducement;

9 g) Whether Defendant's conduct described herein constitutes a breach of
10 express warranty;

11 h) Whether Defendant's conduct described herein constitutes negligent
12 misrepresentation; and,

13 i) Whether Defendant's conduct has caused them to be unjustly enriched.

14 52. **Typicality:** Plaintiff's claims are typical of the claims of the other members of the
15 Class. Plaintiff and the Class sustained damages as a result of Defendant's uniform wrongful
16 conduct during transactions with Plaintiff and the Class.

17 53. **Adequate Representation:** Plaintiff has and will continue to fairly and adequately
18 represent and protect the interests of the Class, and he has retained counsel competent and
19 experienced in complex litigation and class actions. Plaintiff has no interests antagonistic to those of
20 the Class, and Defendant has no defenses unique to Plaintiff. Plaintiff and his counsel are
21 committed to vigorously prosecuting this action on behalf of the members of the Class, and they
22 have the resources to do so. Neither Plaintiff nor his counsel has any interest adverse to those of the
23 other members of the Class.

24 54. **Policies Generally Applicable to the Class:** This class action is appropriate for
25 certification because Defendant has acted or refused to act on grounds generally applicable to the
26 Class, thereby requiring the Court's imposition of uniform relief to ensure compatible standards of
27 conduct toward the members of the Class and making final injunctive relief appropriate with respect
28

1 to the Class as a whole. Defendant's policies challenged herein apply and affect the members of the
2 Class uniformly and Plaintiff's challenge of these policies hinges on Defendant's conduct with
3 respect to the Class as a whole, not on facts or law applicable only to Plaintiff.

4 55. **Superiority:** This class action is also appropriate for certification because class
5 proceedings are superior to all other available methods for the fair and efficient adjudication of this
6 controversy and joinder of all members of the Class is impracticable. The damages suffered by the
7 individual members of the Class will likely be small relative to the burden and expense of
8 individual prosecution of the complex litigation necessitated by Defendant's wrongful conduct.
9 Thus, it would be virtually impossible for the individual members of the Class to obtain effective
10 relief from Defendant's misconduct. Even if members of the Class could sustain such individual
11 litigation, it would not be preferable to a class action because individual litigation would increase
12 the delay and expense to all parties due to the complex legal and factual controversies presented in
13 this Complaint. By contrast, a class action presents far fewer management difficulties and provides
14 the benefits of single adjudication, economy of scale, and comprehensive supervision by a single
15 court. Economies of time, effort, and expense will be fostered and uniformity of decisions will be
16 ensured.

17 56. Plaintiff reserves the right to revise the foregoing "Class Allegations" and "Class
18 Definition" based on facts learned through additional investigation and in discovery.

19 **FIRST CAUSE OF ACTION**
20 **Violation of the Consumers Legal Remedies Act**
21 **Cal. Civ. Code §§ 1750, *et seq.***
22 **(On Behalf of Plaintiff and the Class)**

23 57. Plaintiff incorporates by reference the foregoing allegations as if fully set forth
24 herein.

25 58. The Consumers Legal Remedies Act ("CLRA") applies to Defendant's actions and
26 conduct as described herein because it extends to transactions that are intended to result, or which
27 have resulted, in the sale of goods or services to consumers.

28 59. Defendant is a "person" as defined by Cal. Civ. Code § 1761(c).

 60. Plaintiff and each member of the Class are "consumers" as defined by Cal. Civ.

1 Code § 1761(a).

2 61. Defendant's Bulldozer Processors are "goods" within the meaning of Cal. Civ. Code
3 § 1761(a).

4 62. As described herein, Defendant has engaged in deceptive practices, unlawful
5 methods of competition, and/or unfair acts as defined by Cal. Civ. Code §§ 1750 *et seq.*, to the
6 detriment of Plaintiff and the Class.

7 63. Defendant, acting with knowledge, intentionally and unlawfully brought harm upon
8 Plaintiff and the Class by representing that the Bulldozer Processors had "8-cores" when in fact
9 Defendant's representations were false because the Bulldozer Processors have only four complete
10 cores.

11 64. Specifically, Defendant violated Cal. Civ. Code § 1750 in at least the following
12 respects:

- 13 a. In violation of § 1770(5), by representing that the Bulldozer Processors had
14 characteristics, ingredients, uses, benefits, or quantities which they did not
15 have;
- 16 b. In violation of § 1770(7), by representing that the Bulldozer Processors were
17 of a particular standard, quality, or grade of which they are not; and
- 18 c. In violation of § 1770(9), by advertising the Bulldozer Processors with the
19 intent not to sell its goods as advertised.

20 65. Defendant's unfair or deceptive acts or practices were capable of deceiving a
21 substantial portion of the purchasing public.

22 66. Defendant knew that it was unable or unwilling to manufacture, distribute, and sell
23 processors with the advertised specifications at the time that it made representations claiming that
24 the Bulldozer Processors had twice the number of cores that they actually had. Specifically,
25 Defendant possessed technical materials and documentation and would have known that the
26 Bulldozer modules were not equivalent to two cores as advertised.

27 67. Once Defendant made specific public representations regarding the specifications of
28

1 the Bulldozer Processors, Defendant was under a duty to Plaintiff and the Class to disclose its
2 inability or unwillingness to manufacture, distribute, and sell processors as advertised because:

- 3 a. Defendant was in a superior position to know the true state of facts about the
4 specifications of the Bulldozer Processors;
- 5 b. Plaintiff and the Class could not reasonably have been expected to learn or
6 discover that Defendant did not design the Bulldozer Processors with the
7 advertised specifications;
- 8 c. Defendant knew that Plaintiff and the Class members could not reasonably
9 have been expected to learn or discover that the Bulldozer Processors did not
10 contain the core-count advertised; and
- 11 d. Defendant knew, and in fact intended, that Plaintiff and the Class members
12 would rely on Defendant's representations regarding the processors' core-
13 count in choosing whether or not to purchase the Bulldozer Processors.

14 68. In failing to disclose its inability or unwillingness to design, manufacture, and sell
15 processors with the advertised specifications, Defendant has knowingly and intentionally concealed
16 material facts and breached its duty not to do so.

17 69. The facts concealed or not disclosed by Defendant to Plaintiff and the Class,
18 including that the Bulldozer Processors did not have any many cores as advertised, are material in
19 that a reasonable consumer would have considered them to be important in deciding whether or not
20 to purchase the Bulldozer Processors.

21 70. Plaintiff and the Class reasonably expect their processors to have the specifications
22 equal to what Defendant advertised based upon Defendant's representations found online, the
23 processors' packaging, and in the processors' names. Plaintiff's and Class members' expectations
24 were reasonable under the circumstances.

25 71. The core-count of the Bulldozer Processors are and were material selling points of
26 Defendant's processors, and primary reasons to purchase the products.

27 72. Plaintiff and members of the Class relied on the representations made by Defendant
28

1 about the core-count of the Bulldozer Processors when purchasing the products.

2 73. Defendant's false representations about the core-count of the Bulldozer Processors
3 were acts likely to mislead Plaintiff and the members of the Class acting reasonably under the
4 circumstances.

5 74. Through the misrepresentations and omissions detailed herein, Defendant wrongfully
6 induced Plaintiff and the other members of the Class to purchase the Bulldozer Processors when
7 they otherwise would not have purchased the processors or would have only agreed to purchase
8 them at a lower price.

9 75. As a direct and proximate result of Defendant's violation of Cal. Civ. Code §§ 1750,
10 *et seq.*, Plaintiff and each Class member have suffered harm in the form of paying monies to
11 Defendant without receiving the entire benefit of his or her bargain.

12 76. Plaintiff and the members of the Class are likely to purchase processors with AMD
13 technology in the future and require an injunction requiring AMD to truthfully advertise its
14 processors' specifications. Specifically, because AMD and its competitor Intel manufacture and
15 distribute effectively all consumer CPUs, Plaintiff and members of the Class will be exposed to
16 AMD's deceptive marketing in the future and are effectively left with no other option but to
17 purchase products from AMD or Intel.

18 77. Under Cal. Civ. Code § 1780(a) and (b), Plaintiff, individually and on behalf of the
19 Class, seeks an injunction requiring Defendant to cease and desist the illegal conduct alleged in this
20 Complaint, and all other appropriate remedies for its violations of the CLRA. For the sake of clarity,
21 Plaintiff explicitly disclaims any claim for damages under the CLRA at this time.

22 **SECOND CAUSE OF ACTION**
23 **Violations of California's Unfair Competition Law**
24 **Cal. Bus. & Prof. Code §§ 17200, *et seq.***
25 **(On Behalf of Plaintiff and the Class)**

26 78. Plaintiff incorporates by reference the foregoing allegations as if fully set forth
27 herein.

28 79. California's Unfair Competition Law ("UCL"), Cal Bus. & Prof. Code §§ 17200, *et seq.*, protects both consumers and competitors by promoting fair competition in commercial

1 markets for goods and services.

2 80. The UCL prohibits any unlawful, unfair, or fraudulent business act or practice,
3 including the employment of any deception, fraud, false pretense, false promise, misrepresentation,
4 or the concealment, suppression, or omission of any material fact. A business practice need only
5 meet one of the three criteria to be considered unfair competition.

6 81. The specifications of a consumer product is a material term of any transaction
7 because it directly affects a consumer's choice of, or conduct regarding, whether to purchase a
8 product. Any deception or fraud related to the specifications of a product is materially misleading.

9 82. As described herein, Defendant has engaged in deceptive business practices, as
10 defined by the UCL, by misrepresenting the core-count of its Bulldozer Processors.

11 83. Defendant's representations were, in fact, false. Defendant's processors do not
12 actually contain the advertised core-count. In particular, Defendant's Bulldozer Processors contain
13 four "modules" (*i.e.*, four complete cores) which are materially distinct from "8-cores" that are
14 advertised.

15 84. Defendant has violated the fraudulent prong of the UCL by knowingly making false
16 representations to consumers—including Plaintiff and the Class—regarding the number of cores in
17 its Bulldozer Processors. These representations were made in an effort to convince consumers to
18 purchase the Bulldozer Processors.

19 85. Reasonable consumers are likely to be, and Plaintiff and the Class were, deceived by
20 Defendant's misrepresentations about the specifications of the Bulldozer Processors.

21 86. Defendant also violated the UCL's unfair prong by causing substantial injury to
22 consumers through its fraudulent conduct described above. The injuries caused by Defendant's
23 unfair conduct are not outweighed by any countervailing benefits to consumers or competition, and
24 the injury is one that consumers themselves could not reasonably have avoided. Given the
25 information asymmetry between Defendant and consumers regarding the true specifications of the
26 Bulldozer Processors, Defendant knew or had reason to know that Plaintiff and the Class could not
27 have reasonably known or discovered the falsity of representations about the actual specifications of
28

1 the Bulldozer Processors.

2 87. Defendant's fraudulent and unfair conduct occurred during the marketing,
3 distribution, and sale of consumer-grade CPUs, and therefore occurred in the course of Defendant's
4 business practices.

5 88. Defendant's fraudulent and unfair conduct directly and proximately caused Plaintiff
6 and the Class actual monetary damages in the form of the price paid for their Bulldozer
7 Processors—typically between \$150 and \$300—or, at least, the difference between what they paid
8 for the processors and their actual value.

9 89. But for Defendant's conduct as described herein, Plaintiff and the Class would not
10 have purchased the Bulldozer Processors, or would have paid substantially less for them.

11 90. Pursuant to Cal. Bus. & Prof. Code § 17203, Plaintiff seeks an order (1) requiring
12 Defendant to cease the unfair practices described herein; (2) requiring Defendant to restore to
13 Plaintiff and each Class member any money acquired by means of unfair competition (restitution);
14 and, (3) awarding reasonable costs and attorneys' fees pursuant to Cal. Code Civ. Proc. § 1021.5.

15 **THIRD CAUSE OF ACTION**
16 **Violation of False Advertising Law**
17 **Cal. Bus. & Prof. Code §§ 17500 *et seq.***
18 **(On Behalf of Plaintiff and the Class)**

19 91. Plaintiff incorporates the foregoing allegations as if fully set forth herein.

20 92. California's False and Misleading Advertising Law ("FAL") prohibits corporations
21 from intentionally disseminating advertisements for products or services that are "unfair, deceptive,
22 untrue, or misleading." Cal. Bus. & Prof. Code §17500.

23 93. As depicted in Figures 1–8 and detailed throughout this Complaint, Defendant has
24 disseminated unfair, deceptive, untrue, and misleading advertisements that overstate the core-count
25 of its Bulldozer Processors. As detailed in Section II above, these advertisements are false and
26 misleading and were designed to convince consumers to purchase the processors. In short,
27 Defendant's advertisements are false because they advertise specifications that Defendant knew the
28 processors did not have (*i.e.*, AMD knew a Bulldozer module is not equal to two complete cores).

94. A reasonable person is likely to be deceived by Defendant's advertisements.

1 materially misleading.

2 102. Misrepresentations regarding a processor's core-count specifications are likely to
3 mislead a reasonable consumer who is acting reasonably under the circumstances.

4 103. Defendant knew or should have known of the falsity of the representations it made
5 regarding the core-count of its Bulldozer Processors.

6 104. Defendant intended that the deceptive and fraudulent misrepresentations it made
7 would induce consumers to rely upon them and act by purchasing its Bulldozer Processors.

8 105. Defendant received money as a result of Plaintiff and members of the Class monies
9 purchasing a product that did not meet the advertised specifications. Accordingly, Plaintiff and the
10 members of the Class have suffered injury in fact and lost money in justifiable reliance on
11 Defendant's misrepresentations of material fact.

12 106. In deceiving Plaintiff and the Class by misrepresenting the actual core-count
13 specifications of the Bulldozer Processors, and inducing Plaintiff and the Class to proffer payment
14 based on those misrepresentations, Defendant has engaged in and has, and/or continues to have,
15 direct knowledge of fraudulent practices designed to mislead and deceive consumers.

16 107. Plaintiff and the Class have suffered harm as a proximate result of Defendant's
17 violations of law and wrongful conduct.

18 108. Plaintiff, on behalf of himself and the Class, seeks damages from Defendant's
19 unlawful conduct.

20 **FIFTH CAUSE OF ACTION**
21 **Breach of Express Warranties**
22 **(On Behalf of Plaintiff and the Class)**

23 109. Plaintiff incorporates by reference the foregoing allegations as if fully set forth
24 herein.

25 110. Pursuant to California Commercial Code § 2313, Defendant's sale of its Bulldozer
26 Processors included express warranties created by Defendant's affirmations of fact, made through
27 the marketing materials and advertisements displayed on retailers' websites, on the processors'
28 packaging, and in the processors' product description.

1 111. Defendant’s express warranties included affirmations of fact and promises that the
2 Bulldozer Processors would conform to the core-count specifications represented on retailers’
3 websites, on the processors’ packaging, and in the processors’ product description.

4 112. Specifically, Defendant’s statements included affirmations of fact and promises that
5 the Bulldozer Processors have “8-cores.” As such, Defendant expressly warranted that the
6 Bulldozer Processors would conform to such specifications.

7 113. Defendant, under the California Commercial Code, was obligated to deliver the
8 Bulldozer Processors as advertised, promised, and/or described.

9 114. Defendant breached its express warranties because the processors did not conform to
10 the core-count specifications advertised on retailers’ websites, on the processors’ packaging, in the
11 processors’ product description.

12 115. Defendant’s failure to provide Plaintiff and the Class members with processors that
13 conform to advertised core-count specifications constitutes a breach of the express warranty to
14 include such core-count specifications with the Bulldozer Processors.

15 116. Plaintiff and the members of the Class relied on Defendant’s affirmations, promises,
16 and descriptions when they purchased the Bulldozer Processors. But for Defendant’s affirmations
17 and promises, Plaintiff and the Class would not have purchased the Bulldozer Processors, or would
18 have only agreed to purchase them at a lower price. As such, Defendant’s breach of express
19 warranties injured Plaintiff and the Class because they purchased a product of diminished value—
20 processors that do not have the core-count specifications as described by Defendant’s affirmations
21 and promises.

22 117. Because the processors that Plaintiff and the Class members received did not have
23 the core-count specifications as expressly warranted and represented by Defendant, Plaintiff and the
24 members of the Class have been damaged insofar as they did not receive the benefit of their
25 bargain.

26 118. By serving this Complaint, Plaintiff and the Class hereby give Defendant notice that
27 it has breached the express warranties described above. Plaintiff and the members of the Class
28

1 request maximum damages as provided by the California Commercial Code.

2 **SIXTH CAUSE OF ACTION**
3 **Negligent Misrepresentation**
4 **(On Behalf of Plaintiff and the Class)**

5 119. Plaintiff incorporates by reference the foregoing allegations.

6 120. Through its marketing materials, Defendant represented to Plaintiff and the members
7 of the Class that the Bulldozer Processors have “8-cores.”

8 121. Plaintiff and the members of the Class were exposed to representations made by
9 Defendant regarding the Bulldozer Processors having eight cores. Those representations were
10 repeated on and through various websites, including amd.com, Newegg.com, and Amazon.com, and
11 on the Bulldozer’s packaging.

12 122. Those representations were false, and at the time such false statements were made,
13 Defendant knew or should have known of their falsity or, at the very least, Defendant acted with
14 negligence and carelessness in ascertaining the truth of the statements. Defendant knew or should
15 have known that they were unwilling or unable to include the qualities and specifications
16 represented in its marketing materials (online and on-box). Defendant did not have any reasonable
17 ground for believing its statements to be true.

18 123. Defendant intended that Plaintiff and the members of the Class rely on its
19 misrepresentations and omissions by purchasing Bulldozer Processors.

20 124. Defendant understood, and intended, that their current and future customers would
21 see the representations discussed herein.

22 125. Defendant had a duty to not make the above-described misrepresentations, and to
23 take steps to correct any misrepresentations before Plaintiff and the members of the Class purchased
24 the Bulldozer Processors.

25 126. However, Defendant did not take any steps to correct, clarify its false representations
26 about the qualities and specifications of the Bulldozer Processors.

27 127. Plaintiff and Class Members justifiably relied on Defendant’s misrepresentations by
28 purchasing Bulldozer Processors, and were unaware of the falsity of Defendant’s statements at the

1 time they were made.

2 128. As a direct and proximate result of Defendant's misrepresentations, Plaintiff and the
3 members of the Class suffered damages in the form of monies paid to purchase Defendant's product
4 when they otherwise would not have purchased the processors or would only have agreed to
5 purchase them at a lower price.

6 **SEVENTH CAUSE OF ACTION**
7 **Unjust Enrichment**
8 **(On Behalf of Plaintiff and the Class)**

9 129. Plaintiff incorporates by reference the foregoing allegations as if fully set forth
10 herein.

11 130. Plaintiff and the Class have conferred a benefit upon Defendant in the form of the
12 money Defendant received from them for the purchase of the Bulldozer Processors, which did not
13 have the core-count specifications as Defendant promised.

14 131. Defendant appreciates and/or has knowledge of the benefits conferred upon it by
15 Plaintiff and the Class.

16 132. Under principles of equity and good conscience, Defendant should not be permitted
17 to retain the money obtained from Plaintiff and the members of the Class, which Defendant has
18 unjustly obtained as a result of its deceptive and misleading advertising.

19 133. Accordingly, Plaintiff and the Class seek full disgorgement and restitution of any
20 money Defendant has retained as a result of the unlawful and/or wrongful conduct alleged herein.

21 **PRAYER FOR RELIEF**

22 WHEREFORE, Plaintiff Tony Dickey on behalf of himself and the Class respectfully
23 requests that the Court enter an order:

24 A. Certifying this case as a class action on behalf of the Class defined above, appointing
25 Tony Dickey as representative of the Class, and appointing his counsel as class counsel;

26 B. Declaring that Defendant's actions, as set out above, violate the CLRA (Cal. Civ.
27 Code §§ 1750, *et seq.*); UCL (Cal. Bus. & Prof. Code §§ 17200 *et seq.*); the FAL (Cal. Bus. & Prof.
28 Code §§ 17500, *et seq.*), and constitute fraud in the inducement, breach of express warranties,

1 negligent misrepresentation, and unjust enrichment;

2 C. Awarding damages, including statutory and punitive damages where applicable, to
3 Plaintiff and the Class in an amount to be determined at trial;

4 D. Awarding Plaintiff and the Class their reasonable litigation expenses and attorneys'
5 fees;

6 E. Awarding Plaintiff and the Class pre- and post-judgment interest, to the extent
7 allowable;

8 F. Awarding such other injunctive and declaratory relief as is necessary to protect the
9 interests of Plaintiff and the Class; and

10 G. Awarding such other and further relief as the Court deems reasonable and just.

11 **DEMAND FOR JURY TRIAL**

12 Plaintiff demands a trial by jury for all issues so triable.

13 Respectfully submitted,

14 Dated: October 26, 2015

TONY DICKEY, individually and on behalf of all
15 others similarly situated,

16 By: /s/ Samuel M. Lasser
One of Plaintiff's Attorneys

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28 **Pro hac vice admission to be sought
Attorneys for Plaintiff and the Putative Class*

EXHIBIT A

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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.

For the fiscal year ended December 27, 2014

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.

For the transition period from _____ to _____

Commission File Number 001-07882

ADVANCED MICRO DEVICES, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

94-1692300

(I.R.S. Employer Identification No.)

One AMD Place, Sunnyvale, California

(Address of principal executive offices)

94088

(Zip Code)

(408) 749-4000

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

(Title of each class)	(Name of each exchange on which registered)
Common Stock \$0.01 par value per share	The NASDAQ Stock Market

Securities registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files): Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See definition of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act (check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer

(Do not check if a smaller reporting company)

Smaller reporting company

Indicate by check mark whether the registrant is a shell company (as defined by Rule 12b-2 of the Exchange Act). Yes No

As of June 28, 2014, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was approximately \$2.6 billion based on the reported closing sale price of \$4.11 per share as reported on the New York Stock Exchange on June 27, 2014, which was the last business day of the registrant's most recently completed second fiscal quarter.

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date: 777,300,258 shares of common stock, \$0.01 par value per share, as of February 13, 2015.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's proxy statement for the 2015 Annual Meeting of Stockholders (2015 Proxy Statement) are incorporated into Part III hereof. The 2015 Proxy Statement will be filed with the U.S. Securities and Exchange Commission within 120 days after the registrant's fiscal year ended December 27, 2014.

[Table of Contents](#)**Computing and Graphics*****The x86 Microprocessor and Chipset Markets***

Central Processing Unit (CPU). A microprocessor is an IC that serves as the CPU of a computer. It generally consists of hundreds of millions or billions of transistors that process data and control other devices in the system, acting as the “brain” of the computer. The performance of a microprocessor is a critical factor impacting the performance of computing and entertainment platforms, such as desktop PCs, notebooks, tablets and workstations. The principal elements used to measure CPU performance are work-per-cycle (or how many instructions are executed per cycle), clock speed (representing the rate at which a CPU’s internal logic operates, measured in units of gigahertz, or billions of cycles per second) and power consumption. Other factors impacting microprocessor performance include the number and type of cores in a microprocessor, the bit rating of the microprocessor, memory size and data access speed.

Developments in IC design and manufacturing process technologies have resulted in significant advances in microprocessor performance. As businesses and consumers require greater performance from their computer systems due to the growth of digital data and increasingly sophisticated software applications, semiconductor companies are designing and developing multi-core microprocessors, where multiple processor cores are placed on a single die or in a single processor. Multi-core microprocessors offer enhanced overall system performance and efficiency because computing tasks can be spread across two or more processing cores, each of which can execute a task at full speed. Multi-core microprocessors can increase performance of a computer system without greatly increasing the total amount of power consumed and the total amount of heat emitted. Businesses and consumers also require computer systems with improved power management technology, which helps them to reduce the power consumption of their computer systems and lower total cost of ownership.

Accelerated Processing Unit (APU) and System-on-Chip (SoC). Consumers increasingly demand computing devices, including desktop and notebooks PCs, and smaller form factors, such as tablets and 2-in-1s (PCs that can function both as a notebook or a tablet), with improved end-user experience, system performance and energy efficiency. Consumers also continue to demand thinner and lighter mobile devices, with better performance and longer battery life. We believe that a computing architecture that optimizes the use of its components can provide these improvements.

An APU is a processing unit that integrates a CPU and a GPU onto one chip (or one piece of silicon), along with, in some cases, other special-purpose components. This integration enhances system performance by “offloading” selected tasks to the best-suited component (i.e., the CPU or the GPU) to optimize component use, increasing the speed of data flow between the CPU and GPU through shared memory and allowing the GPU to function as both a graphics engine and an application accelerator. Having the CPU and GPU on the same chip also typically improves energy efficiency by, for example, eliminating connections between discrete chips.

An SoC is a type of IC with a CPU, GPU and other components, such as a memory controller and peripheral management, comprising a complete computing system on a single chip. By combining all of these elements as an SoC, system performance and energy efficiency is improved, similar to an APU.

Heterogeneous System Architecture (HSA) describes an industry standard that is an overarching design for having combinations of CPU and GPU processor cores operate as a unified, integrated engine that shares system responsibilities and resources. We are a founding member of the HSA Foundation, a non-profit organization established to define and promote this open standards-based approach to heterogeneous computing. Heterogeneous computing allows for the elevation of the GPU to the same level of the CPU for memory access, queuing and execution. In other words, rather than having a CPU as a master and other various processors as subordinates, these CPU and GPU processing units can be referred to as “compute cores” (where each core is capable of running at least one process in its own context and virtual memory space, independently from other cores). Heterogeneous computing also allows software programmers to develop applications that more fully utilize the full compute capabilities of APUs and SoCs.

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Chipset. A chipset is a generic term referring to a collection of system level components that manage data flow among a microprocessor or microprocessors, memory and peripherals (such as CD ROM drives, DVD drives and USB peripherals). Chipsets perform essential logic functions, balance a system's performance and provide system control and power management functions. Some chipsets have graphics capabilities by including an integrated graphics processor (IGP) within the chipset. A chipset with an IGP is known as an IGP chipset. IGP chipsets can offer a lower cost, reduced power alternative and are often also used in smaller form factors. Systems that are powered by an APU or by a CPU and discrete GPU combination often do not have a chipset and instead use an AMD Controller Hub chip to perform the functions of a chipset. As a result, we believe that either an APU and AMD Controller Hub chip combination or an SoC, which already includes a chipset, will eventually replace the market for IGP chipsets.

Our x86 Microprocessor and Chipset Products

Our microprocessors are incorporated into computing platforms, which are a collection of technologies that are designed to work together to provide a more complete computing solution and to enable and advance the computing components. We believe that integrated, balanced computing platforms consisting of microprocessors, chipsets and GPUs that work together at the system level bring end users improved system stability, increased performance and enhanced power efficiency. In addition, we believe our customers also benefit from an all-AMD platform (consisting of an APU or CPU, a discrete GPU and a chipset or an AMD Fusion Controller Hub chip), as we are able to optimize interoperability, provide them with a single point of contact for the key platform components and enable them to bring the platforms to market faster in a variety of client and server system form factors.

We currently base our microprocessors and chipsets on the x86 instruction set architecture and AMD's Direct Connect Architecture, which connects an on-chip memory controller and input/output (I/O) channels directly to one or more microprocessor cores. We typically integrate two or more processor cores onto a single die, and each core has its own dedicated cache, which is memory that is located on the semiconductor die, permitting quicker access to frequently used data and instructions. Some of our microprocessors have additional levels of cache such as L2, or second-level cache, and L3, or third-level cache, to enable faster data access and higher performance.

We focus on continually improving the energy efficiency of our products through our design principles and innovations in power management technology. To that end, we offer CPUs, GPUs, APUs, SoCs and chipsets with multiple low power states that utilize lower clock speeds and voltages to reduce processor power consumption during active and idle times. The use of intelligent, dynamic power management is designed to create lower energy use by allowing compute applications to be completed quickly and efficiently, enabling a return to the ultra-low power idle state.

Desktop. Our APUs for desktop PCs consist primarily of the AMD A-Series and AMD E-Series APUs. We also offer AMD FX CPUs for the enthusiast market. In January 2014, we launched the AMD A10-7850K and A10-7700K, formerly codenamed "Kaveri," for desktops. "Kaveri" is the world's first APU to include HSA features, AMD TrueAudio technology for improved fidelity and immersive audio and the HD gaming experience of AMD's Mantle application programming interface (API). Our Mantle API is designed to allow game developers to take greater advantage of the full capability of our Graphic Core Next (GCN) architecture. Our GCN is our new approach to the design of a consumer GPU. In July 2014, we expanded our desktop AMD A-Series APU with the AMD A10-7800 APU, our high performance APU. We also introduced the AMD A8-7600, AMD A6-7400K and AMD A4-7300 APUs, which are designed to allow consumers to upgrade their application and office experience on their desktop PC. The latest generation of our AMD FX CPUs is based on the "Piledriver" x86 multi-core architecture. Our AMD FX CPUs are designed for multitasking, high resolution gaming and HD media processing and come in eight-, six- and quad-core versions.

Notebook and 2-in-1s. In response to consumer demand, we continue to invest in designing and developing high performing and low power notebook PC platforms. Our APUs for notebook PCs consist

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primarily of performance AMD A-Series APUs and AMD E-Series APUs. These APUs combine discrete-level AMD Radeon™ graphics, dedicated HD video processing and multi-core CPU processors on a single chip and are designed to maximize performance and energy efficiency. In April 2014, we announced our 2014 mainstream and low-power APUs and mobile APUs, formerly codenamed “Beema” and “Mullins,” respectively, which feature up to four newly-designed x86 CPU cores with AMD Radeon graphics and a hardware-level data security solution based on the ARM® Cortex®-A5, all on a single SoC. In June 2014, we introduced our 2014 Performance Mobile APUs, formerly codenamed “Kaveri,” designed for ultrathin and high-performance mobile PCs. As part of the 2014 Performance Mobile APUs, we introduced the AMD FX APU designed for enthusiast-level performance for gaming and multitasking. Also, in June 2014, we announced our new AMD Pro A-Series APUs with HSA features designed for commercial notebook PCs.

Chipsets. Our portfolio of chipset products includes chipsets with and without IGPs for desktop and notebook PCs and servers, as well as AMD Controller Hub-based chipsets for our APUs. We offer AMD 9-Series and AMD A88X, A85X, A78, A75, A68H, A58 and A55 for desktop PCs, and we offer AMD A76M chipsets for notebook PCs. We also offer AMD 785E, SR5690, 780E and M690T chipsets for our embedded products.

Graphics Market

The semiconductor graphics market addresses the need for improved visual processing in various computing devices. Many consumers value a rich visual experience to enable a more compelling and immersive experience, and, for these consumers, the PC is evolving from a traditional data processing and communications device to an entertainment platform. As a result, visual realism and graphical display capabilities are key product differentiation elements among computing devices. This has led to increasing creation and use of processing-intensive multimedia content for computing devices, including playing games, capturing TV and other multimedia content, viewing online videos, photo editing and managing digital content. In turn, these trends have contributed to higher consumer demand for performance graphics solutions and manufacturers designing computing devices with these capabilities.

Our APUs deliver visual processing functionality for value and mainstream PCs by integrating a CPU and a GPU on a single chip, while discrete GPUs (which are also known as dedicated GPUs) are on a separate chip from the CPU and are specifically architected for higher performance graphics processing. Heavy computational workloads have traditionally been processed on a CPU, but we believe that the industry is shifting to a new computing paradigm that increasingly relies more on a discrete GPU or an APU. AMD Accelerated Parallel Processing or GPGPU (General Purpose GPU) refers to a set of advanced hardware and software technologies that enable discrete AMD GPUs, working in concert with the CPU, to accelerate applications beyond traditional graphics and video processing by allowing the discrete GPU and the CPU to process information cooperatively. In addition, computing devices with HSA features run computationally-intensive tasks more efficiently, which we believe provides a superior application experience to the end user.

Our Graphics Products

Our graphics products can be found in an APU, GPU, SoC or a combination of a GPU with one of the other foregoing products working in tandem. Our customers generally use our graphics solutions to increase the speed of rendering images and to help improve image resolution and color definition. We develop our graphics products for use in various computing devices and entertainment platforms, including desktop PCs, notebook PCs, 2-in-1s and professional workstations. With each of our graphics products, we have available drivers and supporting software packages that enable the effective use of these products under a variety of operating systems and applications. In addition, our recent generation graphics products have Linux® driver support.

Discrete Desktop Graphics. We offer discrete graphics products for gaming, multimedia, editing photos and videos as well as other graphic-intensive applications on desktop platforms. Our discrete GPUs for desktop

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PCs include the AMD Radeon R7 and R9 series, AMD Radeon HD 8000 series, AMD Radeon 7000 series and AMD Radeon HD 6000 series. In February 2014, we introduced two new additions to the R7 series—the AMD Radeon R7 250X and R7 265. In March 2014, we added the AMD Radeon R9 280 to the R9 Series, and more recently in April 2014, we introduced the AMD Radeon R9 295X2, powered by two AMD Radeon R9 295 GPUs on a single card designed for gamers and PC enthusiasts. All models of our AMD Radeon R7 and R9 series graphic cards support our Mantle API.

Discrete Notebook Graphics. Our discrete GPUs for notebooks are designed to address graphics performance, visual experience, power efficiency, dedicated memory support and ease of design integration, all of which are key considerations for notebook manufacturers. The AMD lineup of discrete GPUs for notebooks includes the AMD Radeon HD 7000M series and AMD Radeon HD 6000M series. In January 2014, we introduced the AMD Radeon R9, R7 and R5 M200 Series, our new family of discrete GPUs for notebooks designed with support for Mantle API.

Professional Graphics. Our AMD FirePro™ family of professional graphics products consists of 3D and 2D multi-view graphics cards and GPUs that we designed for integration in mobile and desktop workstations, as well as commercial PCs. We designed our AMD FirePro 3D graphics cards for demanding applications, such as those found in the computer aided design (CAD) and digital content creation (DCC) markets, with drivers specifically tuned for maximum performance, stability and reliability across a wide range of software packages. We designed our AMD FirePro 2D graphics cards with dual- and quad-display outputs for financial and corporate environments.

We also provide the AMD FirePro S-Series GPU products for the server market, where we target high performance computing (HPC) and virtual desktop infrastructure (VDI) use cases. In April 2014, we launched the AMD FirePro W9100 professional graphics cards for next-generation workstations with ultra-high resolution and multi-display capabilities. In June 2014, we launched the AMD FirePro W8100 professional graphics card designed for the next generation 4K CAD and media and entertainment workflows, engineering analysis and supercomputing applications. In August 2014, we introduced new additions to the next generation AMD FirePro professional graphics family, the AMD FirePro W2100, AMD FirePro W4100, AMD FirePro W5100 and AMD FirePro W7100. Additionally, we announced the AMD FirePro S9150 Server GPU in August 2014, designed for large scale multi-GPU support and the AMD FirePro S9100 in October 2014, designed for high visualization, high throughput and multi-tasking.

Enterprise, Embedded and Semi-Custom

The Enterprise, Embedded and Semi-Custom Markets

Server. A server is a computer system that performs services for connected customers as part of a client-server architecture. Many servers are designed to run an application or applications often for extended periods of time with minimal human intervention. Examples of servers include web servers, e-mail servers and print servers. These servers can run a variety of applications, including business intelligence, enterprise resource planning, customer relationship management and advanced scientific or engineering models to solve advanced computational problems in disciplines ranging from financial modeling to weather forecasting to oil and gas exploration. Servers are also used in cloud computing, which is a computing model where data, applications and services are delivered over the internet or an intranet. Today's data centers require new technologies and configuration models to meet the demand driven by the staggering amount of data that needs to be stored, accessed and managed. Servers must be efficient, scalable and adaptable to meet the compute characteristics of new and changing workloads.

Embedded. Embedded products address computing needs in PC-adjacent markets, such as industrial control and automation, digital signage, point of sale/self-service kiosks, medical imaging, set-top box and casino gaming machines as well as enterprise class telecommunications, networking, security, storage systems and "thin clients" (which are computers that serve as an access device on a network). Typically, our embedded products are used in applications that require high to moderate levels of performance, where key features may include

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mobility, relatively low power, small form factor, and 24x7 operations. High performance graphics are increasingly important in many embedded systems. Support for Linux, Windows and other operating systems as well as for increasingly sophisticated applications are also critical for some customers. Other requirements may include meeting rigid specifications for industrial temperatures, shock, vibration and reliability. The embedded market has moved from developing proprietary, custom designs to leveraging industry-standard instruction set architectures and processors as a way to help reduce costs and speed time to market.

Semi-Custom. We have leveraged our core IP, including our graphics and processing technologies developed for the PC market, to develop semi-custom solutions for customers who want differentiation in their products, including today's leading game console manufacturers. In this market, semiconductor suppliers work alongside game console manufacturers to enhance the visual performance and overall user experience for game console customers. This same type of collaborative development approach can also address customer needs in many other markets beyond game consoles, leveraging our existing IP to create a variety of products tailored to a specific customer's needs, ranging from complex fully-customized SoCs to more modest adaptations and integrations of existing CPU, APU or GPU products.

Our Enterprise, Embedded and Semi-Custom Products

Server Processors. Our microprocessors for server platforms currently include:

- The AMD Opteron™ X-Series includes small-core x86 APUs and CPUs that are ideal for next-generation scale-out Web and cloud applications ranging from big data analytics to image processing, multimedia content delivery and hosting.
- AMD Opteron 6300 Series processors, which are designed to meet the demanding performance per-watt, per-dollar requirements that are at the heart of server buying decisions. The AMD Opteron 6338P (12 core) and 6370P (16 core) processors are optimized to handle the heavily virtualized workloads found in enterprise environments. These processors feature the "Piledriver" core and are fully socket and software compatible with the existing AMD Opteron 6300 Series.

During 2014, we began sampling the AMD Opteron A1100 Series processor, our first 64-bit ARM-based server processor based on 28nm technology. AMD Opteron A-Series processors combine AMD's expertise in delivering server-class silicon with ARM's trademark low-power architecture. These products are designed to bring the experience and technology portfolio of an established server processor vendor to the ARM ecosystem and complement our AMD Opteron x86 server processors. The first AMD Opteron A-Series processors are expected to launch later in 2015.

Dense Server Systems. In addition, to offering microprocessors for servers, we offer dense server systems, designed to reduce power consumption and improve space efficiency for data centers. Our dense server products currently include the SeaMicro SM15000™ server, as well as the SeaMicro Freedom™ Fabric Storage series of storage enclosures. SeaMicro dense servers incorporate our proprietary fabric technology, the Freedom™ supercomputer fabric, which interconnects hundreds of card-sized motherboards, eliminating top-of-rack switches, terminal servers, hundreds of cables and thousands of unnecessary components for a more efficient and simple operational environment. We designed this fabric to reduce data center power consumption while providing low latency and higher bandwidth interconnections.

Embedded Processors. Our embedded processors are increasingly driving intelligence into new areas of our lives, from smart TVs and set-top boxes to interactive digital signage, casino gaming, and medical imaging. These products are designed to support greater connectivity and productivity, and we believe they are a strong driver for the "internet of things" and "surround computing" areas in the computing industry. Our processor products for embedded platforms include the following:

- Our second generation AMD Embedded R-Series APU and CPU launched in May 2014, formerly codenamed "Bald Eagle," supports HSA and was designed for processing performance, power

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efficiency and multimedia immersion in mid-to high-end visual and parallel compute-intensive embedded applications.

- The AMD Embedded G-Series SoC platform is a high-performance, low-power design offering ultra-low power consumption and advanced graphics performance. In June 2014, we announced our AMD Embedded G-Series SoC, formerly codenamed “Steppe Eagle,” designed for rugged and harsh environments such as ATMs, kiosks, automation, medical equipment and gaming machines. Also in June 2014, we introduced another AMD Embedded G-Series CPU, formerly codenamed “Crowned Eagle,” for networking and communications infrastructure applications that require high performance at low cost and low power.
- The AMD Embedded Radeon™ E-Series GPU family includes a broad array of discrete GPU products designed to provide immersive graphics and enhanced parallel compute capabilities for the embedded market. The AMD Embedded Radeon E8860 GPU is the industry’s first discrete graphics card for embedded applications based on GCN architecture, delivering 3D and 4K graphics to embedded gaming machines, digital signage, medical imaging, commercial aerospace, and other embedded applications.

In October 2014, we began sampling our first 64-bit ARM Cortex-A57-based AMD Embedded R-Series SoC, codenamed “Hierofalcon.” The AMD Embedded R-Series SoC platform is designed for embedded data center applications, communications infrastructure and industrial solutions and is expected to ship in the first half of 2015.

Semi-Custom. Our semi-custom products are tailored, high-performance customer-specific solutions based on AMD’s CPU, GPU and multi-media technologies. We work closely together with our customers to define solutions to precisely match the requirements of the device or application. Historically we have leveraged our core graphics processing technology into the game console market by licensing our graphic technology in game consoles such as the Microsoft® Xbox 360™ and Nintendo Wii and Wii U. In the fourth quarter of 2013, Sony launched its Sony Playstation®4 and Microsoft launched its Microsoft® Xbox One. Both of these next-generation game consoles are powered by AMD semi-custom SoC products.

Marketing and Sales

We sell our products through our direct sales force and through independent distributors and sales representatives in both domestic and international markets. Our sales arrangements generally operate on the basis of product forecasts provided by the particular customer, but do not typically include any commitment or requirement for minimum product purchases. We primarily use purchase orders, sales order acknowledgments and contractual agreements as evidence of our sales arrangements. Our agreements typically contain standard terms and conditions covering matters such as payment terms, warranties and indemnities for issues specific to our products.

We generally warrant that our products sold to our customers will conform to our approved specifications and be free from defects in material and workmanship under normal use and service for one year. Subject to certain exceptions, we also offer a three-year limited warranty to end users for only those CPU and AMD A-Series APU products purchased as individually packaged products, commonly referred to as “processors in a box” and for PC workstation products. We have also offered extended limited warranties to certain customers of “tray” microprocessor products for each of our business units and/or workstation graphics products who have written agreements with us and target their computer systems at the commercial and/or embedded markets.

We market and sell our latest products under the AMD trademark and some legacy graphics products under the ATI trademark. Our desktop PC product brands for microprocessors are AMD A-Series, AMD E-Series, AMD FX CPU, AMD Athlon CPU and APU and AMD Sempron APU and CPU. Our notebook and 2-in-1s for microprocessors are AMD A-Series, AMD E-Series, AMD C-Series, AMD Z-Series, AMD FX APU, AMD Phenom, AMD Athlon CPU and APU, AMD Turion and AMD Sempron APU and CPU. Our server brand for

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microprocessors is AMD Opteron. We sell dense server systems products under the SeaMicro brand, including the SM15000 series and Freedom Fabric Storage series for storage systems. We also sell low-power versions of our AMD Opteron, AMD Athlon and AMD Sempron, as well as AMD Geode, AMD R-Series and G-Series processors as embedded processor solutions. Our product brand for the consumer graphics market is AMD Radeon. Our product brand for professional graphics products is AMD FirePro. We also market and sell our chipsets under the AMD trademark.

We market our products through our direct marketing and co-marketing programs. In addition, we have cooperative advertising and marketing programs with customers and third parties, including market development programs, pursuant to which we may provide product information, training, marketing materials and funds. Under our co-marketing development programs, eligible customers can use market development funds as reimbursement for advertisements and marketing programs related to our products and third-party systems integrating our products, subject to meeting defined criteria.

Customers

Our microprocessor customers consist primarily of original equipment manufacturers (OEMs), original design manufacturers (ODMs), system builders and independent distributors in both domestic and international markets. ODMs provide design and/or manufacturing services to branded and unbranded private label resellers, OEMs and system builders. Our graphics product customers include the foregoing as well as add-in-board manufacturers (AIBs).

Customers of our chipset products consist primarily of PC and server OEMs, often through ODMs or other contract manufacturers, who build the OEM motherboards, as well as desktop and server motherboard manufacturers who incorporate chipsets into their channel motherboards.

We work closely with our customers to define product features, performance and timing of new products so that the products we are developing meet our customers' needs. We also employ application engineers to assist our customers in designing, testing and qualifying system designs that incorporate our products. We believe that our commitment to customer service and design support improves our customers' time-to-market and fosters relationships that encourage customers to use the next generation of our products.

We work closely with our customers to create differentiated products that leverage our CPU, GPU and APU technology. In some cases, customers of our semi-custom products pay us non-recurring engineering fees for design and development services and a purchase price for the resulting semi-custom products.

Collectively, our top five customers accounted for approximately 61% of our net revenue during the year ended 2014. In 2014, Hewlett-Packard Company, Microsoft Corporation and Sony Corporation each accounted for more than 13% of our consolidated net revenues. Sales to Hewlett-Packard consisted primarily of products from our Computing and Graphics segment. Sales to Microsoft and Sony consisted primarily of products from our Enterprise, Embedded and Semi-Custom segment. Five customers, including Hewlett-Packard, accounted for approximately 54% of the net revenue attributable to our Computing and Graphics segment. In addition, five customers, including Sony, Microsoft and Hewlett-Packard, accounted for approximately 90% of the net revenue attributable to our Enterprise, Embedded and Semi-Custom segment. A loss of any of these customers would have a material adverse effect on our business.

Original Equipment Manufacturers

We focus on three types of OEM customers: multi-nationals, selected regional accounts and target market customers. Large multi-nationals and regional accounts are our core OEM customers. Our OEM customers include numerous foreign and domestic manufacturers of servers and workstations, desktops, notebooks, PC motherboards and game consoles.

[Table of Contents](#)***Third-Party Distributors***

Our authorized channel distributors resell to sub-distributors and mid-sized and smaller OEMs and ODMs. Typically, distributors handle a wide variety of products, including those that compete with our products. Distributors typically maintain an inventory of our products. In most instances, our agreements with distributors protect their inventory of our products against price reductions and provide return rights with respect to any product that we have removed from our price book that is not more than 12 months older than the manufacturing code date. In addition, some agreements with our distributors may contain standard stock rotation provisions permitting limited levels of product returns.

Add-in-Board (AIB) Manufacturers and System Integrators

We offer component-level graphics and chipset products to AIB manufacturers who in turn build and sell board-level products using our technology to system integrators (SIs), and to retail buyers. Our agreements with AIBs protect their inventory of our products against price reductions. We also sell directly to our SI customers. SIs typically sell from positions of regional or product-based strength in the market. They usually operate on short design cycles and can respond quickly with new technologies. SIs often use discrete graphics solutions as a means to differentiate their products and add value to their customers.

Competition

Generally, the IC industry is intensely competitive. Products typically compete on timely product introductions, product quality (including enabling state-of-the art visual experiences), power consumption (including battery life), reliability, processor clock speed, performance, size (or form factor), selling price, cost, adherence to industry standards (and the creation of open industry standards), level of integration, software and hardware compatibility and stability, brand recognition and availability. Technological advances in the industry result in frequent product introductions, regular price reductions and short product life cycles for some products, and increased product capabilities that may result in significant performance improvements. Our ability to compete depends on our ability to develop, introduce and sell new products or enhanced versions of existing products on a timely basis and at competitive prices, while reducing our costs.

Competition in the Microprocessor and Chipset Market

Intel Corporation has been the market share leader for microprocessors for many years. Intel's market share, margins and significant financial resources enable it to market its products aggressively, to target our customers and our channel partners with special incentives and to influence customers who do business with us. These aggressive activities have in the past and are likely in the future to result in lower unit sales and a lower average selling price for many of our products and adversely affect our margins and profitability.

As long as Intel remains in this dominant position, we may be materially adversely affected by Intel's:

- business practices, including rebating and allocation strategies and pricing actions, designed to limit our market share and margins;
- product mix and introduction schedules;
- product bundling, marketing and merchandising strategies;
- exclusivity payments to its current and potential customers and channel partners;
- control over industry standards, PC manufacturers and other PC industry participants, including motherboard, memory, chipset and basic input/output system, or BIOS, suppliers and software companies as well as the graphics interface for Intel platforms; and
- marketing and advertising expenditures in support of positioning the Intel brand over the brand of its OEM customers.

Intel exerts substantial influence over computer manufacturers and their channels of distribution through various brand and other marketing programs. As a result of Intel's position in the microprocessor market, Intel

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has been able to control x86 microprocessor and computer system standards and benchmarks and to dictate the type of products the microprocessor market requires of us. Intel also dominates the computer system platform, which includes core logic chipsets, graphics chips, motherboards and other components necessary to assemble a computer system. OEMs that purchase microprocessors for computer systems are highly dependent on Intel, less innovative on their own and, to a large extent, are distributors of Intel technology. Additionally, Intel is able to drive de facto standards and specifications for x86 microprocessors that could cause us and other companies to have delayed access to such standards.

Intel has substantially greater financial resources than we do and accordingly spends substantially greater amounts on marketing and research and development than we do. We expect Intel to maintain its market position and to continue to invest heavily in marketing, research and development, new manufacturing facilities and other technology companies. To the extent Intel manufactures a significantly larger portion of its microprocessor products using more advanced process technologies, or introduces competitive new products into the market before we do, we may be more vulnerable to Intel's aggressive marketing and pricing strategies for microprocessor products. For example, Intel recently introduced microprocessors for low-cost notebooks, similar to products that we offer for low-cost notebooks.

Intel's position in the microprocessor market and IGP chipset market, its introduction of competitive new products, its existing relationships with top-tier OEMs and its aggressive marketing and pricing strategies could result in lower unit sales and a lower average selling price for our products, which could have a material adverse effect on us.

Other competitors include a variety of companies providing or developing ARM-based designs at relatively low cost and low power processors for the computing market including netbooks, tablets and thin-client form factors, as well as dense servers, set-top boxes and gaming consoles. ARM Holdings designs and licenses its ARM architecture to third parties, including us, and offers supporting software and services. Our ability to compete with companies who use ARM-based solutions depends on our ability to timely design and bring to market energy-efficient, high-performing products at an attractive price point.

In the chipset market, our competitors include suppliers of IGP chipsets. PC manufacturers use IGP chipsets because they cost less than traditional discrete GPUs while offering acceptable graphics performance for most mainstream PC users. Intel also leverages its dominance in the microprocessor market to sell its IGP chipsets. Intel manufactures and sells IGP chipsets bundled with their microprocessors and is our main competitor in this market.

Competition in the Graphics Markets

In the graphics market, our competitors include suppliers of discrete graphics, embedded graphics processors and IGP chipsets. Intel manufactures and sells embedded graphics processors and IGP chipsets, and is a dominant competitor with respect to this portion of our business. Higher unit shipments of our APUs and Intel's integrated graphics may drive computer manufacturers to reduce the number of systems they build paired with discrete graphics components, particularly for notebooks, because they may offer satisfactory graphics performance for most mainstream PC users, at a lower cost. Intel could take actions that place our discrete GPUs and IGP chipsets at a competitive disadvantage such as giving one or more of our competitors in the graphics market, such as Nvidia Corporation, preferential access to its proprietary graphics interface or other useful information.

Our principal competitor in the graphics market is Nvidia. AMD and Nvidia are the two principal players offering discrete graphics solutions. Other competitors include a number of smaller companies, which may have greater flexibility to address specific market needs, but less financial resources to do so, especially as we believe that the growing complexity of graphics processors and the associated research and development costs represent an increasingly higher barrier to entry in this market. In the semi-custom game console products, where graphics performance is critical, we compete against primarily Nvidia, and also compete against Imagination Technology Group.

[Table of Contents](#)**Research and Development**

We focus our research and development activities on improving and enhancing product design. One main area of focus is on delivering the next generation of products with greater system level integration of the CPU and GPU and transforming our products into SoCs, with, in each case, improved system performance and performance-per-watt characteristics. For example, we are focusing on improving the battery life of our microprocessors and APU products for notebooks and the power efficiency of our microprocessors for servers. We are also focusing on delivering a range of low-power integrated platforms to serve key markets, including commercial clients, mobile computing and gaming and media computing, as well as developing an HSA, which is designed for software developers to easily program APUs by combining scalar processing on the CPU with parallel processing on the GPU, all while providing high bandwidth access to memory at low power. We believe that these integrated platforms will bring customers better time-to-market and increased performance and energy efficiency. We also work with industry leaders on process technology, software and other functional intellectual property and we work with others in the industry, public foundations, universities and industry consortia to conduct early stage research and development.

Our research and development expenses for 2014, 2013 and 2012 were approximately \$1.1 billion, \$1.2 billion and \$1.4 billion, respectively. For more information, see “Part II, Item 7—Management’s Discussion and Analysis of Financial Condition and Results of Operations,” below.

We conduct product and system research and development activities for our products in the United States with additional design and development engineering teams located in China, Canada, India, Singapore, Taiwan and Israel.

Manufacturing Arrangements and Assembly and Test Facilities***Third-Party Wafer Foundry Facilities***

GLOBALFOUNDRIES Inc. On March 2, 2009, we entered into a Wafer Supply Agreement (the WSA) with GLOBALFOUNDRIES Inc. (GF). The WSA governs the terms by which we purchase products manufactured by GF, a related party to us. Pursuant to the WSA, we are required to purchase all of our microprocessor and APU product requirements from GF with limited exceptions. For more information about the WSA, see “Part II, Item 7—Management’s Discussion and Analysis of Financial Condition and Results of Operations—GLOBALFOUNDRIES,” below. GF currently manufactures wafers for our products on 300 millimeter wafers primarily in technologies ranging from 32nm to 28nm.

Taiwan Semiconductor Manufacturing Company. We also have foundry arrangements with Taiwan Semiconductor Manufacturing Company (TSMC) for the production of wafers for certain products. We are in production in TSMC’s 300 millimeter fabrication facilities in technologies ranging from 65nm to 28nm.

Other Third-Party Manufacturers. We outsource board-level graphics product manufacturing to third-party manufacturers. We also outsource board-level and system-level product manufacturing to third-party manufacturers for our SeaMicro dense server and storage products.

Assembly, Test, Mark and Packaging Facilities

We own and operate two assembly, test, mark and packaging facilities. Some wafers for our products are delivered from third-party foundries to our assembly, test, mark and packaging facilities. Our assembly, test, mark and packaging facilities are described in the chart set forth below:

Facility Location	Approximate Manufacturing Area Square Footage	Activity
Penang, Malaysia	150,000	Assembly, Test, Mark & Packaging
Suzhou, China	100,000	Assembly, Test, Mark & Packaging

EXHIBIT B



Enabling today.
Inspiring tomorrow.

AMD > Who We Are

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- Send in any information;
- Enter any contest or game that requires information about you or offers a prize;
- Buy anything online.

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AMD Server Processor In a Box Installation Notes

Congratulations on the purchase of your new AMD Server Processor In a Box (PIB), or Processor In a Box without Fan (WOF), the best solution for System Builders, and Resellers. Please follow these instructions carefully to help ensure the most positive experience with your system.

To ensure full compliance with AMD's limited warranty for PIB products, a cooling solution that conforms to AMD thermal design documentation^{1,3} must be used in an AMD recommended motherboard^{2,3}. Please refer to the warranty card on this sheet for details.

- For full warranty coverage customers are required to conform to the thermal design guidance provided in the following technical documents available at www.amd.com:
 - Thermal Design Guide for Socket F (1207) Processors (search for: PID 32800)
 - AMD NPT Family OFB Server and Workstation Processor Power & Thermal Datasheet (search for: PID 33953)
- A list of AMD recommended motherboards can be found at www.amd.com/configuration
- AMD Validated Server Program (VSP) systems and Thermally Tested AMD Opteron barebones systems are fully compliant with AMD's limited warranty for PIB and WOF products.

To ensure full compliance with AMD's Limited Warranty for PIB products, an AMD approved heatsink/fan must be used. Please refer to the warranty card on this sheet for details. Additional information can be found on AMD's website at <http://www.amd.com>.

Congratulations on your purchase of AMD's Processor In a Box (PIB)! Please follow these instructions carefully to help ensure the most positive experience with your system.

WARNING!

- As with all computer equipment, the PIB components may be damaged by electronic discharge (ESD). Take proper ESD precautions when handling PIB components!
- To ensure full compliance with AMD's Limited Warranty for PIB products, the heatsink fan assembly included in this PIB must be used. Please refer to the enclosed warranty card for details. Additional information can be found at www.amd.com.
- Do not apply voltage until the heatsink is fully installed. If voltage is applied before the heatsink is fully installed, the processor will overheat and failure will result. **Read through and understand the installation instructions completely before you begin.**
- This PIB is intended to be operated only within the associated AMD published specifications and factory settings ("AMD Specifications") and may only be used with socket infrastructure set forth in such specification. Operation of the PIB outside of the AMD Specifications, including but not limited to use with a socket infrastructure other than the socket infrastructure set forth in the specification, may damage the processor and/or lead to other problems, including but not limited to, damage to your system components including your motherboard and components thereon (e.g. memory); system instabilities (e.g. date loss and corrupted images); reduction in system performance; shortened processor, system component and / or system life; and in extreme cases, total system failure. AMD does not provide support or service for issues or damages related to use of this AMD processor other than with the specified socket infrastructure or outside of the official AMD Specifications. You also may not receive support or service from your board or system manufacturer. **DAMAGE CAUSED BY USE OF THE AMD PROCESSOR WITH A SOCKET INFRASTRUCTURE OTHER THAN THE SOCKET INFRASTRUCTURE SET FORTH IN THE SPECIFICATION OR OUTSIDE OF AMD SPECIFICATIONS ARE NOT COVERED UNDER ANY AMD PRODUCT WARRANTY AND MAY NOT BE COVERED BY YOUR BOARD OR SYSTEM MANUFACTURER'S WARRANTY.**

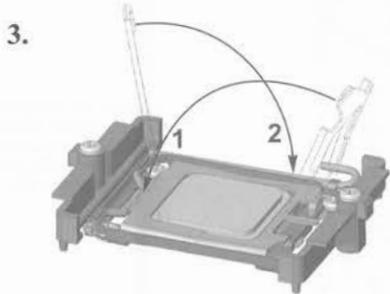
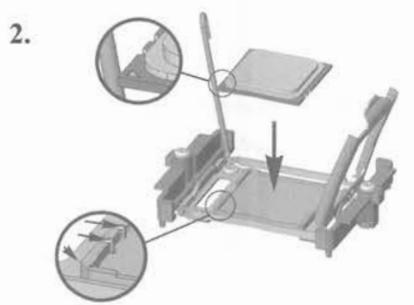
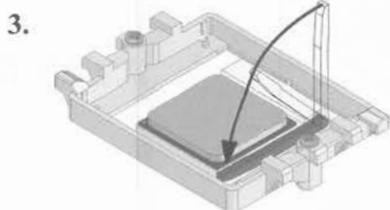
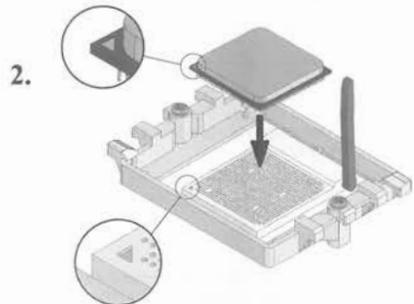


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部件名称 (Parts)	有毒有害物质或元素 (Hazardous Substance)				
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB) / 多溴二苯醚 (PBDE)
集成电路 (Integrated Circuit)	○	○	○	○	○
风扇或者是散热器 (Fan/Heatsink Assembly**)	○	○	○	○	○

○ : 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006标准规定的限量要求以下。
 ○ : Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T 11363-2006 standard.
 * : 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006标准规定的限量要求。
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** 如果适用

** if present

Trademarks:

English

Español

Français

Deutsch

简体中文

Make sure the following items are included. If any item is damaged or missing, contact your retailer

Vérifiez les éléments suivants dans votre emballage. Contactez votre fournisseur si un élément est endommagé ou manquant

请先检查包装内的各项零件是否齐全。如有任何一项有丢失或损坏，请联系商家的经销商

Prüfen Sie, ob die folgenden Teile in der Packung enthalten sind. Wenn ein Teil fehlen oder beschädigt sein sollte, wenden Sie sich umgehend an den Verkäufer

Bitte entfernen Sie die Schutzlage an der Unterseite des Kühlers vor Gebrauch.

安装前, 请先移除散热器底部的保护膜

Tragen Sie eine dünne Schicht Thermalpaste auf die installierte CPU auf.

Appliquez une fine couche de graisse thermique sur la surface du CPU installée.

均匀涂上一层散热膏于CPU表面上

Retirer les vis et le support de fixation en plastique de la carte mère AMD.

Retirez les vis et le support de fixation en plastique de la carte mère AMD.

将AMD主板螺丝及塑料支架移除

Setzen Sie die Halterung zusammen (siehe Abbildung)

Monte la placa de retención. Ver la ilustración

组装散热器的底座

Fixez ce refroidisseur sur la carte principale (Bloquez le refroidisseur de processeur sur la surface du processeur)

Ajuste este ventilador en la placa base (Sujete el enfriador de la CPU sobre la superficie de la CPU)

将散热器稳固于主板上 (确保散热器和CPU表面紧密结合)

Depending on your need, you could mount 2nd fan to the cooler

Dependiendo de sus necesidades, puede montar un segundo ventilador (opcional) en el disipador

依据个人需求, 您可以安装第二颗风扇(选购)

Connect the power cable

Connecte el cable de alimentación

连接电源线

If you connect the fan cable to 3-pin connector on the motherboard, the PWM function will not work

Si conecta el cable del ventilador al conector de 3 contactos de la placa base, la función PWM no funcionará

当您将风扇插于主板的3-pin接头时, PWM功能将无法使用

Refer to the illustration

Ver la ilustración

请参阅图例

Refer to the illustration

Ver la ilustración

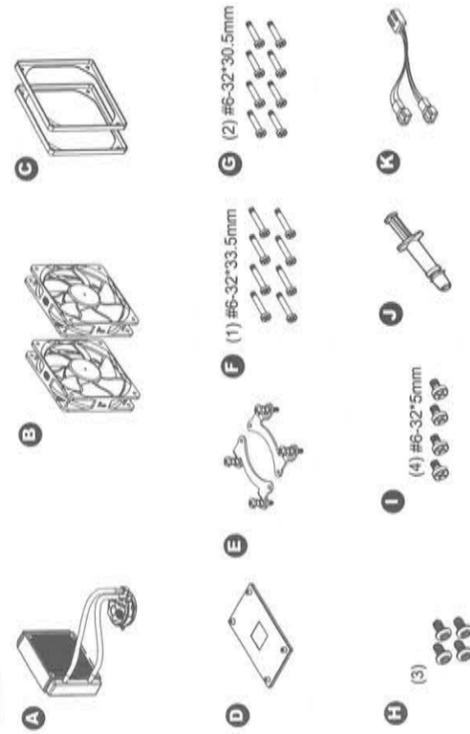
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Refer to the illustration

Ver la ilustración

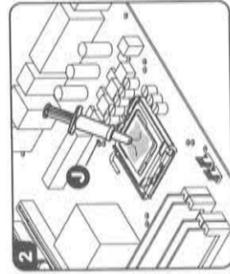
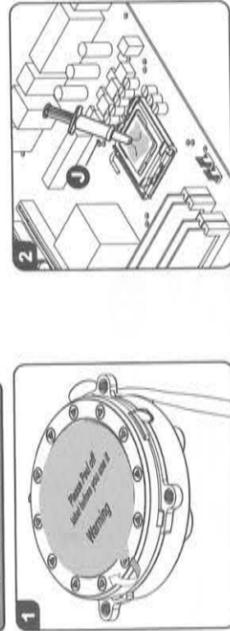
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Parts

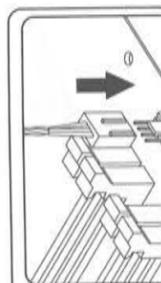
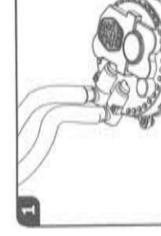
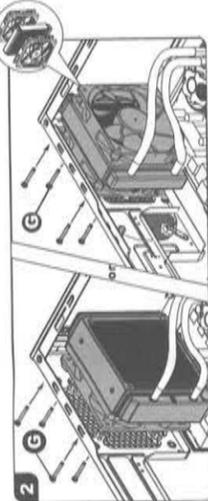
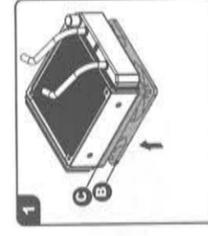
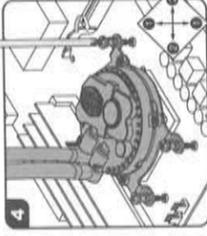
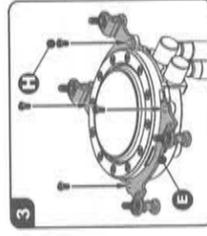
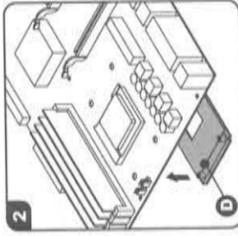
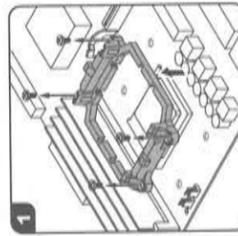


- x1 A 散热器
- x2 B 120mm风扇
- x2 C 防震胶条
- x1 D AMD 背板
- x2 E AMD 固定板
- x8 F 螺丝 (1)
- x8 G 螺丝 (2)
- x4 H 螺丝 (3)
- x4 I 螺丝 (4)
- x1 J 导热膏
- x1 K 二合一PWM风扇转接线

Installation Procedures



AMD Socket FM2 / FM1 / AM3+ / AM3 / AM2



- x1 A Ventilador
- x2 B 120mm Ventilador
- x2 C Almohadillas antivibración
- x1 D Placa posterior AMD
- x2 E Placa de retención AMD
- x8 F Tornillos (1)
- x8 G Tornillos (2)
- x4 H Tornillos (3)
- x4 I Tornillos (4)
- x1 J Grasa termal
- x1 K Adaptador PWM 2-a-1

- x1 A Kühler
- x2 B 120mm Fan
- x2 C Anti-vibrations soft-pads
- x1 D AMD Rückenplatte
- x2 E AMD Montagehalterung
- x8 F Schrauben (1)
- x8 G Schrauben (2)
- x4 H Schrauben (3)
- x4 I Schrauben (4)
- x1 J Thermalpaste
- x1 K 2 auf 1 PWM-Lüfter-Adapter

- x1 A 散热器
- x2 B 120mm风扇
- x2 C 防震胶条
- x1 D AMD 背板
- x2 E AMD 固定板
- x8 F 螺丝 (1)
- x8 G 螺丝 (2)
- x4 H 螺丝 (3)
- x4 I 螺丝 (4)
- x1 J 导热膏
- x1 K 二合一PWM风扇转接线

Before use, please remove the protective layer on the bottom of the cooler.

Antes del uso, quite la capa protectora inferior del disipador de calor.

Avant l'utilisation, retirez la couche protectrice en bas du radiateur.

Bitte entfernen Sie die Schutzlage an der Unterseite des Kühlers vor Gebrauch.

安装前, 请先移除散热器底部的保护膜

Apply a thin layer of thermal grease onto the surface of the installed CPU.

Aplique una capa fina de grasa térmica sobre la superficie de la CPU instalada.

Appliquez une fine couche de graisse thermique sur la surface du CPU installée.

Tragen Sie eine dünne Schicht Thermalpaste auf die installierte CPU auf.

均匀涂上一层散热膏于CPU表面上

Remove screws and plastic bracket from AMD motherboard.

Quite los tornillos y el soporte de plástico de la placa madre AMD.

Retirer les vis et le support de fixation en plastique de la carte mère AMD.

Schrauben und die Plastik-Montagebügel von der AMD Hauptplatine ablösen.

将AMD主板螺丝及塑料支架移除

Assemble the retention plate. Refer to the illustration

Monte la placa de retención. Ver la ilustración

Assemblez la plaque de rétention. Voyez l'illustration

Setzen Sie die Halterung zusammen (siehe Abbildung)

组装散热器的底座

Fasten the cooler to the motherboard with the help of the supplied accessories (Tighten up the cooler onto the surface of the CPU)

Ajuste este ventilador en la placa base (Sujete el enfriador de la CPU sobre la superficie de la CPU)

Fixez ce refroidisseur sur la carte principale (Bloquez le refroidisseur de processeur sur la surface du processeur)

Befestigen Sie den Kühler auf der Hauptplatine (Befestigen Sie den CPU-Kühler auf der Oberfläche der CPU)

将散热器稳固于主板上 (确保散热器和CPU表面紧密结合)

Depending on your need, you could mount 2nd fan to the cooler

Dependiendo de sus necesidades, puede montar un segundo ventilador (opcional) en el disipador

En fonction de votre besoin, vous pouvez monter le second ventilateur (optionnel) sur le refroidisseur

Sie können nach Bedarf auch einen zweiten Lüfter (optional) auf dem Kühler installieren

依据个人需求, 您可以安装第二颗风扇(选购)

Connect the power cable

Connecte el cable de alimentación

Connecter le câble d'alimentation

Schließen Sie das Netzkabel an

连接电源线

If you connect the fan cable to 3-pin connector on the motherboard, the PWM function will not work

Si conecta el cable del ventilador al conector de 3 contactos de la placa base, la función PWM no funcionará

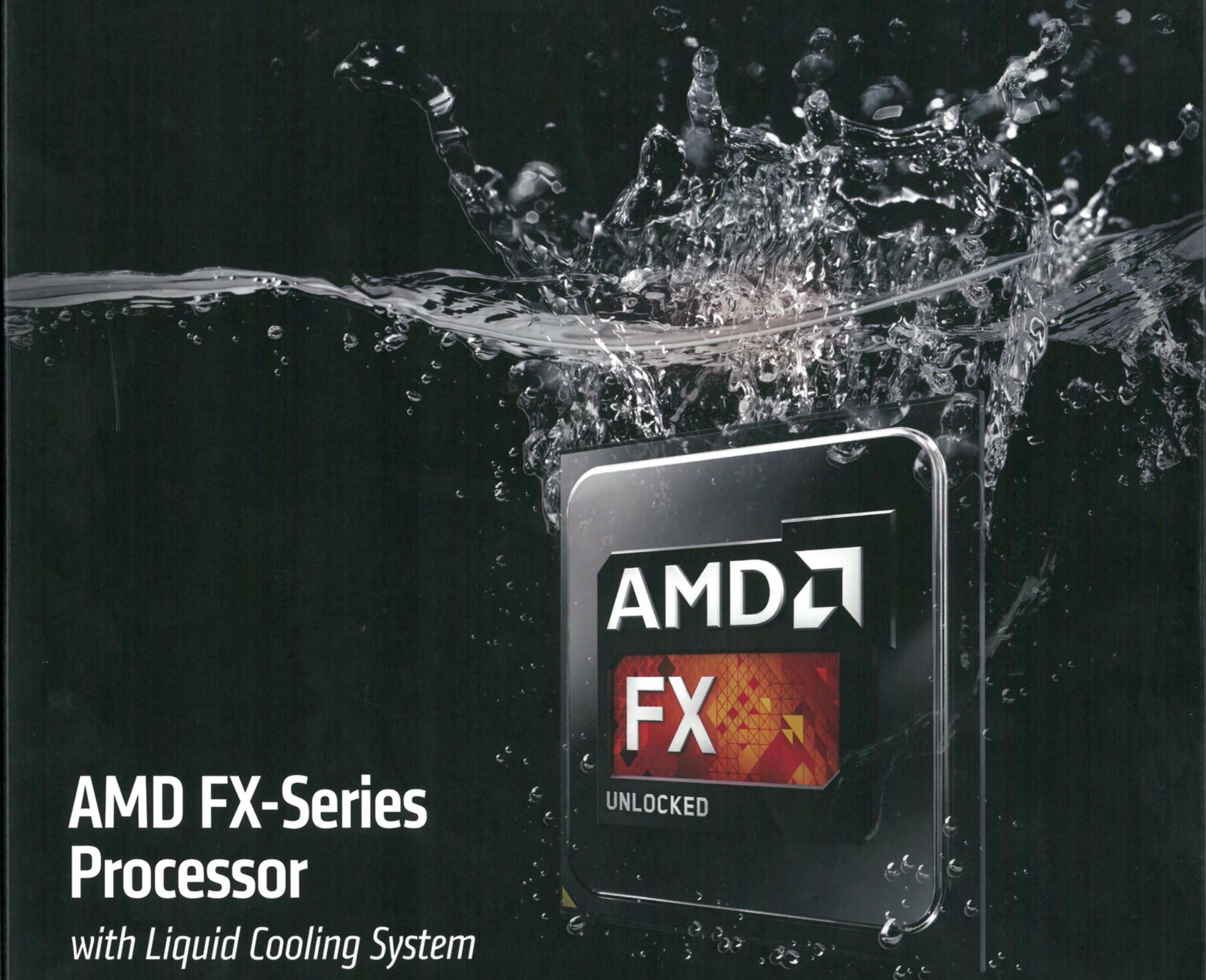
Si vous connectez le câble du ventilateur à un connecteur 3 broches de la carte principale, la fonction PWM ne fonctionnera pas

Wenn das Lüfterkabel an den 3-poligen Anschluss der Systemplatine angeschlossen wird, funktioniert die PWM nicht

当您将风扇插于主板的3-pin接头时, PWM功能将无法使用

*图片仅供参考

EXHIBIT D



AMD FX-Series Processor

with Liquid Cooling System



AMD FX-Series Processor

with Liquid Cooling System*

This box includes an AMD processor, installation instructions, limited warranty information, and a liquid CPU cooling system designed for use in a desktop PC.

本盒包产品包括AMD处理器, 安装说明, 保修信息, 以及台式机水冷散热器

Esta caja incluye un procesador AMD, las instrucciones de instalación, la información de garantía limitada y un sistema de refrigeración líquida de la CPU diseñada para el uso en un ordenador de sobremesa.

Diese Box enthält einen AMD Prozessor, eine Einbauanleitung, Garantieinformationen sowie ein flüssigkeitsgekühltes CPU Kühlsystem für den Einsatz in einem Desktop PC.

Cette boîte contient un processeur AMD, un guide d'installation, les informations sur la garantie limitée et un système de refroidissement à liquide pour CPU destiné à une utilisation dans un PC de bureau

この梱包箱には、AMD製プロセッサ、取扱説明書、制限付き保障情報、およびデスクトップ用の水冷CPUクーラーが同梱されています。

Questa confezione contiene un Processore AMD, le istruzioni per l'installazione, informazioni sulla garanzia limitata ed un sistema di raffreddamento a liquido della CPU idoneo all'uso all'interno di un PC desktop.

AMD Processors are diffused in one or more of the following countries and/or regions: Germany, Singapore and Taiwan.

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AMD Processors are made in one or more of the following countries and/or regions: China, Malaysia and Taiwan.

AMD 处理器在下列一个或多个国家和/或地区制造: 中国, 马来西亚, 台湾

Esta caixa inclui um processador AMD, manual de instruções, informações sobre a garantia limitada, um sistema de resfriamento líquido para CPU desenvolvido para a utilização em desktop PC.

Данная упаковка включает процессор AMD, инструкцию по установке, ограниченную гарантию и систему жидкостного охлаждения процессора для использования в настольных ПК.

Bu kutu; bir AMD işlemci, kurulum yönergeleri, garanti bilgileri, masaüstü bilgisayarlarda kullanılmak üzere tasarlanmış bir termal çözüm ve bir sıvı soğutma sistemi içermektedir.

Opakowanie zawiera: procesor AMD, instrukcję instalacji, informacje dotyczące ograniczonej gwarancji, oraz cooler chłodzony wodą przeznaczony do montażu w komputerach PC klasy desktop.

이 안에는 AMD 프로세서, 설치 안내서, 한정 보증 정보 및 데스크탑 PC용 수냉식 CPU 쿨링 시스템이 들어있습니다.

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AMD

For more information on
AMD Processor-In-A-Box (PIB)
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Sunnyvale, California 94088-3453

* For liquid cooling system support, visit www.cooler-master.com

1 AMD's product limited warranty is subject to certain exceptions and waivers, and does not cover damage caused by overclocking (even when overclocking is enabled via AMD OverDrive™ software).

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FX 9590

AMD FX 8-Core
16 MB Total Cache, Black Edition



SN# Y872883E50991

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Specifications

CPU Socket	AMD Socket FM2+ / FM2 / FM1 / AM3+ / AM3 /
Main System Dimensions	Ø 70 x 27 mm (Ø 2.75 x 1.1 inch)
Radiator Dimensions	150 x 120 x 38 mm (5.9 x 4.7 x 1.5 inch)
Radiator Material	Aluminum
Fan Dimensions	120 x 120 x 25 mm (4.7 x 4.7 x 1 inch)
Fan Speed	600~2400 RPM (PWM) ± 10%
Fan Air Flow	19.17 ~ 86.15 CFM ± 10%
Fan Air Pressure	0.31 ~ 4.16 mm H ₂ O ± 10%
Fan Life Expectancy	40,000 hours
Fan Noise Level	19 ~ 40 dBA
Fan Bearing Type	Rifle bearing
Fan Connector	4-Pin
Fan Rated Voltage	12 VDC
Fan Safety Current	0.37 A
Fan Rated Current	0.3 A
Fan Power Consumption	3.6 W
Pump Life Expectancy	70,000 hours
Pump Noise Level	< 17 dBA
Pump Connector	3-Pin
Pump Rated Voltage	12 VDC
Pump Load Current	0.15 A
Pump Power Consumption	1.8 W

Fan tested by Cooler Master and certified under a safety current of 0.37A

For liquid cooling system support, visit www.cooler-master.com

For CPU product information, visit www.amd.com/fx

EXHIBIT E





Scan for more info



FX 9590

AMD FX 8-Core

16 MB Total Cache, Black Edition



SN#:Y872883E50391

This box includes AMD processor, installation instruction and limited warranty information.

此盒内包含AMD处理器、安装指南及有限保修信息

이 상자에는 AMD프로세서, 설치 안내서 및 유한 보증 정보가 들어있습니다.

Diese Box beinhaltet einen AMD Prozessor, die Installationsanweisung und Informationen über die Gewährleistungsfrist.

Esta caja contiene un procesador AMD, instrucciones de instalacion, e informacion acerca de la garantia.

AMD Processor is diffused in one or more of the following countries and/or region: Germany, Singapore and Taiwan
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For more information on AMD Processor in a Box (PIB) please visit: www.amd.com/PIB

One AMD Place
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AMD



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EXHIBIT F

FX-8120 Bulldozer Processor



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AMD FX-8120 Zambezi 3.1GHz Socket AM3+ 125W Eight-Core Desktop Processor FD8120FRGUBOX



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- 8MB L3 Cache
- 8MB L2 Cache

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Love the true 8 cores! Benchmarks nicely to! I recommend that this be bought by people who know what they are doing. ...

— 5/5/2012

Pretty much what I was expecting

★★★★★

Solid performance for heavily threaded workloads. Multitasking seems smoother with this than the X4 955 @ 4GHz that it ...

— 1/5/2012

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Unlock and load. Blow away the competition with the unrestrained power of an AMD FX processor. Experience unmatched multitasking and pure core performance with the industry's first 32nm 8-core desktop processor. Get the speed you crave with AMD Turbo CORE

Technology to push your core frequencies to the limit when you need it most. Go beyond the limits of maximum speed with easy-to-use AMD OverDrive and AMD Catalyst Control Center software suites*. But the best part of all? You'll get all this impressive performance at an unbelievable price. You'll be asking yourself "what competition?" in no time.

Combine an AMD FX CPU with an AMD 9-series chipset motherboard and AMD Radeon HD 6000 series graphics cards to create the AMD "Scorpius" platform. Get lost in the action with ultra-responsive gameplay and insanely lifelike HD powered by VISION FX Technology from AMD. Overtake your rivals with the raw power and superior performance of an unlocked CPU*. Immerse yourself in an accelerated HD experience with AMD Radeon GPU and Microsoft DirectX 11 capable graphics. *Note: AMD's product warranty does not cover damage caused by overclocking (even when overclocking is enabled via AMD Overdrive software).



The industry's first and only native 8-core desktop processor delivers unmatched multitasking and pure core performance with all-new "Bulldozer" architecture. New 32 nanometer die shrink was designed to reduce leakage for improved efficiency, increased clock rate headroom and better thermals. Immerse yourself in the most advanced 3D games. Achieve extreme mega-tasking with ease.



AMD TURBO CORE TECHNOLOGY

The AMD FX Processors come equipped with AMD Turbo CORE Technology, a performance boosting technology that helps increase performance on the applications that need it the most.



NEW INSTRUCTION CAPABILITIES – AVX, FMA4 AND XOP, AES

Advanced Vector Extensions (AVX) increase parallelism tailored for scientific and 3D applications that use heavy floating point calculations. Floating Point Vector Multiply-Accumulate improves throughput and performance on many vector functions (integer and floating point). Advanced Encryption Standard noticeably increases performance on the latest encryption applications like TrueCrypt and benchmarks like PCMark.



AMD HYPERTRANSPORT TECHNOLOGY

HyperTransport Technology (HT or HTT) is a high-speed, low latency, point-to-point link which helps reduce the number of buses in a system thus reducing system bottlenecks and enabling today's faster microprocessors to use system memory more efficiently in high-end multiprocessor systems. With HTT, the AMD FX-8120 enjoys up to 37GB/s total delivered processor-to-system bandwidth (HyperTransport bus + memory bus).



INTEGRATED DRAM CONTROLLER WITH AMD MEMORY OPTIMIZER TECHNOLOGY

The AMD FX Processor features a high-bandwidth, low-latency integrated memory controller that supports up to DDR3-1866 and new low voltage memories of 1.35V and 1.2V and provides new Pre-Fetcher improvements and direct communications to each core in Dual-Core module (APIC registers in each core).



AMD VIRTUALIZATION (AMD-V) TECHNOLOGY WITH IOMMU

Silicon feature-set enhancements designed to improve the performance, reliability, and security of existing and future virtualization environments by allowing virtualized applications with direct and rapid access to their allocated memory. IOMMU is an extension to AMD64 architecture to support address translation and access protection on DMA transfers. AMD-V with IOMMU helps virtualization software to run more securely and efficiently enabling a better experience when dealing with virtual systems.

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— 2/28/2012

Badly underrated

★★★★★

8 cores, lots of cache, fast

— Saerydoth 4/10/2012

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INTEGRATED DRAM CONTROLLER WITH AMD MEMORY OPTIMIZER TECHNOLOGY

The AMD FX Processor features a high-bandwidth, low-latency integrated memory controller that supports up to DDR3-1866 and new low voltage memories of 1.35V and 1.2V and provides new Pre-Fetcher improvements and direct communications to each core in Dual-Core module (APIC registers in each core).



AMD VIRTUALIZATION (AMD-V) TECHNOLOGY WITH IOMMU

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FX-8320 Bulldozer Processor

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AMD FX-8320 Vishera 3.5GHz (4.0GHz Turbo) Socket AM3+ 125W Eight- Core Desktop Processor FD8320FRHKBOX



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Overview

Specifications

Reviews

New microarchitecture, new level of performance

Piledriver microarchitecture, a tuned-up Bulldozer, has finally reached the flagship AMD FX processors (the new FX series processors are codenamed as Vishera) for improved performance and better energy-efficiency. Up to eight "Piledriver" cores ensure unrivaled multitasking and pure core performance. The AMD Turbo Core technology pushes your core frequencies to the most when you need it most. To top it off,

like all other AMD's Black Edition processors, the new AMD FX 8-core Vishera processor brings you unlocked for fabulous overlocking* capability. Unrivaled performance is not the only trick AMD has up their sleeve. Vishera processors are at a reasonable price point. (*AMD's product warranty does not cover damage caused by overlocking even when overlocking is enabled via AMD Overdrive software.)



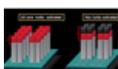
• **NEW PILEDRIVER MICROARCHITECTURE**

Piledriver microarchitecture is the second generation of AMD Bulldozer microarchitecture. The internal core structure has been modified for higher frequencies even without any changes in the manufacturing process. Piledriver has a more precise branch predictor and a larger instruction window with ISA extensions FMA3 and F16C. The execution units acquired an enhanced scheduler and learned to process individual instructions faster, such as integer and floating-point division. And Piledriver microarchitecture delivers higher power efficiency compared with Bulldozer microarchitecture.



• **UNLOCKED AMD FX PROCESSOR WITH 8 PILEDRIVER CORES**

The native 8-core desktop processor delivers unrivaled multitasking and pure core performance with the new Piledriver microarchitecture. 32 nanometer die shrink was designed to reduce leakage for improved efficiency, increased clock rate headroom and better thermals. The AMD unlocked technology offers more headroom for your overlocking (AMD's product warranty does not cover damage caused by overlocking even when overlocking is enabled via AMD Overdrive software.).



• **AMD TURBO TECHNOLOGY**

The AMD FX Processors come equipped with AMD Turbo CORE Technology, a performance boosting technology that helps increase performance on the applications that need it the most.



• **AMAZING INSTRUCTION CAPABILITIES**

Like Bulldozer, Piledriver has some amazing instruction capabilities. Advanced Vector Extensions (AVX) increase parallelism tailored for scientific and 3D applications that use heavy floating point calculations. Floating Point Vector Multiply-Accumulate improves throughput and performance on many vector functions (integer and floating point). Advanced Encryption Standard noticeably increases performance on the latest encryption applications like TrueCrypt and benchmarks like PCMark.



• **AMD HYPERTRANSPORT TECHNOLOGY**

HyperTransport Technology (HT or HTT) is a high-speed, low latency, point-to-point link which helps reduce the number of buses in a system thus reducing system bottlenecks and enabling today's faster microprocessors to use system memory more efficiently in high-end multiprocessor systems.



• **INTEGRATED DRAM CONTROLLER WITH AMD MEMORY OPTIMIZER TECHNOLOGY**

AMD FX Vishera Processor features a high-bandwidth, low-latency integrated memory controller that supports faster and low voltage memories and provides new Pre-Fetcher improvements and direct communications to each core in Dual-Core module (APIC registers in each core).

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AMD FX-8350 Vishera 4.0GHz (4.2GHz Turbo) Socket AM3+ 125W Eight-Core Desktop Processor FD8350FRHKBOX

★★★★★ (730) | Write a Review

In stock.



- 32 nm Vishera 125W
- 8MB L3 Cache
- 4 x 2MB L2 Cache

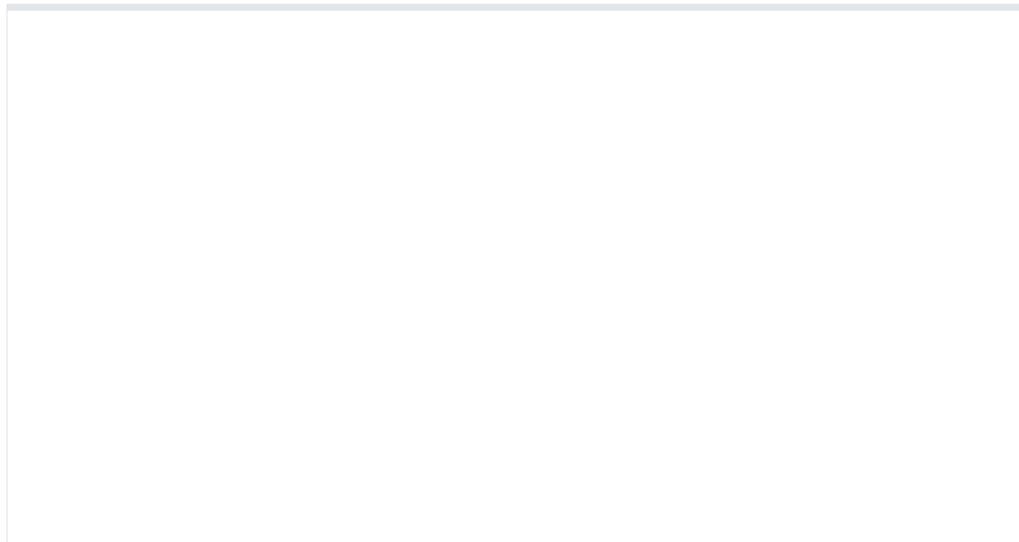
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New microarchitecture, new level of performance

Piledriver microarchitecture, a tuned-up Bulldozer, has finally reached the flagship AMD FX processors (the new FX series processors are codenamed as Vishera) for improved performance and better energy-efficiency. Up to eight "Piledriver" cores ensure unrivaled multitasking and pure core performance. The AMD Turbo Core technology pushes your core frequencies to the most when you need it most. To top it off, like all other AMD's Black Edition processors, the new AMD FX 8-core Vishera processor black edition is unlocked for fabulous overclocking* capability. Unrivaled performance is not the only trick AMD has up their sleeve. Vishera processors are at a reasonable price point. (*AMD's product warranty does not cover damage caused by overclocking even when overclocking is enabled via AMD Overdrive software.)



NEW PILEDRIVER MICROARCHITECTURE

Piledriver microarchitecture is the second generation of AMD Bulldozer microarchitecture. The internal core structure has been modified for higher

QTY. 1

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Buzz

1x Winner for Processors - Desktops Customer Choice Award

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★★★★★

One of the easiest processors to overclock ever. I'm not kidding here, I've been building/pushing systems beyond ...

— Newegg Junkie :) 11/4/2012

Good step

★★★★★

I had a 965 black at 4.2ghz running ProE Wildfire and Solid Works. I am one of the few who use their computer for work. ...

— 10/25/2012

Write a Review



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frequency even with 40% clock speed in the manufacturing process. Piledriver has a more precise branch predictor and a larger instruction window with ISA extensions FMA3 and F16C. The execution units acquired an enhanced scheduler and learned to process individual instructions faster, such as integer and floating-point division. And Piledriver microarchitecture delivers higher power efficiency compared with Bulldozer microarchitecture.



• UNLOCKED AMD FX PROCESSOR WITH 8 PILEDRIVER CORES

The native 8-core desktop processor delivers unrivaled multitasking and pure core performance with the new Piledriver microarchitecture. 32 nanometer die shrink was designed to reduce leakage for improved efficiency, increased clock rate headroom and better thermals. The AMD unlocked technology offers more headroom for your overclocking (AMD's product warranty does not cover damage caused by overclocking even when overclocking is enabled via AMD Overdrive software.).



• AMD TURBO TECHNOLOGY

The AMD FX Processors come equipped with AMD Turbo CORE Technology, a performance boosting technology that helps increase performance on the applications that need it the most.



• AMAZING INSTRUCTION CAPABILITIES

Like Bulldozer, Piledriver has some amazing instruction capabilities. Advanced Vector Extensions (AVX) increase parallelism tailored for scientific and 3D applications that use heavy floating point calculations. Floating Point Vector Multiply-Accumulate improves throughput and performance on many vector functions (integer and floating point). Advanced Encryption Standard noticeably increases performance on the latest encryption applications like TrueCrypt and benchmarks like PCMark.



• AMD HYPERTRANSPORT TECHNOLOGY

HyperTransport Technology (HT or HTT) is a high-speed, low latency, point-to-point link which helps reduce the number of buses in a system thus reducing system bottlenecks and enabling today's faster microprocessors to use system memory more efficiently in high-end multiprocessor systems.



• INTEGRATED DRAM CONTROLLER WITH AMD MEMORY OPTIMIZER TECHNOLOGY

AMD FX Vishera Processor features a high-bandwidth, low-latency integrated memory controller that supports faster and low voltage memories and provides new Pre-Fetcher improvements and direct communications to each core in Dual-Core module (APIC registers in each core).

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FX-8370 Bulldozer Processor

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AMD FX-8370 Vishera 8-Core 4.0GHz (4.3GHz Turbo) Socket AM3+ 125W Desktop Processor FD8370FRHKBOX



★★★★★ (3) | [Write a Review](#)

In stock.

- 32nm Vishera 125W
- 8MB L3 Cache
- 4 x 2MB L2 Cache

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Learn more about FX-8370

Model

Brand	AMD
Series	FX-Series
Model	FD8370FRHKBOX

CPU Socket Type

CPU Socket Type	Socket AM3+
-----------------	-------------

Tech Spec

Core Name	Vishera
# of Cores	8-Core
Name	FX-8370
Operating Frequency	4.0GHz (4.3GHz Turbo)
L2 Cache	4 x 2MB
L3 Cache	8MB
Manufacturing Tech	32nm

QTY.

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64-Bit Support	Yes
Virtualization Technology Support	Yes
Thermal Design Power	125W
Cooling Device	Heatsink and fan included

Quick Info

Warranty

Limited Warranty period (parts): 3 years

Limited Warranty period (labor): 3 years

Manufacturer Contact Info

[Manufacturer Product Page](#)

Website: <http://www.amd.com/>

Support Phone: 1-877-284-1566

[Support Website](#)

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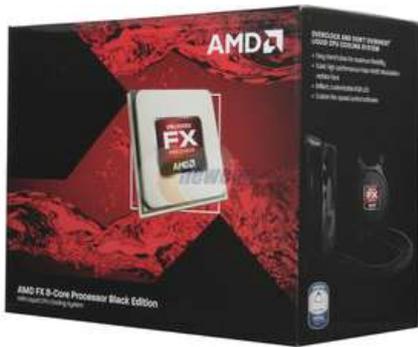
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AMD FX-9370 Vishera 4.4GHz Socket AM3+ 220W 8-Core Desktop Processor - Black Edition FD9370FHHKWOX with Liquid Cooling Kit

(48) | Write a Review

In stock.

- 32nm Vishera 220W
- 8MB L2 Cache

Ask Or Answer A Question

See 33 questions | 198 answers

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This CPU is only compatible with the selected 990FX motherboards.

For example:

ASUS Crosshair V Formula-Z, GIGABYTE GA-990FXA-UD7 and ASRock 990FX Extreme9.

Please check motherboard manufacturers for CPU compatibility.

*AMD's product warranty does not cover damage caused by overclocking (even when overclocking is enabled via AMD OverDrive software).



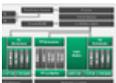
• AMD TURBO CORE TECHNOLOGY

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• NEW INSTRUCTION CAPABILITIES

AVX (Advanced Vector Extensions) increase parallelism tailored for scientific and 3D applications that use heavy floating point calculations. FMA4 and XOP - Floating Point Vector Multiply - Accumulate improves throughput and performance on many vector functions (integer and floating point). AES (Advanced Encryption Standard) noticeably increases performance on the latest encryption applications like TrueCrypt and benchmarks like PCMark.



• AMD BALANCED SMART CACHE

Shared L3 cache (up to 8MB), improved scheduling and pre-fetch capabilities, 64-ways (16-ways/sub-cache), increased data queue sizes, and coherency for eight-cores.

FREE SHIPPING AVAILABLE

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• **HYPERTRANSPORT TECHNOLOGY**

One 16-bit link at up to 5600MTps, up to 8.0GBps HyperTransport I/O bandwidth, up to 16GBps in HyperTransport Generation 3.0 mode, and up to 37GBps total delivered processor-to-system bandwidth (HyperTransport bus + memory bus). Benefit: Quick access times to system I/O for better performance.



• **INTEGRATED DRAM CONTROLLER WITH AMD MEMORY OPTIMIZER TECHNOLOGY**

A high-bandwidth, low-latency integrated memory controller, supports up to DDR3-1866, supports new low voltage memories of 1.35V and 1.2V, up to 29.9GBps memory bandwidth for DDR3, new pre-fetcher improvements, and direct communications to each core in the dual-core module (APIC registers in each core). Benefit: Optimized memory controller to feed more cores.



• **AMD VIRTUALIZATION (AMD-V) TECHNOLOGY WITH IOMMU**

Silicon feature-set enhancements are designed to improve the performance, reliability, and security of existing and future virtualization environments by allowing virtualized applications with direct and rapid access to their allocated memory. IOMMU is an extension to AMD64 architecture to support address translation and access protection on DMA transfers. An array of security options delivers the maximum protection for user-level applications and virtual machine guest operating systems, including address translation and access control, device isolation, device assignment in virtualized systems, security and trusted boot support, and unified interrupt management.

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FX-9590 Bulldozer Processor

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AMD FX-9590 Vishera 4.7GHz Socket AM3+ 220W Eight-Core Desktop Processor - Black Edition FD9590FHHKWOX with Liquid Cooling Kit

Free FarCry3 Dragon Blood game w/ purchase, limited offer

★★★★☆ (33) | Write a Review

In stock.

- 32nm Vishera 220W
- 8MB L2 Cache



Ask Or Answer A Question

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The AMD FX-9590 is the world's first 5GHz CPU processor with 4.7GHz base frequency and 5GHz turbo frequency. The ground-breaking frequency with eight cores delivers new levels of gaming and multimedia performance for desktop enthusiasts. You can immerse yourself in the most advanced 3D games, and achieve extreme mega-tasking with ease.

Based on the 32nm "Piledriver" architecture, the AMD FX-9590 is fully unlocked for easy overclocking, and paves the way for enthusiasts to enjoy higher CPU speeds and related performance gains*. AMD Turbo Core 3.0 technology dynamically optimizes performance across CPU cores, and enables maximum computing for the most intensive workloads.

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The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON NEXT PAGE OF THIS FORM.)

I. (a) PLAINTIFFS

(b) County of Residence of First Listed Plaintiff (EXCEPT IN U.S. PLAINTIFF CASES)

(c) Attorneys (Firm Name, Address, and Telephone Number)

DEFENDANTS

County of Residence of First Listed Defendant (IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED.

Attorneys (If Known)

II. BASIS OF JURISDICTION (Place an "X" in One Box Only)

- 1 U.S. Government Plaintiff, 2 U.S. Government Defendant, 3 Federal Question, 4 Diversity

III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" in One Box for Plaintiff and One Box for Defendant)

- Citizen of This State, Citizen of Another State, Citizen or Subject of a Foreign Country, PTF DEF, Incorporated or Principal Place of Business In This State, Incorporated and Principal Place of Business In Another State, Foreign Nation

IV. NATURE OF SUIT (Place an "X" in One Box Only)

Table with 5 columns: CONTRACT, REAL PROPERTY, TORTS, CIVIL RIGHTS, PRISONER PETITIONS, FORFEITURE/PENALTY, LABOR, IMMIGRATION, BANKRUPTCY, SOCIAL SECURITY, FEDERAL TAX SUITS, OTHER STATUTES. Contains various legal categories and checkboxes.

V. ORIGIN (Place an "X" in One Box Only)

- 1 Original Proceeding, 2 Removed from State Court, 3 Remanded from Appellate Court, 4 Reinstated or Reopened, 5 Transferred from Another District, 6 Multidistrict Litigation

VI. CAUSE OF ACTION

Cite the U.S. Civil Statute under which you are filing (Do not cite jurisdictional statutes unless diversity): Brief description of cause:

VII. REQUESTED IN COMPLAINT:

CHECK IF THIS IS A CLASS ACTION UNDER RULE 23, F.R.Cv.P. DEMAND \$ CHECK YES only if demanded in complaint: JURY DEMAND: Yes No

VIII. RELATED CASE(S) IF ANY

(See instructions): JUDGE DOCKET NUMBER

DATE SIGNATURE OF ATTORNEY OF RECORD

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The JS 44 civil cover sheet and the information contained herein neither replaces nor supplements the filings and service of pleading or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. Consequently, a civil cover sheet is submitted to the Clerk of Court for each civil complaint filed. The attorney filing a case should complete the form as follows:

- I.(a) Plaintiffs-Defendants.** Enter names (last, first, middle initial) of plaintiff and defendant. If the plaintiff or defendant is a government agency, use only the full name or standard abbreviations. If the plaintiff or defendant is an official within a government agency, identify first the agency and then the official, giving both name and title.
- (b) County of Residence.** For each civil case filed, except U.S. plaintiff cases, enter the name of the county where the first listed plaintiff resides at the time of filing. In U.S. plaintiff cases, enter the name of the county in which the first listed defendant resides at the time of filing. (NOTE: In land condemnation cases, the county of residence of the "defendant" is the location of the tract of land involved.)
- (c) Attorneys.** Enter the firm name, address, telephone number, and attorney of record. If there are several attorneys, list them on an attachment, noting in this section "(see attachment)".
- II. Jurisdiction.** The basis of jurisdiction is set forth under Rule 8(a), F.R.Cv.P., which requires that jurisdictions be shown in pleadings. Place an "X" in one of the boxes. If there is more than one basis of jurisdiction, precedence is given in the order shown below.
 United States plaintiff. (1) Jurisdiction based on 28 U.S.C. 1345 and 1348. Suits by agencies and officers of the United States are included here.
 United States defendant. (2) When the plaintiff is suing the United States, its officers or agencies, place an "X" in this box.
 Federal question. (3) This refers to suits under 28 U.S.C. 1331, where jurisdiction arises under the Constitution of the United States, an amendment to the Constitution, an act of Congress or a treaty of the United States. In cases where the U.S. is a party, the U.S. plaintiff or defendant code takes precedence, and box 1 or 2 should be marked.
 Diversity of citizenship. (4) This refers to suits under 28 U.S.C. 1332, where parties are citizens of different states. When Box 4 is checked, the citizenship of the different parties must be checked. (See Section III below; **NOTE: federal question actions take precedence over diversity cases.**)
- III. Residence (citizenship) of Principal Parties.** This section of the JS 44 is to be completed if diversity of citizenship was indicated above. Mark this section for each principal party.
- IV. Nature of Suit.** Place an "X" in the appropriate box. If the nature of suit cannot be determined, be sure the cause of action, in Section VI below, is sufficient to enable the deputy clerk or the statistical clerk(s) in the Administrative Office to determine the nature of suit. If the cause fits more than one nature of suit, select the most definitive.
- V. Origin.** Place an "X" in one of the six boxes.
 Original Proceedings. (1) Cases which originate in the United States district courts.
 Removed from State Court. (2) Proceedings initiated in state courts may be removed to the district courts under Title 28 U.S.C., Section 1441. When the petition for removal is granted, check this box.
 Remanded from Appellate Court. (3) Check this box for cases remanded to the district court for further action. Use the date of remand as the filing date.
 Reinstated or Reopened. (4) Check this box for cases reinstated or reopened in the district court. Use the reopening date as the filing date.
 Transferred from Another District. (5) For cases transferred under Title 28 U.S.C. Section 1404(a). Do not use this for within district transfers or multidistrict litigation transfers.
 Multidistrict Litigation. (6) Check this box when a multidistrict case is transferred into the district under authority of Title 28 U.S.C. Section 1407. When this box is checked, do not check (5) above.
- VI. Cause of Action.** Report the civil statute directly related to the cause of action and give a brief description of the cause. **Do not cite jurisdictional statutes unless diversity.** Example: U.S. Civil Statute: 47 USC 553 Brief Description: Unauthorized reception of cable service
- VII. Requested in Complaint.** Class Action. Place an "X" in this box if you are filing a class action under Rule 23, F.R.Cv.P.
 Demand. In this space enter the actual dollar amount being demanded or indicate other demand, such as a preliminary injunction.
 Jury Demand. Check the appropriate box to indicate whether or not a jury is being demanded.
- VIII. Related Cases.** This section of the JS 44 is used to reference related pending cases, if any. If there are related pending cases, insert the docket numbers and the corresponding judge names for such cases.
- Date and Attorney Signature.** Date and sign the civil cover sheet.