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American multinational technology company For other uses, see AMD (disambiguation). Not to be confused with Advanced Micro Devices, Inc.Headquarters in Santa Clara, California, in 2020Trade nameAMDCompany typePublicTraded asNasdaq: AMDNasdaq-100 componentS&P 100 componentS&P CEO)Mark Papermaster (CTO)Products AMD CPUs AMD GPUs BrandsRyzenRadeonAthlonEpycThreadripperVirtexVivadoSempronDuronAMD InstinctRevenue US\$1.641 billion (2024)Total assets US\$69.23 billion (2024)Total equity US\$57.57 billion (2024)Number of content of the second secon employeesc. 28,000 (2024)Websiteamd.comFootnotes / references[1] Advanced Micro Devices, Inc. (AMD) is an American multinational corporation and technology company that designs and develops central processing units (CPUs), graphics processing units (GPUs), field-programmable gate arrays (FPGAs), system-on-chip (SoC), and high-performance computer solutions. AMD serves a wide range of business and consumer markets, including gaming, data centers, artificial intelligence (AI), and embedded systems. AMD's main products include microprocessors, motherboard chipsets, embedded processors, and graphics processors for servers, workstations, personal computers, and embedded system applications. The company has also expanded into new markets, such as the data center, gaming, and high-performance computing[2] markets. AMD's processors are used in a wide range of computing devices, including personal computers, servers, laptops, and gaming consoles. While it initially manufactured its own processors, the company later outsourced its manufacturing, after GlobalFoundries was spun off in 2009. Through its Xilinx acquisition in 2022, AMD offers field-programmable gate array (FPGA) products. AMD was founded in 1969 by Jerry Sanders and a group of other technology professionals. The company's early products were primarily memory chips and other components for computers. In 1975, AMD entered the microprocessor market, competing with Intel, its main rival in the industry. In the early 2000s, it experienced significant growth and success, thanks in part to its strong position in the PC market and the success of its Athlon and Opteron processors. However, the company faced challenges in the late 2000s and early 2010s, as it struggled to keep up with Intel in the race to produce faster and more powerful processors. In the late 2010s, AMD regained market share by pursuing a penetration pricing strategy[3] and building on the success of its Ryzen processors, which were considerably more competitive with Intel microprocessors in terms of performance whilst offering attractive pricing.[4] In 2022, AMD surpassed Intel by market capitalization for the first time.[5][6] AMD's former headquarters in Sunnyvale, California (demolished in 2019) AMD's campus in Markham, Ontario, Canada, formerly ATI headquarters AMD's LEED-certified Lone Star campus in Austin, Texas Advanced Micro Devices was formally incorporated by Jerry Sanders, along with seven of his colleagues from Fairchild Semiconductor, on May 1, 1969.[7][8] Sanders, an electrical engineer who was the director of marketing at Fairchild, had, like many Fairchild executives, grown frustrated with the increasing lack of support, opportunity, and flexibility within the company. He later decided to leave to start his own semiconductor company,[9] following the footsteps of Robert Noyce (developer of the first silicon integrated circuit at Fairchild in 1959)[10] and Gordon Moore, who together founded the semiconductor company Intel in July 1968.[11] In September 1969, AMD moved from its temporary location in Santa Clara to Sunnyvale, California.[12] To immediately secure a customer base, AMD initially became a second source supplier of microchips designed by Fairchild and National Semiconductor.[13][14] AMD first focused on producing logic chips.[15] The company guaranteed quality control to United States Military Standard, an advantage in the early computer industry since unreliability in microchips was a distinct problem that customers - including computer manufacturers, the telecommunications industry, and instrument manufacturers - wanted to avoid.[13][16][17][18] In November 1969, the company manufactured its first product: the Am9300, a 4-bit MSI shift register, which began selling in 1970.[18][19] Also in 1970, AMD produced its first proprietary product, the Am2501 logic counter, which was highly successful.[20][21] Its bestselling product in 1971 was the Am2505, the fastest multiplier available.[20][22] In 1971, AMD entered the RAM chip market, beginning with the Am3101, a 64-bit bipolar RAM.[22][23] That year AMD also greatly increased the sales volume of its linear integrated circuits, and by year-end the company's total annual sales reached US\$4.6 million.[20][24] AMD went public in September 1972.[13][25][26] The company was a second source for Intel MOS/LSI circuits by 1973, with products such as Am14/1506 and Am14/1507, dual 100-bit dynamic shift registers.[27][28] By 1975, AMD was producing 212 products - of which 49 were proprietary, including the Am9102 (a static N-channel 1024-bit RAM)[29] and three low-power Schottky MSI circuits: Am25LS07, Am25LS08, and Am25LS09.[30] Intel had created the first microprocessor, its 4-bit 4004, in 1971.[31][32] By 1975, AMD entered the microprocessor market with the Am9080, a reverse-engineered clone of the Intel 8080,[33][34][35] and the Am2900 bit-slice microprocessor family.[34] When Intel began installing microcode in its microprocessors in 1976, it entered into a cross-licensing agreement with AMD, which was granted a copyright license to the microprocessors and peripherals, effective October 1976.[30][36][37][38][39] In 1977, AMD entered into a copyright license to the microprocessors and peripherals, effective October 1976.[30][36][37][38][39] In 1977, AMD entered into a copyright license to the microprocessors and peripherals, effective October 1976.[30][36][37][38][39] In 1977, AMD entered into a copyright license to the microprocessors and peripherals, effective October 1976.[30][36][37][38][39] In 1977, AMD entered into a copyright license to the microprocessors and peripherals, effective October 1976.[30][36][37][38][39] In 1977, AMD entered into a copyright license to the microprocessors and peripherals, effective October 1976.[30][36][37][38][39] In 1977, AMD entered into a copyright license to the microprocessors and peripherals, effective October 1976.[30][37][38][39] In 1977, AMD entered into a copyright license to the microprocessors and peripherals, effective October 1976.[30][37][38][39] In 1977, AMD entered into a copyright license to the microprocessors and peripherals, effective October 1976.[30][37][38][39] In 1977, AMD entered into a copyright license to the microprocessors and peripherals, effective October 1976.[30][38][39] In 1977, AMD entered into a copyright license to the microprocessors and peripherals, effective October 1976.[30][38][39] In 1977, effective October 1976.[30][38][38] In 1977, effective October 1976.[30][38] In 1977, effective wishing to enhance its technology expertise and enter the American market.[40] Siemens purchased 20% of AMD's stock, giving the company an infusion of cash to increase its product lines.[40][41][42] The two companies also jointly established Advanced Micro Computers (AMC), located in Silicon Valley and in Germany, allowing AMD to enter the microcomputer development and manufacturing field, [40][43][44][45] in particular based on AMD's second-source Zilog Z8000 microprocessors. [46][47] When the two companies' vision for Advanced Micro Computers diverged, AMD bought out Siemens' stake in the American division in 1979. [48][49] AMD closed Advanced Micro Computers in late 1981 after switching focus to manufacturing second-source Intel x86 microprocessors. [46][50][51] Total sales in fiscal year 1978 topped \$100 million, [43] and in 1979, AMD debuted on the New York Stock Exchange. [21] In 1979, production also began on AMD's new semiconductor fabrication plant in Austin, Texas; [21] the company already had overseas assembly facilities in Penang and Manila,[52] and began construction on a fabrication plant in San Antonio in 1981,[53] In 1980, AMD began supplying semiconductor products for telecommunications, an industry undergoing rapid expansion and innovation.[54] Intel had introduced the first x86 microprocessors in 1978.[55] In 1981, IBM created its PC, and wanted Intel's x86 processors, but only under the condition that Intel would also provide a second-source manufacturer for its patented x86 microprocessors. [16] Intel and AMD entered into a 10-year technology exchange agreement, first signed in October 1981[50][56] and formally executed in February 1982. [39] The terms of the agreement were that each company could acquire the right to become a second-source manufacturer of semiconductor products developed by the other; that is, each party could "earn" the right to manufacture and sell a product developed by the other; that is, each party could "earn" the right to become a second-source manufacturer of semiconductor products developed by the other; that is, each party could "earn" the right to manufacturer of semiconductor products developed by the other; that is, each party could "earn" the right to manufacture and sell a product developed by the other; that is, each party could "earn" the right to manufacture and sell a product developed by the other; that is, each party could "earn" the right to manufacture and sell a product developed by the other; that is, each party could "earn" the right to manufacture and sell a product developed by the other; that is, each party could "earn" the right to manufacture and sell a product developed by the other; that is, each party could "earn" the right to manufacture and sell a product developed by the other; that is, each party could "earn" the right to manufacture and sell a product
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The technical information and licenses needed to make and sell a part would be exchanged for a royalty to the developing company.[38] The 1982 agreement included the right to invoke arbitration of disagreements, and after five years the right of either party to end the agreement with one year's notice.[38] The main result of the 1982 agreement was that AMD became a second-source manufacturer of Intel's x86 microprocessors and related chips, and Intel provided AMD with database tapes for its 8086, 80186, and 80286 chips.[39] However, in the event of a bankruptcy or takeover of AMD, the cross-licensing agreement would be effectively canceled.[57] Beginning in 1982, AMD began volume-producing second-source Intel-licensed 8086, 80186, and 80188 processors, and by 1984, its own Am286 clone of Intel's 80286 processors, and by 1984, its own Am286 clone of Intel's 80286 processors, and by 1984, its own Am286 clone of Intel's 80286 processors, and by 1984, its own Am286 clone of Intel's 80286 processors, and by 1984, its own Am286 clone of Intel's 80286 processors, and BM clones.[16][58] It also continued its successful concentration on proprietary bipolar chips.[59] The company continued to spend greatly on research and development,[60] and created the world's first 512K EPROM in 1984.[61] That year, AMD was listed in the book The 100 Best Companies to Work for in America,[53][62] and later made the Fortune 500 list for the first time in 1985.[63] [64] By mid-1985, the microchip market experienced a severe downturn, mainly due to long-term aggressive trade practices (dumping) from Japan, but also due to a crowded and non-innovative chip market in the United States.[65] AMD rode out the mid-1980s crisis by aggressively innovating and modernizing,[66] devising the Liberty Chip program of designing and manufacturing one new chip or chipset per week for 52 weeks in fiscal year 1986,[53][67] and by heavily lobbying the U.S. government until sanctions and restrictions were put in place to prevent predatory Japanese pricing.[68] During this time, AMD withdrew from the DRAM market,[69] and made some headway into the CMOS market, which it had lagged in entering, having focused instead on bipolar chips.[70] AMD had some success in the mid-1980s with the AMD7910 and AMD7911 "World Chip" FSK modem, one of the first multi-standard devices that covered both Bell and CCITT tones at up to 1200 baud half duplex or 300/300 full duplex.[71] Beginning in 1986, AMD embraced the perceived shift toward RISC with their own AMD Am29000 (29k) processors. [72] the 29k survived as an embedded processor. [73][74] The company also increased its EPROM memory market share in the late 1980s. [75] Throughout the 1980s. [75] Throughout th compatible Am386, an AMD-designed chip. Creating its own chips, AMD began to compete directly with Intel.[76] AMD had a large, successful flash memory business, even during the dotcom bust.[77] In 2003, to divest some manufacturing and aid its overall cash flow, which was under duress from aggressive microprocessor competition from Intel AMD spun off its flash memory business and manufacturing into Spansion, a joint venture with Fujitsu, which had been co-manufacturing flash memory with AMD since 1993.[78][79] In December 2005, AMD divested itself of Spansion to focus on the microprocessor market, and Spansion went public in an IPO.[80] On July 24, 2006, AMD announced its acquisition of the Canadian 3D graphics card company ATI Technologies. AMD paid \$4.3 billion and 58 million shares of its capital stock, for approximately \$5.4 billion. The transaction was completed on October 25, 2006.[81] On August 30, 2010, AMD announced that it would retire the ATI brand name for its graphics chipsets in favor of the AMD brand name.[82][83] In October 2008, AMD announced plans to spin off manufacturing operations in the form of GlobalFoundries Inc., a multibillion-dollar joint venture with Advanced Technology Investment Co., an investment company formed by the government of Abu Dhabi. The partnership and spin-off gave AMD an infusion of cash and allowed it to focus solely on chip design.[84] To assure the Abu Dhabi investors of the new venture's success, AMD's CEO.[87] Recessionary losses necessitated AMD cutting 1,100 jobs in 2009.[88] In August 2011, AMD announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[89] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[89] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[89] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[89] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[89] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[80] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[80] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[80] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[80] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[80] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[80] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[80] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[80] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[80] In October 2012, it announced that former Lenovo executive Rory Read would be joining the company as CEO, replacing Meyer.[80] In October 2012, it announced that former Lenovo executive Rory Read would be joining the co plans to lay off an additional 15% of its workforce to reduce costs in the face of declining sales revenue.[91] The inclusion of AMD chips into the PlayStation 4 and Xbox One were later seen as saving AMD from bankruptcy.[92][93] AMD acquired the low-power server manufacturer SeaMicro in early 2012, with an eye to bringing out an Arm64 server chip.[94] On October 8, 2014, AMD announced that Rory Read had stepped down after three years as president and chief executive officer.[95] He was succeeded by Lisa Su, a key lieutenant who had been chief operating officer since June.[96] On October 16, 2014, AMD announced that Rory Read had stepped down after three years as president and chief executive officer.[95] He was succeeded by Lisa Su, a key lieutenant who had been chief operating officer since June.[96] On October 16, 2014, AMD announced that Rory Read had stepped down after three years as president and chief executive officer.[95] He was succeeded by Lisa Su, a key lieutenant who had been chief operating officer since June.[96] On October 16, 2014, AMD announced that Rory Read had stepped down after three years as president and chief executive officer.[95] He was succeeded by Lisa Su, a key lieutenant who had been chief operating officer since June.[96] On October 16, 2014, AMD announced that Rory Read had stepped down after three years as president and chief executive officer.[95] He was succeeded by Lisa Su, a key lieutenant who had been chief operating officer since June.[96] On October 16, 2014, AMD announced that Rory Read had stepped down after three years as president and chief executive officer.[95] He was succeeded by Lisa Su, a key lieutenant who had been chief operating officer since June.[96] On October 16, 2014, AMD announced that Rory Read had stepped down after three years as president and chief executive officer.[95] He was succeeded by Lisa Su, a key lieutenant who had been chief operating officer since June.[96] On October 16, 2014, AMD announced that Rory Read had stepped down after three years as president and chief operating officer since June.[96] On October 16, 2014, AMD announced that Rory Read had stepped down after three years as president and chief operating officer since June.[96] On October 16, 2014, AMD announced that Rory Read had stepped down after three years as president and chief operating officer since June.[96] O 2014, AMD reorganized into two business groups: Computing and Graphics, which primarily includes desktop and notebook processors and chipsets, discrete GPUs, and professional graphics; and Enterprise, Embedded, and Semi-Custom, which primarily includes desktop and notebook processors and chipsets, discrete GPUs, and professional graphics; and Enterprise, Embedded, and Semi-Custom, which primarily includes desktop and
notebook processors and chipsets, discrete GPUs, and professional graphics; and Enterprise, Embedded, and Semi-Custom, which primarily includes desktop and notebook processors and chipsets, discrete GPUs, and professional graphics; and Enterprise, Embedded, and Semi-Custom, which primarily includes desktop and notebook processors and chipsets. solutions for gaming consoles), engineering services, and royalties. As part of this restructuring, AMD announced that 7% of its global workforce would be laid off by the end of 2014.[97] After the GlobalFoundries spin-off and subsequent layoffs, AMD was left with significant vacant space at 1 AMD Place, its aging Sunnyvale headquarters office complex. In August 2016, AMD's 47 years in Sunnyvale came to a close when it signed a lease with the Irvine Company for a new 220,000 sq. ft. headquarters building in Santa Clara Square faces the headquarters of archrival Intel across the Bayshore Freeway and San Tomas Aquino Creek. Around the same time, AMD also agreed to sell 1 AMD Place to the Irvine Company.[99] In April 2019, the Irvine Company secured approval from the Sunnyvale City Council of its plans to demolish 1 AMD Place and redevelop the entire 32-acre site into townhomes and apartments.[99] In October 2020, AMD announced that it was acquiring Xilinx, one of the market leaders in field programmable gate arrays and complex programmable logic devices (FPGAs and CPLDs) in an all-stock transaction. The acquisition price of \$50 billion.[100][101] In October 2023, AMD acquired an open-source AI software provider, Nod.ai, to bolster its AI software ecosystem.[102][103] In January 2024, AMD announced it was discontinuing the production of all complex programmable logic devices (CPLDs) acquired through Xilinx.[104] In March 2024, a rally in semiconductor stocks pushed AMD's valuation above \$300B for the first time.[105] In July 2024, AMD announced that it would acquire the Finnishbased artificial intelligence startup company Silo AI in a \$665 million all-cash deal in an attempt to better compete with AI chip market leader Nvidia.[106] In August 2024, AMD sign a deal to acquire ZT Systems for \$4.9 billion. The company creates custom computing infrastructure that is used for AI tasks.[107] Name Years Position, education Jerry Sanders 1969-2002 Founder, electrical engineer Ber Bar 2002-2008 Electrical engineer Ber 2008-2011 Computer engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Systems Lisa Su 2014-present Electrical engineer Rory Read 2011-2014 Information Electrical engineer Rory Read 2011-2014 Information Electrical engineer Rory Read 2011-2014 Information Electrical engineer Rory Read 2014-present Electrical engineer Rory Read 2014-present Electr series (1991-1995) K5 architecture (1996) K6 architecture (1997-2001) Bulldozer Series CPUs Bulldozer, Piledriver, Steamroller, Excavator (2011-2017) Bobcat series APUs Bobcat, Jaguar, Puma (2011-present) Zen core architecture (2017) Zen 2 series (released 2020) Zen 4 series (released 2022) Zen 5 series (released 2022) Zen 5 series (released 2022) Zen 5 series (released 2020) Zen 4 series (released 2020) Zen 4 series (released 2020) Zen 4 series (released 2022) Zen 5 series (released 2020) Zen 4 series (released 2020) Zen 4 series (released 2020) Zen 5 series (released 2020) Zen 4 series (released 2020) Zen 5 series (released 2020) Zen 4 series (released 2020) Zen 4 series (released 2020) Zen 5 series (released 2020) Zen 4 series (released 2020) Zen 5 series (released 2020) Zen 4 series (released 2020) Zen 5 series (released 2020) Zen 4 series (released 2020) Zen 5 series (2024) Main articles: Am286, Am386, Am486, and Am5x86 In February 1982, AMD signed a contract with Intel, becoming a licensed second-source manufacturer of 8088 in its IBM PC, but its policy at the time was to require at least two sources for its chips. AMD later produced the Am286 under the same arrangement. In 1984, Intel internally decided to no longer cooperate with AMD in supplying product information to shore up its advantage in the marketplace, and delayed and eventually refused to convey the technical details of the Intel 80386.[108] In 1987, AMD invoked arbitration over the issue, and Intel reacted by canceling the 1982 technological-exchange agreement altogether. [109][110] After three years of testimony, AMD eventually won in arbitration in 1992, but Intel dispute followed, ending in 1994 when the Supreme Court of California sided with the arbitrator and AMD. [111][112] In 1990, Intel countersued AMD, renegotiating AMD's right to use derivatives of Intel's microcode for its cloned processors. [113] In the face of uncertainty during the legal dispute, AMD was forced to develop clean room designed versions of Intel code for its x386 and x486 processors, the former long after Intel had released its own x386 in 1985. [114] In March 1991, AMD released the Am386, its clone of the Intel 386 processor.[53] By October of the same year it had sold one million units.[53] In 1993, AMD introduced the first of the Am486 family of processors,[21] which proved popular with a large number of original equipment manufacturers, including Compaq, which signed an exclusive agreement using the Am486.[13] [115][116] The Am5x86, another Am486-based processor, was released in November 1995, and continued AMD's success as a fast, cost-effective processor, [117][118] Finally, in an agreement effective 1996, AMD received the rights to the microcode in Intel's x386 and x486 processor families, but not the rights to the microcode in the following processors.[119][120] Main articles: AMD K5, AMD K6, Athlon, Duron, and Sempron AMD's first in-house x86 processor was the K5, launched in 1996.[121] The "K" in its name was a reference to Kryptonite, the only substance known to harm comic book character Superman. This itself market, i.e., an anthropomorphization of them as Superman.[122] The number "5" was a reference to the fifth generation of x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation of x86 processors; rival Intel had previously introduced its line of fifth-generation of x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line of fifth-generation x86 processors; rival Intel had previously introduced its line x86 processors; rival Intel had previously introduced its line x86 processors; rival Intel had previously introduced its line x86 processors; rival Intel had previously introduced its line x86 pr AMD purchased NexGen, specifically for the rights to their Nx series of x86-compatible processors. AMD gave the Nx686. The result was the K6 processor, introduced in 1997. Although it was based on Socket 7, variants such as K6-III/450 were faster than Intel's Pentium II (sixth-generation processor). The K7 was AMD's seventh-generation x86 processor, it could not be used on the same motherboards as Intel's, due to licensing issues surrounding Intel's Slot 1 connector, and
instead used a Slot A connector, referenced to the Alpha processor bus. The Duron was a lower-cost and limited version of the Athlon (64 KB instead of 256 KB L2 cache) in a 462-pin socketed PGA (socket A) or soldered directly onto the motherboard. Sempron was released as a lower-cost Athlon XP, replacing Duron in the socket A PGA era. It has since been migrated upward to all new sockets, up to AM3. On October 9, 2001, the Athlon XP was released. On February 10, 2003, the Athlon XP with 512 KB L2 Cache was released. [124] Main articles: Athlon 64, Opteron, and Phenom The K8 was a major revision of the K7 architecture, with the most notable features being the addition of a 64-bit extension to the x86 instruction set (called x86-64, AMD64, or x64), the incorporation of an on-chip memory controller, and the implementation of an extremely high-performance point-to-point interconnect called HyperTransport, as part of the Direct Connect Architecture. The technology was initially launched as the Opteron server-oriented processor on April 22 2003.[125] Shortly thereafter, it was incorporated into a product for desktop PCs, branded Athlon 64.[126] On April 21, 2005, AMD released the first dual-core processor family.[128] In May 2007, AMD abandoned the string "64" in its dual-core desktop product branding, becoming Athlon X2, downplaying the significance of 64-bit computing in its processors. Further updates involved improvements to the microarchitecture, and a shift of the target market from mainstream desktop systems to value dual-core desktop systems. In 2008, AMD started to release dual-core Sempror processors exclusively in China, branded as the Sempron 2000 series, with lower HyperTransport speed and smaller L2 cache. AMD completed its dual-core product portfolio for each market segment. In September 2007, AMD released the first server Opteron K10 processors, [129] followed in November by the Phenom processor for desktop. K10 processors came in dual-core, triple-core, [130] and quad-core versions, with all cores on a single die. AMD released a new platform codenamed "Spider", which used the new Phenom processor, and an R770 GPU and a 790 GX/FX chipset from the AMD 700 chipset series. [131] However, AMD built the Spider at 65nm, which was uncompetitive with Intel's smaller and more power-efficient 45nm. In January 2009, AMD released a new processor line dubbed Phenom II, a refresh of the original Phenom II processor, and an ATI R770 GPU from the R700 GPU family, and a 790 GX/FX chipset from the AMD 700 chipset series.[133] The Phenom II came in dual-core variants, all using the same die, with cores disabled for the triple-core and quad-core variants, all using the same die, with cores disabled for the triple-core and quad-core variants. The Phenom II cost less but was not performance-competitive with Intel's mid-to-high-range Core 2 Quads. The Phenom II also enhanced its predecessor's memory controller, allowing it to use DDR3 in a new native socket AM3, while maintaining backward compatibility with AM2+, the socket used for the Phenom, and allowing the use of the DDR2 memory that was used with the platform. In April 2010, AMD released a new Phenom II Hexa-core (6-core) processor codenamed "Thuban".[134] This was a totally new die based on the hexa-core "Istanbul" Opteron processor. It included AMD's "turbo core" technology, which allows the processor to automatically switch from 6 cores to 3 faster cores when more pure speed is needed. The Magny Cours and Lisbon parts were released in 2010.[135] The Magny Cours is focused on performance while the Lisbon part is focused on high performance per watt. Magny Cours is an MCM (multi-chip module) with two hexa-core "Istanbul" Opteron parts. This will use a new socket G34 for dual-socket processors and thus will be marketed as Opteron 61xx series processors. Lisbon uses socket C32 certified for dual-socket use or single socket use only and thus will be marketed as Opteron 61xx series processors. Both will be marketed as Opteron 61xx series processors. Lisbon uses socket C32 certified for dual-socket use only and thus will be marketed as Opteron 61xx series processors. Both will be marketed as Opteron 61xx series processors. Lisbon uses socket C32 certified for dual-socket use only and thus will be marketed as Opteron 61xx series processors. Both will be marketed as Opteron 61xx series processors. Lisbon uses socket C32 certified for dual-socket use only and thus will be marketed as Opteron 61xx series processors. Both will be marketed as Opteron 61xx series processors. Lisbon uses socket C32 certified for dual-socket use only and thus will be marketed as Opteron 61xx series processors. Both will be marketed as Opteron 61xx series processors. Both will be marketed as Opteron 61xx series processors. 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Both will be marketed articles: AMD APU and AMD mobile platform Following AMD's 2006 acquisition of Canadian graphics company ATI Technologies, an initiative codenamed Fusion was announced to integrate a CPU and GPU together on some of AMD's microprocessors, including a built in PCI Express link to accommodate separate PCI Express peripherals, eliminating the northbridge chip from the motherboard. The initiative intended to move some of the processing originally done on the CPU (e.g. floating-point unit operations) to the GPU, which is better optimized for some calculations. The Fusion was later renamed the AMD APU (Accelerated Processing Unit).[136] Llano was AMD's first APU built for laptops. Llano was the second APU released, [137] targeted at the mainstream market. [136] It incorporated a CPU and GPU on the same die, and northbridge functions, and used "Socket FM1" with DDR3 memory. The CPU part of the processor was based on the Phenom II "Deneb" processor. AMD suffered an unexpected decrease in revenue based on production problems for the Llano.[138] More AMD APUs for laptops running Windows 7 and Windows 8 OS are being used commonly. These include AMD's price-point APUs, the E1 and E2, and their mainstream competitors with Intel's Core i-series: The Vision A- series, the A standing for accelerated. These range from the lower-performance A4 chipset to the A6, A8, and A10. These all incorporate next-generation Radeon graphics cards, with the A4 utilizing the base Radeon HD chip and the rest using a Radeon HD chip and the rest using a Radeon R4 graphics card, with the exception of the highest-model A10 (A10-7300) which uses an R6 graphics card. Main articles: Bulldozer microarchitecture, Piledriver microarchitecture, Steamroller microarchitecture, and Excavator microarchitecture is the successor to the family 10h (K10) microarchitecture design. Bulldozer was a clean-sheet design, not a development of earlier processors.[139] The core was specifically aimed at 10-125 W TDP computing products. AMD claimed dramatic performance-competitive with Intel once more, most benchmarks were disappointing. In some cases the new Bulldozer products were slower than the K10 models they were built to replace.[140][141][142] The Piledriver microarchitecture was the 2012 successor to Bulldozer, increasing clock speeds and performance relative to its predecessor.[143] Piledriver microarchitecture was the 2012 successor to Bulldozer, increasing clock speeds and performance relative to its predecessor.[143] Piledriver microarchitecture was the 2012 successor to Bulldozer, increasing clock speeds and performance relative to its predecessor.[143] Piledriver microarchitecture was the 2012 successor to Bulldozer, increasing clock speeds and performance relative to its predecessor.[143] Piledriver microarchitecture was the 2012 successor to Bulldozer, increasing clock speeds and performance relative to its predecessor.[143] Piledriver microarchitecture was the 2012 successor to Bulldozer, increasing clock speeds and performance relative to its predecessor.[143] Piledriver microarchitecture was the 2012 successor to Bulldozer, increasing clock speeds and performance relative to its predecessor.[143] Piledriver microarchitecture was the 2012 successor to Bulldozer, increasing clock speeds and performance relative to its predecessor.[143] Piledriver microarchitecture was the 2012 successor to Bulldozer, increasing clock speeds and performance relative to its predecessor.[143] Piledriver microarchitecture was the 2012 successor to Bulldozer, increasing clock speeds and performance relative to its peri and Opteron product lines.[144][145][146][147] Piledriver was subsequently followed by the Steamroller microarchitecture in 2013. Used exclusively in AMD's APUs, Steamroller focused on greater parallelism.[148][149] In 2015, the Excavator microarchitecture in 2013. Used exclusively in AMD's APUs, Steamroller microarchitecture in 2013. Used exclusively in AMD's APUs, Steamroller microarchitecture of the Bulldozer series,[151][152] Excavator focused on improved power efficiency.[153] Main articles: Bobcat microarchitecture, Jaguar microarchitecture, and Puma microarchitecture, and Puma microarchitecture was revealed
during the first quarter of 2011.[137] Based on the difficulty competing in the x86 market with a single core optimized for the 10-100 W range, AMD had developed a simpler core with a target range of 1-10 watts.[154] In addition, it was believed that the core could migrate into the hand-held space if the power consumption can be reduced to less than 1 W.[155] Jaguar is a microarchitecture codename for Bobcat's successor, released in 2013, that is used in various APUs from AMD aimed at the low-power/low-cost market. [156] Jaguar and its derivates would go on to be used in the custom APUs of the PlayStation 4, [157][158] Xbox One, [159][160] PlayStation 4, [157][163] Xbox One S, [164] and Xbox One X. [165][166] Jaguar would be later followed by the Puma microarchitecture in 2014, [167] In 2012, AMD announced it was working on ARM products, both as a semi-custom product and server product. [168][170] The initial server product was announced as the Opteron A1100 in 2014, an 8-core Cortex-A57-based ARMv8-A SoC, [171][172] and was a semi-custom product. [168][169][170] The initial server product and server product. [168][169][170] The initial server product. expected to be followed by an APU incorporating a Graphics Core Next GPU.[173] However, the Opteron A1100 was also criticized for not having support from major vendors upon its release.[174][175][176] In 2014, AMD also announced the K12 custom core for release in 2016.[177] While being ARMv8-A instruction set architecture compliant, the K12 was expected to be entirely custom-designed, targeting the server, embedded, and semi-custom markets. While ARM architecture development continued, products based on K12 were subsequently delayed with no release planned. Development of AMD's x86-based Zen microarchitecture for x86-64 based Ryzen series of CPUs and APUs, introduced in 2017 by AMD and built from the ground up by a team led by Jim Keller, beginning with his arrival in 2012, and taping out before his departure in September 2015. One of AMD's primary goals with Zen was an IPC increase of at least 40%, however in February 2017 AMD announced that they had actually achieved a 52% increase.[180] Processors made on the Zen architecture are built on the 14 nm FinFET node and have a renewed focus on single-core performance and HSA compatibility.[181] Previous processors from AMD were either built in the 32 nm process ("Bulldozer" and "Piledriver" CPUs) or the 28 nm process ("Steamroller" and "Excavator" APUs). Because of this, Zen is much more energy efficient. The Zen architecture is the first to encompass CPUs and APUs from AMD built for a single socket (Socket AM4). Also new for this architecture is the implementation of simultaneous multithreading (SMT) technology, something Intel has had for years on some of their processors with their proprietary hyper-threading implementation of SMT. This is a departure from the "Clustered MultiThreading" design introduced with the Bulldozer architecture. Zen also has support for DDR4 for background for the "Clustered MultiThreading" design introduced with the Bulldozer architecture. memory. AMD released the Zen-based high-end Ryzen 3 series CPUs on April 11, 2017, and entry level Ryzen 5 series CPUs on April 11, 2017, AMD released the Epyc line of Zen derived server processors for 1P and 2P systems. [184] In October 2017, AMD released Zen-based APUs as Ryzen Mobile, incorporating Vega graphics cores.[185] In January 2018 AMD has announced their new lineup plans, with Ryzen 2.[186] AMD launched CPUs with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, following up with the 12nm Zen+[187] microarchitecture in April 2018, fo processors using the Zen 2 microarchitecture in August 2019, and Zen 3 slated for release in Q3 2020. As of 2019, AMD's Ryzen processors.[188] At CES 2020 AMD announced their Ryzen Mobile 4000, as the first 7 nm x86 mobile processors.[188] At CES 2020 AMD announced their Ryzen Mobile 4000, as the first 7 nm x86 mobile processors.[188] At CES 2020 AMD announced their Ryzen Mobile 4000, as the first 7 nm x86 mobile 4000, as the first high-performance mobile processor, and the first 8-core (also 16-thread) processor for ultrathin laptops.[189] This generation is still based on the Zen 2 architecture. [190] On PassMark's Single thread performance test the Ryzen 5 5600x bested all other CPUs besides the Ryzen 9 5950X.[191] In April 2020, AMD launched three new SKUs which target commercial HPC workloads & hyperconverged infrastructure applications. The launch was based on Epyc's 7 nm second-generation Rome platform and supported by Dell EMC, Hewlett Packard Enterprise, Lenovo, Supermicro, and Nutanix. IBM Cloud was its first public cloud partner.[192] In August 2022, AMD announced their initial lineup of CPUs based on the new Zen 4 architecture.[193] The Steam Deck,[194][195] PlayStation 5, Xbox Series X and Series S all use chips based on the Zen 2 microarchitecture, with proprietary tweaks and different configurations in each system's implementation than AMD sells in its own commercially available APUs.[196][197] In March 2025 AMD announced Instella an open source large language model.[198] Main articles: Radeon, Radeon R200 series (2001) Radeon HD 2000 series (2007a) Radeon HD 3000 series (2007b) Radeon HD 4000 series (2018) Radeon HD 5000 series (2019) Radeon HD 6000 series (2010) Radeon RX 400 series (2013) Radeon RX 400 series (2016) Radeon RX 500 series (2017) Radeon RX 500 series (2017) Radeon RX 5000 series (2019) Radeon RX 6000 series (2020) Radeon RX 400 series (2010) Radeon RX 400 series (2011) Radeon RX 400 series (2012) Radeon RX 400 series (2013) Radeon RX 400 series (2014) Radeon RX 400 series (2015) Radeon RX 400 series (2016) Radeon RX 400 series (2017) Radeon RX 400 series (2018) Radeon RX 400 series (2 7000 series (2022) Main article: ATI Technologies Lee Ka Lau, [199] Francis Lau, Benny Lau, and Kwok Yuen Ho[200] founded ATI in 1985 as Array Technology Inc. [201] Working primarily in the OEM field, ATI produced integrated graphics cards for PC manufacturers such as IBM and Commodore. By 1987, ATI had grown into an independent graphics-card retailer, introducing EGA Wonder and VGA Wonder card product lines that year.[202] In the early nineties, they released products able to process graphics without the CPU: in May 1991, the Mach32, which offered improved memory bandwidth and GUI acceleration. ATI Technologies Inc. went public in 1993, with shares listed on NASDAQ and on the Toronto Stock Exchange. ATI's former Silicon Valley office at 4555 Great America Pkwy, Santa Clara, CA ATI "Graphics. As the PCB reveals, the layout dates from 1985/1986, supporting Hercules graphics. As the PCB reveals, the layout dates from 1985, whereas the marking on the central chip CW16800-A says "8639"—meaning that chip was manufactured in week 39, 1986. Notice UM6845E CRT controller. This card uses the ISA 8-bit interface. ATI VGA Wonder with 256 KB RAM In 1994, the Mach64 accelerator debuted, powering the Graphics Pro Turbo, offering hardware support for YUV-to-RGB colour space conversion in addition to hardware zoom, early techniques of hardware-based video acceleration. ATI introduced its first combination of 2D and 3D accelerator under the name 3D Rage. This chip was based on the Mach 64, but it featured elemental 3D accelerator under the first viable 2D-plus-3D alternatives to 3dfx's 3D-only Voodoo chipset. 3D accelerator in 1999 Rage 128. The All-in-Wonder product line, introduced in 1996, was the first combination of integrated graphics chip with TV tuner card and the first chip that enabled display of computer graphics on a TV set.[203] The cards featured 3D acceleration, analogue video capture, TV tuner functionality, flicker-free TV-out and stereo TV audio reception. ATI entered the mobile computing sector by introducing 3D-graphics acceleration to laptops in 1996. The Mobility product line had to meet requirements different from those of desktop PCs, such as minimized power usage, reduced heat output, TMDS output capabilities for laptop screens, and maximized power usage, reduced heat output, TMDS output capabilities for laptop screens. The Radeon line of graphics products was unveiled
in 2000. The initial Radeon graphics processing unit offered an all-new design with DirectX 7.0 3D acceleration, video acceleration, and 2D acceleration, and 2D acceleration could be built in varying levels of features and performance in order to provide products suited for the entire market range, from high-end to budget to mobile versions. In 2000, ATI acquired ArtX, which engineered the Flipper graphics chip used in the GameCube video game console. They also created a modified version of the chip (codenamed Hollywood) for the successor of the GameCube, the Wii. Microsoft contracted ATI to design the graphics core (codenamed Xenos) for the Xbox 360. Later in 2005, ATI acquired Terayon's cable modem silicon intellectual property, strengthening their lead in the consumer digital television market. [204] K. Y. Ho remained as Chairman of the Board until he retired in November 2005. Dave Orton replaced him as the President and CEO of the organization. On July 24, 2006, a joint announcement revealed that AMD would acquire ATI in a deal valued at \$5.6 billion.[205] The acquisition consideration closed on October 25, 2006,[206] and included over \$2 billion financed from a loan and 56 million shares of AMD stock.[207] ATI's operations became part of the AMD Graphics Product Group (GPG),[208] and ATI's CEO Dave Orton became the Executive Vice President of Visual and Media Businesses at AMD until his resignation in 2007.[209] The top-level management was reorganized with the Senior Vice President and General Manager, and the Senior Vice President and General Manager, and the Senior Vice President and General Manager. would report to the CEO of AMD.[210] On 30 August 2010, John Trikola announced that AMD would retire the ATI brand for its graphics chipsets in favour of the AMD name.[211] Main article: Radeon In 2007, the ATI division of AMD released the previous fixed-function hardware of previous graphics cards with multipurpose, programmable shaders. Initially released as part of the GPU for the Xbox 360, this technology would go on to be used in Radeon branded HD 2000 parts. Three generations of TeraScale would be designed and used in parts from 2007 to 2015. In a 2009 restructuring, AMD merged the CPU and GPU divisions to support the company's APUs, which fused both graphics and general purpose processing. [212][213] In 2011, AMD released the successor to TeraScale, Graphics processing, with a particular aim of supporting heterogeneous computing on AMD's APUs. GCN's reduced instruction set ISA allowed for significantly increased compute capability over TeraScale's very long instruction with the HD 7970, five generations of the GCN architecture have been produced from 2011 through at least 2018.[215] In September 2015, AMD separated the graphics technology division of the company into an independent internal unit called the Radeon Technologies Group (RTG) headed by Raja Koduri.[217][218] The RTG then went on to create and release the Polaris and Vega microarchitectures released in 2016 and 2017, respectively.[219][220] In particular the Vega, or fifth-generation GCN, microarchitecture includes a number of major revisions to improve performance and compute capabilities.[221][222] In November 2017, Raja Koduri left RTG[223] and CEO and President Lisa Su took his position. In January 2018, it was reported that two industry veterans joined RTG, namely Mike Rayfield as senior vice president and general manager of RTG, and David Wang as senior vice president of engineering for RTG. [224] In January 2020, AMD announced that its second-generation RDNA graphics architecture was in development, with the aim of competing with the Nvidia RTX graphics products for performance leadership. In October 2020, AMD announced their new RX 6000 series[225] series GPUs, their first high-end product based on RDNA2 and capable of handling ray-tracing natively, aiming to challenge Nvidia's RTX 3000 GPUs. In 2012, AMD's then CEO Rory Read began a program to offer semi-custom designs.[226][227] Rather than AMD simply designing and offering a single product, potential customers pay a non-recurring engineering fee for design and development, and a purchase price for the resulting semi-custom products. In particular, AMD noted their unique position of offering both x86 and graphics intellectual property. These semi-custom designs would have design wins as the APUs in the PlayStation 4 Pro, Xbox One X, Xbox One X, Xbox One X, Xbox One S, Xbox One X, Xbox One S, Xb products would represent a majority of the company's revenue in 2016.[232][233] In November 2017, AMD and Intel announced that Intel would market a product combining in a single package an Intel Core CPU, a semi-custom AMD Radeon GPU, and HBM2 memory.[234] See also: Comparison of AMD chipsets Before the launch of Athlon 64 processors in 2003, AMD designed chipsets for their processors spanning the K6 and K7 processors generations. The chipsets include the AMD-761 chipsets for its desktop processors while opening the desktop platform to allow other firms to design chipsets. This was the "Open Platform Management Architecture" with ATI, VIA and SiS developing their own chipset for Athlon 64 FX processors and later Athlon 64 FX processors, including the Quad FX platform chipset from Nvidia. The initiative went further with the release of Opteron server processors as AMD stopped the design of server chipsets for Opteron processors. As of today, [when?] Nvidia and Broadcom are the sole designing firms of server chipsets for Opteron processors. As the company completed the acquisition of ATI Technologies in 2006, the firm gained the ATI design team for chipsets which previously designed the Radeon Xpress 3200 chipsets and the Radeon Xpress 3200 chipsets which previously designed the Radeon Xpress 3200 chipsets and the Radeon Xpress 3200 CrossFire chipset). In February 2007, AMD announced the first AMD-branded chipset since 2004 with the release of the AMD 690G chipset (previously under the development a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a HDMI 1.2 port on motherboards, shipping for more than a million units first to implement a HDMI 1.2 port on motherboards, shipping for more than a HDMI 1.2 port on motherboards, shipping for more than a HDMI 1.2 port on motherboards, shipping for more than a HDMI 1.2 port on motherboards, shipping for more than a HDMI 1.2 port on motherboards, shipping for more than a HDMI 1.2 port on motherboards, shipping for more than a HDMI 1.2 port on motherboard While ATI had aimed at releasing an Intel IGP chipset, the plan was scrapped and the inventories of Radeon Xpress 1250 (codenamed RS600, sold under ATI brand) was sold to two OEMs, Abit and ASRock. Although AMD stated the firm would still produce Intel chipsets, Intel had not granted the license of 1333 MHz FSB to ATI. On November 15, 2007, AMD announced a new chipset series portfolio, the AMD 7-Series chipsets, covering from the enthusiast multi-graphics chipsets, marking AMD's first enthusiast multi-graphics chipsets, marking AMD 690 series chipsets, marking AMD 690 series chipsets and AMD 690 series chipsets 2007, as part of the codenamed Spider desktop platform, and IGP chipsets were launched at a later time in spring 2008 as part of the codenamed Cartwheel platform. AMD returned to the server chipsets market with the AMD 800S series server chipsets. It includes support for up to six SATA 6.0 Gbit/s ports, the C6 power state, which is featured in APU die. Accordingly, APUs were connected to a single chip chipset, renamed the Fusion Controller Hub (FCH), which primarily provided southbridge functionality.[235] AMD released new chipsets in 2017 to support the release of their new Ryzen products. As the Zen microarchitecture already includes much of the northbridge connectivity, thereased new chipsets in 2017 to support the released new chipsets in 2017 to support the released new chipsets in 2017 to support the release of their new Ryzen products. AM4-based chipsets primarily varied in the number of additional PCI Express lanes, USB connections, and SATA connections, and SATA connections, and SATA connections available. [236] These AM4 chipsets were designed in conjunction with ASMedia. [237] Main articles: AMD began marketing a series of embedded system-on-a-chips (SoCs) called AMD Élan, starting with the SC300 and SC310. Both combines a 32-Bit, Am386SX, low-voltage 25 MHz or 33 MHz CPU with memory controller, PC/AT peripheral controllers, real-time clock, PLL clock generators and ISA bus interface. The SC300 integrates in addition two PC card
slots and a CGA-compatible LCD controller. They were followed in 1996 by the SC4xx types. Now supporting VESA Local Bus and using the Am486 with up to 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and supporting VESA Local Bus and using the Am486 with 100 MHz or 133 MHz and support 100 MHz or 130 MHz and support 100 SDRAM and PCI it was the latest member of the series.[238][239] In February 2002, AMD acquired Alchemy line of MIPS processors for the hand-held and portable media player markets.[240] On June 13, 2006, AMD officially announced that the line was to be transferred to Raza Microelectronics, Inc., a designer of MIPS processors for embedded applications.[241] In August 2003, AMD also purchased the Geode business which was originally the Cyrix MediaGX from National Semiconductor to augment its existing line of embedded x86 processor products.[242] During the second quarter of 2004, it launched new low-power Geode NX processors based on the K Thoroughbred architecture with speeds of fanless processors 667 MHz and 1 GHz, and 1.4 GHz processor with fan, of TDP 25 W. This technology is used in a variety of embedded systems (Casino slot machines and customer kiosks for instance), several UMPC designs in Asia markets, and the OLPC XO-1 computer, an inexpensive laptop computer intended to be distributed to children in developing countries around the world.[243] The Geode LX processor was announced in 2005 and is said will continue to be available through 2015.[needs update] AMD has also introduced 64-bit processors into its embedded product line starting with the AMD Opteron processor. Leveraging the high throughput enabled through HyperTransport and the Direct Connect Architecture these server-class processors have been targeted at high-end telecom and storage applications. In 2007, AMD added the AMD Athlon, AMD Turion, and Mobile AMD Sempron processors to its embedded product line. Leveraging the same 64-bit instruction set and Direct Connect Architecture as the AMD Opteron but at lower power levels, these processors were well suited to a variety of traditional embedded applications. Throughout 2007 and into 2008, AMD has continued to add both single-core Mobile AMD Sempron and AMD Turion processors to its embedded product line and now offers embedded 64-bit solutions starting with 8 W TDP Mobile AMD Sempron and AMD Athlon processors all supporting longer than standard availability.[244] The ATI acquisition in 2006 included the Imageon and Xilleon product lines. In late 2008, the entire handheld division was sold off to Qualcomm, who have since produced the Adreno series. [245] Also in 2007, AMD announced the release of the M690T integrated graphics chipset for embedded designs. This enabled AMD to offer complete processor and chipset solutions targeted at embedded applications requiring high-performance 3D and video such as emerging digital signage, kiosk, and Point of Sale applications. The M690E specifically for embedded applications which required Macrovision licensing for OEMs, and enabled native support for dual TMDS outputs, enabling dual independent DVI interfaces. [citation needed][248] In January 2011, AMD Announced the AMD Embedded applications. These were followed by updates in 2013 and 2016. [251][252] In May 2012, AMD Announced the AMD Embedded applications. the AMD Embedded R-Series Accelerated Processing Unit.[253] This family of products incorporates the Bulldozer CPU and faster CPU and faster graphics, with support for DDR4 SDRAM memory.[254][255] AMD builds graphic processors for use in embedded systems. They can be found in anything from casinos to healthcare, with a large portion of products being used in industrial machines. [256] These products include a complete graphics processing device in a compact multi-chip module including RAM and the GPU. [257] ATI began offering embedded GPUs with the E2400 in 2008. Since that time AMD has released regular updates to their embedded GPU lineup in 2009, 2011, 2015, and 2016; reflecting improvements in their GPU technology. [257][258][259][260] AMD's portfolio of CPUs and APUs as of 2020[update] Athlon - brand of entry level CPUs (Excavator) and APUs (Ryzen) Aseries - Excavator-class consumer desktop and laptop APUs G-series - Excavator- and Jaguar-class low-power embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of server CPUs and APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of server CPUs and APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of server CPUs and APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R-series - Excavator class high-performance embedded APUs Ryzen - brand of prosumer/professional CPUs R microserver APUs[261] AMD's portfolio of dedicated graphics processors as of 2017[update] Radeon - brand for consumer line of graphics cards; the brand name originated with ATI. Mobility Radeon offers power-optimized versions of Radeon graphics cards; the brand name originated with ATI. brand. Radeon Instinct - brand of server and workstation targeted machine learning and GPGPU products AMD Radeon memory In 2011, AMD began selling Radeon branded DDR3 SDRAM to support the higher bandwidth needs of AMD's APUs. [262] While the RAM is sold by AMD, it was manufactured by Patriot Memory and VisionTek. This was later followed by higher speeds of gaming oriented DDR3 memory in 2013.[263] Radeon branded DDR4 at the time.[264] AMD noted in 2017 that these products are "mostly distributed in Eastern Europe" and that it continues to be active in the business.[265] AMD announced in 2014 it would sell Radeon branded solid-state drives manufactured by OCZ with capacities up to 480 GB and using the SATA interface. [266] As of 2017[update] technologies found in AMD 's CPU and APU products include: HyperTransport - a high-bandwidth, low-latency system bus used in AMD's CPU and APU products Infinity Fabric - a derivative of HyperTransport used as the communication bus in AMD's Zen microarchitecture As of 2017[update] technologies found in AMD GPU products include: AMD FreeSync - display synchronization based on the VESA Adaptive Sync standard AMD TrueAudio - acceleration of audio calculations AMD XConnect - allows the use of External GPU enclosures through Thunderbolt 3 AMD CrossFire - multi-GPU technology allowing the simultaneous use of multiple GPUs Unified Video Decoder (UVD) - acceleration of video decompression (decoding) Video Coding Engine (VCE) acceleration of video compression (encoding) AMD has made considerable efforts towards opening its software tools above the firmware level in the past decade. [267][268][269] For the following mentions, software not expressely stated as being free can be assumed to be proprietary. distribution from AMD. It includes both free and proprietary software components, and supports both Microsoft Windows and Linux. [270] AMDuProf is AMD's CPU performance and Power profiling tool suite, available for Linux and Windows.[271] AMD has also taken an active part in developing coreboot, an open-source project aimed at replacing the proprietary BIOS firmware. This cooperation ceased in 2013, but AMD has indicated recently[when?] that it is considering releasing source code so that Ryzen can be compatible with coreboot in the future.[272] See also: AMD Radeon Software Most notable public AMD software is on the GPU side. AMD has opened both its graphic and compute stacks: GPUOpen is AMD's compute platform) is AMD's compute stack for machine learning and high-performance computing, based on the LLVM compiler technologies. Under the ROCm project, AMDgpu is AMD's open-source device driver supporting the GCN and following architectures, available for Linux. This latter driver component is
used both by the graphics and compute stacks. AMD conducts open research on heterogeneous computing.[273] Other AMD software includes the AMD Core Math Library, and open-source software including the AMD Performance Library. AMD contributes to open-source projects, including working with Sun Microsystems to enhance OpenSolaris and Sun xVM on the AMD platform.[274] AMD also maintains its own Open64 compiler distribution and contributes to open-source projects, including working with Sun Microsystems to enhance OpenSolaris and Sun xVM on the AMD platform.[275] In 2008 AMD released the low-level programming specifications for its GPUs, and works with the X.Org Foundation to develop drivers for AMD graphics cards.[276][277] Extensions for software parallelism (xSP), aimed at speeding up programs to enable multi-threaded and multi-core processing, announced in Technology Analyst Day 2007. One of the initiatives being discussed since August 2007 is the Light Weight Profiling (LWP), providing internal hardware monitor with runtimes, to observe information about executing process and help the re-design of software to be optimized with multi-core and even multi-threaded programs. Another one is the extension of Streaming SIMD Extension (SSE) instruction set, the SSE5. Codenamed SIMFIRE - interoperability testing tool for the Desktop and mobile Architecture for System Hardware (DASH) open architecture. Main article: GlobalFoundries Previously, AMD produced its chips at company-owned semiconductor foundries. manufacturers IBM and Motorola to co-develop production technologies.[278][279] AMD's founder Jerry Sanders termed this the "Virtual Gorilla" strategy to compete with Intel's significantly greater investments in fabrication.[280] In 2008, AMD spun off its chip foundries.[278][279] AMD's founder Jerry Sanders termed this the "Virtual Gorilla" strategy to compete with Intel's significantly greater investments in fabrication.[280] In 2008, AMD spun off its chip foundries.[278][279] AMD's founder Jerry Sanders termed this the "Virtual Gorilla" strategy to compete with Intel's significantly greater investments in fabrication.[280] In 2008, AMD spun off its chip foundries.[281] This breakup of the company was attributed to the increasing costs of each process node. The Emirate of Abu Dhabi purchased the newly created company through its subsidiary Advanced Technology Investment Company (ATIC), purchasing the final stake from AMD in 2009.[282] With the spin-off of its foundries, AMD became a fabless semiconductor manufacturer, designing products to be produced at for-hire foundries. Part of the GlobalFoundries spin-off included an agreement with AMD to produce some number of products at GlobalFoundries. [283] Both prior to the spin-off and after AMD has pursued production with other foundries including TSMC and Samsung. [284][285] It has been argued that this would reduce risk for AMD by decreasing dependence on any one foundry which has caused issues in the past. [285][286] In 2018, AMD started shifting the production of their 7 nm process. [287] AMD revised their wafer purchase requirement with GlobalFoundries in 2019, allowing AMD to freely choose foundries for 7 nm nodes and below, while maintaining purchase agreements for 12 nm and above through 2021.[288] The key trends for AMD are (as of the financial year ending in late December):[289] Revenue (US\$ bn) Net profit (US\$ m) Total assets (US\$ bn) Employees 2017 5.3 43 3.5 8,900 2018 6.4 337 4.5 10,100 2019 6.7 341 6.0 11,400 2020 9.7 2,490 8.9 12,600 2021 16.4 3,162 12.4 15,500 2022 23.6 1,320 67.5 25,000 AMD uses strategic industry partnerships to further its business interests and to rival Intel's dominance and resources: [278][279][280] A partnership between AMD and Alpha Processor Inc. developed HyperTransport, a point-to-point interconnect standard which was turned over to an industry standards body for finalization. [290] It is now used in modern motherboards that are compatible with AMD processors. AMD also formed a strategic partnership with IBM, under which AMD gained silicon on insulator (SOI) manufacturing technology, and detailed advice on 90 nm implementation. AMD announced that the partnership would extend to 2011 for 32 nm and 22 nm fabrication-related technologies. [291] To facilitate processor distribution and sales, AMD is loosely partnered with end-user companies, such as HP, Dell, Asus, Acer, and Microsoft. [292] In 1993, AMD established a 50-50 partnership with Fujitsu called FASL, and merged into a new company called FASL LLC in 2003. The joint venture went public under the name Spansion and ticker symbol SPSN in December 2005, with AMD shares dropping 37%. entered into a non-competition agreement on December 21, 2005, with Fujitsu and Spansion, pursuant to which it agreed not to directly or indirectly engage in a business that manufactures or supplies standalone semiconductor devices (including single-chip, multiple-chip or system devices) containing only Flash memory.[293] On May 18, 2006, Dell announced that it would roll out new servers based on AMD's Opteron chips by year's end, thus ending an exclusive relationship with Intel.[294] In September 2006, Dell began offering AMD Athlon X2 chips in their desktop lineup. In June 2011, HP announced new business and consumer notebooks equipped with the latest versions of AMD APUs accelerated processing units. AMD will power HP's Intel-based business notebooks as well.[295] In the spring of 2013, AMD announced that it would be powering all three major next-generation consoles.[296] The Xbox One and Sony PlayStation 4 are both powered by a custom-built AMD APU, and the Nintendo Wii U is powered by an AMD GPU. [297] According to AMD, having their processors in all three of these consoles will greatly assist development to competing consoles and PCs and increased support for their products across the board. [298] AMD has entered into an agreement with Hindustan Semiconductor Manufacturing Corporation (HSMC) for their products across the board. [298] AMD has entered into an agreement with Hindustan Semiconductor Manufacturing Corporation (HSMC) for their products across the board. [298] AMD has entered into an agreement with Hindustan Semiconductor Manufacturing Corporation (HSMC) for their products across the board. [298] AMD has entered into an agreement with Hindustan Semiconductor Manufacturing Corporation (HSMC) for their products across the board. [298] AMD has entered into an agreement with Hindustan Semiconductor Manufacturing Corporation (HSMC) for the semiconductor (HSMC) for the semiconductor (HSMC) for the semiconductor (HSMC) f production of AMD products in India.[299] AMD is a foundation which aims to ease the use of a Heterogeneous System Architecture. A Heterogeneous System Architecture is intended to use both central processing units and graphics processors to complete computational tasks.[300] AMD announced in 2016 that it was creating a joint venture to produce x86 server chips for the Chinese market.[301] On May 7, 2019, it was reported that the U.S. Department of Energy, Oak Ridge National Laboratory, and Cray Inc., are working in collaboration with AMD to develop the Frontier exascale supercomputer. Featuring the AMD Epyc CPUs and Radeon GPUs, the supercomputer is set to produce more than 1.5 exaflops (peak double-precision) in computing performance. It is expected to debut sometime in 2021.[302] On March 5, 2020, it was announced that the U.S. Department of Energy, Lawrence Livermore National Laboratory, and HPE are working in collaboration with AMD to develop the El Capitan exascale supercomputer. Featuring the AMD Epyc CPUs and Radeon GPUs, the supercomputer is set to produce more than 2 exaflops (peak double-precision) in computing performance. It is expected to debut in 2023.[303] In the summer of 2020, it was reported that AMD would be powering the next-generation console offerings from Microsoft and Sony.[304] On November 8, 2021, AMD announced a partnership with Meta to make the chips used in the Metaverse.[305] In January 2022, AMD partnered with Samsung to develop a mobile processor to be used in future products. The processor was named Exynos 2022 and works with the AMD RDNA 2 architecture.[306] See also: Intel Corp. v. Advanced Micro Devices, Inc. v. Intel Corp. AMD processor with Intel copyright AMD has a long history of litigation with former (and current) partner and x86 creator Intel.[307][308][309] In 1986, Intel broke an agreement it had with AMD to allow them to produce Intel's microchips for IBM; AMD filed for arbitration in 1987 and the arbitrator decided in AMD's favor in 1992. Intel disputed this, and the case ended up in the Supreme Court of California. In 1994, that court upheld the arbitrator's decision and awarded damages for breach of contract. In 1990, Intel brought a copyright infringement action alleging illegal use of its 287 microcode. The case ended in 1994 with a jury finding for AMD and its right to use Intel's microprocessors through the 486 generation. In 1997, Intel filed suit against AMD and Intel settled, with AMD and Cyrix Corp. for misuse of the term MMX. AMD and Intel settled, with AMD and Intel settled, with AMD acknowledging MMX as a trademark owned by Intel, and with Intel granting AMD rights to market the AMD K6 MMX processor. In 2005, following an investigation, the Japan Federal Trade Commission found Intel guilty of a number of violations. On June 27, 2005, AMD won an antitrust suit against Intel in Japan, and on the same day, AMD filed a broad antitrust complaint against Intel in the U.S. Federal District Court in Delaware. The complaint alleges systematic use of secret rebates, special discounts, threats, and other means used by Intel to lock AMD processors out of the global market. Since the start of this action, the court has issued subpoenas to major computer manufacturers including Acer, Dell, Lenovo, HP and Toshiba. In
November 2009, Intel agreed to pay AMD \$1.25 billion and renew a five-year patent cross-licensing agreement as part of a deal to settle all outstanding legal disputes between them.[310] On August 31, 2011, in Austin, Texas, AMD achieved a Guinness World Record for the "Highest frequency of a computer processor": 8.429 GHz.[311] The company ran an 8-core FX-8150 processor with only one active

module (two cores), and cooled with liquid helium.[312] The previous record was 8.308 GHz, with an Intel Celeron 352 (one core). On November 1, 2011, geek.com reported that Andre Yang, an overclocker from Taiwan, used an FX-8150 to set another record: 8.794 GHz.[314] Date Company Integration or division Price January 16, 1996 NexGen AMD K6 \$857 million in AMD shares[315] February 6, 2002 Alchemy Semiconductor[316] Processors (embedded CPUs) Undisclosed August 6, 2003 Coatue[317] Memory (non-volatile polymer-based memory) Undisclosed July 24, 2006 ATI Technologies[318] Graphics and 3D software (Radeon GPUs) \$5,400 million February 29, 2012 SeaMicro[319] Data center platform \$334 million June 29, 2016 HiAlgo[320][321] Gaming experience (Radeon Chill, Radeon Boost and Radeon Swift) Undisclosed April 10, 2017 Nitero[322][323] 60 GHz wireless IP (headset AR and VR) Undisclosed October 27, 2020 Xilinx[324] Custom chips (FPGA, adaptive SoCs, system on modules, IA accelerator) \$49,000 million April 4, 2022 Pensando[325] Data center, cloud solutions and DPUs \$1,900 million August 29, 2023 Mipsology[326] AI inference software Undisclosed October 10, 2023 Nod.ai[102][103] Open-source AI software Undisclosed July 10 2024 Silo AI[327] AI software \$665 million August 19, 2024 ZT Systems[328] Data center hardware \$4,900 million In its 2022 report, AMD stated that it aimed to embed environmental sustainability across its business, promote safe and responsible workplaces in its global supply chain and advance stronger communities.[329] In 2022, AMD achieved a 19 percent reduction in its Scope 1 and 2 GHG emissions compared to 2020. Based on AMD calculations that are third-party verified (limited level assurance).[330] The Green Grid,[331] founded by AMD together with other founders, such as IBM, Sun and Microsoft, to seek lower power consumption for grids. The AMD-logo on the rear spoiler of Michael Schumacher's F2005 from Ferrari, showing AMD's sponsorship at the 2005 German Grand Prix. AMD's sponsorship of Formula 1 racing began in 2002 and since 2020 has sponsorship of Formula 1 racing began in 2002 and since 2020 has sponsorship of Formula 1 racing began in 2005 German Grand Prix. AT&T, Pernod Ricard and Diageo.[333] On 18 April 2018, AMD began a multi-year sponsorship with Scuderia Ferrari.[334] In February 2020, just prior to the start of the 2020 race season, the Mercedes Formula 1 team announced it was adding AMD to its sponsorship portfolio.[335] AMD began a sponsorship deal with Victory Five (V5) for the League of Legends Pro League (LPL) in 2022.[336] AMD was a Sponsor for the World Artificial Intelligence Cannes Festival (WAICF).[338] AMD was a Platinum sponsor for the HPE Discover 2024, an event hosted by Hewlett Packard Enterprise to showcase technology for government and business customers. The event was held from 17 to 20 June 2024 in Las Vegas.[339][340] Companies portal 3DNow! Cool'n'Quiet Bill Gaede List of AMD accelerated processing units List of AMD graphics processing units List of AMD processors List of ATI chipsets PowerNow! ^ "AMD 2024 Annual Report (Form 10-K)". U.S. Securities and Exchange Commission. February 5, 2025. ^ Ware, Ana (November 20, 2023). "AMD Delivers High Performance, High Efficiency CPUs and GPUs for All HPC Use Cases". HPCwire. Retrieved February 16, 2024. ^ "AMD's Extremely Successful Price Strategy Could Burden AMD And Intel Investors Long Term". seekingalpha.com. October 22, 2019. Retrieved August 23, 2024. "AMD ascending: How Ryzen CPUs snatched the computing crown from Intel". PCWorld. March 31, 2020. "AMD's Market Cap Surpasses Intel for the First Time in History" Tom's Hardware. February 16, 2022. Retrieved February 16, 2022. ^ "How AMD became a chip giant and leapfrogged Intel after years of playing catch-up". CNBC. November 22, 2022. ^ The other founding members were Ed Turney, John Carey, Sven Simonsen, Jack Gifford and three members from Gifford's team: Frank Botte, Jim Giles, and Larry Stenger. ^ Rodengen, p. 30. ^ "Fairchild's Offspring". Business Week. August 25, 1997. p. 84. ^ Mueller, Scott. Upgrading and Repairing PCs. Que Publishing, 2013. p. 6. ^ Ab c d Pederson, Jay P. International Directory of Company Histories, Vol. 30 Archived July 19, 2014, at the Wayback Machine. St. James Press, 2000. ^ Rodengen, pp. 35. 38, 41, 42. ^ a b AMD Corporation Archived November 12, 2020, at the Wayback Machine. Silicon Valley Historical Association. 2008. ^ a b c d Our History. AMD.com. ^ a b Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, p. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, P. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, P. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, P. 41. ^ Electronic Design, Volume 19, Part 3. Hayden Publishing Company, 1971. p. 227. ^ Rodengen, P pp. 42, 43. ^ Rodengen, p. 45. ^ Walker, Rob. "Interview with W. Jerry Sanders" Archived January 2, 2014, at the Wayback Machine. Silicon Genesis. Stanford University. October 18, 2002. ^ Rodengen, p. 46. ^ MOS/LSI Data Book. Advanced Micro Devices, 1980. pp. 5–1, 5–2, B-8. ^ Electrical Design News, Volume 19, Issues 13–24. Rogers Publishing Company, 1974. p. 86. ^ a b Rodengen, p. 55. ^ Venkata Ram, S.K. Advanced Microprocessor & Microcontrollers. Firewall Media, 2004. p. 3. ^ Transcript: Silicon Valley (documentary). American Experience. PBS. 2013. ^ "Interview with Shawn and Kim Hailey". Stanford University Libraries. December 29, 1997. Archived from the original on November 11, 2013. Retrieved October 20, 2014. ^ a b Rodengen, p. 50. ^ Hitt, Michael; Ireland, R. Duane; Hoskisson, Robert. Strategic Management: Competitiveness and Globalization, Cases, Volume 2. Cengage Learning, 2008. p. 41. ^ Lennon, Michael J. Drafting Technology Patent License Agreements. Aspen Publishers Online, 2007. p. 4-36. ^ Pane, Patricia J. and Barbara Darrow. "AMD Asserts Right to Distribute Intel Code". InfoWorld. October 1, 1990. p. 5. ^ a b c d Advanced Micro Devices, Inc. v. Intel Corp. (1994). No. S033874. December 30, 1994. Justia.com. Retrieved October 25, 2014. ^ a b c d SECURITIES EXCHANGE ACT OF 1934: RELEASE No. 37730. Securities and Exchange Commission. Sec.gov. September 26, 1996. (Accessed October 25, 2014.) ^ a b c Malerba, Franco. The Semiconductor Business: The Economics of Rapid Growth and Decline. University of Wisconsin Press, 1985. p. 166. ^ Rodengen, pp. 59-60. ^ Reindustrialization Or New Industrialization: Minutes of a Symposium, January 13, 1981, Part 3. National Academies, 1981. p. 53. ^ a b Rodengen, p. 60. ^ ADVANCED MICRO COMPUTERS, INC. Archived November 4, 2014, at the Wayback Machine. CaliforniaCompaniesList.com. ^ a b Freiberger, Paul. "AMD sued for alleged misuse of subsidiary's secrets". InfoWorld. June 20, 1983. p. 28. ^ Mini-micro Systems, Volume 15. Cahners Publishing Company, 1982. p. 286. ^ Rodengen, p. 62. ^ "Siemens and Advanced Micro Devices Agree to Split Joint Venture". The Wall Street Journal. February 14, 1979. p. 38. ^ a b Swaine, Michael. "Eight Companies to produce the 8086 chip". InfoWorld. November 30, 1981. p. 78. ^ Rodengen, p. 73. ^ Rodengen, p. 59. ^ a b c d e Hitt, Michael; Ireland, R. Duane; Hoskisson, Robert. Strategic Management: Concepts and Cases. Cengage Learning, 2006. p. C-26. ^ Rodengen, pp. 65, 71–72, 79–80. ^ Sanchez, Julio, and Maria P. Canton. Software Solutions for Engineers and Scientists CRC Press, 2007. p. 95. ^ AMD 8086 microprocessor family, CPU World. (Accessed November 3, 2014.) ^ "Patent Cross License Agreement". U.S. Securities and Exchange Commission. November 11, 2009. Retrieved February 2, 2021. ^ Ziberg, Christian. "Timeline: How AMD changed over the past 39 years" Archived November 13, 2014, at the Wayback Machine. TGDaily. October 7, 2008. ^ International Directory of Company Histories. 1992. ^ Rodengen, pp. 73, 78-80. ^ Rodengen, pp. 73, 78-80. ^ Rodengen, pp. 73, 78-80. ^ Rodengen, p. 85. ^ Rodengen, pp. 85-87. ^ Rodengen, pp. 86, 90, 95, 99. ^ Rodengen, pp. 86, 90, 95, 99. ^ Rodengen, pp. 87-88, 97-99. ^ Rodengen, p. 97. ^ Rodengen, p. 97. ^ Rodengen, p. 100. ^ Mann, Daniel (1995), Evaluating and Programming the 29K RISC Family (PDF), Advanced Micro Devices, archived from the original (PDF) on September 27, 2007 ^ Pflanz, Matthias. On-line Error Detection and Fast Recover Techniques for Dependable Embedded Processors. Springer Science & Business Media, 2002. p. 23. ^ Rodengen, pp. 121–122. ^ AMD. PC Encyclopedia. PC Magazine. ^ Ruiz, pp. 54-55. ^ Spooner, John G. "AMD, Fujitsu merge on flash memory". CNET. July 14, 2003. ^ Yi, Matthew.
"Spansion spun off by AMD". San Francisco Chronicle. December 17, 2005. ^ "AMD Completes ATI Acquisition and Creates Processing Powerhouse". NewsWire. October 25, 2006. Archived from the original on October 12, 2007. ^ "AMD Decides to Drop the ATI Brand - Softpedia". News.softpedia.com. August 30, 2010. Archived from the original on August 17, 2020. Retrieved February 19, 2011. ^ "ATI to be re-branded as AMD - branding, ATI Radeon, ati, amd - ARN". Arnnet.com.au. August 30, 2010. Retrieved February 19, 2011. ^ "ATI to be re-branded as AMD - branding, ATI Radeon, ati, amd - ARN". Arnnet.com.au. August 30, 2010. Retrieved February 19, 2011. ^ "ATI to be re-branded as AMD - branding, ATI Radeon, ati, amd - ARN". Operations". The New York Times. Retrieved March 26, 2010. ^ Ruiz, 159-162. ^ Gruener, Wolfgang. "AMD's fabs now on their own: GlobalFoundries" Archived December 21, 2014, at the Wayback Machine. TG Daily. March 4, 2009. ^ "At a glance: AMD's new CEO Dirk Meyer". Associated Press. July 17, 2008. ^ Kawamoto, Dawn. "AMD to trim 1,100 jobs, initiate temporary pay cuts". CNET. January 16, 2009. ^ Dylan McGrath (August 25, 2011). "AMD appoints former Lenovo exec CEO". EE Times. Retrieved August 25, 2011. ^ O'Gara. Maureen. "AMD to Fire 1,400" Archived December 21, 2014, at the Wayback Machine. Virtualization Journal. November 7, 2011. ^ Ian King (October 18, 100). 2012), Tom Giles (ed.), AMD Forecast Misses Estimates; to Cut 15 Percent of Staff, Bloomberg L.P., retrieved October 31, 2012 ^ Tyson, Mark (July 5, 2024). "Sony PlayStation 4 chip helped AMD avoid bankruptcy - exec recounts how 'Jaguar' chips fueled company's historic turnaround". Tom's Hardware. Retrieved July 31, 2024. ^ Fox, Jacob (July 5 2024). "Here's your reminder how close AMD came to financial collapse and just how much we owe to the PlayStation 4 and Xbox One". PC Gamer. Retrieved July 31, 2024. Vance, Ashlee (October 30, 2012). "AMD Finds the Courage for Another Server Chip Gambit". Bloomberg Businessweek. Bloomberg L.P. Retrieved July 29, 2020. "Advanced Micro Devices CEO Rory Read Steps Down". The Wall Street Journal. October 8, 2014. ^ AMD Reports 2014 Third Quarter Results. AMD. October 16, 2014. AMD Reports 2014. ^ AMD Reports 2014. moving headquarters to Santa Clara, ending 47-year history in Sunnyvale". Silicon Valley Business Journal. Retrieved June 22, 2020. ^ a b SVBJ Staff (June 17, 2020). "Developer buys townhome portion of under-construction project on former AMD to Acquire Xilinx, Creating the Industry's High-Performance Computing Leader". Advanced Micro Devices, Inc. October 27, 2020. A b Wiggers, Kyle (October 11, 2022). "AMD closes record chip industry deal with estimated \$50 billion purchase of Xilinx". Reuters. Retrieved February 14, 2022. A b Wiggers, Kyle (October 11, 2020). "AMD closes record chip industry deal with estimated \$50 billion purchase of Xilinx". Reuters. Retrieved February 14, 2022. 2023). "AMD acquires Nod.ai to bolsters its AI software ecosystem". TechCrunch. Retrieved October 23, 2023. ^ a b Hayden Field (October 10, 2023). "AMD to acquire AI software startup as it seeks to catch up with Nvidia". CNBC. Retrieved November 19, 2023. ^ "XCN23009 Product Discontinuation Notice (v1.0)" (PDF). January 1, 2024. Retrieved August 8, 2024. ^ Grant, Charlie (March 1, 2024). "AMD Surpasses \$300 Billion Valuation". The Wall Street Journal. Retrieved March 6, 2024. ^ Times, Financial (July 10, 2024). "AMD signs \$4.9" AND signs \$4. billion deal to challenge Nvidia's AI infrastructure lead". Ars Technica. Financial Times. Retrieved April 18, 2025. ^ Ruiz, p. 87. ^ Greg Tang (February 13, 2011). "Intel and the x86 Architecture: A Legal Perspective". JOLT Digest. Archived from the original on June 7, 2011. ^ "Advanced Micro Devices, Inc. v. Intel Corp. (1994)". Justia Law. Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> AMD >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> 486 DX". Retrieved August 6, 2015. ^ "cpu-collection.de >> 486 DX". Retrieved August 6, 201 August 6, 2015. ^ Mueller, Scott (2003). Upgrading and Repairing PCs. Que. ISBN 9780789727459. Retrieved August 6, 2015. ^ "InfoWorld". November 6, 1995. Retrieved August 6, 2015. ^ Lennon, Michael J. (January 1, 2007). Drafting Technology Patent License Agreements. Wolters Kluwer. pp. 4-36 - 4-38. ISBN 978-0-7355-6748-1.
 "InfoWorld". January 8, 1996. Retrieved August 6, 2015. ^ "AMD K5". CPU-INFO.COM. Archived from the original on August 18, 2007. Retrieved July 14, 2007. Colapinto, John (October 3, 2011). "Famous names". The New Yorker. pp. 38-43. Retrieved October 12, 2011. ^ Huynh, Jack (February 10, 2003). "The AMD Athlon XP Processor with 512KB L2 Cache" (PDF). amd.com. AMD. Archived (PDF) from the original on October 26, 2007. ^ Scott Wasson. "Workstation platforms compared Archived November 27, 2006, at the Wayback Machine", techreport.com The Tech Report, LLC., September 15, 2003. Retrieved July 29, 2007. Scott Wasson. "AMD's Athlon 64 processor Archived July 2, 2007, at the Wayback Machine", techreport.com, The Tech Report, LLC., September 23, 2003. Retrieved July 29, 2007. Scott Wasson. "AMD's dual-core Opteron processors Archived July 2, 2007, at the Wayback Machine", techreport.com, The Tech Report, LLC., April 21, 2005. Retrieved July 29, 2007. Scott Wasson. "AMD's Athlon 64 X2 processors Archived July 8, 2007, at the Wayback Machine", techreport.com, The Tech Report, LLC., May 9, 2005. Retrieved July 29, 2007. Scott Wasson. "AMD's Athlon 64 X2 processors Archived July 8, 2007, at the Wayback Machine", techreport.com, The Tech Report, LLC., May 9, 2005. Retrieved July 29, 2007. tgdaily.com. August 13, 2007. Archived from the original on October 16, 2007. AMD announcement. Retrieved September 17, 2007. Marco Chiappetta (November 19, 2007). "AMD Spider Platform - Phenom, 790FX, RV670". HotHardware. Archived from the original on April 15, 2012. Retrieved July 11, 2017. Marco Chiappetta (November 19, 2007). "AMD Spider Platform - Phenom, 790FX, RV670". HotHardware. Archived from the original on April 15, 2012. Retrieved July 11, 2017. Marco Chiappetta (November 19, 2007). "AMD Spider Platform - Phenom, 790FX, RV670". HotHardware. Archived from the original on April 15, 2012. Retrieved July 11, 2017. Marco Chiappetta (November 19, 2007). "AMD Spider Platform - Phenom, 790FX, RV670". HotHardware. Archived from the original on April 15, 2012. Retrieved July 11, 2017. November 19, 2007). 2009), The Phenom II X4 810 & X3 720: AMD Gets DDR3 But Doesn't Need It, AnandTech, retrieved July 6, 2012 ^ Parrish, Kevin (January 8, 2009), "AMD Unleashes the Dragon", Tom's Hardware, retrieved July 6, 2014 ^ Walrath, Josh (April 27, 2010). "AMD Deleashes the Dragon", Tom's Hardware, retrieved July 6, 2014 ^ Walrath, Josh (April 27, 2010). "AMD Deleashes the Dragon", Tom's Hardware, retrieved July 6, 2014 ^ Walrath, Josh (April 27, 2010). "AMD Deleashes the Dragon", Tom's Hardware, retrieved July 6, 2014 ^ Walrath, Josh (April 27, 2010). "AMD Deleashes the Dragon", Tom's Hardware, retrieved July 6, 2014 ^ Walrath, Josh (April 27, 2010). "AMD Deleashes the Dragon", Tom's Hardware, retrieved July 6, 2014 ^ Walrath, Josh (April 27, 2010). "AMD Deleashes the Dragon", Tom's Hardware, retrieved July 6, 2014 ^ Walrath, Josh (April 27, 2010). "AMD Deleashes the Dragon", Tom's Hardware, retrieved July 6, 2014 ^ Walrath, Josh (April 27, 2010). 11, 2017. ^ "AMD announces 16-core chips". April 22, 2009. Archived from the original on May 6, 2009. Retrieved March 31, 2010. ^ a b Hruska, Joel (July 16, 2010). "AMD Flip-Flops: Llano Later, Bobcat Bounding Forward". HotHardware. Archived from the original on July 21, 2010. ^ [1] [permanent dead link] ^ Bulldozer 50% Faster than Core i7 and Phenom II, techPowerUp, January 13, 2011, retrieved January 23, 2012 ^ Hruska, Joel (October 24, 2011), "Analyzing Bulldozer: Why AMD's chip is so disappointing", Extremetech.com, retrieved November 30, 2013 ^ "Lab Tested: AMD's Bulldozer Packs Plenty Of Cores, But Not Enough Power", PC World, October 20, 2011. Retrieved November 30, 2013 ^ "Can AMD survive Bulldozer's disappointing debut?". ars
technica. October 20, 2011. Retrieved November 30, 2013 ^ "Lab Tested: AMD's Bulldozer's disappointing debut?". November 30, 2013. ^ Hruska, Joel (October 23, 2012). "AMD's FX-8350 analyzed: Does Piledriver deliver where Bulldozer fell short?". ExtremeTech. Retrieved March 23, 2013. ^ "AMD launches widely anticipated "Trinity" APU". Press release. AMD. May 15, 2012. Retrieved March 23, 2013. ^ "AMD launches widely anticipated "Trinity" APU". Press release. AMD. May 15, 2012. Retrieved March 23, 2013. ^ "AMD launches widely anticipated "Trinity" APU". Press release. AMD. May 15, 2014. ^ "New AMD A-Series Processors Bring Faster Speeds, and the series High Core Count and AMD Radeon HD 7000 Series Graphics to Do-It-Yourself PC Enthusiasts and Gamers". AMD. Retrieved March 22, 2013. "New AMD Opteron 4300 and 3300 Series Processors Deliver Ideal Performance, Power and Price for Cloud Applications". Press release. AMD. December 4, 2012. Retrieved January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8-7600 and A10-7850K Tested". Anandtech.com. January 16, 2014. ^ "AMD Kaveri Review: A8 (PDF). AMD 2012 Financial Analyst Day. Sunnyvale, California: Advanced Micro Devices. p. 26. Retrieved February 4, 2012. ^ Hachman, Mark (November 21, 2014). "AMD reveals high-performance Zen x86 architecture | bit-tech.net". bit-tech.net. ^ Shilov, Anton (May 10, 2014). "AMD to Introduce New High-Performance Micro-Architecture in 2015 - Report". Archived from the original on May 13, 2014. A stokes, Jon (August 26, 2010). "AMD's Advantages of High Density (Thin) Libraries". August 28, 2012. ^ Stokes, Jon (August 26, 2010). "AMD's Advantages of High Density (Thin) Libraries". Bobcat mobile architecture will play it straight". Ars Technica. Retrieved July 11, 2017. A Kirsch, Nathan (August 6, 2007). "AMD and Intel Rivalry Moves to Hand-Held Market". Legit Reviews. Retrieved July 11, 2017. Woligroski, Don (May 23, 2013). "AMD's Kabini: Jaguar And GCN Come Together In A 15 W APU". Tom's Hardware. Retrieved July 11, 2017. 11, 2017. ^ "A Look at Sony's Playstation 4 Core Processor". ChipWorks. November 15, 2013. Archived from the original on November 16, 2013. Archived from the original on November 16, 2013. Retrieved February 25, 2013. ^ 1, 2013. Cunningham, Andrew (September 3, 2013). "Xbox One gets a CPU speed boost to go with its faster GPU". Ars Technica. Retrieved September 4, 2013. ^ Walton, Mark (August 10, 2016). "PS4 Neo: Sony confirms PlayStation event for September 7". Ars Technica. Retrieved August 10, 2016. A b Smith, Ryan (September 7, Ars Technica. Retrieved August 10, 2016). "Sony PS4K is codenamed NEO, features upgraded CPU, GPU, RAM—report". Ars Technica. Retrieved August 10, 2016. Pro Hardware Reveal: What Lies Beneath". Anandtech. Retrieved September 8, 2016. ^ Machkovech, Sam (August 2, 2016). "Microsoft hid performance boosts for old games in Xbox One S, told no one". Ars Technica. Retrieved August 2, 2016. ^ Smith, Ryan (June 11, 2017). "Microsoft's Project Scorpio Gets a Launch Date: Xbox One X, \$499, November 7th". Anandtech. Retrieved March 22, 2021. ^ a b Walton, Mark (April 6, 2017). "Xbox One Project Scorpio specs: 12GB GDDR5, 6 teraflops, native 4K at 60FPS". Ars Technica. Retrieved March 22, 2021. ^ Lal Shimpi, Anand (April 17, 2017). ^ Shimpi, Anand Lal (February 2, 2012). "AMD is Ambidextrous, Not Married to Any One Architecture, ARM in the Datacenter". Anandtech. Retrieved July 11, 2017. ^ Shimpi, Anand Lal (October 29, 2012). "AMD will build 64-bit ARM based Opteron CPUs for Servers, Production in 2014". Anandtech. Retrieved July 11, 2017. Anandtech. Retrieved July 11, 2017. Barrett, Stephen (August 11, 2014). "It Begins: AMD Announces Its First ARM Based Servers: Opteron A1100". Anandtech. Retrieved July 11, 2017. Revealed". Anandtech. Retrieved July 11, 2017. A b De Gelas, Johan (January 14, 2017). Broince Skybridge". Anandtech. Retrieved July 11, 2017. Ret Part of the AMD EPYC Launch: The Ecosystem". Serve The Home. Retrieved July 11, 2017. ^ Kennedy, Patrick (January 14, 2016). "The AMD Opteron A1100 - An Editorial". Serve the Home. Retrieved July 11, 2017. ^ Shimpi, Anand Lal (May 5, 2014). "AMD Announces K12 Core". Anandtech. Retrieved July 11, 2017. ^ Smith, Ryan (May 5, 2015). "AMD's K12 ARM CPU Now In 2017". Anandtech. Retrieved July 11, 2017. ^ Cutress, Ian. "AMD Launches Ryzen: 52% More IPC, Eight Cores for Under \$330, Pre-order Today, On Sale March 2nd". Archived from the original on February 27, 2017. Retrieved March 5, 2017. ^ "AMD's Next Gen x86 High Performance Core is Ryzen - Will Debut Alongside K12 in 2016". WCCFtech. September 9, 2014. Retrieved August 6, 2015. ^ "Ryzen". AMD. Archived from the original on March 3, 2017. ^ "AMD confirms Ryzen and Vega launch windows". PC Gamer. February 1, 2017. Retrieved February 4, 2017. ^ Kampman, Jeff (May 16, 2017). "AMD's Naples datacenter CPUs will make an Epyc splash". Tech Report. Retrieved May 16, 2017. ^ Cutress, Ian (October 26, 2017). "Ryzen Mobile is Launched". Anandtech. Retrieved October 26, 2017. ^ Moammer, Khalid (December 9, 2017). "AMD Ryzen 2 Set For March 2018 Launch On 12nm - To Support Higher Core & Memory Clock Speeds". ^ "2nd Generation AMD Ryzen Desktop Processors Deliver Best-in-Class Compute Performance and Even Faster Gaming Framerates than Previous Generation". Advanced Micro Devices. Retrieved February 11, 2019. ^ Allan, Darren (November 28, 2019). "AMD Ryzen CPUs are crushing Intel's processors going by Amazon sales". TechRadar. ^ Salter (March 3, 2020). "AMD's 7nm Ryzen 4000 laptop processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "PassMark CPU Benchmarks are finally here". ArsTechnica. ^ "Where Gaming Begins | AMD Ryzen Desktop Processors are finally here". ArsTechnica. ^ "PassMark CPU Benchmarks are finally here". ArsTechnica. ^ Thread Performance". cpubenchmark.net. Retrieved November 1, 2020. ^ Trader, Tiffany (April 14, 2020). "AMD Launches Three New High-Frequency Epyc SKUs Aimed at Commercial HPC". www.hpcwire.com. ^ "AMD Announces Ryzen 7000 Series "Zen 4" Desktop Processors". TechPowerUp. August 29, 2022. Retrieved April 27, 2023. ^ Hollister Sean (November 13, 2021). "Steam Deck: Five big things we learned from Valve's developer summit". The Verge. ^ "Steam Deck :: Tech Specs". Steam Deck :: Tech Spec 2020). "Inside PlayStation 5: the specs and the tech that deliver Sony's next-gen vision". Eurogamer. Retrieved March 18, 2020. ^ Larabel, Michael (March 5, 2025). "AMD Announces "Instella" Fully Open-Source 3B Language Models". Phoronix. Retrieved April 10, 2025. ^ University of Toronto Division of University Advancement page Archived December 10, 2008, at the Wayback Machine. Retrieved February 28, 2008. ^ "Partner Resources". Ati.com. February 7, 2011. Archived from the original on December 11, 2005. Retrieved from the original on December 23, 2019. August 19, 2014. The company was incorporated in August 1985 as Array Technologies Inc. in December 1985. A History of AMD - 1996 at AMD.com. Archived October 12, 2007, at the Wayback Machine. A History of AMD
- 1996 at AMD.com. Archived October 12, 2007, at the Wayback Machine ^ "AMD 2008 10-K SEC Filling. Pg 105". U.S. Securities and Exchange Commission. February 24, 2009. Retrieved November 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2008 10-K SEC Filling. Pg 105". U.S. Securities and Exchange Commission. February 24, 2009. Retrieved November 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2008 10-K SEC Filling. Pg 105". U.S. Securities and Exchange Commission. February 24, 2009. Retrieved November 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2008 10-K SEC Filling. Pg 105". U.S. Securities and Exchange Commission. February 24, 2009. Retrieved November 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, 2011. ^ "Press Release". Ir.ati.com. Archived from the original on December 26, Retrieved February 19, 2011. ^ "AMD page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2006 December Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2006 December Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Analyst Day page". Amd.com. Retrieved February 19, 2011. ^ "AMD 2007 Ana Retrieved February 19, 2011. ^ "AMD Decides to Drop the ATI Brand - Softpedia". News.softpedia.com. Retrieved February 19, 2011. ^ Duncan, Geoff (May 7, 2009). "AMD reorg merges microprocessor, graphics units". CNET. Retrieved July 10, 2017. ^ Smith, Ryan (December 21, 2011). "AMD's Graphics Core Next Preview". Anandtech. Retrieved July 11, 2017. ^ Smith, Ryan (December 22, 2011). "AMD splits out its graphics chips into the Radeon Technology Group". Fortune. Retrieved July 10, 2017. A Takahashi, Dean (September 14, 2016). "AMD celebrates a year of its revamped Radeon Technologies Group". VentureBeat. Retrieved July 10, 2017. Moorehead, Patrich (November 12, 2015). "Advanced Micro Devices's Head Of Radeon Technologies Group, Raja Koduri, Talks heir Future". Forbes. Retrieved July 10, 2017. ^ Smith, Ryan (June 29, 2016). "The AMD Radeon RX 480 Preview". Anandtech. Retrieved July 10, 2017. ^ Smith, Ryan (January 5, 2017). "The AMD Vega GPU Architecture Preview". Anandtech. Retrieved July 10, 2017. ^ Smith, Ryan (January 5, 2017). "The AMD Vega GPU Architecture Preview". Preview". Anandtech. Retrieved July 11, 2017. ^ Smith, Ryan; Oh, Nate (August 14, 2017). "The AMD RX Vega 64 & RX Vega 56 Review: Vega Burning Bright". Anandtech.com. Retrieved August 16, 2017. ^ "Exclusive: Raja Koduri, Radeon Technologies Boss, leaves AMD". hexus.net. Hexus. November 7, 2017. Retrieved January 6, 2020. ^ "Two industry veterans join AMD Radeon Technologies Group". hexus.net. Hexus Net. January 24, 2018. Retrieved January 6, 2020. ^ Smith, Ryan. "AMD Reveals The Radeon RX 6000 Series: RDNA2 Starts At The High-End, Coming November 18th". anandtech.com. Retrieved November 1, 2020. ^ Shimpi, Anand Lal (February 2, 2012). "Understand AMD's Roadmap & New Direction". Anandtech. Retrieved July 10, 2017. ^ "Introducing Xbox Series S, Delivering Next-Gen Performance in Our Smallest Xbox Ever, Available November 10 at \$299". Xbox News. September 5, 2013). 9, 2020. Retrieved September 9, 2020. Smith, Ryan (February 24, 2020). "Microsoft Drops More Xbox Series X Tech Specs: Zen 2 + RDNA 2, 12 TFLOPs GPU, HDMI 2.1, & a Custom SSD". AnandTech. Retrieved March 19, 2020. Gartenberg, Chaim (March 18, 2020). "Sony reveals full PS5 hardware specifications". The Verge. Retrieved January 3, 2021. ^ Shimpi, Anand Lal (May 21, 2013). "The Xbox One: Hardware Analysis & Comparison to PlayStation 4". AnandTech. Retrieved May 22, 2013. ^ Howse, Brett (October 20, 2016). "AMD 's Embedded and Semi-Custom Revenues To Generate High Growth In The Next 5 Years?". Forbes. Retrieved July 10, 2017. A Kampman, Jeff (November 6, 2017). "Intel brings a Core CPU and Radeon GPU together on one package". Tech Report. Retrieved July 10, 2017. A Kampman, Jeff (November 7, 2017). "Intel brings a Core CPU and Radeon GPU together on one package". Tech Report. Retrieved July 10, 2017. Justin, Michael; Sexton, Allen (March 3, 2017). "AMD's AM4 Ryzen Chipsets". Tom's Hardware. Retrieved March 3, 2017. へ Cutress, Ian (March 2, 2017). "AMD's AM4 Ryzen Chipsets". Tom's Hardware. Retrieved March 3, 2017. へ Cutress, Ian (March 2, 2017). "CPU黒歴史 組み込みへの無理解に翻弄されたElan & Geode" (in Japanese). ascii.jp. Retrieved November 15, 2022. 1, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 1, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 2, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 2, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). "AMD to buy MIPS processor startup Alchemy". EE Times. Retrieved July 11, 2017. 3, ammers, David (January 29, 2002). Ammers, David (January Raza Microelectronics". TechNews. technologynewsdaily.com. June 14, 2006. Archived from the original on January 2, 2007. Retrieved July 11, 2017. ^ Paul, Ryan (March 5, 2007). "A comparison of OLPC's XO laptop and Intel's Classmate PC". Ars Technica. Retrieved July 11, 2017. ^ "AMD Embedded Solutions that are scalable, x86- based, low-power and feature-rich products". Amd.com. November 26, 2010. ^ Ferguson, Scott (January 20, 2009). "AMD Sells Handset Division to Qualcomm for \$65 million". eWeek. Retrieved June 6, 2014. ^ "Broadcom to buy AMD's digital TV business | Business Tech - CNET News". Archived from the original on July 16, 2012. Retrieved July 11, 2017. ^ "News Room". Broadcom.com. ^ "AMD M690T/E Databook" (PDF). Amd.com. Archived (PDF) from the original on October 9, 2022. Retrieved January 18, 2021. ^ Ganesh, TS (January 19, 2017. ^ "News Room".
Broadcom.com. Archived (PDF) from the original on October 9, 2022. Retrieved January 18, 2021. ^ Ganesh, TS (January 19, 2021. ^ Content of the original on Duly 16, 2017. ^ "News Room". Broadcom.com. ^ "AMD M690T/E Databook" (PDF). 2011). "AMD G-Series Brings x86 to the Embedded G-Series platform". Engadget. Retrieved July 11, 2017. ^ Melanson, Donald (January 19, 2011). "AMD reveals G-Series X embedded chips, drops a little ARM-powered bombshell" Engadget. Retrieved July 11, 2017. ^ Ryan, Thomas (February 23, 2016). "AMD Launches Three New Embedded G-Series SoC Families". SemiAccurate. Retrieved July 10, 2012. ^ Cutress, Ian (October 21, 2015). "AMD Launches Excavator Based R-Series APUs for Embedded with DDR4". Anandtech. Retrieved July 11, 2017. ^ [2] [permanent dead link] ^ a b Smith, Ryan (May 2, 2011). "AMD Launches E6760: The Next Embedded Radeon". Anandtech Retrieved July 11, 2017. ^ Hodgin, Rick (July 1, 2009). "AMD releases ATI Radeon E4690 embedded GPU with 3x better performance". Geek.com. Archived from the original on October 23, 2017. Retrieved July 11, 2017. ^ Smith, Ryan (October 1, 2015). "AMD Updates Embedded Retrieved July 11, 2017. ^ Smith, Ryan (October 1, 2015). "AMD Updates Embedded GPU with 3x better performance". (September 27, 2016). "AMD Announces Embedded Radeon EE9260 & E9550 - Polaris for Embedded Markets". Anandtech. Retrieved July 11, 2017. ^ "Opteron X and A-Series Processors". amd.com. Retrieved July 11, 2017. ^ Smith, Ryan (May 8, 2013). "AMD Releases New Radeon Memory SKU". Anandtech. Retrieved July 11, 2017. ^ Shilov, Anton (October 5, 2015). "AMD begins to sell DDR4 memory modules for Intel and next-gen platforms". KitGuru. Retrieved July 11, 2017. ^ Shilov, Anton (October 5, 2015). "AMD begins to sell DDR4 memory business is slowing down". PC World. Retrieved July 11, 2017. ^ Hachman, Mark (August 28, 2014). "AMD announces Radeon R7 SSD product line, made by enthusiast manufacturer OCZ". PC World. Retrieved July 11, 2017. ^ "Initial amdgpu driver release". Lists.freedesktop.org. Retrieved February 20, 2022. ^ "AMD Rethinks Decision And Will Open-Source Most Of Radeon Rays 4.0" phoronix.com. ^ "Everything You Need to Know About Why AMD Open Sourced the OpenCL Driver Stack for ROCm | IEEE Computer Society". Computer.org. Archived February 20, 2022. ^ "AMD Optimizing C/C++ and Fortran Compilers (AOCC) - AMD". Developer.amd.com. Retrieved February 20, 2022. 2022. ^ "NEW, AMD uProf 4.2 is now available". amd.com. January 31, 2024. A "AMD prüft Coreboot-Support für Ryzen". golem.de. ^ "AMD prüft Coreboot-Support für Ryzen". golem. Center" (Press release). AMD. May 5, 2008. Archived from the original on January 16, 2009. ^ "x86 Open64 Compiler Suite". AMD. July 28, 2015. Archived from the original on November 13, 2013. ^ "AMD Details Strategic Open Source Graphics Driver Development Initiative" (Press release). AMD. September 7, 2007. ^ "Index of /docs/AMD". x.org ^ a b Kanellos, Michael (July 30, 1998). "Motorola Ready to Make AMD Chips". CNET. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in microprocessor market". IT Web. Reuters. September 9, 2003. Retrieved July 10, 2017. ^ a b "IBM, AMD team up in micropr July 10, 2017. ^ Smith, Ryan (October 7, 2008). "The Business of Tech: Breaking Up is Hard to do- AMD goes Fabless". Anandtech. Retrieved July 10, 2017. ^ Shimpi, Anand Lal. "GlobalFoundries Granted Independence, Acquires Remaining Stake from AMD". AnandTech. Retrieved December 8, 2012. ^ Smith, Ryan (September 1, 2016). "AMD Amends GlobalFoundries Wafter Supply Agreement Through 2020, Gaining New Flexibility and New Costs". Anandtech. Retrieved July 10, 2017. A b Moorhead, Patrick (July 25, 2016). "AMD Officially Diversifies 14nm Manufacturing With Samsung". Forbes. Retrieved July 26, 2016. ^ Shah, Agam (October 28, 2011). "AMD records profit in Q3 despite manufacturing issues". ARN. Archived from the original on July 30, 2017. Retrieved July 10, 2017. ^ Shilov, Anton; Smith, Ryan (August 27, 2018). "AMD Amends Wafer Supply Agreement with GlobalFoundries: 7nm Freed, 12nm+ Targets Set Through 2021". AnandTech. Retrieved March 25, 2020. ^ Shilov, Anton (January 29, 2019). "AMD Amends Wafer Supply Agreement with GlobalFoundries: 7nm Freed, 12nm+ Targets Set Through 2021". AnandTech. Retrieved March 25, 2020. ^ "AMD Fundamentalanalyse | KGV | Kennzahlen". boerse.de (in German). Retrieved July 23, 2024. ^ Spooner, John G (March 2, 2002). "Promoter of storied Alpha to shut doors". CNET. Retrieved July 10, 2017. ^ AMD Analyst Day June 2006 Presentation, slide 10. Archived March 26, 2009, at the Wayback Machine. ^ Kennedy, Patrick (July 5, 2017). "Most Impressive Part of the AMD EPYC Launch: The Ecosystem". Serve the Home. Retrieved July 10, 2017. ^ [3] [dead link] ^ Vance, Ashlee (May 18, 2006). "Dell hooks up with AMD". The Register. "Intel, AMD in HP notebook smackdown Which is faster? 'You tell me' says AMD". June 17, 2011. Retrieved July 20, 2011. ^ Poeter, Damon (May 21, 2013). "AMD Hits Game Console Trifecta With Xbox One & Opinion". PC Magazine. Retrieved June 14, 2013. ^ "AMD Game Console Triple Crown: Will There Be Profits?". Seeking Alpha. Retrieved June 14, 2013. ^ "AMD Game Console Triple Crown: Will There Be Profits?". June 14, 2013. ^ PTI (April 13, 2016). "AMD plans to enter India in a big way, ties up with HSMC for chip manufacturing: Ravi Shankar Prasad". The Economic Times. Retrieved July 10, 2017. ^ Alcorn, Paul (July 6, 2018). "China Finds Zen: Begins Production Of x86 Processors Based On AMD's IP". Tom's Hardware. Retrieved July 9, 2018. ^ "U.S. Department of Energy and Cray to Deliver Record-Setting Frontier Supercomputer at ORNL". Energy gov. Retrieved July 9, 2018. ^ "U.S. Department of Energy and Cray to Deliver Record-Setting Frontier Supercomputer at ORNL". Lawrence Livermore National Laboratory". www.llnl.gov. Retrieved November 17, 2020. > Faulkner, Cameron (July 28, 2020). "AMD says its PS5 and Xbox Series X chips, Zen 3 CPUs, and RDNA 2 GPUs will ship on time". The Verge. Retrieved March 22, 2020. > "AMD Partnership With Facebook (Meta) Company - Totoseek". November 28, 2022. Archived from the original on November 29, 2022. Retrieved November 29, 2022. * "Ryzen 7 2700X vs i7 8700K". AMD. Archived (PDF) from the original on January 8, 2007. Retrieved January 12, 2007. * "Advanced Micro Devices (AMD) vs. Intel Corporation Executive Summary of AMD Complaint" (PDF). Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived copy" (PDF). Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 10, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on
November 23, 2017. ^ "Archived from the original (PDF) on November 24, 2013. Retrieved August 23, 2017. ^ "Archived from the original (PDF) on November 24, 2013. Retrieved August 24, 2013. Retrieved August 24, ^ Peter Clarke, EE Times. "AMD 'clocks' FX processor at 8.429-GHz". September 13, 2011. Retrieved September 12, 2011. ^ Maximum Speed AMD FX Processor Takes Guinness World Record (video), September 12, 2011. archived from the original on November 22, 2021, retrieved November 7, 2012 - via YouTubeDuring the video, cooling transitions from air to water to liquid nitrogen and finally to liquid helium. ^ Matthew Humprhires, Geek.com. "AMD clocks FX-8150 at 8.461-GHz Archived April 28, 2012, at the Wayback Machine". November 1, 2011. ^ "CPU-Z Validator". CPU-Z Valid Bloomberg Business News. October 21, 1995. ^ EETimes (February 6, 2002). "EETimes - AMD acquires Alchemy Semi to enter embedded RISC processor market". EETimes - Coatue secretly sold to AMD, folded into FASL". EETimes. Retrieved September 13, 2024. ^ Sorkin, Andrew Ross (July 24, 2006). "A.M.D. to Acquire ATI Technologies". The New York Times. ISSN 0362-4331. Retrieved April 5, 2022. ^ "AMD Completes Acquisition of SeaMicro". Advanced Micro Devices, Inc. Archived from the original on April 5, 2022. ^ "AMD Completes Acquisition of SeaMicro". Gaming Innovation in Radeon Software". Advanced Micro Devices, Inc. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retrieved April 5, 2022. ^ "AMD's HiAlgo acquisition brings gamer-friendly tools to Radeon Software experience". VentureBeat. June 29, 2016. Retr VR/AR". Forbes. Retrieved April 5, 2022. ^ Shilov, Anton. "AMD Acquires 60 GHz Wireless IP and Staff from Nitero". anandtech.com. Retrieved April 5, 2022. ^ Lee, Jane Lanhee (February 14, 2022). "AMD closes record chip industry deal with estimated \$50 billion purchase of Xilinx". Reuters. Retrieved April 5, 2022. ^ Ron Miller (April 4, 2022). "AMD to acquire data center optimization startup Pensando for \$2B". TechCrunch. Retrieved April 10, 2022. ^ "AMD acquires Mipsology to ramp up AI inference rivalry with Nvidia". www.channelweb.co.uk. August 29, 2023. A trieved August 29, 2023. A trieved August 29, 2023. up in AI race". Reuters. ^ Cherney, Max A. (August 19, 2024). "AMD to acquire server builder ZT Systems for \$4.9 billion in cash and stock". Reuters. ^ "2022-23 Corporate Responsibility". AMD Environmental Sustainability". AMD Environmental Sustainability. August 2023. Retrieved March 25, 2024. ^ "The Green Grid". Thegreengrid.org. ^ Ellett, John. "Why Tech Marketing Leaders Are Racing To Sponsor Formula 1". Forbes. Retrieved July 23, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "AMD is Proved from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, the big business behind F1 - CNN.com". CNN. Archived from the original on August 28, 2024. ^ "Sponsorship, t with Scuderia Ferrari". Advanced Micro Devices, Inc. April 14, 2018. Retrieved July 23, 2024. "Mercedes signs innovation-focused deal with AMD, McLaren signs with AI brand Darktrace". SportBusiness. February 5, 2020. Retrieved July 23, 2024. "Mercedes signs innovation-focused deal with AMD, McLaren signs with AI brand Darktrace". www.sportsbusinessjournal.com. September 8, 2022. Retrieved July 23, 2024. ^ "Sponsors | World AI Cannes Festival 2024". www.worldaicannes.com. Retrieved July 23, 2024. ^ "HPE Discover 2024 Sponsors" hpe.com. Retrieved July 23, 2024. ^ Richardson, Kelly. "HPE Discover 2024 news and conference guide | TechTarget". Storage. Retrieved July 23, 2024. Rodengen, Jeffrey L. (1998). The Spirit of AMD: Advanced Micro Devices. Write Stuff. Ruiz, Hector (2013). Slingshot: AMD's Fight to Free an Industry from the Ruthless Grip of Intel. Greenleaf Book Group. Wikimedia Commons has media related to AMD. Official website Business data for Advanced Micro Devices, Inc.: GoogleReutersSEC filingsYahoo! Retrieved from " 2American multinational corporation For other uses, see 3M (disambiguation). 3M Company3M headquarters in Maplewood, Minnesota FormerlyMinnesota Mining and Manufacturing Company (1902-2002)Company typePublicTraded asNYSE: MMMDJIA componentS&P 100 componentISINUS88579Y1010IndustryConglomerateFoundedJune 13, 1902; 123 years ago (1902-06-13) in Two Harbors, Minnesota, U.S.[1]FoundersJ. Danley BuddHenry S. BryanWilliam A. McGonagleJohn DwanHermon W. CableCharles Simmons[2]HeadquartersMaplewood, Minnesota, U.S.Area servedWorldwideKey people Michael F. Roman (chairman) William M. Brown (CEO)[3] Revenue US\$4.173 billion (2024)Total assets US\$39.87 billion (2024)Total equity US\$3.842 billion (2024)Number of employeesc. 61,500 (2024)Website3m.comFootnotes / references[4] 3M Company (originally the Minnesota Mining and Manufacturing Company) is an American multinational conglomerate operating in the fields of industry, worker safety, and consumer goods.[5] Based in the Maplewood suburb of Saint Paul, Minnesota,[6] the company produces over 60,000 products,[7] including adhesives, abrasives, laminates, passive fire protection, personal pers Scotchgard surface protectants, Post-it notes, and Nexcare adhesive bandages. 3M's stock ticker symbol is MMM and is listed on the SIX Swiss Exchange, Inc., and the SIX Swiss Exchange, Inc. (NYSE), the Chicago Stock Exchange, Inc., and the SIX Swiss Exchange, Inc. (NYSE), the Chicago Stock Exchange, Inc., and the SIX Swiss Exchange, Inc., and t States corporations by total revenue.[10] As of 2021[update], the company had approximately 95,000 employees and operations in more than 70 countries.[11] There are a few international subsidiaries, such as 3M India, 3M Japan, and 3M Canada.[12] In June 2023, 3M reached a settlement to pay more than \$10 billion to US public water systems to resolve claims over the company's contaminated products.[14][15] Five businessmen founded the Minnesota Mining and Manufacturing Company knew of the health harms of PFAS in the 1990s, yet concealed that the company knew of the health harms of PFAS in the 1990s, yet concealed these harms and continues to sell contaminated products.[14][15] Five businessmen founded the Minnesota Mining and Manufacturing Company as a mining venture in Two Harbors, Minnesota, making their first sale on June 13, 1902.[1] The goal was to mine corundum, a crystalline form of aluminium oxide, which had no commercial value. Co-founder John Dwan solicited funds in exchange for stock and Edgar Ober and Lucius Ordway took over the company in 1905. The company moved to Duluth and began researching and
producing sandpaper products. William L. McKnight, later a key executive, joined the company in 1907, and A. G. Bush joined in 1909. 3M finally became financially stable in 1916 and was able to pay dividends. [definition needed][16] The company moved to Saint Paul in 1910, where it remained for 52 years before outgrowing the campus and moving to its current headquarters at 3M Center in Maplewood, Minnesota, in 1962.[17] The John Dwan Office Building, where 3M was founded, now a museum In 1947, 3M began producing perfluorooctanoic acid (PFOA), an industrial surfactant and chemical feedstock, by electrochemical fluorination.[18] In 1951, DuPont purchased PFOA from then-Minnesota Mining and Manufacturing of teflon, a product that brought DuPont referred to PFOA as C8.[20] The original formula for Scotchgard, a water repellent applied to fabrics, was discovered accidentally in 1952 by 3M chemists Patsy Sherman and Samuel Smith. Sales began in 1956, and in 1973 the two chemists received a patent for the formula. [21][22] In the late 1950s, 3M produced the first asthma inhaler, [23] but the company did not enter the pharmaceutical industry until the mid-1960s with the acquisition of Riker Laboratories, moving it from California to Minnesota.[24] 3M retained the Riker Laboratories and for the subsidiary until at least 1985.[25] In the mid-1990s, 3M Pharmaceuticals, as the division came to be called, produced the first CFC-free asthma inhaler in response to adoption of the Montreal Protocol by the United States.[26][27] In the 1980s and 1990s, the company spent fifteen years developing a topical cream delivery technology which led in 1997 to health authority approval and marketing of a symptomatic treatment for genital warts, Aldara.[28][29] 3M divested its pharmaceutical unit through three deals in 2006, netting more than US\$2 billion.[30][31] At the time, 3M Pharmaceuticals comprised about 20% of 3M's healthcare business and employed just over a thousand people.[30] By the 1970s, 3M developed a theatrical blood formula based on red colorfast microbeads suspended in a carrier liquid.[32] This stage blood was sold as Nextel Simulated Blood[32][33] and was used during the production of the 1978 film Dawn of the Dead.[34] It has since been discontinued.[33] In the late 1970s, 3M Mincom was involved in some of the first digital audio recording system called "3M Digital Audio Mastering System".[35] 3M launched "Press 'n Peel" a sticky bookmark page holder in stores in four cities in 1977, but the results were disappointing.[36][37] A year later 3M instead issued free samples of it as a sticky note directly to consumers in Boise, Idaho, with 95% of those who tried them indicating they would buy their stores in four cities in 1977, but the results were disappointing.[36][37] A year later 3M instead issued free samples of it as a sticky note directly to consumers in Boise, Idaho, with 95% of those who tried them indicating they would buy their stores in four cities in 1977, but the results were disappointing.[36][37] A year later 3M instead issued free samples of it as a sticky note directly to consumers in Boise, Idaho, with 95% of those who tried them indicating they would buy their stores in four cities in 1977, but the results were disappointing.[36][37] A year later 3M instead issued free samples of it as a sticky note directly to consumers in Boise, Idaho, with 95% of those who tried them indicating they would buy the results were disappointing.[36][37] A year later 3M instead issued free samples of it as a sticky note directly to consumers in Boise, Idaho, with 95% of those who tried them indicating they would buy the results were disappointed. product.[36] The product was sold as "Post-Its" in 1979 when the rollout introduction began,[38] and was sold across the United States[38] from April 6, 1980.[39] The following year they were launched in Canada and Europe.[40] In 1980, the company's data storage and imaging divisions were spun off as Imation Corporation. In doing so 3M shed 20% of its profits and product lines at a cost of only 5% of its profits for 3M which funded R&D and development of many new business lines but were largely in "sunset" industries: printing products, photographic film, and removeable storage media. Imation shortly sold its imaging and photographic film businesses to largely to Kodak in order to concentrate on storage. Imation was purchased by a hedge fund in 2016 and ceased to exist as an independent business. What is left is now called Glassbridge Enterprises, an American holding company that was family-owned an agreement to acquire Meguiar's, a car-care products company that was family-owned for over a century.[44] In August 2010, 3M acquired Cogent Systems for \$943 million,[45] and on October 13, 2010, 3M completed the acquisition of the Winterthur Technology Group, a bonded abrasives company. In 2011 by 3M created CloudLibrary as part of its library systems unit as a competitor to OverDrive, Inc.; in 2015 3M sold the North American part of that unit to Bibliotheca Group GmbH, a company founded in 2011 that was funded by One Equity Partners Capital Advisors, a division of JP Morgan Chase. [47][48] As of 2012, 3M was one of the 30 companies included in the Dow Jones Industrial Average, added on August 9, 1976, and was 97 on the 2011 Fortune 500 list.[49] On January 3, 2012, it was announced that the Office and Consumer Products Division of Avery Dennison was being bought by 3M for \$550 million.[50] The transaction was canceled by 3M in September 2012 amid antitrust concerns.[51] In May 2013, 3M sold Scientific Anglers and Ross Reels to Orvis. Ross Reels had been acquired by 3M in 2010.[52] In March 2017, 3M purchased Johnson Controls International Plc's safety gear business, Scott Safety, for \$2 billion. up from \$30.109 billion the year of \$31.657 billion. [54] In 2018, it was reported that the company would pay \$850 million to end the Minnesota water pollution case concerning perfluorochemicals.[55] On May 25, 2018, Michael F. Roman was appointed CEO by the board of directors.[56] On December 19, 2018, 3M announced it had entered into a definitive agreement to acquire the technology business of M*Modal, for a total enterprise value of \$1.0 billion.[57] In October 2019, 3M purchased Acelity and its KCI subsidiaries for \$6.7 billion, including assumption of debt and other adjustments. [58] On May 1, 2020, 3M divested substantially all of its drug delivery business to an affiliate of Altaris Capital Partners, LLC. for approximately \$650 million, including a 17% interest in the new operating company, Kindeva Drug Delivery.[59] In December 2021, 3M announced that it would merge its food-safety business with food testing and animal healthcare products maker Neogen.[60] The deal, with an enterprise value of about \$5.3 billion,[60] closed in September 2022.[61] In July 2022, the company announced it would spin off its healthcare assets to form a new, independent firm, likely completing the transaction in 2023.[62] 3M will retain an ownership stake of 19.9% in the new, publicly-traded health care company will be known as Solventum Corporation.[64] In December 2022, the company announced plans to stop producing and using so-called forever chemicals (per and polyfluoroalkyl[65]), which have been commonly used in items such as food packaging, cellphones, nonstick properties, but they are also dangerous pollutants that are linked to serious health problems, including ulcerative colitis and cancer.[66][67] The move comes as governments in the Netherlands and the United States consider actions against 3M.[68][69] In March 2024, 3M announced the appointment of William "Bill" Brown as chief executive officer to take effect on May 1, 2024. Michael Roman would remain in the role of executive chairman. Brown 61, is the former chairman of the board and chief executive officer of L3Harris Technologies.[70] As of 2019, 3M produces approximately 60,000 products, [71] and has four business groups focused on safety and acquires approximately 3,000 new patents annually. The company surpassed the 100,000-patent threshold in 2014.[73] The Target Light System, built by 3M at Target Light System, built by 3M at Target headquarters in Minneapolis[74] 3M's Pollution Prevention Pays (3P) program was established in 1975. The program initially focused on pollution reduction at the plant level and was expanded to promote recycling and reduce waste across all divisions in 1989. By the early 1990s, approximately 2,500 3P projects decreased the company's total global pollutant generation by 50 percent and saved 3M \$500-600 million by eliminating the production of waste requiring subsequent treatment.[75][76] In 1983, the Oakdale Dump in Oakdale, esota, was listed as an EPA Superfund site after significant groundwater and soil contamination by VOCs and heavy metals was uncovered.[77] The Oakdale Dump was a 3M dumping site utilized through the 1940s and 1950s. During the 1990s and 2000s, 3M reduced releases of toxic pollutants by 99 percent and greenhouse gas emissions by 72 percent. As of 2012, the United States Environmental Protection Agency (EPA) had awarded 3M with the Energy Star Award each year that it has been presented. [78] In 1999, the EPA began investigating perfluorinated chemicals after receiving data on the global distribution and toxicity of perfluoroctanesulfonic acid (PFOS). [79] These materials are part of a broad group of perfluoroalkyl and polyfluoroalkyl substances often referred to as PFAS, each of which has different chemical properties. [80] 3M, the former primary producer of PFOS from the U.S., announced the phase-out of PFOS, perfluoroaction in May 2000. [81][82] Perfluorinated compounds produced by 3M have been used in non-stick cookware, stain-resistant fabrics, and other products. The Cottage Grove facility manufactured PFAS from the 1940s to 2002.[83] In response to PFAS contamination
of the Mississippi River and surrounding area, 3M stated the area will be "cleaned through a combination of groundwater pump out wells and soil sediment excavation". The restoration plan was based on an analysis of the company property and surrounding lands.[84] The on-site water treatment facility that handled the plant's post-production water was not capable of removing PFAS, which were released into the nearby Mississippi River.[83] The clean-up cost estimate, which included a granular activated carbon system to remove PFAS from the ground water was \$50 to \$56 million, [85] funded from a \$147 million environmental reserve set aside in 2006. [86] In 2008, 3M created the Renewable Energy Division within 3M's Industrial and Transportation Business to focus on Energy Generation and Energy Management. [87] [88] In late 2010, the state of Minnesota sued 3M for \$5 billion in punitive damages, claiming they released PFCs—classified a toxic chemical by the EPA—into local waterways.[89] A settlement for \$850 million was reached in February 2018.[90][82][91] In 2019, 3M, along with the Chemours Company and DuPont, appeared before lawmakers to deny responsibility, with company Senior VP of Corporate Affairs Denise Rutherford arguing that the chemicals pose no human health threats at current levels and that 3M's Zwijndrecht (Belgium) factory caused PFOS pollution that may be contaminating agricultural products within a 15 kilometer radius of the plant which includes Antwerp.[93][94] The Flemish Government has paid 63 million euros for cleanup costs so far with 3M contributing 75,000 euros.[95] The Flemish Government issued measures advising against the consumption of, for example, home-grown eggs within a radius of 5 kilometers.[96] In 2023, 3M reached an agreement to pay a \$10.3bn settlement with numerous US public water systems to resolve thousands of lawsuits over PFAS contamination.[13] 3M reported Total CO2e emissions (Direct + Indirect) for the twelve months ending December 31, 2020, at 5,280 Kt (-550 /-9.4% y-o-y)[97] and plans to reduce emissions 50% by 2030 from a 2019 base year. [98] The company also aims achieve carbon neutrality by 2050.[99] 3M's annual Total CO2e Emissions - Location-Based Scope 1 + Scope 2 (in kilotonnes) Dec 2017 Dec 2018 Dec 2019 Dec 20 (CAEv2), was developed by Aearo Technologies for U.S. military and civilian use. The CAEv2 was a double ended earplug that 3M claimed would offer users different levels of protection. [106] Between 2003 and 2015, these earplugs were standard issue to members of the U.S. military. [107] 3M acquired Aearo Technologies in 2008. [108] In May 2016, Moldex-Metric, Inc., a 3M competitor, filed a whistleblower complaint against 3M under the False Claims to the U.S. government about the safety of its earplugs and that it knew the earplugs and that it knew the earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs and that it knew the earplugs and that it knew the earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs and that it knew the earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the U.S. government about the safety of its earplugs had an inherently defective design. [109] In 2018, 3M agreed to pay \$9.1 million to the unde to resolve the allegations, without admitting liability.[110] Since 2018, more than 140,000 former users of the earplugs (primarily U.S. military veterans) have filed suit against 3M claiming they suffer from hearing loss, tinnitus, and other damage as a consequence of the defective design.[111] Internal emails showed that 3M officials boasted about charging \$7.63 per piece for the earplugs which cost 85 cents to produce. The company's official response indicated that the cost to the government includes R&D costs.[112] 3M settled close to 260,000 lawsuits in August 2023 by agreeing to pay \$6 billion to current and former U.S. military members who were affected.[113] The N95 respirator mask was developed by 3M and approved in 1972.[114] Due to its ability to filter viral particulates, its use was recommended during the COVID-19 pandemic but supply had already been sold prior to the outbreak.[115] The shortages led to the U.S. government asking 3M to stop exporting USmade N95 respirator masks to Canada and to Latin American countries, [116] and President Donald Trump invoked the Defense Production Act to require 3M to prioritize orders from the federal government. [117] The dispute was resolved when 3M agreed to import more respirators, mostly from its factories in China. [117] 3M later struck a CA\$70M deal with the federal government of Canada and the Ontario provincial government to produce N95 masks at their plant in Brockville, Ontario.[118] Former 3M facility in St. Paul, Minnesota 3M's general offices, corporate research laboratories, and some division laboratories in the U.S. are in St. Paul, Minnesota. In the United States, 3M operates 80 manufacturing facilities in 29 states, and 125 manufacturing and converting facilities in 37 countries outside the U.S. (in 2017).[119] During March 2016, 3M completed a 400,000-square-foot (37,000 m2) research-and-development building on its Maplewood campus that cost \$150 million. Seven hundred scientists from various divisions occupy the building. They were previously scattered across the campus. 3M hopes concentrating its research and development in this manner will improve collaboration. 3M received \$9.6 million in local tax increment financing and relief from state sales taxes in order to assist with development of the building.[120] Selected factory detail information: Cynthiana, Kentucky, U.S. factory producing Post-it Notes (672 SKU) and Scotch Tape (147 SKU). It has 539 employees and was established in 1969.[121] Newton Aycliffe, County Durham, UK factory producing respirators for workers safety using laser technology. It has 370 employees. In Minnesota, 3M's Hutchinson facility produces products for more than half of the company's 23 divisions, as of 2019.[122] The "super hub" has manufactured adhesive bandages for Nexcare, furnace filters, and Scotch Tape, among other products.[123][124] The Cottage Grove plant is one of three operated by 3M for the production of pad conditioners, as of 2011.[125] 3M has operated a manufacturing plant in Columbia, Missouri since 1970. The plant has been used for the products including electronic components [126][127] solar and touchscreen films, and stethoscopes. The facility received a \$20 million expansion in 2012 and has approximately 400 employees. [128][129] 3M opened the Brookings, South Dakota plant in 1971, [130] and announced a \$70 million expansion in 2014.[131] The facility manufactures more than 1,700 health care products and employs 1,100 people, as of 2018, making the plant 3M's largest focused on health care.[132] Mask production at the site increased during the 2009 swine flu pandemic, 2002-2004 SARS outbreak, 2018 California wildfires, 2019-20 Australian bushfire season, and COVID-19 pandemic. [133] 3M's Springfield, Missouri plant opened in 1967 and makes industrial adhesives and tapes for aerospace manufacturers. In 2017, 3M had approximately 330 employees in the metropolitan area, and announced a \$40 million expansion project to upgrade the facility and redevelop another building.[134] In Iowa, the Ames plant makes sandpaper products and received funding from the Iowa Economic Development Authority (IEDA) for expansions in 2018.[135][136] The Knoxville plant is among 3M's largest and produces approximately 12,000 different products, including adhesives and tapes.[137] 3M's Southeast Asian operations are based in Singapore, where the company has invested \$1 billion over 50 years. 3M has a facility in Tuas, a manufacturing plant and Smart Urban Solutions lab in Woodlands, and a customer technical center in Yishun.[138] 3M expanded a factory in Woodlands, and a customer technical center in Yishun.[138] announced a major expansion of the Tuas plant in 2016,[138] 3M expanded a factory in Woodlands, and a customer technical center in Yishun.[138] 3M expanded a factory in Woodlands, and a customer technical center in Yishun.[138] announced a major expansion of the Tuas plant in 2016,[138] announced a major expansion of the Tuas plant in 2016,[138] announced a major expansion of the Tuas plant in 2016,[138] announced a major expansion of the Tuas plant in 2016,[138] announced a major expansion of the Tuas plant in 2016,[138] announced a major expansion of the Tuas plant in
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McKnight (1949-1966),[147][148] Bert S. Cross (1966-1970),[149][150] Harry Heltzer (1970-1975),[151] Raymond H. Herzog (1975-1980),[152] Lewis W. Lehr (1980-1986), Allen F. Jacobson (1986-1991),[153] Livio DeSimone (1991-2001),[154] James McNerney (2001-2005),[155] George W. Buckley (2005-2012),[156][157] and Inge Thulin (2012-2018).[158] Thulin continued as executive chairman until Michael F. Roman was appointed in 2019.[159] 3M's CEOs have included: Cross (1966-1970),[160] Heltzer (1970-1975),[151] Herzog (1975-1979),[160][161] Lehr (1979-1986),[162] Jacobson (1986-1991),[153] DeSimone (1991-2001),[154] McNerney (2001-2005),[155] Robert S. Morrison (2005, interim),[163] Buckley (2005-2012),[156][157] Thulin (2012-2018), and Roman (2018-present).[158] 3M's presidents have included: Edgar B. Ober (1905-1929),[164] McKnight (1929-1949),[148][165] Richard P. Carlton (1949–1953),[166] Herbert P. Buetow (1953–1963),[167] Cross (1963–1966),[167] Cross (1963–1966),[168] Heltzer (1966–1970),[169] In the late 1970s, the position overseeing domestic operations was first held by Lehr,[161] followed by John Pitblado from 1979 to 1981,[170] then Jacobson from 1984 to 1991.[171] James A. Thwaits led international operations starting in 1979.[170] Buckley and Thulin were president during 2005-2012,[172] and 2012-2018, respectively.[158] Oakdale Dump V. Huck, Brand of the Tartan: The 3M Story, Appleton-Century-Crofts, 1955. Early history of 3M and challenges, includes employee profiles. C. Rimington, From Minnesota mining and manufacturing to 3M Australia employees in context of broader organisational history. Sharon Lerner "How 3M Discovered, Then Concealed, the Dangers of Forever Chemicals[173]", New Yorker Magazine Portals: United States Companies a b "3M Birthplace Museum", Lake County Historical Society "It all started with a rock". 3M Australia. June 11, 2021. Retrieved March 9, 2022. "3M appoints new CEO", Manufacturing Dive, March 12, 2024 "3M Company 2024 Annual Report". SEC.gov. U.S. Securities and Exchange Commission. February 5, 2025. ^ "3M Company Profile". Vault.com. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Google Maps". Coogle Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 17, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 14, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 14, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 14, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 14, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 14, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 14, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 14, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 14, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 14, 2018. ^ "3M Center, Maplewood 55144 - Google Maps". Congle Maps. Retrieved July 14, 2018. ^ "3M Center, Maps. Retrieved July 14, 2018. ^ "3M Center, Maps. Retrieved July 14, 2018. ^ "3M Center, Maps. Retrieved July 14, 2018. ^ "3M October 10, 2019. ^ "3M U.S.: Health Care". Solutions.3m.com. Retrieved March 29, 2012. ^ "Who We Are - 3M US Company Information". Solutions.3m.com. Archived from the original on September 13, 2008. Retrieved July 14, 2013. ^ "Fortune 500: 3M". Fortune. Retrieved September 20, 2022. ^ "3M Company 2021 Annual Report". SEC.gov. U.S. Securities and Exchange Commission. February 9, 2021. ^ "3M Company and Consolidated Subsidiaries (Parent and Subsidiaries) as of December 31, 2016". U.S. Securities and Exchange Commission. ^ a b "3M pays \$10.3bn to settle water pollution suit over 'forever chemicals'". The Guardian. June 22, 2023. ISSN 0261-3077. ^ Sakaguchi, Sharon; Lerner, Haruka (May 20, 2024). "Toxic Gaslighting: How 3M Executives Convinced a Scientist the Forever Chemicals She Found in Human Blood Were Safe". ProPublica. ^ Lerner, Sharon (May 20, 2024). "How 3M Discovered, Then Concealed, the Dangers of Forever Chemicals". The New Yorker. ISSN 0028-792X. ^ "3M". Company Profiles for Students. Gale. 1999. Archived from the original on May 18, 2013. Retrieved October 4, 2013. A "900 Bush Avenue: The House that Research Built: Early Years in Saint Paul. Archived from the original on March 1, 2017. A "900 Bush Avenue: The House that Research Built: Early Years in Saint Paul. Archived from the original on May 18, 2013. Retrieved October 4, 2012. Robert C.; Korzeniowski, Stephen H. (January 2006). "Sources, Fate and Transport of Perfluorocarboxylates". Environmental Science & Technology. 40 (1): 32-44. Bibcode: 2006EnST...40...32P. doi:10.1021/es0512475. PMID 16433330. ^ Rich, Nathaniel (January 6, 2016). "The Lawyer Who Became DuPont's Worst Nightmare". The New York Times Retrieved January 8, 2016. ^ Emmett, Edward; Shofer, Frances; Zhang, Hong; Freeman, David; Desai, Chintan; Shaw, Leslie (August 2006). "Community exposure to Perfluorooctanoate: Relationships Between Serum Concentrations and Exposure Sources". Journal of Occupational and Environmental Medicine. 48 (8): 759-70. doi:10.1097/01.jom.0000232486.07658.74. PMC 3038253. PMID 16902368. ^ U.S. patent 3,574,791 ^ "Scotchgard vs Scotchguarding". Stain Protection Services. December 17, 2021. Retrieved June 1, 2023. ^ "Inhalers become environmentally friendly". The StarPhoenix. Saskatchewan. Canadian Press. February 3, 1998. p. D3 - via Newspapers.com. ^ Rainsford, K. D. (2005). "The discovery, development and novel actions of nimesulide". In Rainsford, K. D. (ed.). Nimesulide: Actions and Uses. Basel: Birkhäuser Verlag. p. 4. ISBN 978-3-7643-7068-8 - via Google Books (Preview). ^ Slovut, Gordon (November 19, 1985). "Space Drug". Minneapolis Star and Tribune. pp. 1A, 11A - Via Google Books (Preview). ^ Slovut, Gordon (November 19, 1985). "Space Drug". Minneapolis Star and Tribune. pp. 1A, 11A - Via Google Books (Preview). ^ Slovut, Gordon (November 19, 1985). "Space Drug". via Newspapers.com. ^ Staff (October 12, 1996). "3M urges closer look at inhalers". Kenosha News. p. C6 - via Newspapers.com. ^ Haring out the EPA, 3M inhaler scam". The Daily Chronicle (Opinion). DeKalb, Illinois. p. 4 - via Newspapers.com. ^ "3M gets approval for warts treatment". La Crosse Tribune. Associated Press. March 4, 1997. p. B3 - via Newspapers.com. ^ Hill, Charles W. L.; Jones, Gareth R.; Schilling, Melissa A. (2015). Strategic Management: Theory & Cases: An Integrated Approach (11th ed.). Stamford, Connecticut: Cengage Learning. p. C-322. ISBN 978-1-285-18448-7 - via Google Books (Preview). ^ a b "Drug units to fetch 3M \$2.1 billion". The Philadelphia Inquirer (City ed.). Associated Press. November 10, 2006. p. D2 - via Newspapers.com. ^ "Graceway Inc. acquires 3M's branded pharmaceuticals in \$875 million deal". Johnson City Press. NET News Service. November 10, 2006. p. 7C - via Newspapers.com. ^ a b Theatre Crafts, Volume 23, Issues 1-5. Rodale Press. 1989. p. 12. Retrieved September 15, 2020. Schaefer Applied Technology of Norwood, Massachusetts, has put Nextel Brand Simulated Blood back on the market. This stage blood
developed by 3M, is based on colorfast red microbeads suspended in a carrier liquid, and contains no dyes, detergents, or sugar syrup, and will not cause staining or damage to existing dyes. ^ a b @3M (May 31, 2019). "Hi there - Thank you for reaching out! Unfortunately, Nextel simulated blood has pulled a permanent vanishing act. We're sorry to disappoint; hope there's no bad blood between us" (Tweet). Retrieved September 15, 2020 - via Twitter. ^ Savini, Tom (1983). Grande Illusions: A Learn-By-Example Guide to the Art and Technique of Special Make-Up Effects from the Films of Tom Savini. Imagine, Inc. p. 43. ISBN 0-911137-00-9. ^ "1978 3M Digital Audio Mastering System Into 2007 TECnology Hall of Fame". Mixonline.com. September 1, 2007. Archived from the original on March 13, 2012. Retrieved March 29, 2012. ^ a b Fry, Art; Silver, Spencer. "First Person: 'We invented the Post-It Note'". FT Magazine. Retrieved December 20, 2010. ^ "TV News Headlines - Yahoo TV". Yahoo TV. ^ a b Stelter, Brian (December 24, 2010). "Right on the \$800,000 Question, They Lost Anyway". The New York Times. Retrieved September 21, 2015. ^ Szycher, Michael

(September 4, 2018). Szycher's Practical Handbook of Entrepreneurship and Innovation. CRC Press. ISBN 978-1-351-73636-7. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note". 3M. Retrieved February 13, 2010. "The Evolution of the Post-it Note" Retrieved March 20, 2020. ^ "3M raises 1Q estimates". CNN Money. April 4, 2002. Archived from the original on June 12, 2002. Archived from the original on June 12, 2002. Retrieved March 29, 2012. ^ Sayer, Peter (August 30, 2010). "3M Offers \$943M for Biometric Security Vendor Cogent Systems". PC World. Retrieved February 16, 2013. ^ "3M Completes Acquisition of Arizant Inc". 3M. Archived from the original on March 9, 2014. Retrieved October 15, 2010. ^ DePass, Dee (October 17, 2015). "3M sells its \$100 million library systems business to One Equity". Minnesota Star Tribune. Retrieved December 1, 2024. ^ Albanese, Andrew (October 6, 2015). "3M Sells Library Business to Bibliotheca; ProQuest Buys Ex Libris". Publishers Weekly. Retrieved December 1, 2024. ^ "Fortune 500 2011: Fortune 500 \$550M". Minnesota Public Radio News. January 3, 2012. Retrieved March 29, 2012. ^ Robinson, Will (September 5, 2012). "3M to sell two fly-fishing businesses to Orvis". StarTribune. Minneapolis. ^ "3M to buy Johnson Controls' safety gear business for \$2 billion". Reuters. March 16, 2017. ^ "Why Is 3M Company (MMM) Down 6.1% Since its Last Earnings Report?". Yahoo. February 26, 2018. ^ "3M will pay \$850 million in Minnesota to end water pollution case". CNN February 21, 2018. ^ "3M COMPANY (NYSE:MMM) Files An 8-K Departure of Directors or Certain Officers". Market Exclusive.com. May 25, 2018. A "3M to Acquire M*Modal's Technology Business". businesswire.com. December 19, 2018. Retrieved October 28, 2019. ^ "3M Completes Sale of Substantially All of Its Drug Delivery Business". investors.3m.com. Retrieved April 26, 2022. ^ a b Nair, Aishwarya (December 14, 2021). "UPDATE 2-3M to combine foodsafety business with Neogen". Reuters. ^ Beene, Ryan; Larkin, Catherine (July 26, 2022). "3M Plans to Spin Off Health-Care Business by End of Next Year". Bloomberg.com. Retrieved July 26, 2022. ^ Stebbins, Jack (July 26, 2022). "3M Plans to Spin Off Health-Care Business by End of Next Year". Bloomberg.com. Retrieved July 26, 2022. ^ Stebbins, Jack (July 26, 2022). "3M Plans to Spin Off Health-Care Business by End of Next Year". Bloomberg.com. Retrieved July 26, 2022. ^ Stebbins, Jack (July 26, 2022). "3M Plans to Spin Off Health-Care Business by End of Next Year". Bloomberg.com. Retrieved July 26, 2022. ^ Stebbins, Jack (July 26, 2022). "3M Plans to Spin Off Health-Care Business by End of Next Year". Bloomberg.com. Retrieved July 26, 2022. ^ Stebbins, Jack (July 26, 2022). "3M Plans to Spin Off Health-Care Business by End of Next Year". Bloomberg.com. Retrieved July 26, 2022. ^ Stebbins, Jack (July 26, 2022). "3M Plans to Spin Off Health-Care Business by End of Next Year". Bloomberg.com. Retrieved July 26, 2022. ^ Stebbins, Jack (July 26, 2022). "3M Plans to Spin Off Health-Care Business by End of Next Year". Bloomberg.com. Retrieved July 26, 2022. ^ Stebbins, Jack (July 26, 2022). "3M Plans to Spin Off Health-Care Business by End of Next Year". Bloomberg.com. Retrieved July 26, 2022. ^ Stebbins, Jack (July 26, 2022). "3M Plans to Spin Off Health-Care Business by End of Next Year". Bloomberg.com. Retrieved July 26, 2022. ^ Stebbins, Jack (July 26, 2022). ^ Stebbins, Jack (July "3M will spin off its health-care business into a new public company". CNBC. Retrieved July 26, 2022. ^ Johnson, Brooks (February 21, 2024). "3M's health care spinoff becomes Minnesota's newest public company on April 1". Star Tribune. Retrieved March 6, 2024. ^ Nouvelle, L'Usine (December 20, 2022). "3M va cesser de produire des substances chimiques PFAS d'ici 2025". L'Usine Nouvelle. ^ "3M manufacturing giant to stop making 'forever chemicals'". BBC News. December 20, 2022. Retrieved December 20, 2022. Retrieved December 20, 2022. Retrieved February 8, 2024. ^ "3M Faces Dutch Claim Over 'Forever chemicals'". Chemicals' Pollution". Bloomberg.com. December 21, 2022. ^ Bond, David (October 24, 2021). "Lethal 'forever chemicals' taint our food, water and even blood. The EPA is stalling | David Bond". the Guardian. Retrieved December 21, 2022. ^ Agarwal, Ananta (March 12, 2024). "3M hires outsider Bill Brown as CEO, shares jump". Retrieved June 3, 2024. ^ Hufford, Austen (April 11, 2019). "3M Sticks Together, as Rivals Break Apart". The Wall Street Journal. Retrieved January 21, 2020. But St. Paul, Minn.,-based 3M continues adding to its stable of 60,000 products and increasing its research budget... ^ "3M to restructure business into four units". CNBC. March 18, 2019. Retrieved May 11, 2020. ^ Alexander, Steve (May 9, 2014). "3M, the corporate inventor, surpasses 100,000 patents worldwide". Star Tribune. Retrieved January 21, 2020. ^ "Target Lights Create Evolving Minneapolis/St. Paul Business Journal. April 11, 2003. ^ Holusha, John (February 3, 1991). "Hutchinson No Longer Holds Its Nose". The New York Times. Retrieved January 8, 2020. ^ User, Patrick (January 23, 1993). "Going 'Green' and the Bottom Line". The Washington Post. Retrieved January 8, 2020. ^ User, Patrick (January 23, 1993). "Going 'Green' and the Bottom Line". The Washington Post. Retrieved January 8, 2020. ^ User, Patrick (January 23, 1993). "Going 'Green' and the Bottom Line". The Washington Post. Retrieved January 8, 2020. ^ User, Patrick (January 8, 2020. ^ User, Patric "3M's Sustainability Innovation Machine". Harvard Business Review. Retrieved January 8, 2020. ^ Ullah, Aziz (October 2006). "The Fluorochemical Dilemma: What the PFOS/PFOA Fuss Is All About" (PDF). Cleaning & Restoration. Retrieved October 25, 2008. ^ "What are PFCs and How Do They Relate to Per- and Polyfluoroalkyl Substances (PFASs)?". United States Environmental Protection Agency. Retrieved July 13, 2020. ^ "PFOS-PFOA Information: What is 3M Doing?". 3M. Archived from the original on September 22, 2008. A b Fellner, Carrie (June 16, 2018). "Toxic Secrets: Professor 'bragged about burying bad science' on 3M chemicals". Sydney Morning Herald. Retrieved June 25, 2018. ^ a b "Perfluorochemicals and the 3M Cottage Grove Facility". Minnesota Dept. of Health. December 15, 2012. A "Health Consultation: 3M Chemolite: Perfluorochemicals Releases at the 3M - Cottage Grove Facility Minnesota Department of Health, Jan. 2005" (PDF). Archived from the original (PDF) on August 8, 2016. Retrieved March 29, 2012. ^ "Perfluoroalkyl Substances (PFAS) Sites in Minnesota". StarTribune. Minnesota". January 13, 2014. Retrieved May 20, 2015. ^ "Sustainability at 3M". 3M. Retrieved March 29, 2012. ^ "3M Forms Renewable Energy Division". Renewable Energy World.com. February 4, 2009. Retrieved March 29, 2012. ^ "Minnesota sues 3M over pollution claims". Reuters. December 30, 2010. ^ Dunbar, Elzabeth; Marohn, Kirsti (February 20, 2018). "Minnesota settles water pollution suit against 3M for \$850 million". MPR News. Retrieved February 20, 2018. > Fellner, Carrie (June 15, 2018). "Toxic Secrets: The town that 3M built - where kids are dying of cancer". Sydney Morning Herald. Retrieved June 25, 2018. > Holden, Emily (September 11, 2019). "Companies deny responsibility for toxic 'forever chemicals' contamination". The Guardian. ISSN 0261-3077. Retrieved October 10, 2019. ^ van den Buijs, Dennis. "Schepen leefmilieu Zwijndrecht: "Verbod op het eten van eieren van eie guidelines to mitigate health risks for people living near Antwerp factory". The Brussels Times. June 15, 2021. ^ van den Buijs, Dennis (June 15, 2021). "Burgeractivist in PFOS-dossier Thomas Goorden: "3M chanteerde Vlaamse regering met vertrek in 2017"" [Civilian activist in PFOS file Thomas Goorden: "3M blackmailed the Flemish government with departure in 2017"]. VRT (in Dutch). ^ "Lantis mag 3M niet meer aansprakelijk stellen voor PFOS-vervuiling". De Standaard (in Flemish). Retrieved October 24, 2022. ^ a b "3M's Sustainability Report for 2020Q4" (PDF). Archived from the original (PDF) on July 20, 2021. Alt URL ^ "3M's Sustainability Report for 2020Q4" (PDF). Archived from the original
(PDF) on July 20, 2021. Alt URL ^ "3M to Invest \$1 Billion to Achieve Carbon Neutrality, Reduce Water Use, and Improve Water Quality". 3M News Center. February 16, 2021. ^ "3M's Sustainability Report for 2019Q4" (PDF). Archived from the original (PDF) on September 27, 2020. Alt URL ^ "3M's Sustainability Report for 2020Q4" (PDF). Archived from the original (PDF) on July 20, 2021. Alt URL ^ "3M's Sustainability Report for 2020Q4" (PDF). Archived from the original (PDF) on July 20, 2021. Alt URL ^ "3M's Sustainability Report for 2020Q4" (PDF). Archived from the original (PDF) on July 20, 2021. Alt URL ^ "3M's Sustainability Report for 2020Q4" (PDF). the original (PDF) on July 20, 2021. Alt URL ^ "3M's Sustainability Report for 2020Q4" (PDF). Archived from the original (PDF) on July 20, 2021. Alt URL ^ "3M's Sustainability Report for 2020Q4" (PDF). Archived from the original (PDF) on July 20, 2021. Alt URL ^ "3M's Sustainability Report for 2020Q4" (PDF). Earplug Mass Lawsuit". Bloomberg Government. Retrieved April 20, 2020. ^ "3M to Acquire Aearo Technologies Inc., Global Leader in Personal Protection Equipment". 3M News | United States. Archived from the original on May 19, 2017. Retrieved April 20, 2020. ^ "Contractor settles for \$9.1 million after providing defective earplugs for servicemembers". Stars and Stripes. Archived from the original on July 24, 2020. A "3M Company Agrees to Pay \$9.1 Million to Resolve Allegations That it Supplied the United States With Defective Dual-Ended Combat Arms Earplugs". Justice.gov. July 26, 2018. Retrieved April 20, 2020. Retrieved April 20, 2020. Retrieved April 20, 2020. weighing lawsuit claiming 3M earplugs damaged veterans' hearing". Pensacola News Journal. Retrieved April 20, 2020. ^ "3M billed government \$7.63 for 85-cent earplugs. It now has \$1 billion COVID contract". McClatchy. 2020. ^ Pierson, Brendan (August 28, 2023). "3M agrees to pay \$6 bln to settle lawsuits over US military earplugs". Reuters. a b Wilson, Mark (March 24, 2020). "The untold origin story of the N95 mask". Fast Company. Retrieved April 4, 2020. ^ "Trump 'Wants to Stop Mask Exports to Canada'". BBC News. April 3, 2020. Retrieved April 4, 2020. ^ a b "3M will import masks from China for U.S. to resolve dispute with the Trump administration". The New York Times. April 6, 2020. ^ "3M to make critical N95 masks at Brockville, Ont., plant". CBC News. August 20, 2020. Retrieved June 4, 2018. DePass, Dee (March 11, 2016). "3M Co. opens new \$150 million R&D lab in Maplewood". StarTribune. Minneapolis. Retrieved December 4, 2017. ^ "Cynthiana, Kentucky Plant". 3M. Retrieved April 14, 2020. ^ Marcus, Alfred A.; Geffen, Donald A.; Sexton, Ken (September 30, 2010). Reinventing Environmental Regulation: Lessons from Project XL. Routledge. ISBN 978-1-136-52598-8. Retrieved March 30, 2020. ^ a b Cable, Josh (July 12, 2011). "3M Completes Expansion in Asia". IndustryWeek. Retrieved March 30, 2020. ^ Malone, Scott (September 27, 2007). "3M to lay off 240 workers at Missouri facility". Reuters. Retrieved March 30, 2020. ^ Currier, Joel; Ryan, Erin (July 18, 2008). "3M announces record layoffs". Columbia Missouri facility". Reuters. Retrieved March 30, 2020. ^ Currier, Joel; Ryan, Erin (July 18, 2008). "3M to lay off 240 workers at Missouri facility". Reuters. Retrieved March 30, 2020. ^ Currier, Joel; Ryan, Erin (July 18, 2008). "3M to lay off 240 workers at Missouri facility". Reuters. Retrieved March 30, 2020. ^ Currier, Joel; Ryan, Erin (July 18, 2008). "3M to lay off 240 workers at Missouri facility". Lauzon, Michael (March 28, 2013). "3M may expand solar films plant in Missouri". Plastics News. Retrieved April 18, 2020. Allen, Brian (December 5, 2017). "3M, Walmart mark economic successes in Brookings". KSFY-TV Retrieved March 30, 2020. ^ Schwan, Jodi (October 2, 2014). "3M stokes boom in Brookings with \$70M deal". Argus Leader. Retrieved March 30, 2020. ^ Dennis, Tom (August 1, 2018). "Makers: Manufacturing matters, and these three standout regional companies show why". Prairie Business. Retrieved April 17, 2020. ^ Sneve, Sioux Falls Argus Leader, Joe (February 28, 2020). "Coronavirus has Sioux Falls stores struggling to keep respiratory masks stocked". Argus Leader. Retrieved April 17, 2020. ^ "3M receives state aid for expansion official". Springfield expansion official". Springfield News-Leader. Retrieved April 17, 2020. ^ "3M receives state aid for expansion official". of Ames plant". Ames Tribune. January 18, 2013. Archived from the original on July 24, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County businesses". Ames Tribune. September 21, 2018. Archived from the original on May 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County Bay 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County Bay 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County Bay 18, 2021. Retrieved March 30, 2020. ^ "State awards aid to Story County Bay 18 bring 30 jobs". Journal-Express. Archived from the original on May 16, 2020. Retrieved March 30, 2020. ^ a b "3M to spend \$135m to expand Tuas plant". The Straits Times. July 26, 2018. Retrieved October 28, 2019. ^ Tan, Elyssa (June 28, 2018). "3M opens new headquarters in Singapore". Business Times. Retrieved October 28, 2019. ^ a b "3M to double China manufacturing capacity in five years". MarketWatch. Dow Jones & Company. October 28, 2019. ^ Xin, Zheng (September 21, 2018). "3M to invest in safety, healthcare sector". China Daily. Retrieved October 28, 2019. ^ WarketWatch. Dow Jones & Company. Company. Company. Dow Jones & Company. Company. Dow Jones & Company. Dow February 7, 2007. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China
Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retrieved October 28, 2019. ^ Uluy 20, 2007). "3M starts new plant in GZ". China Daily. Retr Tribune. Retrieved October 28, 2019. ^ "3M opens design center in Shanghai". China Internet Information Center. March 13, 2019. A Cummings, Judith (March 5, 1978). "William L. McKnight, Who Built A Sandpaper Company Into 3M". The New York Times. Retrieved August 28, 2019. A Cummings, Judith (March 5, 1978). "William L. McKnight, Who Built A Sandpaper Company Into 3M". The New York Times. Retrieved August 28, 2019. board of 3M in 1966, but had continued to serve on the board and received the title of director emeritus in 1973. ^ a b Lukas, Paul; Overfelt, Maggie (April 1, 2003). "3M A Mining Company Built on a Mistake Stick It Out Until a Young Man Came Along with Ideas About How to Tape Those Blunders Together as Innovations--Leading to Decades of Growth". CNN Money. Retrieved August 28, 2019. When he became general manager in 1914, 3M was a \$264,000 company; by the time he was made president in 1929, annual revenues were \$5.5 million; in 1943, 3M generated \$47.2 million, and by the time of McKnight's retirement as chairman in 1966, he had grown 3M into a \$1.15 billion operation. ^ a b "Heltzer and Herzog Move to Top at 3M". Commercial West. 140: 17. August 22, 1970. Retrieved August 28, 2019. ^ Berry, John F.; Jones, William H. (May 18, 1977). "Boxes of SEC Documents Reveal Secret Dealings". The Washington Post. Retrieved August 28, 2019. ^ a b Martin, Douglas (September 28, 2005). "Harry Heltzer, 94, Inventor of Reflective Signs, Dies". The New York Times. Retrieved August 28, 2019. Nearly a third of that increase came after he rose from president to chairman and chief executive in October 1970. ^ "3M Says Reputation Is Still Strong One". The New York Times. May 14, 1975. Retrieved August 28, 2019. Mr. Herzog was elected chairman at a board meeting after the stockholder session, succeeding Harry Heltzer. Mr. Herzog will continue as president and chief executive officer. ^ a b Schmitt, Eric (February 11, 1986). "Business People; 2 Top 3M Posts Go to Domestic Head". The New York Times. Retrieved August 28, 2019. The Minnesota Mining and Manufacturing Company announced yesterday that Allen F. Jacobson, president of the concern's domestic operations, had been named chairman and chief executive, effective March 1. ^ a b Hagerty, James R. (January 18, 2017). "Livio DeSimone, a Former 3M CEO, Dies at 80". The Wall Street Journal. Retrieved August 28, 2019. He served as chairman and CEO from 1991 to 2001. ^ a b Lublin, Joann; Murray, Matthew; Hallinan, Joe (December 5, 2000). "General Electric's McNerney Will Become 3M Chairman". The Wall Street Journal. Retrieved August 28, 2019. And yesterday, 3M named George W. Buckley, the low-profile leader of the Brunswick Corporation, as its new chairman and chief executive. ^ a b "3M CEO Buckley to retire; Thulin to succeed him". Reuters. February 8, 2012. Retrieved August 28, 2019. ^ a b c "3M appoints Michael Roman as CEO; Inge Thulin will take new position as executive chairman of the board". CNBC. March 5, 2018. Retrieved August 28, 2019. Thulin has served as 3M's chairman of the board, president and chief executive officer since 2012. ^ Ruvo, Christopher (February 7, 2019). "Thulin To Retire As 3M Chairman". Advertising Specialty Institute. Retrieved August 29, 2019. ^ a b Jensen, Michael C. (March 9, 1975). "How 3M Got Tangled Up in Politics". The New York Times. Retrieved August 28, 2019. Bert S. Cross, who was chairman and chief executive of 3M from 1966 to 1970, and a board member thereafter, will not seek re-election to the board where he serves as chairman of the finance committee. ^ a b "Herzog Shifts His Role at 3M". The New York Times. February 13, 1979. Retrieved August 28, 2019. ^ Eccher, Marino (August 3, 2016). "For former 3M CEO Lew Lehr, mistakes were stepping stones". St. Paul Pioneer Press. Retrieved August 28, 2019. Lehr was chief executive of 3M from 1979 to 1986. ^ Schmeltzer, John (July 1, 2005). "Quaker Oats ex-chief takes control at 3M". Chicago Tribune. Retrieved August 28, 2019. Lehr was chief executive of 3M from 1979 to 1986. ^ Schmeltzer, John (July 1, 2005). "Quaker Oats ex-chief takes control at 3M". Chicago Tribune. Retrieved August 28, 2019. Lehr was chief executive of 3M from 1979 to 1986. ^ Schmeltzer, John (July 1, 2005). "Quaker Oats ex-chief takes control at 3M". Chicago Tribune. Retrieved August 28, 2019. Lehr was chief executive of 3M from 1979 to 1986. ^ Schmeltzer, John (July 1, 2005). "Quaker Oats ex-chief takes control at 3M". Chicago Tribune. Retrieved August 28, 2019. Lehr was chief executive of 3M from 1979 to 1986. ^ Schmeltzer, John (July 1, 2005). "Quaker Oats ex-chief takes control at 3M". Chicago Tribune. Retrieved August 28, 2019. Lehr was chief executive of 3M from 1979 to 1986. ^ Schmeltzer, John (July 1, 2005). "Quaker Oats ex-chief takes control at 3M". Chicago Tribune. Retrieved August 28, 2019. Lehr was chief executive of 3M from 1979 to 1986. ^ Schmeltzer, John (July 1, 2005). "Quaker Oats ex-chief takes control at 3M". Chicago Tribune. Retrieved August 28, 2019. Lehr was chief executive of 3M from 1979 to 1986. ^ Schmeltzer, John (July 1, 2005). "Quaker Oats ex-chief takes control at 3M". Chicago Tribune. Retrieved August 28, 2019. Lehr was chief executive of 3M from 1979 to 1986. ^ Schmeltzer, John (July 1, 2005). "Quaker Oats ex-chief takes control at 3M". Chicago Tribune. Retrieved August 28, 2019. Lehr was chief executive of 3M from 1979. Lehr was chief executive of 3M from 3M fr 2019. ^ Bustin, Greg (2019). How Leaders Decide: A Timeless Guide to Making Tough Choices. Naperville, Illinois: Sourcebooks. p. 41. ISBN 978-1-4926-6759-9. Retrieved August 28, 2019. At the May 1905 annual meeting, Over was named 3M's new president. Apart from one three-year break, Over served as president until 1929—the first eleven years without compensation. ^ Byrne, Harlan S. (July 3, 2000). "A Changed Giant". The Wall Street Journal. Retrieved August 28, 2019. The patient approach may have originated with W. L. McKnight, a legendary CEO who joined the company in 1907 and became president in 1929. ^ Betz, Frederick (2011). 3M Diversifies Through Innovation Hoboken, New Jersey: John Wiley & Sons. p. 154. ISBN 978-0-470-92757-1. Retrieved August 28, 2019. The award was named after Richard Carlton, president of 3-M from 1953 to 1963 and retired from its board in 1968. ^ "3M Names Heltzer President and Cross as New Chairman; 2 High Positions Are Filled by 3M". The New York Times. August 11, 1966. Retrieved August 28, 2019. ^ "Raymond Herzog, Helped Start 3M Copier Business". Sun-Sentinel. July 23, 1997. Retrieved August 28, 2019. A "Raymond Herzog, Helped Start 3M Copier Business". 1975, when he became chairman and chief executive. ^ a b Sloane, Leonard (August 17, 1981). "Business People". The New York Times. Retrieved August 28, 2019. Ar. Jacobson... fills a post that has been chairman and chief executive. ^ a b Sloane, Leonard (August 28, 2019. Mr. Jacobson... fills a post that has been chairman and chief executive. ^ a b Sloane, Leonard (August 28, 2019. Mr. Jacobson... fills a post that has been chairman and chief executive. vacant since the end of 1981, when John Pitblado retired. ^ Dash, Eric (December 7, 2005). "3M Names Chief, Ending 5-Month Search". The New York Times. Retrieved August 28, 2019. ^ Lerner, Sharon. "How 3M Discovered, Then Concealed, the Dangers of Forever Chemicals". New Yorker Magazine. Retrieved May 21, 2024. Wikimedia Commons has media related to 3M. Official website Business data for 3M Company: GoogleReutersSEC filingsYahoo! 3M on OpenSecrets, a website that tracks and publishes data on campaign finance and lobbying Historical records of the 3M Company are available for research use at the Minnesota Historical Society Retrieved from " 3 The following pages link to 3M External tools (link count transclusion count sorted list) · See help page for transcluding these entries Showing 50 items. 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Do AMD motherboards support Intel processors. In this blog post, we will explore the compatibility of AMD motherboards with Intel processors and provide some insights into what you can expect if you decide to use an AMD motherboard is typically compatible with both Intel and AMD processors, allowing you to easily install an Intel CPU and use it with your AMD motherboard. However, it's important to note that while AMD motherboards can support Intel processors. In addition, some features or compatibility issues may arise depending on the specific AMD motherboard and Intel processor combination you are using. To ensure optimal performance and compatibility, it's always a good idea to check the specifications of your AMD motherboard manufacturer's always a good idea to check the specifications of your AMD motherboard and Intel processor combination you are using. website or technical support for more information about the compatibility and support for your specific configuration. Overall, AMD motherboards offer a great solution for users who want to install an Intel processor on their system. Whether you're building a new computer or upgrading your existing system, an AMD motherboard can be a great choice if you want to take advantage of the performance and features offered by Intel processors, 1. Increased performance; AMD motherboards, especially when paired with an Intel processors, 2. Better value for money; AMD motherboards, making of the performance and features offered by Intel processors, 2. Better value for money; AMD motherboards, making of the performance and features offered by Intel processors, 2. Better value for money; AMD motherboards, making of the performance and features offered by Intel processors, 2. Better value for money; AMD motherboards, making of the performance and features offered by Intel processors, 2. Better value for money; AMD motherboards, making of the performance and features offered by Intel processors, 2. 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Better value for money; AMD motherboards, making of the performance and features offered by Intel performance and features offered them a good option for those looking to save money on their build. 3. More features: AMD motherboards, such as more USB ports, more RAM slots, and more overclocking options. 4. Compatibility: AMD motherboards, so they're a good option for those who want to use multiple processors in their build. 5. Future-proofing: AMD motherboards, so they're a good option for those who want to build a future-proof system. An AMD motherboards, so they're a good option for those who want to build a future-proof system. are some potential drawbacks to consider. Compatibility Issues: The motherboard and processors need to work together seamlessly, and not all motherboards are compatibility issues; The motherboard and processors. work together to achieve optimal performance. When they're not compatible, you may experience performance issues, such as slower processing speeds or decreased graphics capabilities. Limited Features: AMD motherboards often have more features than Intel motherboards, such as more USB ports, better more advanced overclocking capabilities. If you're using an Intel processor with an AMD motherboard, you may miss out on some of these features. Compatibility with Existing Components: If you're building a computer from scratch, it may not be an issue, but if you're building a computer from scratch, it may not be an issue with your existing components. For example, some motherboards only support certain generations of processors, so you may not be able to use your existing RAM or graphics card. Limited Upgrade in the future. For example, you may not be able to upgrade to a newer AMD processor, or you may not be able to use certain Intel-specific features. So, if you're considering using an AMD motherboard with an Intel processor, it's important to weigh the pros and cons carefully. In some cases, it may be a better option to stick with a motherboard and processor from the same manufacturer. Yes, it is possible for an Intel processor to be used on an AMD motherboard must have the appropriate socket and chipset to support the Intel processor. Additionally, the BIOS must be compatible with the Intel processor in order for the system to boot and operate properly. AMD and Intel are competitors in the computer processor market, but they have different architectures and designs. As a result, AMD motherboards have dual CPU sockets, which means they can accept either an AMD or an Intel processor. Additionally, some older motherboards may support both AMD and Intel processors, but this option is becoming less common as technology advances. In general, if you want to use an AMD motherboard, you will need to use an AMD processor, and if you want to use an Intel processor. Using an AMD motherboard with an AMD processor, and if you want to use an Intel processor. specifically designed to work with AMD processors, and they offer better compatibility and performance. On the other hand, using an AMD motherboard with an Intel processor can be a good option if you want to save money or if you can't find an AMD motherboard with an Intel processor may result in slightly lower performance compared to using an AMD motherboard with an AMD processor. Ultimately, the choice between using an AMD motherboard with an AMD processor will depend on your specific needs and budget. In conclusion, while AMD motherboards do not support Intel processors by default, there are workarounds and hacks that allow users to install an Intel processor on an otherwise AMD motherboard. It's important to keep in mind that these workarounds may be unsupported and could potentially damage your hardware, so proceed at your own risk. It's also worth considering that compatibility is just one factor to consider when choosing a motherboard and processor. Other factors such as performance, features, and price should also be taken into account when making your decision. All-inclusive solutions for 4K Blu-ray, 2D/3D Blu-ray, DVD, up to 4K video, picture, audio, etc. Solve format incompatible issues between these media files with ease. Power your home theatre system and get cinema-like HD movie experience at home.
Show How it Works Leading or presiding officer of an organized group "Chairman of the Board" redirects here. For other uses, see Chairman of the Board" redirects here. Salvador, chairing the OPCW's Fourth Review Conference, November 2018 The chair, also chairman, or chairperson, is the presiding officer of an organized group such as a board, committee, or deliberative assembly. The person holding the office, who is typically elected or appointed by members of the group or organisation, presides over meetings of the group, and is required to conduct the group's business in an orderly fashion.[1] In some organizations, the chair is also known as president (or other title). [2][3] In others, where a board appoints a president (or other title). [2][3] In others, where a board appoints a president (or other title). directly implying the gender of the holder. In meetings or conferences, to "chairing) means to lead the event.[4] Look up chair, chairman, chairperson, or preside in Wiktionary, the free dictionary. Terms for the office and its holder include chair, chairman, chairperson, convenor, facilitator, moderator president, and presiding officer.[5][6][7][8][9] The chair of a parliamentary chamber is sometimes called the speaker.[10][11] Chair has been used to refer to a seat or office of authority since the middle of the 17th century; its earliest citation in the Oxford English Dictionary dates to 1658-1659, four years after the first citation for chairman.[12][13] [14] Feminist critiques have analysed Chairman as a possible example of sexist language, associating the male gender with the exercise of authority, this has led to some use of the generic "Chairperson".[15] In World Schools Style debating, as of 2009, chair or chairman refers to the person who controls the debate; it recommends using Madame Chair or Mr. Chairman to address the chair.[16] The FranklinCovey Style Guide for Business and Technical Communication and the American Psychological Association style (2000) suggested that the gender-neutral forms were gaining ground; it advocated chair for both men and women.[19] The Daily Telegraph's style guide bans the use of chair person; the newspaper's position, as of 2018, is that "chairman is correct English".[20] The National Association of Parliamentarians adopted a resolution in 1975 discouraging the use of chair person; the newspaper's position, as of 2018, is that "chairman is correct English".[20] The National Association of Parliamentarians adopted a resolution in 1975 discouraging the use of chairperson; the newspaper's position, as of 2018, is that "chairman is correct English".[20] The National Association of Parliamentarians adopted a resolution in 1975 discouraging the use of chairperson; the newspaper's position, as of 2018, is that "chairman is correct English".[20] The National Association of Parliamentarians adopted a resolution in 1975 discouraging the use of chairperson; the newspaper's position, as of 2018, is that "chairman is correct English".[20] The National Association of Parliamentarians adopted a resolution in 1975 discouraging the use of chairperson; the newspaper's position, as of 2018, is that "chairman is correct English".[20] The National Association of Parliamentarians adopted a resolution in 1975 discouraging the use of chairperson; the newspaper's position, as of 2018, is that "chairman is correct English".[20] The National Association of Parliamentarians adopted a resolution in 1975 discouraging the use of chairperson; the newspaper's position, as of 2018, is that "chairman is correct English".[20] The National Association of Parliamentarians adopted a resolution in 1975 discouraging the use of chairperson; the newspaper's position, as of 2018, is that "chairman is correct English".[20] The National Association of Parliamentarians adopted a resolution in 1975 discouraging the use of chairman is correct English".[20] The National Association of Parliamentarians adopted a resolution in 1975 discouraging the use of chairman is correct English".[20] The National Association of Parliamentarians adopted a r Ambassador Leena Al-Hadid of Jordan chairs a meeting of the International Atomic Energy Agency, 2018.[23] The word chair can refer to the place from which the holder of the office presides, whether on a chair, at a lectern, or elsewhere.[1] During meetings, the person presiding is said to be "in the chair" and is also referred to as "the chair".[1] Parliamentary procedure requires that members address the "chair" as "Mr. (or Madam) Chairman (or Chair or Chairperson)" rather than using a name - one of many customs intended to maintain the presiding officer's impartiality and to ensure an objective and impersonal approach.[7][24] In the British music hall tradition, the chairman was the master of ceremonies who announced the performances and was responsible for controlling any rowdy elements in the audience. The role was popularised on British TV in the 1960s and 1970s by Leonard Sachs, the chairman on the variety show The Good Old Days.[25] "Chairman" as a quasi-title gained particular resonance when socialist states from 1917 onwards shunned more traditional leadership labels and stressed the collective control of Soviets (councils or committee". Lenin, for example, officially functioned as the head of Soviet Russian government not as prime minister or as president, but as "Chairman of the Council of People's Commissars". [26][27] At the same time, the head of the state was first called "Chairman of the Presidium of the Supreme Soviet". In Communist China, Mao Zedong was commonly called "Chairman Mao", as he was officially Chairman of the Chinese Communist Party and Chairman of the Central Military Commission. Sam Ervin (right), chairman of the United States Senate Watergate Committee, 1973 In addition to the administrative or executive duties in organizations, the chair presides over meetings. [28] Such duties at meetings include: Calling the meeting to order Determining if a quorum is present Announcing the items on the "order of business", or agenda, as they come up Recognition of members to have the floor Enforcing the rules of the group Putting questions (motions) to a vote, which is the usual way of resolving discussion of the issues Adjourning the meeting While presiding the chair should remain impartial and not interrupt a speaker if the speaker has the floor and is following the rules of the group.[29] In committees or small boards, the chair only has one vote (i.e. the chair cannot vote twice and cannot override the decision of the group unless the organizations. In some organizations to a board of directors, or may have no executive powers, in which case they are mainly a spokesperson for the organization. The power given depends upon the type of organization, its structure, and the rules it has created for itself. If the chair exceeds their authority, engages in misconduct, or fails to perform their duties, they may face disciplinary procedures Such procedures may include censure, suspension, or removal from office. The rules of the organization would provide details on who can perform these disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed or elected the chair has the power to disciplinary procedures.[32] Usually, whoever appointed the power to disciplinary procedures.[32] Usually, who officer (CEO) may also hold the title of chair, in which case the board frequently names an independent member of the board as a lead independent director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of
président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[33] This position is equivalent to the position of président-director.[34] This position is equivalent to the position of président-director.[35] This position is equivalent to the position of président-director.[35] This position is equivalent to the position of président-director.[35] This position is equivalent to the position of président-director.[35] This position is equivalent to the position of président-director.[36] This position is equivalent to the position of président-director.[36] This position is equivalent to the position of président to the position of pré influence over company operations, such as Larry Ellison of Oracle, Douglas Flint of HSBC and Steve Case of AOL Time Warner. In particular, the group chair of HSBC is considered the top position of that institution, outranking the chief executive, and is responsible for leading the board and representing the company in meetings with government figures. Before the creation of the group management board in 2006, HSBC's chair essentially held the duties of a chief executive at an equivalent institution, while HSBC's chair essentially held the business through compliance and audit and the direction of the business.[34][35][36] Non-executive chair is also a separate post from the CEO; unlike an executive chair is also a separate post from the CEO; governance. The non-executive chair's duties are typically limited to matters directly related to the board, such as igorda and evaluating the performance of the CEO and the other board members. Christina Magnuson as chairman,[38] presides over the 2016 annual meeting of the Friends of the Ulriksdal Palace Theater. Many companies in the US have an executive chair; this method of organization is sometimes called the American model. Expert opinion is rather evenly divided over which is the preferable model.[39] There is a growing push by public market investors for companies with an executive chair to have a lead independent director to provide some element of an independent perspective.[40][41] The role of the chair in a private equity-backed board differs from the role in non-profit or publicly listed organizations in several ways, including the pay, role and what makes an effective private-equity chair. [43] HSBC, [44] Alphabet Inc., [45] and HP. [46] A vice- or deputy chair, subordinate to the chair, is sometimes chosen to assist and to serve as chair in the latter's absence, or when a motion involving the chair is being discussed.[47] In the absence of the chair and vice-chair, groups sometimes elect a chair pro tempore to fill the role for a single meeting.[48] In some organizations that have both titles, deputy chair ranks higher than vice-chair, as there are often multiple vice-chairs but only a single deputy chair.[49] This type of deputy chair title on its own usually has only an advisory role and not an operational one (such as Ted Turner at Time Warner).[50] An unrelated definition of vice- and deputy chairs describes an executive director Non-executive director Non-ex Parliamentary procedure in the corporate world President (corporate title) ^ a b c Robert, Henry M.; et al. (2011). Robert's Rules of Order Newly Revised (11th ed.). Philadelphia, PA: Da Capo Press. p. 22. ISBN 978-0-306-82020-5. ^ Robert 2011, p. 448 ^ Sturgis, Alice (2001). The Standard Code of Parliamentary Procedure (Fourth ed.). New York: McGraw-Hill. p. 163. ISBN 978-0-07-136513-0. ^ "Chairing". Cambridge Dictionary (Online ed.). Retrieved 22 January 2024. ^ Hellinger, Marlis, ed. (2001). Gender across languages: The Linguistic Representation of Women and Men (IMPACT: Studies in Language and Society). Amsterdam: Benjamins. p. 125. ISBN 90-272-1841-2. ^ "Chairperson". Merriam-Webster. Retrieved 2014-01-10. ^ a b Sturgis 2001, p. 11 ^ "moderator". Chambers 21st Century Dictionary via Search Chambers. Edinburgh: Chambers 21st Century Dictionary via Search Chambers 21st Century Dictionary via Search Chambers 21st Century Dictionary via Search Chambers 21st 1833 Act 3-4 Will. IV, c. 46 §43 "The convener, who shall preside at such committee, shall be entitled to a casting vote." This meaning is most commonly found in assemblies with Scottish heritage. ^ "The many roles of the Speaker". New Zealand. 2006-02-01. Archived from the original on 2019-05-09. Retrieved 2019-05-09. ^ "About Parliament: The Lord Speaker". Parliament of the United Kingdom. Archived from the original on 2008-06-09. Retrieved 2008-10-23. ... responsibilities of the Lord Speaker include chairing the Lord Speaker include chairing the Lord Speaker". Webster. 1993. p. 235. ISBN 0-87779-132-5. ^ "Chairman". Dictionary, the online edition of the current Merriam-Webster Dictionary, the online edition of the current Merriam-Webster Dictionary, the online edition of the current Merriam-Webster's Dictionary of English Usage (page 235) ^ *Margrit Eichler (28 October 2013). Nonsexist Research Methods: A Practical Guide. Routledge. p. 14. ISBN 978-1-134-97797-0. Typically, these analyses pointed out the use of so-called generic male terms with truly generic terms: policeman became police officer; fireman, mail carrier; workman, mail carrie . Much of the debate has centered around two types of change: the coining of new terms (such as Ms. to replace Miss/Mrs., and chairperson to replace he as the generic third person singular pronoun. Dale Spender (1990). Man Made Language. Pandora. pp. 29–30. ISBN 978-0-04-440766-9. Another factor which we must bear in mind is that women need more words - not less. The removal of sexist words would not leave a large repertoire of words for women to draw upon! ... Some attempts have been made to modify sexist words and there arc signs that this on its own is insufficient to reduce sexism in language. Words such as police officer and chairperson have been an attempt to break away from the negative value which female words acquire by the creation of sex-neutral terms "The language of gender". Oxford Living Dictionary. Oxford University Press. Archived from the original on 2019-05-10. Retrieved 2019-05-20. People also object to the use of the ending -man in words referring to professions and roles in society, for example postman, or chairman. Since women are generally as likely as men to be involved in an occupation or activity nowadays, this type of word is increasingly being replaced by gender-neutral terms, e.g. postal worker, spokesperson, or chair/chairperson "Chairman - More About". Oxford Learner's Dictionary. Oxford University Press. Archived from the original on May 30, 2017. Retrieved 2019-05-20. When you are writing or speaking English it is important to use language that includes both men and women equally. Some people may be very offended if you do not ... Neutral words like assistant, worker, person or officer are now often used instead of -man or -woman in the names of jobs ... Neutral words are very common in newspapers, on television and radio and in official writing, in both British English and North American English. "Chairman - Note". Cambridge University Press. Retrieved 2019-05-20. Although chairman can refer to a person of either sex, chairperson or chair is often preferred to avoid giving the idea the person is necessarily male. "Chairperson has, since the 1960s, come to be used widely as an alternative to either chairman or chairwoman. This change has sprung largely from a desire to avoid chairman, which is felt by many to be inappropriate and even sexually discriminatory when applied to a woman ... Chairperson is standard in all varieties of speech and writing. "Chairman (usage note)". Macmillan Dictionary. Springer. Retrieved 2019-05-20. Many people prefer to say chair or chairperson, because the word chairman suggests that
the person in this position is always a man. "Chairman (usage note)". The American Heritage Dictionary. Houghton Mifflin Harcourt. Retrieved 2019-05-20. These compounds sometimes generate controversy because they are considered sexist by some people who believe that -man necessarily excludes females. Others believe that -man, like the word man itself, is an accepted and efficient convention that is not meant to be gender-specific. "Chairman (usage note)". Collins English Dictionary. Retrieved 2019-05-20. Chairman can seem inappropriate when applied to a woman, while chairwoman can be offensive. Chairman (usage note)". woman; chair is generally preferred to chairperson Marshall Cavendish Corporation (2010). Sex and society Volume 1: Abstinence - Gender Identity. New York: Marshall Cavendish Reference. p. 300. ISBN 978-0-7614-7906-2. Zinsser, William (2007). On writing well : the classic guide to writing nonfiction (30. anniversary ed., 7. ed., rev. and updated [Nachdr.] ed.). New York: HarperCollins. p. 81. ISBN 978-0-06-089154-1. ^ Quinn, Simon (2009). Debating in the World Schools style: a guide. New York: International Debate Education. p. 5. ISBN 978-1-932716-55-9. ^ England, Breck; Covey, Stephen R.; Freeman, Larry H. (2012). FranklinCovey style guide for business and technical communication (5th ed.). Upper Saddle River, N.J.: FT Press. p. 27. ISBN 978-0-13-309039-0. ^ Gurung, Regan A. R.; Schwartz, Beth M.; Landrum, R. Eric (2012). An easyguide to APA style. Thousand Oaks, Calif.: SAGE Publications. p. 54. ISBN 978-1-4129-9124-7. ^ Garner, Bryan A. (2000). The Oxford dictionary of American usage and style (2 ed.) Oxford: Oxford University Press. p. 61. ISBN 0-19-513508-3. ^ "Banned words". The Telegraph. 23 January 2018. Archived from the original on 2022-01-10. ^ "Chair, Chairperson, Chairman ... Which Should You Use?". National Association of Parliamentarians. 6 October 2017. Archived from the original on 2019-02-21. Retrieved 2019-02-20. ^ Miller, Casey; Swift, Kate (2000). The Handbook of Nonsexist Writing: For writers, editors and speakers (2nd ed.). Lincoln, NE: iUniverse.com. p. 32. ISBN 0-595-15921-4. ^ Dixit, Aabha (24 September 2018). "Ambassador Leena Al-Hadid Takes Over as New Chairperson of IAEA Board of Governors". International Atomic Energy Agency. ^ Robert 2011, p. 23 ^ Baker, Richard Anthony (2014). British Music Hall: An Illustrated History. Barnsley: Pen & Sword. p. 207. ISBN 978-1-78383-118-0. ^ Cawthorne, Nigel (2012-07-24). Stalin: The Murderous Career of the Red Tsar. Arcturus Publishing (published 2012). ISBN 978-1-84858-951-3. Retrieved 2015-02-25. [...] Lenin, Stalin, Trotsky, Molotov and Abel Yenukidze [...] began discussing the structure of the new government. Lenin did not want to have 'ministers' as such, so Trotsky suggested that they should be the "Council of People's Commissars". The government itself would be the the 'council of People's Commissars' and its chairman would be prime minister, in effect. A Brackman, Roman (2004). The Secret File of Joseph Stalin: A Hidden Life. Routledge. p. 116. ISBN 978-1-135-75840-0. On 26 October 1917, Lenin announced the creation of the Council of People's Commissars, having rejected the traditional title of minister as being too "bourgeois", and named himself the "Chairman of the Council". ^ Robert 2011, p. 449 ^ Rober "The presiding officer must never interrupt a speaker simply because he knows more about the matter than the speaker does." ^ "Frequently Asked Questions about RONR (Question 1)". The Official Robert's Rules of Order Web Site. The Robert's Rules Association. Archived from the original on 2004-11-12. Retrieved 2015-12-17. ^ Robert 2011, p. 406 ^ "Frequently Asked Questions about RONR (Question 20)". The Official Robert's Rules of Order Web Site. The Robert's Rules Association. Archived from the original on 2004-11-12. Retrieved 2015-12-24. ^ Plouhinec, Marion (25 November 2018). "The Role of the Lead Independent Director". The Harvard Law School Forum on Corporate Governance. Retrieved 19 May 2025. ^ HSBC investors against Michael Geoghegan becoming chairman. Telegraph. Retrieved on 2013-08-22. ^ HSBC chief Michael Geoghegan 'to quit' after failing to get top job Archived 2013-12-04 at the Wayback Machine. News.com.au (2010-09-24). Retrieved on 2013-08-22. ^ HSBC ex-chief Michael Geoghegan 'to quit' after failing to get top job Archived 2013-12-04 at the Wayback Machine. News.com.au (2010-09-24). Retrieved on 2013-08-22. ^ HSBC ex-chief Michael Geoghegan becoming chairman. relaxes as another marathon looms. Telegraph. Retrieved on 2013-08-22. ^ Kefgen, Keith (2004-05-11). "The Non-Executive Chairman Comes of Age". HVS. Archived from the original on 27 October 2007. Retrieved 2011-04-03. ^ "We at Confidencen: Board and General Management". Retrieved 9 May 2019. ^ Behan, Beverly (10 January 2008). "Splitting the Chairman and CEO roles". BusinessWeek. Archived from the original on 2011-04-16. Retrieved 2011-04-03. ^ "COMMONSENSE PRINCIPLES OF CORPORATE GOVERNANCE" (PDF). ^ "Corporate Governance Principles for US Listed Companies". Archived from the original on 2 February 2017. ^ "What is the role of a chair of the board in a private equity company?\". www.nurole.com. 2018-05-04. Archived from the original on 2019-02-25. "About Us". Ford Motor Company. Ford Motor Company. Ford Motor Company. Ford Motor Company. 2019. Archived from the original on 2011-04-05. "Board - Investor Relations". Retrieved 2011-04-05. ^ "HP Investor Relations - Board of directors". Hewlett-Packard. Retrieved 2011-09-24. ^ Robert 2011, p. 453 ^ "Leadership". Rbccm.com. Retrieved 8 October 2017. ^ "Ted Turner quits as AOLTW Vice Chairman - TV News". Digital Spy. 2003-01-29. Retrieved 2011-12-31. Trohan, Colette Collier (2014). A Great Meeting Needs a Great Chair. A Great Meeting or the best budget CPUs, there are only two choices: AMD and Intel. That fact has spawned an almost religious following for both camps, and the resulting AMD vs Intel flamewars make it tricky to get unbiased advice about the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best choice for your next processor. But in many cases, the answer is actually very clear: AMD's chips win for most users looking for the best chips win for most users looking for the best AMD's lineup of specialized X3D CPUs is the hands-down winner for PCs focused on gaming. This article covers the never-ending argument of AMD vs Intel desktop CPUs (we're not covering laptop or server chips). We judge the chips on five criteria based on what you plan to do with your PC: pricing, performance, driver support, power consumption and security, giving us a clear view of the state of the competition. We'll also discuss the process nodes and architectures influencing the moving goalposts. However, each brand has its strengths and weaknesses, so which CPU brand you should buy depends mostly on what blend of features, price, and performance is important to you. The 'Arrow Lake Core Ultra 200S series builds on Intel's hybrid architecture formula but leverages a new design philosophy that constrains gaming performance. However, the chips do provide strong performance in single- and multi-thread productivity workloads, along with improved energy efficiency. AMD's answer is its Zen 5 Ryzen 9000 series. These chips debuted with a fizzle on the gaming front, but subsequent firmware and operating system updates have improved the overall performance significantly, making these chips the bang-for-the-buck leader for most users looking for a balanced system. AMD's powerful gaming-optimized Ryzen 9000 "X3D" models utilize a breakthrough 3D chip-stacking tech to take the lead in gaming performance, as you can see in our Ryzen 9 9800X3D review that finds the 9800X3D to be the fastest gaming CPU on the planet, bar none. AMD has also leveraged this X3D tech with its older architectures to make incredibly value-centric gaming chips, like the Ryzen 5 5600X3D. The gains in gaming performance are phenomenal, so much so that the competition against Intel chips isn't even close, giving AMD a walk-in touchdown for gaming PCs.AMD vs Intel: Which CPU is Best?Swipe to scroll horizontallyAMD vs Intel CPUs 2025Row 0 - Cell 0 IntelAMDPricing and ValueRow 1 - Cell 1 XProductivity and Content Creation PerformanceXXSpecifications and FeaturesXRow 4 - Cell 2 CPU Power Consumption and HeatRow 5 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2
SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 6 - Cell 2 SecurityRow 7 - Cell 1 XCPU Drivers and SoftwareXRow 7 - Cell expectations for both the mainstream desktop and the HEDT markets, originally catching Intel flatfooted as it remained mired on the 14nm process and Skylake architectures due to execution challenges. The past several years have seen AMD CPUs go from value-focused and power hungry chips to design that deliver more cores, more performance, more performan and lower power requirements than Intel's competing chips, especially in gaming. Intel fought back by slowly adding features and cores across its product stack, resulting in negative side effects, like more power consumption and heat. That only highlighted the company's struggles on the design and fabrication side of its operation. AMD isn't taking the challenge lying down, as its new lineup of 4nm Ryzen 9000 X3D chips use the company's new second-gen 3D V-Cache tech to impart tremendous gains in gaming performance. Intel's chips also hold the crown on overclockability for both core and memory frequencies, and not by a small margin. If you spend the cash on a Z-series motherboard, you'll attain far more overclocking headroom than you'll get with the Ryzen 9000 chips. You can see an example in our How to Overclock a CPU feature. An AMD processor is the better choice depending on your needs, like if you prize stability, the lowest power consumption, or forward compatibility with your motherboard for a few more chip generations. AMD also has amazing gaming performance on tap with its X3D chips, and they don't suffer from lower performance in productivity applications like they used to. They do cost a premium, but they are the no-compromise solution for leading performance in both disciplines. You may like For now, if you want the best blend of gaming and application performance, all within a reasonable power consumption envelope, not to mention forward compatibility with your existing motherboard, Team Red deserves your hard-earned dollars. Pricing is the most important consideration for almost everyone, and AMD has generally been hard to beat in the value department. The company's standard Ryzen 9000 series models often sell below MSRP, with the flagship Ryzen 9 9950X often selling for \$100 less than its suggested etail price. The company's gaming-optimized X3D processors do come at a premium, but those models provide more than enough gaming performance to justify the price tag.In contrast, Intel's Core Ultra 200S series processors tend to stubbornly hover around their MSRP. While they hold advantages in productivity performance makes them a tough sell against AMD's X3D gaming lineup; it's simply a no-contest. Swipe to scroll horizontallyAMD Zen 5 'Granite Ridge' Ryzen 9000 vs Intel 'Arrow Lake' Core 200S Ultra seriesFamilyAMDIntelThreadripper - Xeon W\$2,399- \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$404AMD Ryzen 3 - Intel Core i3\$95 - \$404AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$404AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - Intel Core i3\$95 - \$10,000\$949 - \$5,889AMD Ryzen 3 - \$10,000\$949 - \$10,0 - \$120\$97 - \$154AMD still freely allows overclocking, which is a boon for enthusiasts. Meanwhile, Intel still charges a premium for its overclockable K-Series chips, but you'll also need to shell out for a pricey Z-Series motherboard for the privilege of overclocking your processor — Intel doesn't allow full overclocking on B- or H-series motherboards, but has enabled memory overclocking on its B and H chipsets, though AMD generally has better coolers than Intel — most of AMD's bundled coolers are suitable for at least moderate overclocking — but the company no longer includes them with any of the 'X' models. Intel also doesn't throw in a cooler for its pricey overclockable K-series SKUs. So be sure to budget for a cooler (and a beefy one, at that) if you plan on overclockable K-series SKUs. So be sure to budget for a cooler (and a beefy one, at that) if you plan on overclockable K-series SKUs. SKUs (non-K for Intel, non-X for AMD), but Intel's coolers are flimsy and 'good enough' at best. We've even seen cases where Intel's stock coolers that often even provide a bit of headroom for overclocking. Intel did slightly bulk up its coolers, but the aesthetic and slight thermal improvements aren't enough to match AMD's competent coolers, and they aren't available on all models. Pricing isn't entirely dictated by what you pay for the chip, though — we also have to factor in platform pricing. Intel's Arrow Lake chips drop into the same LGA 1851 interface that isn't backward-compatible with prior-gen Intel chips. And there is no guarantee it will support the next-gen options, either, which means you'll probably have to buy a new board if you want to upgrade in the future. AMD supported its AM4 socket for five generations of chips, and while that platform will live on for some time with the Ryzen 5000 chips slotting in as value alternatives, the company's new AM5 socket houses its newest Ryzen 7000 chips. AMD says it will support this socket until 2025+, so it is possible that it could enjoy similar longevity to AM4, thus giving enthusiasts a long upgrade path.AMD followed Intel in exiting the high end desktop (HEDT) segment entirely, marking the end of an era. Now you'll have to step up to workstation-class processors from both companies to attain more cores and connectivity, as seen in our Threadripper Pro 5995WX and 5975WX reviews. In either case, AMD owns the performance tier for the best CPUs for workstations, so it can charge eye-watering premiums as a result — and it does. The company even excluded its lowest-priced Threadripper models from retail, creating a \$2,399 bar for entry. That puts workstation chips far out of the reach of the majority of enthusiasts. Winner: AMD. When comparing Intel vs AMD cPUs, Team Red currently offers the best overall performance and value across the full spectrum of price ranges. win with its X3D processors, and it also has strong performance in productivity applications. Intel's Arrow Lake does have the lead in some facets of performance, such as in single-threaded applications, but that isn't enough to outweigh the higher pricing and lower performance in multi-threaded applications. strong lead in the platform department, too. The AM5 platform supports both Ryzen 7000 and 9000 processors and will play host to at least one more generations, though AMD has remained coy about the details. In contrast, Intel's LGA 1851 platforms support just one generation of chips — Arrow Lake — and they aren't officially said to support Intel's next-gen chips, either. However, Intel might release an Arrow Lake Refresh generation, but the inherent limitations of the chip design mean it will almost certainly not be a contender against AMD, especially in gaming. That makes a new Intel motherboard a bad investment.AMD vs Intel CPU Gaming Performance battle, AMD's X3D processors hold the lead in all critical price bands. You can see a much more holistic view in our CPU Benchmarks Hierarchy.Image 1 of 5(Image credit: Tom's Hardware)(Image credit: Tom's Hardware and the gaming optimized Ryzen 9000X3D chips, which cost more than the standard models, take an overwhelming lead, often by 30% or more. Intel's current-gen Core Ultra 7 285K is the new flagship, but its unique tile-based (chiplet) design has a negative impact on gaming performance, so it isn't as fast as the prior-gen models in gaming. That leaves the Core i9-14900K as the fastest Intel gaming chip, and it often sells at a steep discount. However, it isn't as fast in productivity
applications as AMD's latest products, making it a tough sell to drop back to the previous-gen model. Additionally, the 14900K isn't as fast in gaming as the AMD X3D models. AMD's standard Ryzen 9000 models, like the flagship Ryzen 9 9950X, are faster in gaming than Intel's Core Ultra 200S series, but Intel's current-gen 14900K holds the edge. However, AMD's X3D models, like the Ryzen 7 9800X3D and the Ryzen 9 9950X3D, are the fastest gaming chips on the planet, beating Intel's current-gen chips by 30+%. the standard models in productivity workloads, eliminating the tradeoffs associated with the X3D models that we've seen in the past. The X3D models do come at a premium, but they justify their price tag with the fastest gaming performance money can buy. Kicking your resolution up to 1440p and beyond typically pushes the bottleneck back to the GPU, so you won't gain as much from your CPU's gaming provess. However, a bit of extra CPU gaming performance could pay off if you plan on updating your graphics cards) with a newer generation while keeping the rest of your system intact. We expect most builds in the mid-range to come with lesser GPUs, which generally serve as an equalizer in terms of CPU performance. In terms of integrated graphics performance, there's no beating AMD. The company's current-gen Cezanne APUs offer the best performance, there's no beating AMD. The company's current-gen Cezanne APUs offer the best performance, there's no beating AMD. Benchmark hierarchy for even more detail. Winner: AMD. AMD's standard Ryzen 9000 models deliver solid performance in gaming, beating Intel's current-gen models, but they trail the previous-gen Intel chips. However, the Ryzen 9000X3D models take the unequivocal lead in gaming by massive margins, giving AMD an easy win in the gaming department. The previous-gen Raptor Lake Refresh models are a distant second in gaming performance, and they aren't as performant as the Ryzen 9000 models in productivity applications, making them a tough choice as an alternative. AMD vs Intel Productivity applications, making them a tough choice as an alternative. (Image credit: Tom's Hardware)(Image tangible enough lead over AMD's core-heavy models to make productivity performance a make-or-break buying decision. AMD leads in overall multi-threaded performance with its Ryzen 9 9950X3D and 9950X mixture of two types of cores for the mainstream desktop PC. The big performance cores (P-cores) are best for latency-sensitive work, giving Intel the uncontested lead in single-threaded applications. The efficiency cores (E-cores) step in to add some additional heft in threaded and background applications, which pays big dividends in heavilythreaded content creation and productivity applications. In contrast, AMD continues to leverage its tried-and-true P-core only design, which also supports AVX-512, a big consideration for those who leverage powerful productivity applications that employ the high-performance in structions. performance in all manner of workloads, particularly day-to-day applications that rely on snappy responsiveness from the processor. The Core 7 285K has taken the uncontested lead in single-threaded performance across the full suite of our benchmarks, but that's Intel's most expensive mainstream CPU. If you're searching for snappy single-threaded performance, the other Arrow Lake processors also take the lead over competing AMD processors. Overall, Intel's Arrow Lake family holds the single-threaded performance in content creation and productivity applications, the winner of AMD vs Intel CPUs is a tie overall. The chips are closely matched in multi-threaded work, with the lead going to AMD, but Intel enjoys a lead in single-threaded applications. Overall, the decision will come down to the types of workloads you tend to use the most. AMD vs Intel Processor Specifications and Features 2025AMD has its Ryzen 3, 5, 7, and 9 lines, while Intel breaks up its offerings into Core Ultra 3, 5, 7, and 9. For the sake of brevity, we'll focus on the top chips in the respective families to compare Intel vs AMD CPUs based on specs and features. Be aware that both companies have value options within each tier, but we can get a general sense of the landscape with these (relatively) smaller lists. We're using both vendors' recommended pricing and street pricing.Swipe to scroll horizontallyAMD vs Intel Pricing and Specifications 2025 CPUStreet (MSRP)ArchCores / Threads (P+E)P-Core Base / Boost Clock (GHz)E-Core Base / Boost Cloc 230WDDR5-5600Ryzen 9 7950X3D\$740 (\$699)Zen 4 X3D16 / 324.2 / 5.7-144MB (16+128)120W / 162WDDR5-5200Ryzen 9 9950X\$545 (\$599)Zen 516 / 324.3 / 5.7-80MB (16+64)170W / 230WDDR5-5600Core Ultra 9 285K\$620 (\$589)Arrow Lake24 / 24 (8+16)3.7 / 5.73.2 / 4.676MB (40+36)125W / 250WCUDIMM DDR5-6400 / DDR5-5600Ryzen 9 9900X3D\$599Zen 5 X3D12 / 244.4 / 5.5-140MB (12+128)120W / 162WDDR5-5600Ryzen 9 7900X3D\$480Zen 5 X3D8 / 164.7 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$450 (\$449)Zen 4 X3D8 / 164.2 / 5.0-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (12+128)120W / 162WDDR5-5600Ryzen 7 7800X3D\$450 (\$449)Zen 4 X3D8 / 164.2 / 5.0-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$450 (\$449)Zen 4 X3D8 / 164.2 / 5.0-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 7800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDDR5-5600Ryzen 7 800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDR5-5600Ryzen 7 800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDR5-5600Ryzen 7 800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDR5-5600Ryzen 7 800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDR5-5600Ryzen 7 800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDR5-5600Ryzen 7 800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDR5-5600Ryzen 7 800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDR5-5600Ryzen 7 800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDR5-5600Ryzen 7 800X3D\$480Zen 5 X3D8 / 164.2 / 5.2-104MB (8+96)120W / 162WDR5 162WDDR5-5200Ryzen 9 9900X\$380 (\$469)Zen 512 / 244.4 / 5.6-76MB (12+64)120W / 162WDDR5-5600Core Ultra 7 265K / KF\$365 (\$394) / \$339 (\$379)Arrow Lake20 / 20 (8+123.9 / 5.53.3 / 4.666MB (36+30)125W / 250WCUDIMM DDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Core Ultra 7 265K / KF\$365 (\$394) / \$339 (\$379)Arrow Lake20 / 20 (8+123.9 / 5.53.3 / 4.666MB (36+30)125W / 250WCUDIMM DDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Core Ultra 7 265K / KF\$365 (\$394) / \$339 (\$379)Arrow Lake20 / 20 (8+123.9 / 5.53.3 / 4.666MB (36+30)125W / 250WCUDIMM DDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (8+32)65W / 88W / 105WDR5-5600Ryzen 7 9700X\$289 (\$329)Zen 58 / 163.8 / 5.5-40MB (\$329)Zen 58 / 163.8 / 5.5-40MB (\$329)Zen 58 / 163.8 / 5.5-40MB (\$329)Zen 58 / 5.5-40MB 5600AMD Ryzen 5 9600X\$210 (\$269)Zen 56 / 123.9 / 5.4—38MB (6+32)65W / 88WDDR5-5600Core Ultra 5 245K / KF\$309 / \$294Arrow Lake14 / 14 (6+8)4.2 / 5.23.6 / 4.650MB (26+24)125W / 250WCUDIMM DDR5-6400 / DDR5-5600In the battle of AMD vs Intel CPUs, AMD's Ryzen 9, Ryzen 7, and Ryzen 5 families square off against Intel's Core Ultra 9, Core Ultra 7, and Core Ultra 5. The Ryzen 9 9950X3D is one of the fastest gaming chips on the market, essentially tying its sibling, the Ryzen 7 9800X3D. As mentioned, these chips do carry a premium, though. The 9950X3D holds the throne as the best all-around processor for gaming, single- and multi-threaded work, while the Core Ultra 9 285K takes a few leads in some types of multi-threaded work. However, that comes at a big tradeoff in performance in the other categories. A similar story plays out in the decidedly more mainstream Ryzen 7 and Core 1285K. offers nearly the same gaming performance as the Core Ultra 9 285K, albeit at the expense of some threaded horsepower in productivity applications, but at a far lower price point. The Ryzen 7 9800X3D easily leads this category, though, with the fastest gaming performance on the market and strong performance in threaded applications. Winner: Intel. When you compare AMD vs Intel CPU specifications, you can see that Intel offers options with lower pricing and more performance.
Intel's chips also provide support for DDR4, an important consideration in these early days of DDR5 adoption.AMD vs Intel CPU power and heat, the former's 4nm TSMC process node makes a big difference. Power consumption comes as a byproduct of design choices, like lithography and architecture. However, higher power consumption often correlates to more heat generation, so you'll need beefier coolers to offset the heat output of greedier chips. Image 1 of 13(Image credit: Tom's Hardware)(Image credit: Tom's Hardwa Hardware)(Image credit: Tom's Hardware)Overall, Intel has reduced its power consumption from meme-worthy to an acceptable level, but it still consumes more power than Ryzen. Still, in aggregate, AMD's 4nm chips either consume less power or provide much better power-to-performance efficiency.Image 1 of 7(Image credit: Tom's Hardware)

(Image credit: Tom's Hardware)(Image overbearing. Winner: AMD. In judging AMD vs Intel CPU performance per watt, it's impossible to overstate the importance of having the densest process node paired with an efficient microarchitecture, and TSMC's 4nm and AMD's Zen 5 are the winning combination. The latest Ryzen processors consume less power than Intel on a power-vsperformance basis.Intel vs AMD CPU Overclocking 2025There's no debate when you can gain more performance over the baseline speed with Intel chips than you can with AMD's Ryzen processors. To learn more about overclocking, head to our How to Overclock a CPU guide.As mentioned, you'll have to pay a premium for Intel's K-Series chips and purchase a pricey Z-Series motherboard, not to mention splurge on a capable aftermarket cooler (preferably liquid), to unlock the best of Intel's overclocking prowess. However, Intel's chips are relatively easy to push to their max, though gains can be slim in some applications. Intel doesn't allow full overclocking on B- or H-series motherboards, but it has infused memory overclocking into its B560 and H570 chipsets, and that works with any chip that is compatible with the platform. AMD doesn't have as much room for manual tuning. In fact, the maximum achievable all-core overclocks often fall a few hundred MHz beneath the chips' maximum single-core boost. That means all-core overclocking can actually result in losing performance in lightly threaded applications, albeit a minor amount.Part of this disparity stems from AMD's Precision Boost and innovative thread-targeting technique that pegs lightly-threaded workloads to the fastest cores, AMD exposes near-overlocking headroom. However, AMD offers its Precision Boost Overdrive. This one-click auto-overclocking feature will wring some extra performance out of your chip based on its capabilities, your motherboard's power delivery subsystem, and your CPU cooling. AMD's approach provides the best performance possible with your choice of components and is generally hassle-free. In either case, you still won't achieve the high frequencies you'll see with Intel processors, but you do get a free performance boost. AMD has also vastly improved its memory overclocking capabilities. Winner: Intel. When it comes to AMD vs Intel CPU overclocking, Team Blue has far more headroom and much higher attainable frequencies. Just be prepared to pay for the privilege - you'll have to buy a K-series processor. Intel has added memory overclocking to the newest Band H-series motherboards, which is an improvement. AMD's approach is friendlier to entry-level users, rewarding them with hassle-free overclocking based on their system's capabilities, but you don't gain as much performance. AMD vs Intel CPU before a construction of the system's capabilities, but you don't gain as much performance. AMD vs Intel CPU before a construction of the system's capabilities, but you don't gain as much performance. stronger reputation. AMD has suffered plenty of issues with its CPU and chipset drivers, a natural byproduct of its limited resources compared to its much-larger rivals. Intel isn't without its missteps on the driver front, but its reputation for stability helped earn it the top spot in the processor market, particularly with OEMs. You might be a little more cautious when approaching Intel's more exotic solutions, though. In the past, the company has developed innovative new products that have been relegated to the dustbin of history due to pricing and market forces, and long-term support for those products that have been relegated to the dustbin of history due to pricing and market forces, and long-term support for those products that have been relegated to the dustbin of history due to pricing and market forces. several issues with BIOS releases that failed to expose its chips' full performance, though AMD has mostly solved those issues after a long string of updates. As a side effect of being the smaller challenger, AMD also faces a daunting challenger in offsetting the industry's incessant optimization for Intel's architectures above all others. Intel also continues to face challenges, though. The company's Core Ultra 200S architecture uses large performance cores (P-cores) and small efficiency cores (E-cores) for different types of tasks, and other elements, like I/O and the GPU, are placed on separate tiles/dies, which complicates matters. Placing the correct workloads on the correct cores requires and small efficiency cores (E-cores) for different types of tasks, and other elements, like I/O and the GPU, are placed on separate tiles/dies, which complicates matters. new Intel Thread Director technology, but that means some programs might need extra handholding to extract the best performance in Windows 10. Winner: Intel wins the battle of AMD vs Intel CPU drivers and software. Over the last few years, Intel has addressed its laggardly driver updates for its integrated graphics, and the company has an army of software developers at its disposal that help ensure its products get relatively timely support with the latest software. AMD has made amazing progress convincing the developer ecosystem to optimize for its new Zen architectures. However, there's still plenty of work to be done as the company moves forward. AMD vs Intel CPU Security 2025The last few years have found security researchers poking and prodding at the speculative execution engine that's one of the key performance-boosting features behind all modern chips. The resulting research has spawned an almost never-ending onslaught of new vulnerabilities that threaten the safety of your system and private data. Unfortunately, these types of vulnerabilities are incredibly dangerous because they are undetectable—these tactics steal data by using the processor exactly as it was designed; thus, they are undetectable by any known anti-virus program. The rash of fixes required to plug these holes also continues to grow, and many of them result in reduced performance. That's particularly painful for Intel because it suffers from more of these vulnerabilities than other vendors. The company has developed in-silicon mitigations with newer processors are subject to drastic reductions in performance. AMD isn't immune to vulnerabilities, though It's hard to ascertain if the initially limited speculative execution vulnerability discoveries in AMD processors were due to a security-first approach to hardened processors due to their commanding market share: Attackers lmost always focus on the broadest cross-section possible. We see a similar trend with malware being designed for Windows systems, by far the predominant desktop OS, much more frequently than MacOS, though that does appear to be changing. However, AMD has also had several other new vulnerability disclosures in the recent past, including a Meltdown-esque variant that requires software recoding. Like Intel, AMD has made a few targeted in-silicon fixes for its newer Ryzen processors, thus lowering its exposure to vulnerabilities. However, newer vulnerabilities and hacks continue to present issues for chipmakers. For instance, computer motherboard maker MSI was recently hacked, leading to its OEM private keys, used for verifying firmware to a computer's secure boot mechanisms, being released to the public. This puts an untold number of PCs at risk from fake drivers and firmwares. Winner: AMD. The AMD vs Intel CPU security debate continues to evolve as researchers and nefarious actors alike turn more of an eye towards AMD's newer architectures. As things stand, Intel still suffers from more known vulnerabilities than AMD, and the impact of the Spectre mitigations on previous-gen Intel processors leads to larger performance losses (at times equivalent to a few generational gains worth of improvement) than the fixes we've seen from AMD, granting Team Red the win. Share — copy and redistribute the material in any medium or format for any purpose, even commercially. The license terms. Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike - If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions - You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation. No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Intel and AMD are primary competitors in the consumer CPU market each offering distinct advantages. The Intel processors traditionally excel in a single core performance and are often favored for their stability and widespread compatibility making them popular in business environments. The AMD processors offer better value for money with stronger multi-core performance and superior integrated graphics in the APU Accelerated Processing Units. AMD chips run cooler and are more energy efficient, leading to better battery life in a laptop while Intel's higher clock speeds can provide an edge in certain gaming scenarios. What is Intel?Intel stands for Integrated Electronics. Intel Corporation is an American multinational corporation is an American multinational corporation is an American multinational corporation and technology company headquartered in Santa Clara California in Silicon Valley. It is invented by Robert Noyce. It's the developer of the first x86 processor Intel 8086. If we talk on a scale of 1 to 10 Intel processors come
at a scale of 4 to 10. These processors have a good CPU performance and almost all Intel processors come with the iGPU. This processors at the cost of a higher power consumption and battery life. Thus, for short workloads and single-core boosts especially in laptops, newer Intel-powered laptops can be used when battery life is not a concern. If we talk about Desktops, and you want to change processor, motherboard or socket compatibility, then Intel has fewer options available for that in comparison to AMD processors due to frequent motherboard and chipset changes. Example - Intel Xeon, Intel Core i series, Intel Core m series. What is Advanced Micro Devices (AMD)? The AMD stands for Advanced Micro Devices is the American semiconductor company headquartered in the second source manufacturer of a x86 processors AMD has become the major competitor in a CPU market with its Ryzen processors. AMD processors are known for offering a competitive performance at a lower prices compared to Intel with advantages including a better integrated graphics in their APU, cooler operation and longer battery life in the laptops. The product range spans from a everyday computing solutions to the high performance Thread ripper processors for the intensive tasks like a video editing and 3D modeling. When building a AMD based systems users should verify the motherboard compatibility though many modern boards offer a simple updates via USB for newer processors. Example - AMD Ryzen, AMD Threadripper, AMD FX-Series, AMD EPYC, AMD Opteron, AMD Athlon 64IntelAMDLess expensive than AMD Processor at the lower range.Less expensive than Intel at a higher range.Less efficient than AMD.More efficient than Intel.Can heat up when used with Clock Speed Boost(14 nm)Is generally cooler due to smaller lithography(TSMC 7nm is similar to Intel 10 nm)IPC (Rocket Lake) is lower than AMD (Zen 3)IPC(Zen 3) is higher than Intel (Rocket Lake)Clock speed reaches and surpassed 5.0 GHz but results in more heatiGPU performance compared to Intel iGPU(HD Graphics and)It has symmetric multiprocessing capabilities of up to 4 sockets/28 cores. It has symmetric multiprocessing capabilities of up to 8 sockets/128 cores. Most popular intel processors as the popular ones. ConclusionIntel and AMD make computer processors (CPU), and each has its strengths. The Intel processors as the popular ones. ConclusionIntel and AMD make computer processors (CPU), and each has its strengths. The Intel processors as the popular ones. ConclusionIntel and AMD make computer processors (CPU), and each has its strengths. are known for being fast in a single tasks and widely compatible with the most software making them a reliable choice. The AMD processors give the money on a separate graphics which can save the money on a separate graphics which can be the money on a separate graphics which can be the money on a separate graphics which can be the money on a separate graphics which can be the money on a separate graphics which can be the money on a separate graphics which can be the money on a separate graphics which can be the money on a separate graphics which can be the money on a separate graphics which can be the money on a separate graphics which can be the money on a separate graphics which can be the money on a separate graphic which can be the money on a separate graphic which can be the money on a separate graphic which can be the money on a separate graphic which can be the money on a separate graphic which can be the money on a separ web browsing, office work and casual gaming. Last Updated on July 12, 2024 by Nahush GowdaBuilding a PC can be exciting, but ensuring compatibility with your chosen CPU. If you are new to PC building, this might get quite confusing as there are many different chipsets to choose from. This blog post will be your guide through the modern chipsets for AMD Ryzen 3000 series and above, and Intel 10th gen processors are compatible with which chipsets or vice-versa.1Intel Chipsets 3ConclusionThe latest from the Intel line of desktop processors are Intel 14th-gen or Intel Raptor Lake processors. We will list the chipsets starting from Intel 10th-gen until the 14th-gen to cover most of the available processors. We will list the chipsets starting from Intel 10th-gen until the 14th-gen to cover most of the available processors. We will list the chipsets starting from Intel 10th-gen until the 14th-gen to cover most of the available processors. (LGA 1200 socket)H410 (LGA1200 socket)CPU compatibility listChipsetsProcessor SKUZ490 / B460 / H410Core i7-10700KCore i5-10600KCore i5-10600KC 11400Core i3-11300Note: While these chipsets are compatible with the 11th-generation processors, check with the motherboard for your PC buildThese are the Intel 500 series of motherboards launched alongside Intel 11th-generation processors.Z590 (LGA 1200 socket)B560 (LGA 1200 socket)H510 (LGA1200 socket)CPU compatibility listChipsetsProcessor SKUZ590 / B560 / H510Core i5-10600KFCore i5 11900KCore i7-11800KCore i7-11700KCore i5-11600KCore i5-11400Core i3-11300Also Read: A Guide to the Most Common Motherboards launched alongside Intel 12th-generation processors. Starting with this generation, Intel kickstarted the support for DDR5 memory. Although, you have to choose the motherboard with either DDR5 memory. Motherboards with DDR5 memory. Motherboards with DDR5 memory offers a performance advantage in gaming and other memory-intensive workloads like Blender. Z690 (LGA 1700 socket)B660 (LGA 1700 socket)B610 (LGA1700 socket)CPU compatibility listChipsetsProcessors SKUZ690/ B660 / H610Core i9-12900KCore i9-12900KCore i9-12900KCore i9-12900KCore i5-12600KCore i5-1260KCore i 13900KSCore i9-13900KCore i9-13900KFCore i7-13700FCore i7-13700KCore i7-13700KFCore i5-13600KFCore i5-13600KFCore i9-14900KSCore i9-14900KSCore i9-14900KSCore i9-14900FCore i7-14700FCore i7-14700KCore i7-14700KFCore i5-13600KFCore i5-13600KFCore i5-13600KFCore i5-13600KFCore i9-14900KSCore i9-14900KSCore i9-14900KSCore i9-14900KSCore i9-14900KSCore i9-14900KFCore i5-13600KFCore 14600KFCore i5-14500Core i5-14400FCore i5-14400FCore i3-14100FNote: Check for the BIOS update for 14th-gen processors, they need updated BIOS for forward compatibility with 13th and 14th-gen processors. Also read: 6 Essential Features to Consider Before Buying MotherboardThese are the Intel 700 series of motherboards launched alongside Intel 12th-generation processors.Z790 (LGA 1700 socket)P770 (LGA1700 socket)P770 (LGA1 i7-12700Core i7-12700KCore i7-12700KCore i7-12700KCore i7-12700KCore i7-13700Core i7-13700KCore i7-1 13500Core i5-13400Core i3-13100Core i3-14100FCore i9-14900KCore i5-14600KFCore i5-14400FCore i5-1440 chipset motherboard is recommended to avoid any issues. The latest from the AMD line of desktop processors are the Ryzen 7000 series to cover most of the available processors. We will list the chipsets starting from the Ryzen 7000 series of motherboards that were launched alongside Zen 2 (Ryzen 3000 series) processors.X470 (AM4 socket)CPU compatibility listChipsetsProcessor SKUX470 / B450Ryzen 5 3500Ryzen 5 3500Ryzen 5 3500Ryzen 5 3500Ryzen 5 3500Ryzen 5 3500Ryzen 5 3600Ryzen 7 3800XRyzen 7 3800XRyzen 5 3500Ryzen 5 3600Ryzen 5 360 5700Ryzen 7 5700Ryzen 7 5700XRyzen 7 5700XRyzen 7 5700X3DRyzen 7 5 (AM4 socket)CPU compatibility listChipsetsProcessor SKUX470 / B450Ryzen 3 3200GRyzen 5 3500Ryzen 5 3500Ryzen 5 3500Ryzen 5 3600Ryzen 5 3600Ryzen 5 3600Ryzen 5 5500Ryzen 5 3600Ryzen 7 5700GRyzen 7 5700GRyzen 7 5700XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 5 5500Ryzen 5 5600XRyzen 5 5600XRyzen 5 3600XRyzen 7 5700XRyzen 7 5700X 5900XThese are the AMD 500 series of motherboards that were launched alongside Zen 3 (Ryzen 5 3500XRyzen 5 3600XRyzen 5 3600XRyzen 7 3700XRyzen 7 3700XRyzen 3 3200GRyzen 3 3200GRyzen 5 3500XRyzen 5 3600XRyzen 5 3600XRyzen 7 3700XRyzen 7 3700XRyzen 7 3700XRyzen 7 3700XRyzen 5 3500XRyzen 5 3500XRyzen 5 3600XRyzen 5 3600XRyzen 7 3700XRyzen 7 3700XRyzen 7 3700XRyzen 3 3200GRyzen 3 3200GRyzen 5 3500XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 7 3700XRyzen 7 3700XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 7 3700XRyzen 7 3700XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 7 3700XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 5 3600XRyzen 7 3700XRyzen 5 3600XRyzen 5 3 7 3800XTRyzen 9 3900XRyzen 5 5500Ryzen 5 5600Ryzen 7 5700Ryzen 7 5 memory.X670 (AM5 socket)B650E (AM5 socket)B650E (AM5 socket)B650E (AM5 socket)B650E (AM5 socket)B650E (AM5 socket)CPU compatibility listChipsetsProcessor SKUX670 / X670E / B650E / A520Ryzen 9 7900XRyzen 9 7900XRyz 7950X3DAlso Read: Best AM5 Motherboards for Ryzen 7000 Series ProcessorsBy understanding motherboard chipsets and CPU compatibility, you can make informed decisions when building your PC. Remember, this blog is a starting point. Always
refer to the manufacturer's website for the latest information on specific chipsets and their compatible CPUs.Happy building!Share this Yes, yes you can. It might seem like an incident of mass hysteria, team red and blue playing together like that, but gamers have been running Intel CPUs with AMD GPUs for years, so the fact that the reverse works just as well isn't too surprising. However, there are some caveats. Can you use an Intel Arc GPU with AMD Ryzen: yes, but you have to use the right CPU. Which AMD CPUs can you use with Intel Arc GPUs? Jacob Roach / Digital Trends In reality, any AMD CPU should work with Intel Arc GPUs, as there isn't some lock or fundamental compatibility issue that means only certain CPUs work with the new Intel cards. That said, Intel has made a big deal of fundamental compatibility issue that means only certain CPUs work with the new Intel cards. how much Arc Alchemist cards benefit from Resizable BAR, a feature that is only available on Ryzen 3000, 4000, 5000, or the newest Ryzen 7000 and newer CPUs. With that in mind, if you're interested in an Intel Arc graphics card, you should really only buy it if you have a CPU that supports ReBAR. In the case of AMD CPUs, that's Ryzen 3000, 4000, 5000, or the newest Ryzen 7000 CPUs. This isn't just a way for Intel to limit the potential market for AMD CPU owners — as if it would want to sell fewer GPUs. In fact, it also recommends only Intel 10th-generation of Intel CPU where ReBAR is supported. Without it, the new Arc GPUs won't perform anywhere near as well as they should. Why do Arc GPUs need ReBaR? Resizeable BAR is a feature in modern graphics introduced by Nvidia as a counter to AMD's implementation of Smart Access Memory — which is essentially the same feature. ReBAR effectively gives the CPU access to the whole GPU memory as and when it needs it, rather than smaller portions of it. That reduces memory bottlenecks and lets both the CPU and GPU work at peak performance, thereby improving real-world performance, and the same is true for Intel's Arc cards. However, the difference is quite stark, enough that in our review of the A770, we agreed with Intel that ReBAR is a must if you're going to play games on an Arc GPU. Jacob Roach / Digital Trends The effect of turning ReBAR on isn't consistent across all games, and you certainly don't need it to run the games, but considering how competitive the new Arc GPU is with Nvidia and AMD's best midrange options, it's worth turning it on to make the most of the new cards — and if you can't, you may be better off with one of the alternatives. Jon Martindale is a freelance evergreen writer and occasional section coordinator, covering how to guides, best-of lists, and... The GPU market is in a pretty rough state right now, which makes it almost impossible to buy one of the best graphics cards. Now would be a great time to learn that another good GPU is on the horizon ... but, according to a new leak, Intel isn't working on a flagship GPU to follow the Arc B580. The fate of its next-gen GPUs, dubbed Arc Celestial, also seems a bit uncertain. The scoop comes from Jaykihn on X (Twitter), a frequent hardware leaker. As always, take the following with a healthy helping of salt, because nothing is ever confirmed until Intel says so. Read more AMD's latest high-end graphics card, the Radeon RX 9070 XT, is proving to be a massive hit. AMD CEO Dr. Lisa Su confirmed in an interview with Asus' China Manager, Tony Yu that that sales of the RX 9070 XT have skyrocketed, outpacing its predecessor by ten times. This overwhelming demand has exceeded initial projections, forcing AMD to ramp up production to ensure a steady supply. Launched as part of the RDNA 4 lineup, the Radeon RX 9070 XT was positioned as a direct competitor to Nvidia's mid-to-high-end offerings, promising strong performance at an aggressive price point. The reception has been overwhelmingly positive, with both enthusiasts and mainstream gamers flocking to purchase the card. Retailers have reported frequent stock shortages, reflecting the intense demand for AMD's latest GPU. Read more It's clear that AMD hit the jackpot with its recent RX 9070 XT and non-XT GPUs. The pair quickly climbed up every list of the best graphics cards, and perhaps more importantly, received a warm welcome from the GPU market at large (and thus sold out immediately). A new leak tells us that AMD is shipping lots of GPUs to try to keep up with the demand -- and yet they're still not in stock. The information comes from Moore's Law Is Dead on YouTube, who claims to have spoken to a major online retailer about RDNA 4 stock levels. Both Nvidia and AMD have been in a pretty dire place since the release of their latest graphics cards, with many people are left trying to find one. Read more Officer in charge of technology officer (CTO) (also known as a chief technologist) is an officer tasked with managing technical operations of an organization. They oversee and supervise research and development and serve as a technical advisor to a higher executive such as a chief executive officer.[1] A CTO is very similar to a chief information officer (CIO).[2] CTOs will make decisions for the overarching technology ("IT") staff members to perform everyday operations.[2] The attributes of the roles a CTO holds vary from one company to another, mainly depending on their organizational structure.[3] After World War II, large corporations established research laboratories at locations separate from their headquarters. The corporation's goals were to hire scientists and offer them facilities to conduct research on behalf of the company without the burdens of day-to-day office work. This is where the idea of a CTO focusing on the overarching technology infrastructures originates.[4] At that time, the director of the laboratory was a corporate vice president who did not participate in the company's corporate decisions. Instead, the technical director was the individual responsible for attracting new scientists, to do research, and to develop products.[5] In the 1980s, the role of these research directors changed substantially. Since technology was becoming a fundamental part of the development for most products and services, companies needed an operational executive who could understand the product's technical side and provide advice on ways to improve and develop.[6] This all led to the creation of the information technology industry and computer (internet) companies.[3] A CTO "examines the short and long term needs of an organization, and utilizes capital to make investments designed to help the organization reach its objectives... [the CTO] is the highest technology or engineering department".[7] The role became prominent with the ascent of the IT industry, but has since become technology-based industries of all types - including computer-based technologies (such as game developer, e-commerce, and automotive). In non-technical organizations as a corporate officer position, the CTO typically reports directly to the chief information officer (CIO) and is primarily concerned with long-term and "big picture" issues (while still having deep technical knowledge of the relevant field). In technology-focused on the core company and other supporting technologies. Depending on company structure and hierarchy, there may also be positions such as R&D manager, director of R&D and vice president of engineering whom the CTO interacts with or oversees. The CTO also needs a working familiarity with regulatory (e.g. U.S. Food and Drug Administration, Environmental Protection Agency, Consumer Product Safety Commission, as applicable) and intellectual property (IP) issues (e.g. patents, trade secrets, license considerations into strategic planning and inter-company negotiations. In many older industries (whose existence may predate IT automation) such as manufacturing, shipping or banking, an executive role of the CTO would often arise out of the process of automating existing activities; in these cases, any CTO-like role would only emerge if and when efforts would be made to develop truly novel technologies (either for facilitating internal operations or for enhancing products/services being provided), perhaps through "intrapreneuring". Chief creative officer Chief security office Management. 46 (4): 28-36. doi:10.1080/08956308.2003.11671574. S2CID 154123520. a b Margaret, Rouse. "What is Chief Technology Officer (CTO)? - Definition from WhatIs.com". SearchCIO. Retrieved 2019-11-08. Since Science Sc Roger (2002). "The Role of the Chief Technology Officer in Strategic Innovation, Project Execution, and Mentoring" (PDF). Princeton. ^ Larson, Charles F. (2001-11-01). "Management for the New Millennium-The Challenge of Change. (One Point of View)". Research-Technology Management. 44 (6). doi:10.1080/08956308.2001.11671457. ISSN 0895-6308. S2CID 151234119. ^ Lewis, W.W.; Lawrence, H.L. (1990). "A new mission for corporate technology". Sloan Management Review. 31 (4): 57-67. ^ "Chief Technology". Sloan Management Review. 31 (4): 57-67. ^ "Chief Technology". Sloan Management Review. 31 (4): 57-67. ^ "Chief Technology Officer - CTO". Investopedia. 2011-07-11. Archived from the original on 2017-12-25. Retrieved 2017-12-12. Pratt, Mary K (22 January 2007). "The CTO: IT's Chameleon" Computerworld.com. Berray, Tom; Sampath, Raj (2002). "The Role of the CTO, four models for success" (PDF). Archived from the original (PDF) on 2017-08-30. Retrieved 2009-07-06. Medcof, John W.; Yousofpourfard, Haniyeh (2006). "The CTO and Organizational Power and Influence" (PDF). International Association for Management of Technology Archived from the original (PDF) on 2016-03-04. Retrieved 2013-07-17. Noble, Jason (2018). "Day in the life of a CTO". CTO Academy Retrieved from "Here's a comprehensive compatibility table for Intel and AMD processors with their respective compatibility table for Intel and AMD processor
SeriesSocketCompatible". ChipsetsExamples of Compatible MotherboardsIntelIntel Core 12th Gen (Alder Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B660MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, (backward compatible with Z690-E, MSI Pro B600MIntel Core 13th Gen (Raptor Lake)LGA 1700Z790, B760, H770, 1200Z490, Z590, B460, B560, H470, H510MSI MPG Z590 Gaming Carbon, ASUS Prime H510M-KIntel Core 8th/9th GenLGA 1151Z390, B365, H370, H310Gigabyte Z390 Aorus Master, ASUS TUF B365M-Plus GamingAMDAMD Ryzen 7000 Series (Zen 4)AM5X670, B650, A620ASUS ROG Crosshair X670E, MSI MPG B650 Edge WiFiAMD Ryzen 5000/3000 Series (Zen 3/2)AM4X570, B550, A520, (Older: B450, X470 with BIOS updates)MSI B550 Tomahawk, ASUS TUF X570-Plus WiFiAMD Ryzen 2000 Series (Zen+)AM4X470, B450, X370, B350, A320ASRock X470 Taichi, ASUS TUF X570-Plus WiFiAMD Ryzen 1000 Series (Zen+)AM4X470, B450, X370, B350, A320ASRock X470 Taichi, ASUS TUF X570-Plus WiFiAMD Ryzen 2000 Series (Zen+)AM4X470, B450, X370, B350, A320ASRock X470 Taichi, ASUS TUF X570-Plus WiFiAMD Ryzen 1000 Series (Zen+)AM4X470, B450, X370, B350, A320ASRock X470 Taichi, ASUS TUF X570-Plus WiFiAMD Ryzen 2000 Series (Zen+)AM4X470, B450, X370, B350, A320ASRock X470 Taichi, ASUS TUF X570-Plus WiFiAMD Ryzen 2000 Series (Zen+)AM4X470, B450, X370, B350, A320ASRock X470 Taichi AB350M-DS3HAMD Ryzen Threadripper (High-End Desktop CPUs)sTRX4TRX40ASUS ROG Zenith II Extreme Alpha, MSI Creator TRX40BIOS Updates: Some motherboards, especially older ones, require a BIOS update to support newer processors. For example, AMD's AM4 motherboards from the B450 or X470 series may need an update to support Ryzen 5000 CPUs.Check with the motherboard manufacturer for the latest BIOS updates.Backward Compatibility:Intel's LGA 1700 supports both 12th Gen and 13th Gen processors, depending on the chipset and BIOS version.AMD's AM4 socket offers excellent backward compatibility. Just certain chipset features may be limited when using older boards with newer CPUs.Overclocking Support:Intel's "Z-series" chipsets (e.g., Z690, Z790) and AMD's "X-series" chipsets (e.g., X570, X670) are designed for overclocking.Would you like additional details or recommendations for specific builds?December 2024August 2024July 2024December 2023August 2023BrandGadgetsGamingPreBuilt Gaming Desktop PCsTechUncategorized admin 04/12/2019 11,064 views Advanced Micro Devices, Inc. (NYSE: AMD) or AMD is an American multinational semiconductor company based in Sunnyvale, California, that develops computer processors and related technologies for commercial and consumer markets. It main products include microprocessors, motherboard chipsets, embedded processors and graphics processors for servers, workstations and personal computers, and embedded systems applications. AMD is the second-largest global supplier of microprocessors based on the x86 architecture (behind Intel) and also one of the largest suppliers of graphics processing units. It also owns 8.6% of Spansion, a supplier of non-volatile flash memory. AMD is the only significant rival to Intel in the central processor (CPU) market for (x86 based) personal computers. Since acquiring ATI in 2006, AMD and its competitor NVIDIA have dominated the discrete graphics processor unit (GPU) market. APP technology is a set of advanced hardware and software technologies that enable AMD graphics processing cores (CPU), to execute heterogeneously to accelerate many applications beyond just graphics. This enables better balanced platforms capable of running demanding computing tasks faster than ever, and sets software developers on the path to optimize for AMD Accelerated Processing Units (APUs). Groundbreaking AMD App Acceleration helps you: Enjoy beautifully rich and clear video playback when streaming from the web Take in your favorite movies in stunning, stutter-free HD quality Run multiple applications smoothly at maximum speed Enjoy lightning fast game play and realistic physics effects How to open AMD APP acceleration on Leawo's products On Leawo including video converter, Blu-ray Ripper, DVD Ripper, YouTube Downloader, Video Accelerator, etc. support AMD APP accelerating. Converting software solutions that don't support AMD APP accelerating are DVD Copy, DVD Creator, Blu-ray Copy, Blu-ray Creator and Blu-ray to MKV Converter. Supported Formats Input Video Formats: AVI, MPEG WMV, MP4, FLV, MKV, H.264/MPEG-4, DivX, XviD, MOV, M4V, VOB, ASF, 3GP, 3G2, SWF, H.261, H.264, DV, DIF, MJPG, MJPEG, DVR-MS, NUT, QT, YUV, DAT, MPV, NSV AVCHD Video (*.mpq; *.mpeg), MPEG-4 TS HD Video (*.ts), MPEG-2 TS HD Video (*.ts), Quick Time HD Video (*.ts), H.264/MPEG-4 AVC (*.mp4), MPEG-4 TS HD Video (*.ts), MPEG-2 TS HD Video (*.ts), Quick Time HD Video (*.ts), MPEG-4 AVC (*.mp4), MPEG-4 TS HD Video (*.ts), MPEG-2 TS HD Video (*.ts), MPEG-2 TS HD Video (*.ts), MPEG-4 AVC (*.mp4), MPEG-4 AVC (*.mp4), MPEG-4 TS HD Video (*.ts), MPEG-2 TS HD Video (*.ts), MPEG-4 AVC (*.ts (*.mov), WMV HD Video (*.xwmv), Audio-Video Interleaved HD Video (*.avi) Output Video Formats: all video formats with H.264 codec Supported Graphics Cards ATI Radeon[™] HD 4830/4850/4860/4870 ATI Radeon[™] HD 4830/4850/4860/4870 ATI Radeon[™] HD 4830/4850/4870/4770 ATI Radeon[™] HD 4830/4850/4870/4890 ATI Nobility Radeon[™] HD 4830/4870/4890 ATI Nobility Radeon[™] HD 4830/4850/4870/4890 ATI Nobility Radeon[™] HD 4830/4870/4890 ATI Nobility Radeon[™] HD 4830/4870 4300/4500/4600 ATI Radeon[™] HD 5430/5850/5870/5970 ATI Radeon[™] HD 5430/5450/5870/5770 ATI Radeon[™] HD 5430/5850/5870/5970 ATI Radeon[™] HD 5430/5850/5870 ATI Radeon[™] HD 5450/5870 ATI Radeon[™] HD 5450/58 6000 Series ATI Radeon[™] HD 6750/6770/6790/6850/6870/6950/6970/6990 ATI FirePro[™] Series ATI FirePro V9800/V8700/V750/V8800/V3750 ATI FirePro[™] Series ATI FirePro V9800/V3750/V5800/V3750 ATI FirePro[™] Series ATI FirePro V9800/V3750/V5800/V3750 ATI FirePro[™] Series ATI FirePro V9800/V3750/V5800/V3750/V5800/V3750/V5800/V3750 ATI FirePro V9800/V3750 ATI FirePro[™] Series ATI FirePro V9800/V3750/V5800/V3750/V5800/V3750/V5800/V3750 ATI FirePro V9800/V3750/V5800/V3800/V3750/V5800/V3800/V Radeon[™] HD 530v/540v/550v/560v AMD and Intel dominate the CPU market, offering a range of processors for various computing needs. Both companies produce high-performance, making its CPUs ideal for tasks that don't require many cores. AMD, on the other hand, often provides more cores at lower price points, excelling in multi-threaded workloads. Recent generations have seen AMD close the gap in gaming performance, with some of their chips now matching or surpassing Intel in certain titles. Your choice between AMD and Intel will depend on your specific needs, budget, and the current offerings from each company. FeatureAMDIntelMulti-core PerformanceGenerally strongerCompetitive in
high-end modelsSingle-core PerformanceOften better valueCompetitive in some segmentsGaming PerformanceVery competitiveSlight edge in some games It's tricky to make a completely comprehensive chart without knowing your specific needs (gaming, content creation, budget, etc.). However, I can give you a good starting point comparing some key specs and features of the AMD Ryzen 9000 series (Zen 5) and Intel 15th Gen (Arrow Lake) CPUs. FeatureAMD Ryzen 9000 (Zen 5)Intel 15th Gen (Arrow Lake)ArchitectureZen 5Arrow LakeSocketAM5LGA 1851Core Counts (Mainstream)6 to 1614 to 24Boost Clock SpeedsUp to 5.7 GHzUp to 5.7 GHzIntegrated GraphicsRadeon GraphicsIntel Xe GraphicsPCIe SupportPCIe 5.0PCIe 5.0Memory SupportDDR5DDR5TDP (Typical)65W to 170W125WOverclockingYes (X models)Yes (K models)Yes (K models)Yes (K models)Yes (K models)Yes (X models)Yes depending on the specific models being compared, workload, and other system components. Benchmarks are crucial for detailed comparisons. Pricing: Prices fluctuate and can vary significantly releasing compared, workload, and other system components. Benchmarks are crucial for detailed comparisons. Pricing: Prices fluctuate and can vary significantly releasing compared, workload, and other system components. Benchmarks are crucial for detailed comparisons. Pricing: Prices fluctuate and can vary significantly releasing compared, workload, and other system components. Benchmarks are crucial for detailed comparisons. new CPUs and updating their product lines. ModelCores/ThreadsBase Clock (GHz)Boost Clock (GHz)TDP (W)GraphicsPrice (USD)Ryzen 7 9800X3D8/164.75.2120Radeon\$319Ryzen 7 9800X3D8/164.75.2120Radeon\$399Ryzen 9 9950X16/324.35.7170Radeon\$599 ModelCores/ThreadsBase Clock (GHz)Boost Clock (GHz)TDP (W)GraphicsPrice (USD)Core Ultra 7 265KF20/283.95.5125Intel Xe\$359Core Ultra 7 265KF20/283.95.5125I Information: I couldn't find reliable L3 cache information for the Intel 15th Gen CPUs. This data is often released later or varies between specific models. "KF" Models: Intel's "KF" Models: Intel's "KF" Models ack integrated graphics, which slightly lowers their price. 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: The Ryzen 7 9800X3D has a significantly larger L3 cache thanks to AMD's 3D V-Cache: technology, which can provide a major boost in gaming performance. AMD and Intel have shaped the processor landscape through innovation and fierce competition. Their market positions have shifted over time as technology advanced and consumer needs evolved. Intel launched the first microprocessor in 1971. AMD entered the x86 market in 1982 as a second-source manufacturer. Both companies pushed clock speeds higher through the 1990s and early 2000s. AMD gained an edge with its Athlon 64 in 2003, introducing 64-bit computing to consumers. Intel countered with the Core architecture in 2006, retaking the performance crown. Intel maintained its lead for nearly a decade, unti AMD's Zen architecture debuted in 2017. Zen 3 in 2020 put AMD firmly back in contention. Recent releases like Intel's Alder Lake and Raptor Lake, along with AMD has made significant gains recently. In Q4 2021, AMD reached an all-time high in overall x86 CPU market share. SegmentAMD Share Q4 2021Intel Share Q4 2021Desktop16.2%83.8% Laptop21.6%78.4% Server10.7%89.3% AMD's growth has been particularly strong in the laptop and server segments. Intel has maintained its lead in desktops but faces increasing pressure. The market remains dynamic. Intel's 14th-Gen processors and AMD's upcoming Zen 5 architecture could shift these numbers further. Your choice between AMD and Intel employ distinct approaches in their processor designs. These differences further. encompass chip architectures, performance factors, and cutting-edge technologies that shape their products. Intel's latest processors use a hybrid architecture combining performance cores handle demanding tasks, while efficiency cores. manage background processes. AMD focuses on a more traditional homogeneous core design. Their Zen architecture emphasizes high core counts and thread density. This approach benefits multi-threaded applications and workloads that can utilize many cores simultaneously. sizes. Smaller transistors allow for more cores and cache on a single chip. This leads to improved performance and energy efficiency. IPC (Instructions Per Clock) and core count greatly influence processor performance. Intel has historically led in IPC, allowing their chips to do more work per clock cycle. AMD has narrowed this gap with recent generations. Core counts have increased dramatically in recent years. AMD's Ryzen processors often feature higher core counts in consumer chips. This gives them an edge in heavily multi-threaded tasks. ProcessorCores/ThreadsBase ClockBoost ClockL3 CacheIntel i9-13900K24/323.0 GHz5.8 GHz5.8 GHz5.7 GHz5.7 GHz5.7 GHz5.7 GHz5.7 GHz5.7 GHz5.7 GHz5.7 GHz5.7 GHz5.8 GHz5.7 GHz5.8 GHz5.8 GHz5.8 GHz5.8 GHz5.8 GHz5.8 GHz5.8 GHz5.8 GHz5.7 GHz5.8 GHz5.7 GHz5.8 GHz5.7 GHz5.8 GHz5.7 GHz5.8 GHz5. MB The balance between IPC and core count affects performance in different applications. Single-threaded tasks benefit more from high IPC, while multi-threaded workloads leverage higher core counts. Both companies incorporate unique technologies to enhance performance. AMD's 3D V-Cache stacks additional L3 cache on top of the processor die. This technology significantly boosts gaming performance by reducing memory latency. Intel's Thunderbolt technology offers high-resolution displays. PCIe lanes are crucial for connectivity. Both AMD and Intel support PCIe 4.0, with newer models adopting PCIe 5.0. This enables faster communication with graphics cards and storage devices. Memory support is another key area. The latest processors from both companies support DDR5 RAM. This new memory standard offers higher bandwidth and improved power efficiency over DDR4. TDP (Thermal Design Power) varies between processor models. Intel's high-end chips can draw more power under load, potentially offering higher peak performance. AMD often focuses on efficiency, with competitive performance needs and budgets. Benchmarks help compare these CPUs across various tasks. The Ryzen 9 7950X3D and Core i9-14900K represent AMD and Intel's top consumer offerings. The 7950X3D boasts 16 cores and 32 threads, while the 14900K features 24 cores (8P + 16E) and 32 threads, while the 14900K features 24 cores (8P + 16E) and 32 threads. In multi-threaded tasks, the Ryzen 9 often leads in content creation and video rendering. games and everyday applications. For gaming, both CPUs deliver top-tier performance. The 7950X3D's 3D V-Cache gives it an edge in some titles, while the 14900K's higher clock speeds shine in others. CPUCores/ThreadsBase/Boost ClockTDPRyzen 9 7950X3D16/324.2/5.7 GHz120WCore i9-14900K24/323.2/6.0 GHz125W The Ryzen 5 7600X and Core i5-13600K offer strong performance at more affordable prices. The 7600X has 6 cores and 12 threads, while the 13600K often having a slight edge due to its higher core count. For content creation, the 13600K often having a slight edge due to its higher core count. For content creation, the 13600K often having a slight edge due to its higher core count. multi-threaded tasks. The 7600X consumes less power, making it a good choice for smaller builds or energy-conscious users. The 13600K offers more flexibility with its mix of performance and efficiency cores. Benchmarks provide standardized ways to compare CPUs. Common tests include Cinebench for rendering, Geekbench for overall performance, and 3DMark for gaming potential. Real-world performance can differ from benchmarks. Factors like cooling, RAM, and motherboard quality impact actual results. For content creation, look at render times in your preferred software. interpreting benchmarks. A CPU that excels in multi-core tests might not be the best for primarily single-threaded tasks. AMD and Intel processors differ in cost, overclocking potential, and motherboard compatibility. These factors can greatly influence your choice when building or upgrading a PC. Intel processors often come with a higher price tag than their AMD counterparts. For example, the Intel Core i9-13900K is typically more expensive than AMD's Ryzen 9 5900X. However, Intel's mid-range options like the Core i5-13600K offer competitive
pricing and performance. AMD shines in the budget and mid-range segments. Their Ryzen 5 series provides excellent value for money, often outperforming similarly priced Intel chips. Here's a quick price comparison of popular models: ProcessorTypical Price RangeAMD Ryzen 5 5600\$150 - \$200Intel Core i5-13600K\$280 - \$330AMD Ryzen 9 5900X\$350 - \$400Intel Core i5-13600K\$280 - \$400Intel Core i5-13600K\$ i5-13600K and i9-13900K, are unlocked and can reach high clock speeds with proper cooling. AMD's Ryzen processors also support overclocking, but their boost algorithms are quite efficient out of the box. You might see less dramatic gains from manual overclocking, but their boost algorithms are quite efficient out of the box. performance models. Intel's high-end chips tend to generate more heat, especially when overclocked. A good air cooler or AIO liquid cooler is essential for either brand's top-tier processors and offers PCIe 5.0 and DDR5 memory compatibility. It's a forward-looking platform with good upgrade potential. Intel's LGA1700 socket, used for 12th and 13th gen processors, supports both DDR4 and DDR5 memory. This flexibility allows you to choose between cost-effective DDR4 or high-performance DDR5 RAM. Motherboard costs vary, but high-end options like the MSI MPG Z790 Carbon WiFi for Intel can be pricier than comparable AMD boards Mid-range and budget options are available for both platforms, offering a range of features to suit different needs and budgets. AMD and Intel processors differ in performance, pricing, and suitability for various computing tasks. These questions address key comparisons between the two brands to help you choose the right CPU for your needs. AMD processors often excel in multi-threaded tasks due to higher core counts. Intel CPUs typically offer better single-core performance. This impacts how each brand performs in different applications and workloads. For gaming, AMD's X3D line of CPU chipsets tops many benchmarks. The Ryzen 7 7800X3D, Ryzen 9 7950X3D, and Ryzen 9 7900X3D are designed for peak gaming performance. Intel chips remain competitive, especially in titles favoring single-core speed. AMD Ryzen 3 competes with Intel Core i3, Ryzen 5 with Core i3, Ryzen 5 with Core i7. AMD often offers more cores and threads at similar price points. Intel chips may have an edge in clock speeds and instructions per cycle. AMD laptop processors often provide better integrated graphics performance. They can offer longer battery life in some models. AMD chips may also come at a lower price point for comparable performance. They can offer longer battery life in some models. example, a Ryzen 7 5800X might compare to an Intel Core i9-11900K in some benchmarks. AMD often prices its processors more aggressively than Intel for similar performance levels. This can result in better value for budget-conscious buyers. Intel may offer lower prices on some models to stay competitive. AspectAMDIntelMulti-threaded performanceGenerally strongerGood, but often fewer coresSingle-core speedCompetitiveOften leadsGamingExcels with X3D seriesStrong performanceCompetitive in some segmentsIntegrated graphicsSuperior in most casesImproving with newer generations AMD and Intel have been competitives in the CPU market for decades, and the question of whether AMD is compatible with Intel is one that has been asked by many enthusiasts. In this article, we will answer that question and take a look at some of the compatibility issues that can arise when mixing AMD and Intel components. For example, if a user's computer has an AMD processor but is running. software that is designed for an Intel processor, the software may not run as smoothly as it would on an Intel processor. AMD and Intel have been competitors in the CPU market for decades, and the question of whether AMD is compatible with Intel is one that has been asked by many enthusiasts. In this article, we will answer that question and take a look at some of the compatibility issues that can arise when mixing AMD and Intel components. AMD and Intel is known for its low-power processors, while Intel is known for its low-power processors, while Intel is known for its low-power processors. So, is AMD and Intel compatible with Intel. computers use both AMD and Intel processors. This is because AMD and Intel processors use different architectures, which allows them to perform different tasks. For example, AMD processors are better at multitasking, while Intel processors are better at single-tasking. This means that AMD processors are better for tasks such as video editing. while Intel processors are better for tasks such as gaming. However, there are some limitations to using AMD and Intel processors are not designed to work with AMD chipsets. This means that you will need to use a separate motherboard for each processor. Overall, AMD and Intel processors are compatible, but you will need to use a separate motherboard for each processor. 1. Increased Performance: AMD and Intel compatibility allows for the utilization of the best features from both processors, resulting in increased performance. 2. Cost-Effective: By choosing AMD and Intel compatible components, you can save money on your system build while still getting great performance. 3. Compatibility ensures that your system will work with a wide range of existing components and peripherals, providing flexibility for future upgrades. 4. Access to More Options: AMD and Intel compatibility opens up a wider range of options for choosing components, including processors, motherboards, and graphics cards. 5. Improved Stability issues between different components, resulting in improved system stability and reliability. AMD and Intel compatibility is a hotly debated topic among computer enthusiasts. Some argue that AMD processors are superior to Intel, while others claim the opposite. One of the main factors to consider is compatibility. AMD and Intel processors use different architectures, which means that they may not be compatible with each other. This can cause compatibility issues, such as system instability or poor performance. Another factor to consider is performance. AMD and Intel processors have different performance. AMD and Intel processors are better at single threaded performance. Ultimately, the choice between AMD and Intel compatibility is a personal one. It depends on your specific needs and preferences. However, it is important to do your research and make an informed decision. Compatibility between AMD and Intel processors has its advantages and disadvantages. One advantage of compatibility is that it allows AMD and Intel processors to work together seamlessly. This means that users can choose AMD or Intel processors for their computers and still be able to use software and applications that are designed for either type of processors for their computers and still be able to use software and still be able to use software and applications that are designed for either type of processors for their computers and still be able to use software and applications that are designed for either type of processors for their computers and still be able to use software and applications that are designed for either type of processors for their computers and still be able to use software and applications that are designed for either type of processors for their computers and still be able to use software and applications that are designed for either type of processors for their computers and still be able to use software and applications that are designed for either type of processors for their computers and still be able to use software and applications that are designed for either type of processors for their computers and still be able to use software and applications that are designed for either type of processors for their computers and still be able to use software and applications that are designed for either type of processors for their computers and their compute user's computer has an AMD processor, they can upgrade to an Intel processor without having to replace the entire computer. However, there are some drawbacks to compatibility between AMD and Intel processors. One drawback is that compatibility between AMD and Intel processor without having to replace the entire computer. processor but is running software that is designed for an intel processor, the software may not run as smoothly as it would on an intel processor. Another drawback of compatibility issues. For example, if a user's computer has an AMD processor but is running software that is designed for an intel processor, the software may not work at all. Overall, compatibility between AMD and Intel processors has its advantages and disadvantages and disadvantages so that they can make the best decision for their computer. Compatibility between AMD and Intel processors can affect gaming performance in several ways. The first and most obvious way is through differences in CPU performance. AMD and Intel processors often have different architectures and different architectures and their ability to perform well in multithreaded applications, while Intel processors are known for their higher clock speeds and single-core performance is through differences in CPU overclocking potential. AMD and Intel processors often have different overclocking capabilities and different overclocking utilities, which can make it difficult to overclock an AMD processor on an Intel motherboard or vice versa. This can affect gaming performance, which can be beneficial in games. The third way compatibility can affect gaming performance is through differences in motherboard compatibility. AMD and Intel processors often require different motherboards, which can make it different motherboards, which can affect gaming performance because different motherboards can have different motherboards, which can make it different motherboards can have different motherboards. translate
into differences in gaming performance. Compatibility issues with specific AMD and Intel processors may not be compatible with AMD motherboards, and vice versa. Additionally, some older Intel processors may not be compatible with AMD motherboards, and vice versa. However, the vast majority of AMD and Intel processors are compatible with each other, and it is possible to build a computer with a mix of AMD and Intel processors. In conclusion, while it is possible to use an AMD CPU with an Intel motherboard, it is generally not recommended as the two chip brands are not designed to work with each other. It is generally best to pair an AMD CPU with an AMD motherboard and an Intel CPU with an Intel motherboard. The central processing unit (CPU) is the brain of your computer, responsible for running all its programs and processes. When it comes to choosing a CPU, two major players dominate the market: AMD and Intel. For years, PC builders and enthusiasts have debated which brand reigns supreme. But fear not! This guide will break down the key differences between AMD and Intel processors include the Core i3, i5, i7, and also the recently introduced i9. Usually, the power hierarchy is as follows, the i3 is the weakest of the bunch while the i5 and i7 are significantly stronger. The strongest of the bunch is the i9 series has an incredible number of threads and cores. The i9-7980X boasts 18 cores clocked at 2.6GHz with 32 threads. However, buying such an expensive processor for gaming alone does not make sense. For gaming, it is best to opt for an i5 or i7. Another thing to note is that the i7 does not come with 7 cores and likewise with the i5 and i3. AMD Ryzen Processor The first generation of Ryzen processors were released in 2017 and they more enormously popular. There are three categories-Ryzen 3, 5 and 7. The 7 series had the most powerful cpus and the 3 series had entry level processors. In 2018, the next generation of Ryzen processors followed, and this time AMD introduced the Thread Ripper series had processors with 32 cores and 64 threads. It was AMD's answer to the i9. The higher core count means that video rendering and editing would be better on the Ryzen processors. Recently, the Ryzen 9 series hit the market and the Ryzen 9 3590X has emerged as one of the best processors that money can buy. Differences Between Amd Vs Intel Processors Let us understand different types of AMD and Intel core processors differences: Intel Core i3 (10th Gen) vs Ryzen 3 Desktop CPU Cores/ Threads Clock Rate Max GPU Clock Speed Power L1 Cache L2 Cache L3 cache Max Memory Support Core i3 10100T 4/8 3.6Ghz 4.3Ghz 1.1Ghz 35W 6Mb Smart Cache Up to 128Gb DDR4 2666 Core i3 10100 4/8 3.6Ghz 4.3Ghz 1.1Ghz 35W 6Mb Smart Cache Up to 128Gb DDR4 2666 Core i3 10100 4/8 3.6Ghz 4.3Ghz 1.1Ghz 35W 8Mb Smart Cache Core i3 10300T 4/8 3.0Ghz 3.9Ghz 1.1Ghz 35W Core i3 10320 4/8 3.8Ghz 4.6Ghz 1.15Ghz 65W Ryzen 3 3100 4/8 3.8Ghz 4.6Ghz 1.15Ghz 65W Ryzen 3 3200G 4/4 3.6Ghz 4.0Ghz 4. 1.25Ghz 65W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 35W 64kb + 32kb (x4) 512 (x4) 4Mb Up to 64GB DDR-2933 Ryzen 3 Pro 3200GE 4/4 3.3Ghz 3.8Ghz 1.2Ghz 3.8Ghz 1 Clock Speed Power L1 cache L2 Cache L3 Cache Core i3 10110U 2/4 2.1Ghz 4.1Ghz 0.95Ghz 1.2Ghz (x2) 512KB (x2) 4Mb Ryzen 3 3250U 2/4 2.3Ghz 3.2Ghz 1.2Ghz 12-25W 64kb + 32kb (x2) 512KB (x2) 4Mb Intel Core i5 (10th Gen) vs Ryzen 5 Desktop CPU Cores/ Threads Clock Rate Max GPU clock Speed Power L1 Cache L2 Cache L3 Cache Max Memory Support Core i5 10600K 6/12 4.1Ghz 4.8Ghz 1.2Ghz 125W 12MB Smart cache Up to 128Gb DDR4 2666 Core i5 10600KF 6/12 4.1Ghz 4.8Ghz N/A 125W Core IS 10600 6/12 3.3Ghz 4.0Ghz 1.2Ghz 65W Core i5 10500T 6/12 3.1Ghz 4.5Ghz 1.15Ghz 65W Core 15 10500T 6/12 2.4Ghz 4.8Ghz 1.15Ghz 65W Core i5 10500T 6/12 2.3Ghz 3.8Ghz 1.15Ghz 35W Core 15 10400 6/12 2.9GhZ 4.3Ghz 1.1GhZ 65W Core i5 10400F 6/12 2.9Ghz 4.3Ghz N/A 65W Core i5 10400T 6/12 2.0Ghz 3.6Ghz 4.1Ghz N/A 65W 32mb Ryzen 5 3500 6/6 3.6GhZ 4.1Ghz N/A 65W 32kb + 32kb (x6) 512kb (x6) 16mb Up to 126GB of DDR3200 Ryzen 5 3500X 6/6 3.6GhZ 4.1Ghz N/A 65W 32mb Ryzen 5 3500X 6/6 3.6GhZ 4.1Gh 512kb (x6) 32mb Ryzen 5 3400G 4/8 3.7Ghz 4.2Ghz 1.4Ghz 65W 64kb + 32kb (x4) 512kb (x4) 4mb Upto64Gb DDR4 2933 Mobile CPU Cores/ Threads Clock Rate Max Clock 45W 8Mb Smart Cache Core 15 10310U 4/8 1.7Ghz 4.4Ghz 1.10Ghz 15W 6Mb Smart Cache Ryzen 5 3500U 418 2.1Ghz 3.7Ghz 1.2Ghz 15W 6Mb Smart Cache Ryzen 5 3500U 418 2.1Ghz 15W 6Mb Smart Cache Ryzen 7 Desktop CPU Cores/ Threads Clock Rate Max Clock Rate Max GPU Clock Speed Power L1 Cache L2 Cache L3 Cache Max Memory Support Core 17 10700K 8/16 3.8Ghz 5GHz 1.2Ghz 4.4Ghz 35W 16Mb Shared Cache Up to 128GB of 2-channel DDR4-2933 Core i7 10700K 8/16 3.8Ghz 5GHz 1.2Ghz 4.4Ghz 35W 16Mb Shared Cache Ryzen 7 3700X 8/16 3.6Ghz 4.4Ghz N/A 65W 32kb + 32kb (x8) 512kb (x 1.15Ghz 45W 12Mb Smart Cache Core i7 10850H 6/12 2.7Ghz 5.1Ghz 12Mb Smart Cache Core i7 10750H 2.6GhZ 5.0GhZ 12Mb Smart Cache Core i7 10710U 6/12 4.7GhZ 12Mb Smart Cache Core i7 10810U 6/12 1.1Ghz 4.9Ghz 15W 12Mb Smart Cache Core i7 10750H 2.6GhZ 5.0GhZ Ryzen 7 3700U 4/8 2.3Ghz 4.0GhZ 1.4Ghz 15W 64kb + 32kb (x4) 512kb (x4) 4Mb Ryzen 7 3650H 35W Ryzen 7 3650H 35W Ryzen 7 3780U 15W Intel Core i9 (10th Gen) vs Ryzen 7 3780U 15W Intel
Core i9 (10th Gen) vs Ryzen 7 3780U 15W Intel Core i9 (10th Gen) vs Ryzen 7 3780U 15W Intel Core i9 (10th Gen) vs Ryzen 7 3780U 15W Intel Core i9 (10th Gen) vs Ryzen 7 3780U 15W Intel Core i9 (10th Gen) vs Ryzen 7 3780U 15W Intel Core i9 (10th Gen) vs Ryz 4.8Ghz 1.2GhZ 125W 20 Smart Cache Up to 128GB of 2-channel DDR4-2933 Core i9 10910 3.6Ghz 4.7Ghz 1.2GhZ 20 Smart Cache Core i9 10900T 1.9Ghz 3.7Ghz 1.2GhZ 35W 20 Smart Cache Core i9 10850K 3.6Ghz 4.7Ghz 1.2GhZ 125W 20 Smart Cache Ryzen ThreadRipper Pro 3945WX 12/24 4Ghz 4.4Ghz N/A 280W 32kb + 32kb (x12) 512kb (x16) 700 8 2 2 8 2 8 4 32 8 4 4 32 8 4 4 32 8 4 4 32 8 4 4 32 8 4 4 32 8 4 4 32 8 4 4 32 8 4 4 32 8 512kb (x64) 256Mb Ryzen ThreadRipper 3960X 24/48 3.8Ghz 4.5Ghz 32kb + 32kb (x24) 512kb (x24) 512kb (x24) 512kb (x24) 512kb (x32) Ryzen ThreadRipper 3990X 64/128 2.9Ghz 4.3Ghz 32kb + 32kb (x64) 512kb comparison between the i9-9900K and the Ryzen 3950X. The 3950X comes with 16 cores/32 Threads and is built for multi-tasking. It can also handle 4K gaming without any issues. It also has 64MB of cache and dual channel memory. It has a base-clock speed of 3.5 GHz and a boost speed of 4.7 GHz. The i9-9900K has 8 cores and 16 Threads but offers better single-core performance. It has a base clock of 3.6 GHz and a boost speed of 5 GHz and consumes less power than the Ryzen one. Additionally, it also comes with integrated graphics as well. Performance Comparison Most of the intel processors come with integrated graphics, and as a result, you can even avoid buying a GPU. However, the performance level is very impressive. AMDs have less integrated CPU and GPU units. Regardless of whether you choose Intel or AMD, a good quality processor suitable for gaming and streaming will cost anywhere between 200 and 350 Dollars. If you have a dedicated GPU, then the Intel processor suitable for gaming and streaming will cost anywhere between 200 and 350 Dollars. equivalent. This is due to the architecture of the CPU. The 9900K is arguably the strongest gaming CPU at the time of its release. The Ryzen 9 3590X can outperform all the i9 CPUs in multi-threaded applications and offers great gaming performance. If you are a hardcore gamer, go for the 9700K or 9900K. If you are interested in things other than gaming, opt for a high-end Ryzen processor. Single-Threaded Performance Hierarchy Performance Score Architecture Cores/Threads Clock Speed TDP Core i9-10980XE 100.0% Cascade Lake-X 18/36 3.0 / 4.8 GHz 165W Ryzen 9 3950X 97.5% Zen 2 16/32 3.5 / 4.7 GHz 105W Ryzen 9 3900X 97.3% Zen 2 12/24 3.8 / 4.6 GHz 105W Core i9-9900KS 96.4% Coffee Lake-R 8/16 4.0 / 5.0 GHz 127W Core i9-9900K 95.8% Coffee Lake-R 8/16 3.6 / 4.4 GHz 65W Core i5-9600K 94.7% Coffee Lake-R 6/6 3.7 / 4.6 GHz 95W Core i7-9600K 95.6% Zen 2 32/64 3.7 / 4.5 GHz 95W Core i7-9600K 95.6% Zen 2 32/64 3.7 / 4 9700K 93.6% Coffee Lake-R 8/8 3.6 / 4.9 GHz 95W Threadripper 3990X 93.3% Zen 2 64/128 2.9 / 4.3 GHz 280W Core i3-9350KF 93.2% Coffee Lake-R 4/4 3.6 / 4.2 GHz 65W Core i5-9380XE 92.7% Skylake 18/36 4.4 / 4.5 GHz 165W Xeon W-3175X 89.4% Skylake 18/36 4.4 / 4.5 GHz 165W Core i5-9380XE 92.7% Skylake 18/36 4.4 / 4.5 GHz 165W Core i5-9380XE 92.7% Skylake 18/36 4.4 / 4.5 GHz 165W Core i3-9350KF 93.2% Coffee Lake-R 4/4 3.6 / 4.2 GHz 65W Core i5-9380XE 92.7% Skylake 18/36 4.4 / 4.5 GHz 165W Core i5-9380XE 92.7% Skylake 18/36 4.4 / 4.5 GHz 165W Core i5-9380XE 92.7% Skylake 18/36 4.4 / 4.5 GHz 165W Core i5-9380XE 92.7% Skylake 18/36 4.4 / 4.5 GHz 165W Core i3-9380XE 92.7% Skylake 18/36 4.4 / 4.5 GHz 18/36 4.4 / 4.5 / 4.5 GHz 18/36 4.4 / 4.5 GHz 18/36 4.4 / 4. 9400 / -9400F 83.2% Coffee Lake 6/6 2.9 / 4.1 GHz 65W Ryzen 7 3800X 83.0% Zen 2 8/16 3.9 / 4.5 GHz 105W Ryzen 9 3900 80.2% Zen 2 12/24 3.1 / 4.3 GHz 65W Ryzen 5 3600X 78.7% Zen 2 6/12 3.8 / 4.4 GHz 95W Core i3-8350K 78.3% Coffee Lake 4/4 4.0 / - GHz 91W Threadripper 2950X 76.8% Zen + 16/32 3.5 / 4.4 GHz 180W Ryzen 5 3600 75.9% Zen 2 6/12 3.6 / 4.2 GHz 65W Threadripper 2990WX 73.8% Zen + 4/8 3.7 / 4.2 GHz 250W Threadripper 2970WX 73.6% Zen + 4/8 3.0 / 4.2 GHz 65W Ryzen 5 2400G 67.1% Zen + 4/8 3.6 / 3.9 GHz 65W Ryzen 5 2400G 67.1% Zen + 4/8 3.6 / 4.2 GHz 65W Ryzen 5 2400G
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4.5 GHz 280W Threadripper 3960X 86.8% Zen 2 24/48 3.8 / 4.5 GHz 280W Xeon W-3175X 82.6% Skylake 28/56 3.1 / 4.3 GHz 225W Core i9-10980XE 62.7% Cascade Lake-X 18/36 3.0 / 4.8 GHz 165W Core i9-9980XE 60.9% Skylake 18/36 4.4 / 4.5 GHz 165W Ryzen 9 3950X 61.1% Zen 2 12/24 3.8 / 4.6 GHz 105W Threadripper 2970WX 50.9% Zen + 24/48 3.0 / 4.2 GHz 250W Threadripper 2950X 53.0% Zen + 16/32 3.5 / 4.4 GHz 180W Ryzen 7 3700X 42.4% Zen 2 8/16 3.6 / 4.4 GHz 65W Ryzen 7 3800X 40.9% Zen 2 8/16 3.6 / 4.4 GHz 65W Ryzen 7 3700X 42.4% Zen 2 8/16 3.6 / 4.4 GHz 65W Ryzen 7 3700X 42.4% Zen 2 8/16 3.6 / 4.4 GHz 180W Ryzen 7 3700X 42.4% Zen 2 8/16 3.6 / 4.4 GHz 65W Ryzen 7 3800X 40.9% Zen 2 8/16 3.6 / 4.4 GHz 65W Ryzen 7 3700X 42.4% Zen 2 8/16 3.5 / 4.4 GHz 65W Ryzen 7 3700X 42.4\% Ryzen 7 127W Core i9-9900K 39.4% Coffee Lake-R 8/16 3.6 / 5.0 GHz 95W Ryzen 5 3600X 32.8% Zen 2 6/12 3.6 / 4.2 GHz 95W Zen 2 6/12 3.6 / 4.2 GHz 9 9400 / -9400F 26.0% Coffee Lake 6/6 2.9 / 4.1 GHz 65W Ryzen 5 1600X 24.1% Zen 6/12 3.6 / 4.0 GHz 95W Core i3-9350KF 20.6% Coffee Lake 4/4 4.0/4.6 GHz 91W Ryzen 5 3400G 19.2% Zen + 4/8 3.7 / 4.2 GHz 65W Core i3-9350KF 20.6% Coffee Lake 4/4 4.0/4.6 GHz 91W Ryzen 5 2400G 17.9% Zen+ 4/8 3.6 / 3.9 GHz 65W Ryzen 3 3200G 15.9% Zen + 4/4 3.6 / 4.0 GHz 65W Intel vs AMD Gaming Hierarchy Score Architecture Cores/Threads Base/Boost TDP Intel Core i9-9900KS 100 Coffee Lake-R 8/16 4.0 / 5.0 GHz 127W Intel Core i9-10980XE 99.2 Cascade Lake-X 18/36 3.0 / 4.8 GHz 165W Intel Core i7-9700K 97.9 Coffee Lake-R 8/8 3.6 / 4.9 GHz 95W Intel Core i9-9900K 97.1 Coffee Lake-R 8/16 3.6 / 5.0 GHz 95W Intel Core i9-9900KF 97.1 Coffee Lake-R 8/16 3.6 / 5.0 GHz 225W AMD Threadripper 3970X 96.5 Zen 2 32/64 3.7 / 4.5 GHz 280W AMD Threadripper 397 3990X 96.1 Zen 2 64/128 2.9 / 4.3 GHz 280W AMD Ryzen 9 3900X 96 Zen 2 12/24 3.8 / 4.6 GHz 105W AMD Ryzen 9 3950X 94.8 Zen 2 16/32 3.5 / 4.7 GHz 165W AMD Ryzen 9 3900 94.5 Zen 2 12/24 3.1 / 4.3 GHz 65W AMD Ryzen 9 3900X 96.1 Zen 2 12/24 3.8 / 4.6 GHz 105W Intel 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3.7 / 4.6 GHz 95W AMD Ryzen 5 3600 88.4 Zen 2 6/12 3.6 / 4.2 GHz 65W Intel Core i5-8600K ~ Coffee Lake 6/6 3.6 / 4.3 GHz 15W Intel Core i9-7980XE ~ Skylake 18 / 36 2.6 / 4.3 GHz 165W Intel Core i7-7700K ~ Zen+ 8/16 3.7 / 4.3 GHz 165W Intel Kaby Lake 4/8 4.2 / 4.5 GHz 91W Intel Core i5-8500 ~ Coffee Lake 6/6 3.0 / 4.1 GHz 65W Intel Core i5-9400 / i5-9400F 86.3 Coffee Lake 6/6 2.8 / 4.0 GHz 65W AMD Threadripper 2990WX (GM) 81.6 Zen + 32/64 3.0 / 4.2 GHz 250W Intel Core i5-8400 ~ Coffee Lake 6/6 2.8 / 4.0 GHz 65W Intel Core i5-8400 ~ Coffee Lake 6/6 2.9 / 4.1 GHz 65W Intel Core i5-8400 ~ Coffee Lake 6/6 2.8 / 4.0 GHz 65W Intel Core Core i3-9350KF 80.9 Coffee Lake 4/4 4.0/4.6 GHz 91W AMD Threadripper 2950X (GM) 79.3 Zen + 16/32 3.5 / 4.4 GHz 180W AMD Threadripper 2970WX 79.1 Zen + 24/48 3.0 / 4.2 GHz 95W Intel Core i3-8350K 75.7 Coffee Lake 4/4 4.0 / - GHz 91W AMD Ryzen 7 2700 ~ Zen + 8/16 3.2 / 4.1 GHz 65W AMD Threadripper 1900X (GM) ~ Zen 8/16 3.8 / 4.0 GHz 180W Intel Core i7-7700 ~ Kaby Lake 4/8 3.6 / 4.2 GHz 65W AMD Ryzen 5 2600 ~ Zen + 6/12 3.5 / 4.0 GHz 180W Intel Core i7-7800X ~ Skylake 6/12 3.5 / 4.0 GHz 180W Intel Core i7-7800X ~ Skylake 6/12 3.5 / 4.0 GHz 180W Intel Core i7-7800X ~ Kaby Lake 4/8 3.6 / 4.2 GHz 65W AMD Ryzen 5 2600 ~ Zen + 6/12 3.5 / 4.0 GHz 180W Intel Core i7-7800X ~ Skylake 6/12 Skylake 6/12

180W AMD Threadripper 1920X (GM) ~ Zen 12/24 3.5 / 4.0 GHz 180W AMD Ryzen 7 1800X ~ Zen 8/16 3.6 / 4.0 GHz 95W Intel Core i3-9100 79.3 Coffee Lake 4/4 3.6 / 4.2 GHz 65W Intel Core i3-8300 ~ Coffee Lake 4/4 3.7 / - GHz 62W Intel Core i3-8100 ~ Coffee Lake 4/4 3.6 / - GHz 65W Intel Core i3-8100 ~ Coffee Lake 4/4 3.7 / - GHz 65W Intel Core i3-9100 79.3 Coffee Lake 4/4 3.6 / 4.2 GHz 65W Intel Core i3-8100 ~ Coffee Lake 4/4 3.6 / 4.2 GHz 65W Intel Core i3-8100 ~ Coffee Lake 4/4 3.6 / 4.2 GHz 65W Intel Core i3-8100 ~ Coffee Lake 4/4 3.6 / - GHz 65W Intel Core i3-8100 ~ Coffee Lake 4/4 3.7 / - GHz 65W Intel Core i3-8100 ~ Coffee Lake 4/4 3.6 / 4.2 GHz 65W Intel Core i3-8100 ~ Coffee Lake 4/4 3.6 / - GHZ 65W Intel Core Core i5-7500 ~ Kaby Lake 4/4 3.4 / 3.8 GHz 65W AMD Ryzen 7 1700 ~ Zen 8/16 3.0 / 3.5 GHz 65W AMD Ryzen 5 1600 66.1 Zen 6/12 3.6 / 4.0 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 1600 66.1 Zen 6/12 GHz 95W AMD Ryzen 5 160 3.2 / 3.6 GHz 65W AMD Ryzen 3 3200G 64.6 Zen + 4/4 3.6 / 4.0 GHz 65W AMD Ryzen 5 1500X ~ Zen 4/8 3.5 / 3.7 GHz 65W Intel Core i3-7350K ~ Kaby Lake 2/4 4.2 / - GHz 51W Intel Core i3-7350K ~ Kaby Lake 2/4 4.2 / - GHz 51W AMD Ryzen 5 2400G 63.6 Zen + 4/8 3.6 / 3.9 GHz 65W AMD Ryzen 5 2400G 63.6 Zen + 4/8 3.6 / 3.9 GHz 65W AMD Ryzen 5 2400G 63.6 Zen + 4/8 3.6 / 3.9 GHz 65W Intel Core i3-7350K ~ Kaby Lake 2/4 4.2 / - GHz 51W Intel Core i3-7350K ~ Kaby Lake 2/4 4.2 / - GHZ 51W Intel Core i3-7350K ~ Kaby Lake 2/4 4.2 / - GHZ 51W Intel Core i3-7350K ~ Kaby Lake 2/4 4.2 / - GHZ 51W Intel Core i3-7350K ~ Kaby Lake 2/4 4.2 / - GHZ 51W Intel Core i3-7350K ~ Kaby Lake 2/4 4.2 / - GHZ 51W Intel Core i3-7350K ~ Kaby Lake 2/4 4.2 / - GHZ 51W Intel Core i3-7350K ~ Kaby Lake 2/4 4.2 / - GHZ 51W Intel Core 5 1400 ~ Zen 4/8 3.2 / 3.4 GHz 65W AMD Ryzen 3 1300X ~ Zen 4/4 3.5 / 3.7 GHz 65W AMD Ryzen 3 2200G ~ Zen + 4/4 3.5 / 3.7 GHz 65W AMD Athlon 220GE ~ Zen 2/4 3.4 / - GHz 35W AMD Athlon 220GE ~ Zen 2/4 3.4 / - GHz 35W AMD Athlon 220GE ~ Zen 2/4 3.5 / 3.7 GHz 65W AMD Athlon 220GE ~ Zen 2/4 3.5 / 3.7 GHz 65W AMD Athlon 240GE ~ Zen 2/4 3.5 / - GHz 35W AMD Athlon 220GE ~ Zen 2/4 3.5 / 3.7 GHz 65W AMD Athlon 220GE ~ Zen 2/4 3.5 / 3.7 GHz 65W AMD Athlon 240GE ~ Zen 2/4 3.5 / G5400 ~ Coffee Lake 2/4 3.7 / - GHz 54W Intel Pentium G4620 ~ Kaby Lak costs around 530 Dollars. If you are looking at value for money options, then the Ryzen 7 3700X is an incredible 8 core processor. If money is not a concern, then the 3960X and 3970X are brilliant options. They cost in excess of 1400 Dollars. The Thread Ripper 3990X with 64 cores has a price of \$4000 but performance wise, it does not get better than this. Laptop Processors Comparison In the Desktop segment, AMD and Intel are pretty evenly matched and in some situations AMD even outperforms Intel. However, when it comes to Laptops, the story is different. Intel dominates the Laptop market for processors and has a better and wider portfolio. The Intel i7-9750H is a monster in terms of performance. For normal work, an i5 processor ought to do. Only for heavy computational loads do you require an i7 or i9. On paper, integrated graphics however, it might not be able to handle the most demanding of games, and that too only on the lower settings. Intel has a lot of chips with integrated graphics however the AMD APUs are simply stronger. If you don't have the money to buy a dedicated GPU, it is best to opt for an AMD and Intel, it is quite easy to do. Not all the processors can be overclocked. Most of the chips from AMD support overclocking. It can be done through the BIOS, but we do not recommend that method to inexperienced users. Also, it is best to go for a water-cooling system if you intend to overclock. Intel allows only processors with X or K labels to be overclocked. The Extreme Tuning Utility helps with the overclocking. All the Intel processors come with a stock cooler so it is a necessity to upgrade the cooler while overclocking. A new generation Ryzen Motherboard and vice versa. As a result, upgrading is quite easy. For intel, an 8th generation processor would not work with a 7th generation Motherboard As a result, you have to upgrade both the CPU as well as the motherboards and coolers are much harder to get. Some of the standalone coolers are much harder to get. Some of the standalone coolers are much harder to get. enormous success of the Ryzen chips. The 3950X received Rave reviews and is an incredible processor. The future is definitely bright for AMD. Intel has also experienced success with the likes of i5-9400F being incredibly popular amongst customers. However, the increasing popularity of Ryzen means that it will have to think outside the hat in terms of innovations. Acronyms related to CPU They are parts of a processor. More cores means better multitasking performance. Threads improve the computational speed and are a virtual component. It is measured in GHz and indicates the number of cycles that the processor runs. A bigger number means that it is faster. Thermal Design Power is a measure of the amount of heat the component is expected to release. It is measured in Watts. CPUs have a specific socket type and they can only be installed in motherboards that support the particular socket type. Final Words: Both Intel and AMD make some pretty great CPUs. If you are a dedicated gamer and are not interested in Video rendering and editing, we would recommend going for an Intel CPU. Else, AMD is the better option. AMD vs Intel: which CPUs are better? One of the first questions many of you will have when you get into PCs or laptops. On the one hand, you have Team Blue (Intel)- traditionally known for charging a premium for its quality silicon. In the other corner, is Team Red (AMD), a brand that has successfully shaken its 'performance on a budget' image and now stands toe-to-toe with Intel in the CPU market. The decision between Intel and AMD processors rests on user needs. If you're looking for a CPU dedicated to heavy multitasking loads then purchasing an Intel processor is a great option. However, if you're looking for a CPU dedicated to heavy multitasking loads then purchasing an Intel processor rests on user needs. looking for an energy effcient CPU that's on the slightly cheaper side then AMD might be the right choice. If you're still unsure which way to swing after reading this comparison guide, you can head to our CPU buyers guide hub to crack down on the market's favorite CPUs out there and what they could bring to your desktop. AMD is now seen as a genuine contender by the PC community, and under charismatic CEO Dr. Lisa Su, the company has soared to record highs and dramatically improved its CPU performance. But in the real world, how do they stack up? This article is all about dissecting the two company's current offerings to see which CPUs come out on top in 2025. As a reader, you're likely seeking clarity on which brand will serve your computing needs best, whether it's for multitasking, gaming, or efficient PC power usage—and we're here to provide just that. After all, we have plenty of hands-on experience with both AMD and Intel products. We'll explore the latest specs and features, evaluate the pricing and value, and delve into how Intel processors and AMD processors handle multitasking and productivity tasks. For the gamers, we'll examine which CPUs could give you the edge in the latest titles. And because performance isn't the only consideration, we'll also discuss power consumption and heat output—critical factors for many builds so you'll know if you'll need to replace anything. Without further ado, let's dig into some of the best CPUs offered by Team Blue and Team Red. This is Intel vs AMD. When evaluating the latest CPU offerings, Intel and AMD present their unique takes on power and performance. Previously its top-of-the-line CPU, Intel's Core i9-13900K commands attention with its 24 cores and 32 threads, and its high boost clock of 5.8 GHz is impressive. It maintains a TDP of 125W but can push to 253W for peak performance. However, Intel's Raptor Lake refresh that was released in October 2023 saw the i9 14900K, built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K, built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K, built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K, built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K, built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw the i9 14900K built upon the Raptor Lake refresh that was released in October 2023 saw that was claim with a 144MB cache and an efficient energy profile, topping at 162W under full load. It can also almost match Intel's strengths lie in its architectural design, which delivers a balanced performance that's tough to beat. The Core i9-13900K stands out for its ability to handle intensive multi-threaded tasks without breaking a sweat, making it ideal for both gaming and productivity. The downside? These chips can be power-hungry under load, which might lead to higher energy bills and the need for better desktop cooling solutions. Annoyingly, it seems that the refreshed 14th Gen chips are no exception, and although delivering better performance, they haven't been blessed with lower power consumption. What this means is you're going to need a pretty hefty cooling solution, especially when you start looking at the i99. Core Base/Boost (GHz)Cache (L2/L3)TDP-PBP / MTPCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 253WCore i9-14900K\$58924 / 32 (8+16)3.2 / 5.868MB (32+36)150W / 324.5 / 5.868MB (32+36)150W / 5.868MB (32+36)150W / 5.868MB (32+36)150W / 5.868MB (32+ 324.2 / 5.7144MB (16+128)120W / 162WRyzen 9 7900X\$54912 / 244.7 / 5.676MB (12+64)170W / 230WRyzen 9 7900X3D\$59912 / 244.4 / 5.6140MB (12+128)120W / 162WRyzen 9 7900X3D\$4498 / 163.4 / 4.596MB105WCore i7-14700K\$4098 / 123.4 / 5.561MB (33/28)125W / 253WCore i7-13700K\$40916 / 24 (8+8)3.4 / 5.454MB (24+30)125W / 2600X3D\$4498 / 162.4 / 5.6140MB (12+128)120W / 162WRyzen 9 7900X3D\$4498 / 163.4 / 4.596MB105WCore i7-14700K\$4098 / 123.4 / 5.6140MB (12+128)120W / 162WRyzen 9 7900X3D\$4498 / 163.4 / 4.596MB105WCore i7-14700K\$4098 / 123.4 / 5.6140MB (12+128)120W / 162WRyzen 9 7900X3D\$4498 / 163.4 / 5.6140MB (12+128)120W 253WRyzen 7 7700X\$3998 / 164.5 / 5.440MB (8+32)105W / 142WRyzen 7 8700G\$3298 / 164.2 / 5.124 (8+16)45-65WRyzen 5 7600X\$2996 / 124.7 / 5.338MB (6+32)105W / 142WRyzen 5 7600X\$2986 / 124.7 / 5.338MB (6+32)105W / 142WRyzen 5 7600X\$2996 / 124.7 / 5.338MB (6+32)105W / 142WRyzen 5 7600X\$290 / 124.7 / 5.338MB (6+32)105W / 142WRyzen 5 7600X\$290 / 124.7 / 5.338MB (6+32)105W / 142WRyzen 5 7600X\$290 / 124.7 / 5.338MB (6+32)105W / 142WRyzen 5 7600X\$200 / 124.7 / 5.338WB (6+32)105W / 142WR 5.338MB (6+32)105W / 142WRyzen 5 8600G\$2296 / 124.3 / 5.022MB (6+16)45-65WRyzen 5 8500G\$2296 / 123.5 / 5.022MB (6+16)45-65WRyzen 3 8300G\$1764 / 83.4 / 4.912MB (4+8)45-65WRyzen 5 8500G\$2296 / 123.5 / 5.022MB (6+16)45-65WRyzen 5 8500G\$296 / massive cache, giving it an edge in high-frame-rate scenarios. However, the focus on gaming performance means that it can lag in general productivity tasks when compared to Intel's more balanced offerings. Additionally, Ryzen's reliance on the newer DDR5 memory means users will face higher upgrade costs if they're coming from older systems One thing AMD does have over Intel is what they've called a 3D V-Cache (You can tell if you have one because it'll have 3D in the name, such as the Ryzen 75800X3D). This vertical cache was so effective, combining efficiency and more than 200 times the interconnect density of a 2D chipset, that it's among the fastest desktop processors in the world We've broken down the Intel Core i9 14900KS vs Ryzen 7 5800X3D, should you want a closer look at how the 3D V-Cache compares with Intel's top-of-the-range chip. After considering the pros and cons, Intel comes out on top in the specs and features category. Its CPUs offer a blend of performance and versatility that's hard to overlook, providing a better overall experience for a wider range of activities. Intel also maintains compatibility with DDR4, allowing for a more budget-friendly upgrade path. Thus, for users looking for an all-encompassing CPU that delivers across the board, Intel is still the way to go in the AMD vs Intel showdown. AMD is more than fine if you're looking to build a gaming rig, but if you're wanting to build an all-rounder, an i7 or if the budget stretches, an i9, is still the way to go in 2025. In the AMD vs Intel battle of CPU pricing and value, Team Blue has rolled up its sleeves to reclaim its position in the market. The launch of Raptor Lake is a clear indicator of Intel's aggressive strategy, marking a significant drop in the cost per core and thread across its Core i5, i7, and i9 ranges. This strategic pricing allows Intel to overshadow AMD in value, particularly in the mid to high-end segments. AMD has long been the go-to for budget-conscious buyers, thanks to perks like included coolers and the freedom to overclock across most of its product line. The company's forward-thinking features like Precision Boost Overdrive further cemented its place as a value leader. But times have unfortunately changed. AMD's offerings less appealing to those seeking maximum value for their investment. Intel stands out in the multitasking and productivity arena, particularly with its Core i9-13900K processor. Boasting 24 cores capable of juggling 32 threads, it's an impressive powerhouse that excels in keeping numerous tasks moving fluidly. The chip's performance shines in benchmarks, notching a towering Passmark score of 60,009, and it leads the pack with a single-thread rating of 4,679. The 14 Gen takes things even further, with i7 models. AMD, while offering solid CPUs, can't match Intel's core and thread count, which translates to a slightly more constrained multitasking experience. Especially for those engaged in content creation or heavy multitasking, this core count discrepancy can be the deciding factor. Intel's chips are adept at seamlessly transitioning between tasks, ensuring productivity doesn't falter even under heavy loads. With a blend of robust single-threaded performance. and a multitude of cores for parallel processing, Intel delivers a smooth and efficient computing experience. This balance makes Intel the preferred choice for users who demand peak performance across a breadth of applications. When it comes to AMD vs Intel in the gaming realm, AMD steals the spotlight with its X3D line of CPU chipsets, which includes the Ryzen 7 7800X3D, Ryzen 9 7950X3D, and Ryzen 9 7950X3D. These processors are tailored for gamers seeking the pinnacle of performance, and they deliver by topping the charts in gaming benchmarks. Notably, the Ryzen 7000 series features high-performance integrated graphics – the Radeon Graphics integrated graphics solution. However, we've still made sure to delve into the best GPU for the Ryzen 7 7800X3D to find you a graphics card that this AMD CPU superpower won't bottleneck. The Ryzen 7 7800X3D, in particular, has made waves as an outstanding gaming processor, marking its territory as the best option available for pure gaming provess. It's a formidable choice for those who prioritize gaming above all else and is recognized as such among the community of gamers. However, this gaming superiority comes with certain caveats in productivity workloads, where AMD's X3D chips may not perform as well as some users require. If your computing needs are multifaceted, encompassing both gaming and productivity, Intel's offerings might serve you better. They provide a more balanced package, ensuring that users don't have to compromise on performance outside of their gaming escapades. The top-end Intel cards are incredibly powerful but need the right cooling solutions. Make sure you check your coolers to ensure they're powerful enough tcc deal with a significant amount of heat. We woud always recommend liquid over air coolers fo i9 CPUs. When it comes to power consumption and heat, AMD leads with its advanced 5nm process technology. AMD chips are more power-efficient and cooler, translating to energy savings and less strain on cooling systems. Intel, despite improvements with its Raptor Lake series, still tends to consume more power. However, the performance delivered by Intel CPUs ofter more processing power for each watt consumed and come with more manageable thermal demands. This makes AMD the better choice for those who prioritize energy efficiency and lower operating temperatures in their computing tasks. A great way to see how the two brands compare is by looking at both of their flagship CPUs and seeing how they differ. Both the Core i9-14900K from Intel and Ryzen 9 7950X from AMD offer extremely high processing capabilities and paired with the right GPU can create quite the powerful PC setup. But how are they different? There is quite a lot to be said about the differences between these processors - the only thing they seem to have in common is that they're both X86 CPUs. The i9-14900K supports Raptor Lake architecture and is a Hybrid monolithic CPU. meaning that it is a single piece of silicon made up of both 8 P-cores and 16 E-cores. Whereas, the Ryzen 9 7950X is based on Zen 4 architecture; using two chips that contain eight cores each. The hybrid design in the i9-14900K is beneficial because only a few P-cores are necessary for good single-threaded performance, meaning the E-cores can provide for multi-threaded tasks. Therefore, in terms of raw performance, the difference in architecture here means that the Core i9-14900K takes the slight upper hand. Another major difference is their processors is the p the CPU. The Ryzen 9 7950X is made of TSMC's 5nm node and the Core i9-14900K is made on the Intel 7 node (formerly 10nm). In this area, the Ryzen 9 7950X is slightly in front, because its node is nearly a full generation ahead of the i9-14900K, improving its efficiency. Both CPUs are highly powerful, but due to their architecture, they do pose different advantages for use. If you're looking for raw performance then the i9-14900K might be the right option for you. However, if efficiency plays a major role in your decision making then perhaps the Ryzen 9 7950X is the right option for you. manufacture their processors, which subsequently play a role in their performance capabilities. Since AMD's partnership with the latest range of processors featuring TSMC's 5nm node. Intel has always been at the top of the game when it comes to producing high-quality processors, however, they take a different approach to AMD during the manufacturing process. Unlike AMD, Intel uses its own manufacturing process, with the latest being called 'Intel 7'. This process uses 7nm technology in Intel's latest generation of commercial chips. Which allows the processors to be faster and more energy-efficient due to their smaller transistors and size. Gamers looking for the top frame rates in games often gravitate toward AMD's high-end offerings. AMD has made significant strides with its Ryzen series, especially the X3D chips that offer the best gaming performance currently available, and for this reason, they tend to score highly when it comes to the best CPUs for gaming. That being said, Intel still very much represents the highest-end when it comes to CPUs. While not every generation is created equal - the 14th Gen for example received a lukewarm response from the community after the decent 13th gen chips, Intel CPUs typically are better all-rounders when facing off against the more gaming-focused AMD offerings. Intel and AMD use the LGA 1700 socket, while AMD's Ryzen 5000 series CPUs use the AM4 socket, and its latest Ryzen 7000 series CPUs use the new AM5 socket. It's essential to match the CPU to a motherboard with the correct socket type, so it's good to have this knowledge under you'll no doubt be weighing up between AMD and Intel, as they sit neck and neck at the top of the processor market. While Intel might take the edge in terms of speed on heavy multitasking loads, AMD's speeds aren't far behind and often perform more energy efficiently. With such close competition on our hands, the CPU that's going to be better for you depends on your current system setup, what you need it for, and how much you have available to spend on it. If you're just going to focus on building a gaming rig, then opting for an i9 is overkill and you can absolutely consider a cheaper, AMD CPU. However, if you're looking to multi-task or you do a lot of video editing, Intel chips - especially newer i7 and i9 models, will be absolutely perfect for you. Opt for the 13th Gen if you're looking to get a balance of value and performance, which we think will go down even more in price once Intel reveals their rumored 15th Gen chips. We care deeply about transforming lives with AMD technology to enrich our industry, our communities, and the world. Our mission is to build great products that accelerate next-generation computing experiences - the building blocks for the data center, artificial intelligence, PCs, gaming and embedded. Underpinning our mission is the AMD culture. We push the limits of innovation to solve the world's most important challenges. We strive for execution excellence while being direct, humble, collaborative, and inclusive of diverse perspectives. AMD together we advance Primary 2485 Augustine Drive Santa Clara, California 95054, US Get directions 7171 Southwest Pkwy Austin, Texas 78735, US Get directions 102 Bengaluru, Karnataka 560066, IN Get directions 508 Chai Chee Ln Singapore, Singapore 469032, SG Get directions 2950 E Harmony Ro Fort Collins, Colorado 80528, US Get directions 3501 Quadrangle Blvd Orlando, Florida 32817, US Get directions 2033 State Highway 249 Houston, Texas 77070, US Get directions 2002 156th Ave NE Bellevue, Washington, US Get directions 24, Rue Lamartine Eybens, Auvergne-Rhone-Alpes 38320, FR Get directions 314 Midsummer Boulevard Milton Keynes, England, GB Get directions Via Polidoro da Caravaggio, 6 Milan, Lombardy 20156, IT Get directions Einsteinring 24 Dornach, Bavaria 85609, DE Get directions 13, Rue Camille Desmoulins Issy-les-Moulineaux, Ile-de-France 92130, FR Get directions Rue Royale 97 Brussels, Brussels Region 1000, BE Get directions 123 Epping Rd North Ryde, New South Wales 2113, AU Get directions So, what's the difference between an AMD and Intel motherboard? Which motherboard? Whic be tackling all these questions and more to make sure you know all you need to in order to choose between an AMD and Intel platform. A Brief on Motherboards, AMD and Intel platform. A Brief on Motherboard would be equivalent to the spine and central nervous system. Every single component in your system must connect to and communicate through the motherboards are overlooked in PC builds, they're actually one of the most high-impact buying decisions you'll ever make in a PC and motherboards can even impact performance considerably.PC motherboards are primarily sold to be compatible with AMD and Intel CPUs, the two major CPU manufacturers. CPU architecture and motherboard architecture (including chipset architecture) must always be built side-by-side to ensure compatibility. In most cases, modern motherboards themselves aren't made by AMD or Intel, even though they are tied to a specific CPU brand and generation. Rather, AMD and Intel specify technical features, and how their chipsets and CPUs are best integrated on a motherboard, but they don't manufacture or assemble the motherboard itself. That's a job for motherboard itself. That's a job for motherboard itself. GPU chip itself and then let GPU Board Partners create their own Graphics Cards by integrating this chip. The CPUs supported by any motherboard will depend on your CPU socket, your motherboard chipset, and BIOS updates. If a board is compatible with more than one generation, you'll need to apply those BIOS updates before trying to install a newer CPU.What's The Difference Between an AMD and Intel Motherboards are fiercely competitive across price ranges but also...mostly the same, especially once you hit high-end motherboards and nobody's pulling punches on Chipset or VRMs. Here are the main differences between AMD and Intel desktop motherboards are actually available at cheaper prices thanks to some boards support): At the time of writing, Intel desktop motherboards are just as expensive as AMD's though, if not worse. However, AMD's DDR5-only methodology makes for a more expensive barrier of entry than may be necessary. Most of AMD's motherboard chipsets allow the same. This usually results in overclockable Intel PC builds being more expensive, especially if all else is equa (ie, DDR5 support). For extra motherboard features not tied to chipset, like Wi-Fi, AMD and Intel motherboards will randomly trade places on pricing and availability. Overall, the differences between AMD and Intel's mainstream motherboards will randomly trade places on pricing and availability. cheaper brand, AMD is also pushing a more premium facade this generation by being the first to adopt a DDR5-only socket, though Intel is sure to follow suit before long, eventually making this point null.FAQDo All AMD Motherboards Use PGA Sockets?For a very long time, nearly all mainstream AMD motherboards used PGA CPU sockets.AM4 and AM3 before it both used PGA CPU sockets. However, AMD Threadripper on HEDT has always been using LGA CPU sockets, and as of AM5, AMD's mainstream desktop platform is also using an LGA CPU sockets, and as of AM5, Not all AMD motherboards use PGA sockets. However, AMD Threadripper on HEDT has always been using LGA CPU sockets, and as of AM5, AMD's mainstream desktop platform is also using an LGA CPU sockets. sockets far more frequently than AMD does, and so they don't have backward compatibility with older CPUs. If your Intel motherboards supports an older CPU, it'll never be more than a generation or two old before Intel changes the socket. Are AMD Motherboards Futureproof? "Futureproof?" might be a strong word, but in general AMD has a better track record for supporting a given CPU socket for a longer period of time than Intel. This gives them some more "futureproofing" for sure, at least in terms of potential future CPU upgrades. However, there's nothing inherently more "futureproof" about AMD boards besides. Are Intel or AMD Motherboards Better? Hard to say! I think the answer truly depends on you and what you prioritize. If all you care about is features for the price, AMD motherboards might be better. You get access to overclocking without an exorbitant price premium on the CPU and motherboards might be better. you like high-end features and are willing to opt for the high-end chipsets to match. However, the price tag for access to features like overclocking can be discouraging, and historically speaking, the average pricing of an Intel platform will likely be higher than an AMD platform with the same features. Does AMD AM5 Support DDR4? Nope! All AMD AM5 motherboards have completely dropped DDR4 RAM support in favor of DDR5 RAM. If you want to stay up-to-date with AMD, apparently, you need to cough up that DDR5 premium. No more alternate motherboards for differences between AMD and Intel motherboards. Truthfully, they're competitive enough with each other that I don't think you'd be wrong to choose either board manufacturer as the platform for your next PC build, especially since they're constantly one-upping each other in CPU performance. Even single-core performance now that AMD is getting frisky with their Level 3 Cache.But what do you think? Feel free to leave a comment with any questions or concerns about motherboards or PC hardware in general below. Me or another CGD Team member will assist you as soon as we can. Alternatively, you can hang out on our Forum with other Enthusiasts and Experts if those are more your speed. As a person who likes talking in paragraphs, a forum is more or less my natural habitat. Anyway, it's time to wrap up here! Best of luck with your PC build. Whether you go with AMD or Intel, I bid you a smooth, headache-free building experience! Skip to main content Sowell Financial Services LLC purchased a new position in Aflac Incorporated (NYSE:AFL - Free Report) in the 1st quarter, HoldingsChannel reports. The fund purchased 7,779 shares of the financial services provider's stock,... 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