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# MacBook Air (Intel-based)

The Intel-based **MacBook Air** is a discontinued line of *notebook* computers developed and manufactured by Apple Inc. from 2008 to 2020. The Air was originally positioned above the previous MacBook line as a premium ultraportable.<sup>[2]</sup> Since then, the original MacBook's discontinuation in 2011, and lowered prices on subsequent iterations, made the Air Apple's entry-level notebook.<sup>[3]</sup>

The MacBook Air was introduced in January 2008 with a 13.3-inch screen, and was promoted as the world's thinnest notebook, opening a laptop category known as the *ultrabook* family. Apple released a second generation MacBook Air in October 2010, with a redesigned tapered chassis, standard solid-state storage, and added a smaller 11.6-inch version. Later revisions added Intel Core i5 or i7 processors and Thunderbolt.<sup>[4]</sup> The third generation was released in October 2018, with reduced dimensions, a Retina display, and combination USB-C/Thunderbolt 3 ports for data and power.

The Intel-based MacBook Air was discontinued in November 2020 following the release of the first MacBook Air with Apple silicon based on the Apple M1 processor.

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## 1st generation (Unibody)

Steve Jobs introduced the MacBook Air during Apple's keynote address at the 2008 Macworld conference on January 15, 2008.<sup>[5]</sup> The first generation MacBook Air was a 13.3" model, initially promoted as the world's thinnest notebook at 1.9 cm (a previous record holder, 2005's Toshiba Portege R200, was 1.98 cm high).<sup>[6][7]</sup> It featured a custom<sup>[8]</sup> Intel Merom CPU and Intel GMA GPU which were 40% as big as the standard chip package.<sup>[9]</sup> It also featured an anti-glare LED backlit display, a full-size keyboard, and a large trackpad that responded to multi-touch gestures such as pinching, swiping, and rotating.<sup>[10]</sup> Since the release of Snow Leopard, the trackpad has also supported handwriting recognition of Chinese characters.<sup>[11]</sup>

The MacBook Air was the first subcompact notebook offered by Apple after the 12" PowerBook G4 discontinued in 2006. It was also Apple's first computer with an optional solid-state drive.<sup>[12]</sup> It was Apple's first notebook since the PowerBook 2400c without a built-in removable media drive.<sup>[13]</sup> To read optical disks, users could either purchase an external USB drive such as Apple's SuperDrive or use the bundled Remote Disc software to access the drive of another computer wirelessly<sup>[14]</sup> that has the program installed.<sup>[15][16]</sup> Either option can also be used to reinstall the system software from the included installation DVD. Remote Disc supports booting over a network, so the Air can boot from its installation DVD in another computer's drive if Remote Install Mac OS X is running on that computer. The software does not allow playing video DVDs or audio CDs, or installing Windows.<sup>[14]</sup> For these capabilities, an external USB drive is required.<sup>[14]</sup> More recent versions of OS X replaced the installation DVD with a USB flash drive containing the software, eliminating the need for remote installation. The MacBook Air also does without a FireWire port, Ethernet port, line-in, and a Kensington Security Slot.<sup>[17]</sup>

On October 14, 2008, a new model was announced with a low-voltage Penryn processor and Nvidia GeForce graphics.<sup>[18]</sup> Storage capacity was increased to a 128 GB SSD or a 120 GB HDD,<sup>[19]</sup> and the micro-DVI video port was replaced by the Mini DisplayPort.<sup>[20]</sup> A mid-2009 version featured slightly higher battery capacity and a faster Penryn CPU.<sup>[21]</sup>

### Design

Apple incorporated several features in the design of the MacBook Air, such as the reduction of lead to make it more environmentally friendly. The MacBook Air contains no BFRs and PVC wiring, meets Energy Star 5.0 requirements, has a recyclable enclosure, and is rated EPEAT Gold. Its display is made with arsenic-free glass and contains no mercury.<sup>[6][22]</sup>

### Reception

On its introduction, the MacBook Air received mixed reviews which praised its portability, but criticized the compromises made in terms of features.<sup>[23][24][25]</sup> The full-sized keyboard, lightness, thinness, and Multi-Touch trackpad were appreciated in reviews, while the limited configuration options and ports, slow speed, non-user-

MacBook Air (Intel-based)



Steve Jobs showing the first MacBook Air at Apple's 2008 keynote address

Developer	Apple Inc.
Product family	Macintosh
Product family	MacBook family
Type	Subnotebook
Release date	January 29, 2008 (first model) <sup>[1]</sup>  March 18, 2020 (last model)
Discontinued	November 10, 2020
Operating system	macOS
Successor	MacBook Air (Apple silicon)
Related articles	MacBook, MacBook Pro
Website	www.apple.com/macbook-air (https://www.apple.com/macbook-air/)



The original 2008 MacBook Air

replaceable battery, small hard drive, and price were criticized.<sup>[26][27]</sup> The flip-down hatch on the side of the original MacBook Air was a tight fit for some headphone plugs and USB devices, requiring users to purchase an extension cable. Apple removed the flip-down hatch on the late 2010 model in favor of open ports like those of most other laptops.<sup>[26][27]</sup>

Some users have complained of CPU lockup caused by overheating. Apple released a software update in early March 2008 to fix the problem with mixed results: the deactivation of one CPU core was corrected; however, some users reported that the runaway kernel problem continued.<sup>[28]</sup> The problem is aggravated by system-intensive tasks such as video playback or video chatting.<sup>[29]</sup>

ArsTechnica found "moderate" performance improvements of the 64-GB<sup>[a]</sup> solid-state drive of the first-generation Air over the standard 80 GB hard drive in tests.

"Thinnest notebook"

At the launch of the MacBook Air in January 2008, Apple claimed it was the thinnest notebook in the world. This was literally true, but more important was the fact that the MacBook Air was much thinner than mainstream laptops at the time. Its total component integration and use of an entirely new class of Intel processors with a lower TDP and higher integration than previously available made it the first of a new wave of thin performance laptops. Over the years, Apple has removed the claim of being "the world's thinnest notebook" from their marketing materials as other, similarly thin laptops have come to market.

Technical specifications

Obsolete <sup>[30]</sup>
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		Original (Early 2008)	Late 2008	Mid 2009
Timeline	Announced	January 15, 2008 <sup>[31]</sup>	October 14, 2008 <sup>[20]</sup>	June 8, 2009 <sup>[32]</sup>
	Released	January 30, 2008 <sup>[31]</sup>	<i>[data unknown/missing]</i>	<i>[data unknown/missing]</i>
	Discontinued	October 14, 2008 <sup>[31]</sup>	June 8, 2009 <sup>[20]</sup>	October 20, 2010 <sup>[32]</sup>
	Unsupported	October 14, 2015 <sup>[30]</sup>	June 8, 2016 <sup>[30]</sup>	October 20, 2017 <sup>[30]</sup>
Model	Model identifier	MacBookAir1,1	MacBookAir2,1	
	Model number (on underside)	A1237	A1304	
	Part number (order number)	MB003	MB543, MB940	MC233, MC234
Display (glossy)		13.3", native 1280 × 800 pixels (16:10, 113 ppi) TN. Lower resolutions supported		
Performance	Graphics	Intel GMA X3100 using 144 MB of DDR2 SDRAM ( <i>shared with system memory</i> ) with Micro-DVI output	Nvidia GeForce 9400M using 256 MB of DDR3 SDRAM ( <i>shared with system memory</i> ) with Mini DisplayPort output	
	Front-side bus / DMI	800 MHz		1066 MHz
	Processor	1.6 GHz Intel Core 2 Duo (L7500) with 4 MB on-chip L2 cache <i>Optional 1.8 GHz (L7700) Intel Core 2 Duo</i>	1.6 GHz Intel Core 2 Duo (SL9300) with 6 MB on-chip L2 cache <i>Optional 1.86 GHz (SL9400) Intel Core 2 Duo</i>	1.86 GHz Intel Core 2 Duo (SL9400) with 6 MB on-chip L2 cache <i>Optional 2.13 GHz (SL9600) Intel Core 2 Duo</i>
	Memory	2 GB <sup>[b]</sup> of 667 MHz DDR2 SDRAM		
Storage		80 GB 4200-rpm 1.8-inch PATA HDD or 64 GB SSD		
		120 GB 4200-rpm 1.8-inch SATA HDD or 128 GB SSD		
		iSight (640 × 480)		
		Internal Wi-Fi 4 (802.11a/b/g and draft-n)		

Connectivity	Wireless connectivity	Bluetooth 2.1 + EDR Built-in infrared (iR) receiver for Apple Remote <i>Optional Apple USB Ethernet Adapter (Year 2008)</i>	
	Peripheral connections	1× USB 2.0 MagSafe Micro-DVI video port <i>DVI-D/VGA adapter included</i>	1× USB 2.0 MagSafe 1× Mini DisplayPort video port
	Audio	3.5 mm headphone jack Mono speaker	
Operating system	Minimum	Mac OS X 10.5 Leopard	
	Latest released	Mac OS X 10.7 Lion	OS X 10.11 El Capitan
Power	Battery (non-removable lithium-ion polymer)	37-watt-hour	40-watt-hour
	Battery cycle count <sup>[33]</sup>	300	500
Appearance	Unit weight	3.0 lb (1.36 kg)	
	Dimensions	12.8 in (33 cm) wide × 8.94 in (23 cm) deep × 0.16 in (0.4 cm) to 0.76 in (1.9 cm) high (13")	

## 2nd generation (Tapered Unibody)

On October 20, 2010, Apple released a redesigned 13.3-inch model with a tapered enclosure, higher screen resolution, improved battery, a second USB port, stereo speakers, and standard solid state storage. An 11.6-inch model was introduced, offering reduced cost, weight, battery life, and performance relative to the 13.3-inch model, but better performance than typical netbooks of the time. Both 11-inch and 13-inch models had an analog audio output/headphone minijack supporting Apple earbuds with a microphone. The 13-inch model received a SDXC-capable SD Card slot.<sup>[34][35][36][37][10]</sup>

On July 20, 2011, Apple released updated models, which also became Apple's entry-level notebooks due to lowered prices and the discontinuation of the white MacBook around the same time.<sup>[3]</sup> The Mid 2011 models were upgraded with Sandy Bridge dual-core Intel Core i5 and i7 processors, Intel HD Graphics 3000, backlit keyboards, Thunderbolt, and Bluetooth was upgraded to v4.0.<sup>[38][39]</sup> Maximum storage options were increased up to 256 GB. These models use a less expensive "Eagle Ridge" Thunderbolt controller that provides two Thunderbolt channels (2 × 10 Gbit/s bidirectional), compared to the MacBook Pro which uses a "Light Ridge" controller that provides four Thunderbolt channels (4 × 10 Gbit/s bidirectional). This revision also replaced the Expose (F3) key with a Mission Control key, and the Dashboard (F4) key with a Launchpad key.

On June 11, 2012, Apple updated the line with Intel Ivy Bridge dual-core Core i5 and i7 processors, HD Graphics 4000, faster memory and flash storage speeds, USB 3.0, an upgraded 720p FaceTime camera, and a thinner MagSafe 2 charging port.<sup>[40]</sup>

On June 10, 2013, Apple updated the line with Haswell processors, Intel HD Graphics 5000, and 802.11ac Wi-Fi. The standard memory was upgraded to 4 GB, with a maximum configuration of 8 GB. Storage started at 128 GB SSD, with options for 256 GB and 512 GB. The Haswell considerably improved battery life from the previous generation, and the models are capable of 9 hours on the 11-inch model and 12 hours on the 13-inch model; a team of reviewers exceeded expected battery life ratings during their test.<sup>[41]</sup>

In March 2015, the models were refreshed with Broadwell processors, Intel HD Graphics 6000, Thunderbolt 2, and faster storage and memory.<sup>[42]</sup> In 2017, the 13-inch model received a processor speed increase from 1.6 GHz to 1.8 GHz and the 11-inch model was discontinued. The 2017 model remained available for sale after Apple launched the next generation in 2018. It was discontinued in July 2019. Before its discontinuation it was Apple's last notebook with USB Type-A ports, MagSafe (until it was reintroduced in 2021), a non-Retina display, a backlit rear Apple logo, and the startup chime (until the introduction of M1-powered MacBooks in 2020).<sup>[43]</sup>

### Design and upgradability

Although MacBook Air components are officially non-user-replaceable, third parties do sell upgrade kits for the SSDs. The flash memory and battery are enclosed in the casing, and the RAM is soldered onto the motherboard. The flash memory is difficult to access and has a 128 MB cache<sup>[44]</sup> and a mSATA connection (updated to a proprietary PCIe interface) to the motherboard.<sup>[45]</sup>

#### Issues

Due to a more mature manufacturing process, the CPUs in the second-generation MacBook Air performs better under load, as the first generation chips ran hotter—the processor needed to be throttled to avoid overheating and this further degraded performance.<sup>[46]</sup>

On October 17, 2013, Apple announced a replacement program for the 64 GB and 128 GB MacBook Air flash storage drives installed in Air systems purchased between June 2012 and June 2013.<sup>[47]</sup>

### Reception

#### Comparison with iPad and netbooks

Although the 11-inch Air is only 0.6 pounds lighter than the 13-inch Air, the biggest difference is the footprint which gives each model a distinct category; the 13-inch Air is much closer in size to most other conventional laptops, while the 11-inch Air is almost small enough to fit in a space that can hold an iPad.<sup>[48][49]</sup>

The 11-inch MacBook Air carried the desirable essential attributes of a netbook, but without the drawbacks of a slower processor and less capable operating system,<sup>[50]</sup> albeit at a higher price.<sup>[51][52][53][54][55]</sup> At the low end, Apple introduced the iPad—a different form factor than the netbook, but with improved computing capabilities and lower production cost. Both of these led to a decline in netbook sales, and most PC manufacturers have consequently discontinued their netbook lines in response.<sup>[56]</sup> Capitalizing on the success of the MacBook Air,<sup>[57]</sup> Intel promoted ultrabooks as a new high-mobility standard, which has been hailed by some analysts as succeeding where netbooks failed.<sup>[58][59][60]</sup>

#### Intel's ultrabook competition

Intel developed a set of specifications for the ultrabook, a higher-end type of subnotebook produced by various PC manufacturers and usually running Windows. Competing directly with the Air, ultrabooks are intended to reduce size and weight, and extend battery life without compromising performance.<sup>[61][62][63]</sup>



MacBook Air (2nd generation)



Left side of a Late 2010 MacBook Air. From left to right, MagSafe power connector, USB port, headphone jack and built-in microphone.



The optional Apple USB SuperDrive DVD drive

Through July 1, 2013, the MacBook Air took in 56 percent of all ultrabook sales in the United States, despite being one of the higher-priced competitors.<sup>[64]</sup> Apple had previously dominated the premium PC market, in 2009 having a 91 percent market share for PCs priced at more than \$1,000, according to NPD, and ultrabooks were an attempt by other PC manufacturers to move in on Apple's turf.<sup>[65]</sup> While Apple's MacBook lines were not immune to this consumer trend towards mobile devices,<sup>[66]</sup> they still managed to ship 2.8 million MacBooks in Q2 2012 (the majority of which were the MacBook Air) compared to 500,000 total ultrabooks,<sup>[67][68]</sup> despite there being dozens of ultrabooks from various manufacturers on the market while Apple only offered 11-inch and 13-inch models of the MacBook Air.<sup>[69]</sup> Forrester Research analyst Frank Gillett attributes Apple's increased success in the enterprise market to the 2010 MacBook Air and the iPad.<sup>[70]</sup>

While several ultrabooks were able to claim individual distinctions such as being the lightest or thinnest, the MacBook Air was regarded by reviewers as the best all-around ultrabook in regard to "OS X experience, full keyboard, superior trackpad, Thunderbolt connector and the higher-quality, all-aluminum unibody construction".<sup>[64]</sup>

Microsoft's Surface Pro 2 has a similar size and price to the 11-inch MacBook Air.<sup>[71][72]</sup> Apple CEO Tim Cook has criticized the Surface Pro and other ultrabook hybrids running the touch-based Windows 8, that attempt to combine PC and tablet functionality in one device, saying that such devices were confusing like trying to "combine a fridge and a toaster".<sup>[73][74]</sup>

When released in October 2010, the 13-inch model's screen resolution was higher than the average 1366×768 screens of similar sized laptops. However, by 2013, with many premium ultrabooks having high resolution screens (1080p or greater) as standard or upgrades, the MacBook Air was increasingly criticized for sticking with a low-resolution screen. Many in the tech community had expected Apple to release a MacBook Air with Retina Display by the summer of 2013, similar to the MacBook Pro Retina which came out in 2012.<sup>[75]</sup> The October 2013 refresh of the 13-inch MacBook Pro Retina, with a slimmer chassis and a lower price point, was mentioned as a potential MacBook Air alternative as the battery life is not much shorter while not being considerably bulkier.<sup>[2][76]</sup> Apple released an entry-level version of the 13-inch MacBook Pro on October 27, 2016, which was specifically targeted towards MacBook Air users.<sup>[77]</sup> A Retina MacBook Air was released in late 2018.

The 11.6-inch MacBook Air, introduced in October 2010, is only slightly larger and heavier (when closed) than the iPad 2. The 11.6-inch Air has been regarded as thin and light compared to other ultraportables, such as the Sony VAIO Z and the 11-inch Samsung Series 9.<sup>[78]</sup>

As of 2013, several ultrabooks such as the Sony VAIO Pro have managed smaller dimensions than the MacBook Air by using carbon fiber construction.<sup>[79][80][81]</sup>

## Technical specifications

	Obsolete <sup>[82]</sup>		Vintage		Discontinued						
Model		Late 2010		Mid 2011		Early 2012 (Education only)	Mid 2012	Mid 2013	Early 2014	Early 2015	Mid 2017
Released Date	11"	October 20, 2010 <sup>[83][84]</sup>		July 20, 2011 <sup>[85][86]</sup>		N/A	June 11, 2012 <sup>[87][88]</sup>	June 10, 2013 <sup>[89][90]</sup>	April 29, 2014 <sup>[91]</sup>	March 9, 2015 <sup>[92]</sup>	N/A
	13"					February 12, 2012					June 5, 2017
Discontinued Date	11"	July 20, 2011 <sup>[83][84]</sup>		June 11, 2012 <sup>[85][86]</sup>		N/A	June 10, 2013 <sup>[87][88]</sup>	April 29, 2014 <sup>[89][90]</sup>	March 9, 2015 <sup>[91]</sup>	October 27, 2016 <sup>[92]</sup>	N/A
	13"					June 11, 2012				June 5, 2017 <sup>[92]</sup>	July 9, 2019
Model identifier	11"	MacBookAir3,1		MacBookAir4,1		N/A	MacBookAir5,1	MacBookAir6,1		MacBookAir7,1	N/A
	13"	MacBookAir3,2		MacBookAir4,2			MacBookAir5,2	MacBookAir6,2		MacBookAir7,2	
Model number (on underside)	11"	A1370				N/A	A1465				N/A
	13"	A1369				A1466				N/A	
Part/order number (\$USD Price)	11"	MC505 (\$999)	MC506 (\$1199)	MC968 (\$999)	MC969 (\$1199)	N/A	MD223 (\$999) MD224 (\$1099)	MD711 (\$999) MD712 (\$1199)	MD711 (\$899) MD712 (\$1099)	MJVM2 (\$899) MJVP2 (\$1099)	N/A
	13"	MC503 (\$1299)	MC504 (\$1599)	MC965 (\$1299)	MC966 (\$1599)	MD508 (sold in packs of five for \$4995, \$999 each <sup>[93]</sup> )	MD231 (\$1199) MD232 (\$1499) MD628 ( <i>Education Only, sold in packs of five for \$4995, \$999 each</i> ) <sup>[94]</sup>	MD760 (\$1099) MD761 (\$1299)	MD760 (\$999) MD761 (\$1199)	MJVE2 (\$999) MJVG2 (\$1199) MMGF2 (2016, 8 GB, 128 GB SSD) (\$999) MMGG2 (2016, 8 GB, 256 GB SSD) (\$1199)	MQD32 (128 GB SSD) (\$999) MQD42 (256 GB SSD) (\$1199)
Display (glossy)	11"	11.6", native 1366 × 768 pixels (16:9, 135 ppi) TN. Lower resolutions supported				N/A	11.6", native 1366 × 768 pixels (16:9, 135 ppi) TN. Lower resolutions supported				N/A
	13"	13.3", native 1440 × 900 pixels (16:10, 128 ppi) TN. Lower resolutions supported									
Graphics ( <i>shared with system memory</i> )	11"	Nvidia GeForce 320M using 256 MB of DDR3 SDRAM with Mini DisplayPort output		Intel HD Graphics 3000 processor using 256 MB of DDR3 SDRAM		N/A	Intel HD Graphics 4000 processor with up to 512 MB DDR3L SDRAM shared from main memory	Intel HD Graphics 5000 processor with up to 1.5 GB LPDDR3 SDRAM shared from main memory	Intel HD Graphics 6000 processor with up to 1.5 GB LPDDR3 SDRAM shared from main memory		
	13"			Intel HD Graphics 3000 processor using 384 MB of DDR3 SDRAM (all other models)		Intel HD Graphics 3000 processor using 256 MB of DDR3 SDRAM					
Front-side bus / DMI	11"	800 MHz				N/A	Intel Direct Media Interface, 5.0 GT/s				
	13"	1066 MHz		Intel Direct Media Interface, 5.0 GT/s							
	11"	1.4 GHz Intel Core 2 Duo (SU9400) Intel Core 2 Duo with	1.6 GHz Intel Core 2 Duo (SU9600) Intel Core 2 Duo with	1.6 GHz 2-core Intel Core i5 (2467M) with 3 MB cache	1.6 GHz 2-core Intel Core i5 (2467M) with 3 MB shared L3 cache <i>Optional 1.8 GHz 2-core</i>	N/A	1.7 GHz 2-core Intel Core i5 (3317U) with 3 MB shared L3 cache  <i>Optional 2.0 GHz 2-core Intel Core i7</i>				N/A

Processor		6 MB on-chip L2 cache	6 MB on-chip L2 cache	shared L3 cache	Intel Core i7 (2677M) with 4 MB shared L3 cache (+\$150)		4 GB of 1600 MHz LPDDR3 SDRAM (+\$150 for MD224 model only)	1.3 GHz 2-core Intel Core i5 (4250U) with 3 MB shared L3 cache <i>Optional 1.7 GHz (4650U) dual-core Intel Core i7 with 4 MB shared L3 cache (+\$150 for all models)</i>	1.4 GHz 2-core Intel Core i5 (4260U) with 3 MB shared L3 cache <i>Optional 1.7 GHz (4650U) dual-core Intel Core i7 with 4 MB shared L3 cache (+\$150 option for all models)</i>	1.6 GHz (i5-5250U) 2-core Intel Core i5 with 3 MB shared L3 cache <i>Optional 2.2 GHz 2-core Intel Core i7 (5650U) with 4 MB shared L3 cache</i>	
	13"	1.86 GHz Intel Core 2 Duo (SL9400) Intel Core 2 Duo with 6 MB on-chip L2 cache	2.13 GHz Intel Core 2 Duo (SL9600) Intel Core 2 Duo with 6 MB on-chip L2 cache	1.7 GHz 2-core Intel Core i5 (2557M) with 3 MB shared L3 cache	1.7 GHz 2-core Intel Core i5 (2557M) with 3 MB shared L3 cache <i>Optional 1.8 GHz 2-core Intel Core i7 (2677M) with 4 MB shared L3 cache (+\$100)</i>	1.6 GHz (2467M) dual-core Intel Core i5 with 3 MB shared L3 cache	1.8 GHz 2-core Intel Core i5 (3427U) with 3 MB shared L3 cache <i>Optional 2.0 GHz 2-core Intel Core i7 (3667U) with 4 MB shared L3 cache (+\$100 option, for MD232 model only)</i> <i>1.7 GHz 2-core Intel Core i5 (3317U) with 3 MB shared L3 cache (Education Only)</i>			1.8 GHz (5350U) dual-core Intel Core i5 with 3 MB shared L3 cache <i>Optional 2.2 GHz 2-core Intel Core i7 (5650U) with 4 MB shared L3 cache</i>	
Memory		2 GB (IEC defined GiB) of 1066 MHz DDR3 SDRAM <i>Optional 4 GB +\$100 for all models</i>		2 GB (11") of 1333 MHz DDR3 SDRAM <i>Optional 4 GB (+\$100 option, for MC968 model only)</i> 4 GB (13") of 1333 MHz DDR3 SDRAM	4 GB of 1333 MHz DDR3 SDRAM	2 GB (13" Education Only model) of 1333 MHz DDR3 SDRAM	4 GB of 1600 MHz DDR3L SDRAM <i>Optional 8 GB (+\$100 option, for all models)</i>	4 GB of 1600 MHz LPDDR3 SDRAM <i>Optional 8 GB (+\$100 option, for all models)</i>	4 GB of 1600 MHz LPDDR3 SDRAM <i>Optional 8 GB (8 GB standard for the 13" version since April 19, 2016)</i>	8 GB of 1600 MHz LPDDR3 SDRAM	
Solid-state drive (on all models)	11"	64 GB	128 GB	64 GB	128 GB <i>Optional 256 GB (+\$300)</i>	N/A	64 GB (MD223) 128 GB (MD224) <i>Optional 256 GB (+\$300 or 512 GB (+\$800 both for MD224 model only)</i>	128 GB PCIe-based storage (MD711, MD760, MD711, MD760, MJVM2, MJVE2, MMGF2) 256 GB PCIe-based storage (MD712, MD761, MD712, MD761, MJVP2, MJVG2, MMGG2) <i>Optional 512 GB (+\$300 option, for 256 GB models only)</i>		N/A	
	13"	128 GB	256 GB	128 GB	256 GB	64 GB	128 GB (MD231) 256 GB (MD232) <i>Optional 512 GB (+\$500 option, for MD232 model only)</i> 64 GB (Education Only)			128 GB PCIe-based storage (MQD32) 256 GB PCIe-based storage (MQD42) <i>Optional 512 GB</i>	
Video camera		iSight (480p)					FaceTime HD (720p)				
Connectivity		Internal Wi-Fi 4 (802.11 a/b/g/n) (Broadcom BCM43224, dual-band 300 Mbit/s)						Internal Wi-Fi 5 (802.11 a/b/g/n/ac) (Broadcom BCM4360-based, dual-band 867 Mbit/s)			
		Bluetooth 2.1 + EDR		Bluetooth 4.0							
		<i>Optional Apple USB Ethernet 100 Mbit Adapter</i>		<i>Optional Apple USB Ethernet 100 Mbit Adapter Optional Apple Thunderbolt to Gigabit Ethernet Adapter Optional Apple Thunderbolt to FireWire 800 Adapter</i>							
Peripheral connections		2× USB 2.0					2× USB 3.0				
		1× Mini DisplayPort video port		1× Thunderbolt port				1× Thunderbolt 2 port Up to 3840 × 2160 @ 60 Hz			
		MagSafe					MagSafe 2				
		1× SDXC card slot (13" only)									
Audio		3.5 mm headphone jack Stereo speakers									
Minimum operating system		Mac OS X 10.6 Snow Leopard		Mac OS X 10.7 Lion			OS X 10.8 Mountain Lion	OS X 10.9 Mavericks	OS X 10.10 Yosemite	macOS 10.12 Sierra*  *Although these shipped with Sierra, OS X 10.11 El Capitan can also be installed since the 2017 and 2015 use the same firmware	
Latest release operating system		macOS 10.13 High Sierra					macOS 10.15 Catalina	macOS 11 Big Sur		macOS 12 Monterey	
Battery (non-removable lithium-ion polymer)	11"	35-watt-hour				N/A	35-watt-hour	38-watt-hour			N/A
	13"	50-watt-hour						54-watt-hour			
Battery cycles <sup>[33]</sup>		1000									

Unit weight	11"	2.38 lb (1.08 kg)	N/A	2.38 lb (1.08 kg)	N/A
	13"	2.96 lb (1.34 kg)			
Dimensions	11"	11.8 in (30 cm) wide × 7.56 in (19.2 cm) deep × 0.11 in (0.3 cm) to 0.68 in (1.7 cm) high	N/A	11.8 in (30 cm) wide × 7.56 in (19.2 cm) deep × 0.11 in (0.3 cm) to 0.68 in (1.7 cm) high	N/A
	13"	12.8 in (33 cm) wide × 8.94 in (22.7 cm) deep × 0.11 in (0.3 cm) to 0.68 in (1.7 cm) high			

3rd generation (Retina)

On October 30, 2018, Apple released the third generation MacBook Air, with Amber Lake processors, a 13.3-inch Retina display with a resolution of 2560×1600 pixels, Touch ID, a Force Touch trackpad, and two combination USB-C 3.1 gen 2/Thunderbolt 3 ports plus one audio jack. The screen displays 48% more color and the bezels are 50% narrower than the previous generation, and occupies 17% less volume. Thickness is reduced to 15.6mm and weight to 1.25 kg (2.75 pounds). It is available in three finishes, silver, space gray, and gold. Unlike the previous generation, this model cannot be configured with an Intel Core i7 processor, possibly because Intel never released the i7-8510Y CPU that would have been used.



Retina MacBook Air

The base 2018 model comes with 8GB of 2133 MHz LPDDR3 RAM, 128GB SSD, Intel Core i5 processor (1.6 GHz base clock, with Turbo up to 3.6 GHz) and Intel UHD Graphics 617.<sup>[95]</sup>

Apple released updated models in July 2019 with True Tone display technology using the same components as the Mid 2019 MacBook Pro.<sup>[96][97]</sup> A test found that the 256GB SSD in the 2019 model has a 35% lower read speed than the 256GB SSD in the 2018 model, though the write speed is slightly faster.<sup>[98]</sup>

Updated models were released in March 2020 with Ice Lake processors, updated graphics, support for 6K output to run the Pro Display XDR, and replaced the butterfly keyboard with a Magic Keyboard design similar to that found in the 2019 16-inch MacBook Pro.<sup>[99][100]</sup>

Design

The third generation MacBook Air follows the design of the previous generation with a tapered aluminum enclosure, but takes some design elements from the Retina MacBook and MacBook Pro, such as a flush display with black bezels and a glossy opaque Apple logo on the rear, and an edge-to-edge trackpad.<sup>[101]</sup>

Apple repair expert Louis Rossmann has criticised the third generation MacBook Air's hardware layout, noting that the fan's position makes it sub-optimal for cooling and can lead to overheating-related issues.<sup>[102][103]</sup>

Technical specifications

Discontinued
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		Late 2018	Mid 2019	Early 2020
Timetable	Released	October 30, 2018 <sup>[104]</sup>	July 9, 2019	March 18, 2020
	Discontinued	July 9, 2019	March 18, 2020	November 10, 2020

Model	Model identifier	MacBookAir8,1 <sup>[105]</sup>	MacBookAir8,2	MacBookAir9,1
	Model number (on underside)	A1932		A2179
	Part number (order number)	MRE82, MREA2, MREE2, MRE92, MREC2, MREF2, MUQT2, MUQU2, MUQV2 <sup>[106]</sup>	MVFH2, MVFJ2, MVFK2, MVFL2, MVFM2, MVFN2, MVH62, MVH82	MVH22, MVH42, MVH52, MWTJ2, MWTK2, MWTL2
Display (glossy)		13.3", native 2560 × 1600 pixels (16:10, 227 ppi) IPS. Lower resolutions supported	13.3", native 2560 × 1600 <span>pixels</span> (16:10, 227 ppi) IPS. True Tone display. Lower resolutions supported	
Performance	Graphics	Intel UHD Graphics 617 with up to 1.5 GB LPDDR3 SDRAM shared from main memory		Intel Iris Plus Graphics <i>(shared with system memory)</i>
	DMI	4 GT/s On Package DMI interconnect Interface 3.0 (OPI) (Max. Theoretical Bandwidth 4 GB/s)		
	Processor	1.6 GHz (i5-8210Y) dual-core Intel Core i5, Turbo Boost 3.6 GHz, with 4 MB L3-cache		1.1 GHz (i3-1000NG4) 2-core Intel Core i3 Ice Lake (10th Gen), Turbo Boost 3.2 GHz, with 4 MB L3-cache  <i>Optional 1.1 GHz (i5-1030NG7) 4-core Intel Core i5, Turbo Boost 3.5 GHz, with 6 MB L3-cache or 1.2 GHz (i7-1060NG7) 4-core Intel Core i7, Turbo Boost 3.8 GHz, with 8 MB L3-cache at time of purchase</i>
	Memory	8 GB of 2133 MHz LPDDR3 SDRAM <sup>[107]</sup> <i>Optional 16 GB at the time of purchase, not upgradable after.</i>		8 GB of 3733 MHz LPDDR4X SDRAM  <i>Optional 16 GB at time of purchase, not upgradable after</i>
Storage		128 or 256 GB PCIe-based SSD <i>Optional 512 GB or 1.5 TB at the time of purchase before July 7, 2019, 512 GB or 1 TB since then, not upgradable after.</i> <sup>[108]</sup>		128 GB (education institutions only), <sup>[109]</sup> 256, 512 GB PCIe-based SSD  <i>Optional 512 GB, 1, or 2 TB at the time of purchase, not upgradable after</i>
Security chip		Apple T2		
Keyboard		Third-generation butterfly mechanism		Magic Keyboard (scissor-switch)
Video camera		FaceTime HD (720p)		
Wireless Connectivity		Internal Wi-Fi 5 (802.11 a/b/g/n/ac) Bluetooth 4.2		Internal Wi-Fi 5 (802.11 a/b/g/n/ac) Bluetooth 5.0
Peripheral connections		2× Thunderbolt 3 (USB-C 3.1 Gen 2) ports supporting charging and DisplayPort <i>Supports two 4096×2304 displays or one 5120×2880 (MST) display</i> 1× 3.5 mm headphone jack		2× Thunderbolt 3 (USB-C 3.1 Gen 2) ports supporting charging <i>Supports two 4096×2304 displays or one 6016×3384 (MST) display</i> 1× 3.5 mm headphone jack
Battery	Power	11.4 V 49.9 W·h (4,379 mA·h) (non-removable lithium-ion polymer) <sup>[110]</sup>		
	Battery cycle count	1000 <sup>[33]</sup>		
Greenhouse gas emissions		176 kg CO <sub>2</sub> e <sup>[111]</sup>		174 kg CO <sub>2</sub> e <sup>[112]</sup>
Appearance	Unit weight	2.75 lb (1.25 kg)		2.8 lb (1.29 kg)
	Dimensions	11.97 in (30 cm) wide × 8.36 in (21.2 cm) deep × 0.16 in (0.4 cm) to 0.61 in (1.5 cm) high		11.97 in (30 cm) wide × 8.36 in (21.2 cm) deep × 0.16 in (0.4 cm) to 0.63 in (1.6 cm) high
Latest release operating system		Current		

Supported operating systems

Supported macOS releases

The patch for the current release of macOS, [Big Sur](#), will work with Wi-Fi on unsupported MacBook Airls from late 2008 and later.<sup>[113]</sup> Likewise, the patch for macOS Monterey, the next major release, will also support the Late 2008 MacBook Air and later.<sup>[114]</sup> Graphics acceleration only works on MacBook Airls released in 2012 and later, which have metal-capable GPUs.<sup>[113]</sup> As of 2022, the mid-2012 and mid-2013 MacBook Air are the only models officially supported by Apple with 9 versions of the Mac operating system.

Supported macOS releases													
OS release	1st generation			2nd generation							3rd generation		
	Early 2008	Late 2008	Mid 2009	Late 2010	Mid 2011	Mid 2012	Mid 2013	Early 2014	Early 2015	Mid 2017	Late 2018	Mid 2019	Early 2020
10.4 Tiger	unofficial	unofficial	unofficial										
10.5 Leopard	10.5.1	10.5.5	10.5.7										
10.6 Snow Leopard				10.6.4									
10.7 Lion						10.7.4							
10.8 Mountain Lion	Patch						10.8.4						
10.9 Mavericks	Patch							10.9.2					
10.10 Yosemite	Patch								10.10.2				
10.11 El Capitan	Patch												

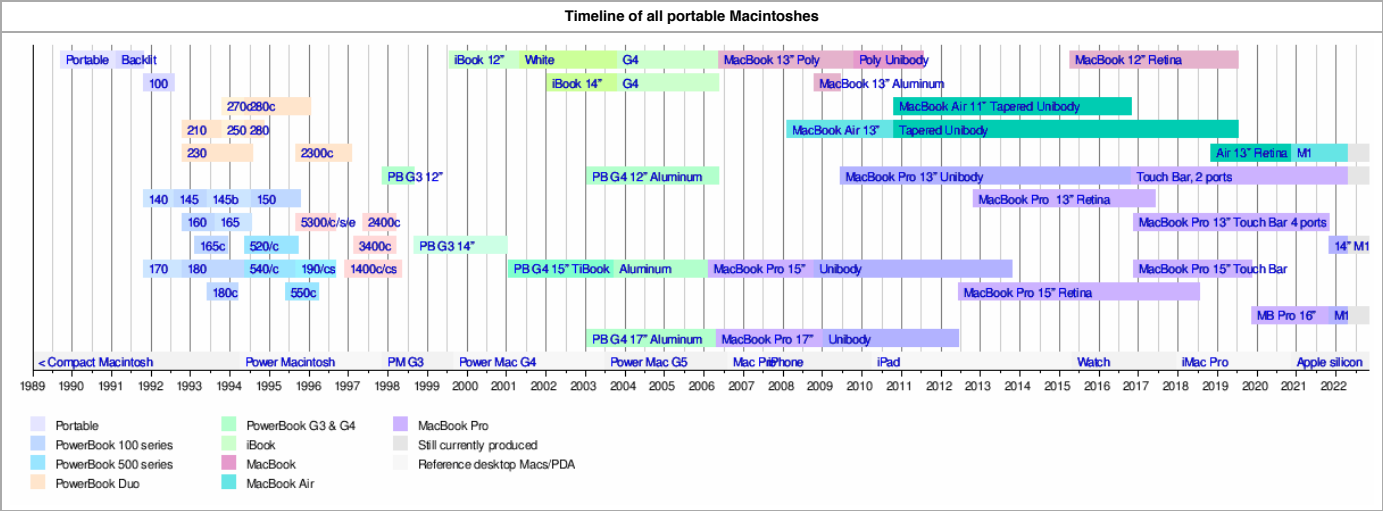
<b><u>10.12 Sierra</u></b>		Patch	Patch							10.12.5			
<b><u>10.13 High Sierra</u></b>		Patch	Patch										
<b><u>10.14 Mojave</u></b>		Patch	Patch	Patch	Patch						10.14.1	10.14.5	
<b><u>10.15 Catalina</u></b>		Patch	Patch	Patch	Patch								10.15.4
<b><u>11 Big Sur</u></b>		Patch, no graphics acceleration				Patch							
<b><u>12 Monterey</u></b>		Patch, no graphics acceleration				Patch	Patch	Patch					

## Boot Camp-supported Windows versions

Supported Windows versions							
OS release	1st generation	2nd generation					3rd generation
	All 2008-2009 models	Late 2010	Mid 2011	Mid 2012	All 2013-2014 models	2015 and newer	
<b>Windows XP</b> <sup>[Note 1][115][116]</sup>							
<b>Windows Vista 32-bit</b> <sup>[Note 2][115][116]</sup>							
<b>Windows Vista 64-bit</b> <sup>[Note 2][115]</sup>							
<b>Windows 7 32-bit</b> <sup>[Note 3][115][117]</sup>							
<b>Windows 7 64-bit</b> <sup>[Note 4][115][118]</sup>							
<b>Windows 8</b> <sup>[Note 5][Note 6][115]</sup>							
<b>Windows 8.1</b> <sup>[Note 7][119][118]</sup>							
<b>Windows 10</b> <sup>[Note 8][120][118]</sup>							

- Windows XP can only be installed on Macs with Boot Camp 3 or earlier. This includes Mac OS X 10.6 or earlier and copies of Mac OS X 10.7 that have not been updated to Boot Camp 4.
- Windows Vista can only be installed on Macs with Boot Camp 3 or earlier. This includes Mac OS X 10.6 or earlier and copies of Mac OS X 10.7 that have not been updated to Boot Camp 4.
- The 32-bit version of Windows 7 can only be installed on Macs with Boot Camp 3.1 to 6.0. This includes OS X 10.11 and earlier.
- The 64-bit version of Windows 7 can only be installed on Macs with Boot Camp 3.1 or later, running macOS High Sierra or earlier. Later versions of macOS no longer support Windows 7.
- Windows 8 can only be installed on Macs with Boot Camp 5.0 to 6.0. This includes OS X 10.11 and earlier.
- Only 64-bit versions of Windows are supported for Windows 8 and later.
- Windows 8.1 can only be installed on Macs with Boot Camp 5.1 or later, running macOS High Sierra or earlier. Later versions of macOS no longer support Windows 8.1.
- Windows 10 can only be installed on Macs with Boot Camp 6.0 or later. It is the only supported version of Windows on macOS Mojave and later.

## Timeline



## See also

- Comparison of current Macintosh models
- MacBook family
- MacBook (12-inch)
- MacBook Pro

## Notes

- In this article, the conventional prefixes for computer storage denote base-10 values whereby *kilobyte* (KB) = 10<sup>3</sup> bytes, *megabyte* (MB) = 10<sup>6</sup> bytes and *gigabyte* (GB) = 10<sup>9</sup> bytes.
- In this article, the conventional prefixes for computer RAM denote base-2 values whereby *kilobyte* (KB) = 2<sup>10</sup> bytes, *megabyte* (MB) = 2<sup>20</sup> bytes and *gigabyte* (GB) = 2<sup>30</sup> bytes.

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## External links

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