Click to verify

Unlock password-protected Outlook PST (*.pst) file. Recover lost email passwords for MS Outlook 2021, 2019, 2016, 2013, 2010, 2007, 2003, XP, 2000. Free TrialBuy Now Thank you for your input and trying to help Erico.Unfortunately, your recommendation didn't help. Under "Active Smart Card reader" I mean the device for reading: CAC cards, military cards or generic ISO-7816 cards.I have gotten the replacement part from HP 845 G9 (G9 and G10 share the same part number), and what I have noticed is that there is some difference in BIOS configuration.HP 845 G9 BIOSHP 845 G10 BIOSI think because the "Smart card" option is not present in BIOS on G10, the motherboard USB header is not active and this is why the smart card reader is not being detected in Windows.The question is how to make this option appear in the BIOS…. or is it restricted because original configuration didn't include the smart card reader. I installed all the network drivers, including novatel mobile , sierra mobile, broadcom bluetooth, ericssson mobile broadband.But, when the HP Connection Manager (the newest version) is running, the program is not showing installed in the device SIM Card.Can you help me to make sim card visible? Line of high-end laptops from Hewlett-Packard This article needs to be updated. Please help update this article to reflect recent events or newly available information. (July 2020) HP EliteBookHP Elitebook 820 G4DeveloperHewlett-Packard (HP Inc.)ManufacturerHP Inc.TypeLaptopMobile workstationRelease dateAugust 11, 2008; 16 years ago (2008-08-11)Operating systemWindows 7, Windows 10, Windows 11CPUAMD APU, AMD Ryzen PRO, Intel CoreDisplayUp to 17.3"GraphicsAMD Radeon, Nvidia GeForce, Intel GraphicsPlatformEliteMarketing targetBusiness purposePredecessorHP Compaq p and w seriesRelatedHP ProBook, HP ZBook HP EliteBook is a line of business-oriented laptop computers made by Hewlett-Packard (HP Inc.),[1] marketed as a high-end line positioned above the ProBook series.[2] The line was introduced in August 2008[3][4] as a replacement to the HP Compaq line of business laptops, and initially included mobile workstations until September 2013, when they were rebranded as HP ZBook. The EliteBook mainly competes against laptop computers such as Acer's TravelMate, Dell's Latitude, Lenovo's ThinkPad and Dynabook's Portégé and Tecra. 2012's ProBook/EliteBook docking station The HP EliteBook line is engineered to meet military MIL-STD-810 standards for reliability and performance under extreme conditions,[5] namely for temperature, altitude, humidity, dust, shock and vibration. The notebooks feature a magnesium alloy chassis, anodized aluminum lid and palm rests, spill-resistant keyboards, active hard-drive protection and dual pointing devices (touchpad and pointing stick).[5] Earlier EliteBook models featured the HP Night Light keyboard light,[6] while in subsequent generations HP has added a backlit keyboard option to some 15" and 17" workstation models.[7] Select models have SSD storage options. Announcements: 2008: August 11: 8530p, 8530w and 8730w;[8] August 18: 2530p and 2730p;[3] September 8: 6930p announced[9] 2010: January 6: 8440p, 8440w, 8540p and 8540w;[10] March 1: 2540p and 2740p;[11] March 24: 8740w announced[12] 2011: February 23: 8460p and 8560p;[13] April 12: 8460w, 8560w and 8760w;[14] May 9: 2560p and 2760p announced[15] 2012: May 9: 2170p, 2570p, 8470p and 8570p,[16] 8470w, 8570w and 8770w,[17] Folio 9470m announced[18] 2013: October 1: 820G1, 840G1 and 850G1;[19] December 10: Folio 1040G1 announced[20] 2014: June 4: 725G2, 745G2 and 755G2;[21] December 2: 720, 740, 750, 820G2, 840G2, 850G2 and Folio 1020 announced[22] 2015: September 29: 725G3, 745G3 and 755G3 announced[23] 2016: January 5: 820G3, FolioG1, 840G3, 1040G3 and 850G3 announced.[24] 2020: January 5: HP Elite DragonflyG2;[25] May 26: EliteBook 830G7, x360 830G7, 840G7, 850G7, 835G7, 845G7, 855G7, x360 1030G7 and x360 1040G7 announced.[26] December 7: EliteBook 830G8, x360 830G8, 840G8, 850G8 Release history of EliteBook laptops 2008—2018 Screen Type **302008 **402010 **602011 **702012 2013 2014 2015 2016 2017 2018 intel intel intel intel intel AMD intel AMD intel AMD intel AMD intel AMD intel AMD 17.3" Mobile workstation 8730w 8740w 8760w 8770w[27] replaced by ZBook 17 G1 15.4"15.6" 8530w 8540w 8560w 8570w[27] replaced by ZBook 15 G1 Ultraportable(ultrabook) 1050G1[28][29] Mainstream 8530p 8540p 8560p[30] 8570p 850G1[31] 850G2 850G3 850G4[32][33] 850G5[34][35] 750G1 755G1 750G2 755G2[36] 750G3 755G3[37] 755G4 755G5[38] 14" Ultraportable(ultrabook) Folio 9470m[39] Folio9480m replaced by Folio 1040 G1 Folio 1040G1[40] Folio 1040G2 Folio 1040G3[41] Folio 1040G4[42] 1040G1 1040G2 1040G3[33] 1040G4[43] 2-in-1 flipbook x360 1040G5 Mobile workstation 8440w 8460w 8470w[27] replaced by ZBook 14u G1 Mainstream 6930p 8440p 8460p[30] 8470p 840G1[31] 840G2 840G3 840G4[32][33] 840G5[34][35] 840rG4[44] 740G1 745G1 740G2 745G2[36] 745G3[37] 745G4 745G5[38] 13.3" 2-in-1 flipbook x360 1030G2 x360 1030G3[29] 2-in-1 tablet Elite x2 1013G3[29] Ultraportable(ultrabook) 1030G1[45] Mainstream 830G5[34][35] 735G5[38] 12.1" 12.5" Ultraportable (ultrabook) 2530p 2540p 2560p 2570p 820G1[31] 820G2[46] 820G3 820G4[32][33] 1020G1[47] Folio 1020G1[48] FolioG1[33] 720G1 725G1 720G2 725G2[36] 725G3[37] 725G4 2-in-1 flipbook x360 1020G2[43] 2-in-1 tablet HP Elite 1011 x2[49] Elite x2 1012G1 Elite x2 1012G2[50] 11.6" 2-in-1 convertible 2730p 2740p 2760p Revolve 810G1 RevolveG2[51] Revolve 810G3[52] Ultraportable(ultrabook) 2170p Laptop color codes Processor Socketed desktop processor Socketed mobile processor Soldered high power processor Soldered standard power processor Soldered low power processor Soldered ultra low power processor Weight 0.9 kg (2.0 lb) Up to 0.91 kg 1.0 kg (2.2 lb) 0.92–1.0 kg 1.1 kg (2.4 lb) 1.01–1.1 kg 1.2 kg (2.6 lb) 1.11–1.2 kg 1.3 kg (2.9 lb) 1.21–1.3 kg 1.4 kg (3.1 lb) 1.31–1.4 kg 1.5 kg (3.3 lb) 1.41–1.5 kg 1.6 kg (3.5 lb) 1.51–1.6 kg 1.7 kg (3.7 lb) 1.61–1.7 kg 1.8 kg (4.0 lb) 1.71–1.81 kg 1.9 kg (4.2 lb) 1.81–1.91 kg 2.0 kg (4.4 lb) 1.91–2.03 kg 2.1 kg (4.6 lb) 2.04–2.14 kg 2.3 kg (5.1 lb) 2.15–2.4 kg 2.5 kg (5.5 lb) 2.41–2.75 kg 2.8 kg (6.2 lb) 2.76–3.05 kg 3.1 kg (6.8 lb) 3.06–3.42 kg 3.5 kg (7.7 lb) 3.43–3.99 kg 4.0 kg (8.8 lb) 4.0–4.99 kg 5.5 kg (12 lb) 5.0–6.49 kg 7.2 kg (16 lb) 6.5–7.99 kg 9.1 kg (20 lb) 8.0–9.99 kg 10.7 kg (24 lb) 10–11.99 kg 12.7 kg (28 lb) 12–14.49 kg 14.5 kg (32 lb) 14.5–17.99 kg 18.1 kg (40 lb) 18–20.99 kg 21.7 kg (48 lb) 21–23.99 kg 24 kg (53 lb) 24–28.99 kg 29.5 kg (65 lb) 29 kg and above Screen resolution 4K or higher 1440p+ (WQHD,QXGA) 1080p+ (Full HD,UXGA) Better than 768p (SXGA,SXGA+) 600p+ (SVGA,HD,XGA,HD+) Up to 600p (VGA) Graphics Dual standard socket graphics option Dual proprietary socket graphics option Standard socket graphics option Proprietary socket graphics option Soldered performance graphics option Soldered midrange graphics option Soldered mainstream graphics option Soldered entry graphics option Integrated entry graphics Integrated basic graphics Laptop storage combinations (excluding WWAN slot) Level PCIe 4.0 x4 PCIe 3.0 x4 PCIe 3.0 x2 M.2 SATA mSATA 1.8" SATA 2.5" SATA 1.8" IDE 2.5" IDE 2019Not yet(laptops) 2013 2013 2013 2009 2003 2003 1991 1988 3 2 4 3 1 2 2 3 2 3 2 1 4 3 1 2 2 2 1 1 3 2 1 1 2 1 1 2 1 4 1 1 1 3 1 1 1 1 1 1 1 2 3 1 1 2 1 1 Laptop memory Amount LPDDR5X LPDDR5 DDR5 LPDDR4X LPDDR4 DDR4 LPDDR3 DDR4 DDR3L DDR3 DDR2 DDR SDR EDO FPM dual channel < dual channel dual channel < dual channel dual channel < dual channel dual channel < dual channel 2022(laptops) 2019(laptops) 2020 2017 2014 2014 2012 2014 2010 2007 2003 1998 1993 1993 1987 max memory = 512 GB N/A N/A 512 GB N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A max memory = 256 GB N/A 256 GB (4 slots) N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A max memory = 128 GB 128 GB 128 GB N/A N/A 128 GB (4 slots) N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A 64 GB ≤ max memory < 128 GB 64 GB N/A N/A 64 GB N/A 64 GB (2 slots) 64 GB (4 slots) N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A 32 GB ≤ max memory < 64 GB 32 GB 32 GB 32 GB N/A 32 GB 32 GB (2 slots) 32 GB (4 slots) N/A N/A N/A N/A N/A N/A N/A 16 GB ≤ max memory < 32 GB 16 GB 16 GB 16 GB 16 GB 16 GB (2 slots) 16 GB (4 slots) N/A N/A N/A N/A N/A 8 GB ≤ max memory < 16 GB 8 GB 8 GB 8 GB 8 GB 8 GB (2 slots) 8 GB (4 slots) N/A N/A N/A 4 GB ≤ max memory < 8 GB 4 GB 4 GB 4 GB 4 GB 4 GB (4 slots) 4 GB (4 slots) N/A 2 GB ≤ max memory < 4 GB 2 GB (8 chips) 2 GB 2 GB 2 GB 2 GB 2 GB N/A 1 GB ≤ max memory < 2 GB 1 GB (1 chip) dual channel min dual channel min N/A single channel min 1 GB 1 GB 1 GB 1 GB (4 slots) 512 MB ≤ max memory < 1 GB N/A N/A N/A single channel min single channel min N/A dual channel min half channel min 512 MB (8 chips) 512 MB (8 chips) 512 MB 512 MB 256 MB ≤ max memory < 512 MB N/A N/A N/A 256 MB (1 chip) 256 MB (1 chip) N/A single channel min 256 MB (1 chip) N/A single channel min N/A single channel min 256 MB 128 MB ≤ max memory < 256 MB N/A N/A N/A N/A N/A N/A 128 MB (1 chip) N/A N/A half channel min N/A half channel min 64 MB ≤ max memory < 128 MB N/A N/A N/A N/A N/A N/A N/A N/A N/A 64 MB (1 chip) N/A 64 MB (1 chip) max memory < 64 MB N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A The Core 2-based EliteBook series was the xx30 series. Before that, HP Compaq p- and w-class (professional and workstation, respectively) notebooks were not branded as EliteBooks, nor did they have the EliteBooks' distinctive anodized aluminum styling. EliteBook 8530p The xx30 generation comprised the following notebooks: 2530p: 12.1" professional ultraportable 2730p: 12.1" professional tablet PC 6930p: 14.1" professional laptop 8530p: 15.4" professional laptop 8530w: 15.4" mobile workstation 8730w: 17.0" mobile workstation All models used Core 2 CPUs and 16:10 aspect ratio displays. The 6930p model was notable for being claimed by HP to be the first notebook to break the 24-hour battery life barrier.[5][9][53] Zeroth Generation Specification Model Platform Dimensions Weight (min) CPU Chipset Memory (max) Graphics Wireless Screen 2530p[54] Penryn 25.2 × 282.3 × 214.3 mm 1.45 kg (3.2 lb) up to Intel Core 2 Duo SL9600 (2 x 2.13 GHz) Intel GS45 8 GB DDR2-800 (2 slots) Intel GMA 4500MHD up to Intel WiFi Link 5100 (802.11a/b/g/n, 300 Mbit/s) 16:10 aspect ratio12.1" LED, WXGA (1280x800) 2730p[55] 28.2 × 290 × 212 mm 1.7 kg (3.7 lb) up to Intel Core 2 Duo SL9600 (2 x 2.13 GHz) Intel GS45 8 GB DDR2-800 (2 slots) Intel GMA 4500MHD up to Intel WiFi Link 5100 (802.11a/b/g/n, 300 Mbit/s) 16:10 aspect ratio12.1" LED, WXGA (1280x800), with digitizer 6930p[56] 31.3 × 331.0 × 243.0 mm 2.1 kg (4.6 lb) up to Intel Core 2 Duo T9900 (3.06 GHz) Intel GM45Intel PM45 8 GB DDR2-800 (2 slots) Intel GMA 4500MHDor ATI Mobility Radeon HD 3450 up to Intel WiFi Link 5300 (802.11a/b/g/n, 450 Mbit/s) 16:10 aspect ratio14.1" CCFL-backlit, up to WXGA+ (1440x900)14.1" LED, WXGA (1280x800) 8530p[57] 28.2 × 355 × 263.5 mm 2.86 kg (6.3 lb) up to Intel Core 2 Duo T9800 (2.93 GHz) Intel PM45 8 GB DDR2-800 (2 slots) ATI Mobility Radeon HD 3650 up to Intel WiFi Link 5300 (802.11a/b/g/n, 450 Mbit/s) 16:10 aspect ratio15.4" CCFL-backlit, up to WUXGA (1920x1200) 8530w[58] 28.2 × 255 × 263.5 mm 2.86 kg (6.3 lb) up to Intel Core 2 Extreme QX9300 (2.53 GHz) Intel PM45 8 GB DDR2-800 (2 slots) MXM: NVIDIA Quadro FX 770MATI Mobility FireGL V5700 up to Intel WiFi Link 5300 (802.11a/b/g/n, 450 Mbit/s) 16:10 aspect ratio15.4" CCFL-backlit, up to WUXGA (1920x1200) 8730w[59] 32 × 393 × 282 mm 3.4 kg (7.5 lb) up to Intel Core 2 Extreme QX9300 (2.53 GHz) Intel PM45 8 GB DDR2-800 (2 slots) MXM: NVIDIA QuadroFX 3700M/FX 2700MATI Mobility FireGL V5725 up to Intel WiFi Link 5300 (802.11a/b/g/n, 450 Mbit/s) 16:10 aspect ratio17.0" CCFL-backlit, up to WUXGA (1920x1200)17.0" CCFL-backlit DreamColor IPS, WUXGA (1920x1200) EliteBook 8440p The xx40 series comprised the following models: 2540p: 12.1" professional ultraportable 2740p: 12.1" professional tablet PC 8440p: 14.0" professional laptop 8440w: 14.0" mobile workstation 8540p: 15.6" professional laptop 8540w: 15.6" mobile workstation 8740w: 17.0" mobile workstation The xx40 series brought several changes and new features, including upgrading to the new Intel Core i5 and Core i7 processors and DDR3 SDRAM, new semi-chiclet keyboard and for the 14.0" and 15.6" models the switch from 16:10 to 16:9 displays. HP also added DisplayPort and USB 3.0 ports. Appearance-wise, the workstation models were changed to a darker "gunmetal" finish while the non-workstation models retained the brighter "silver" finish. Models with quad-core CPUs supported up to 32 GB of RAM. Workstation models could be configured with ISV-certified professional graphics cards such as the ATI Mobility FirePro M7820 or the Nvidia Quadro FX 5000M that at the time of release it was the most powerful workstation-class graphics card on the market.[60] First Generation (2008-2009) Specification Model Platform Dimensions Weight (min) CPU Chipset Memory (max) Graphics Wireless Screen 2540p[61] Nehalem 28 × 282.2 × 213.4 mm 1.53 kg (3.4 lb) up to Intel Core i7-660LM (2 x 2.26 GHz) Intel QM57 8 GB DDR3-1333 (1 slot) Intel GMA HD up to Intel Advanced-N 6200 (802.11a/b/g/n, 300 Mbit/s) 16:10 aspect ratio12.1" LED, WXGA (1280x800) 2740p[62] 31.7 × 290 × 212 mm 1.72 kg (3.8 lb) up to Intel Core i7-640M (2 x 2.80 GHz) Intel QM57 8 GB DDR3-1333 (2 slots) Intel GMA HD up to Intel Advanced-N 6200 (802.11a/b/g/n, 300 Mbit/s) 16:10 aspect ratio12.1" LED, WXGA (1280x800)with digitizer and optional multi-touch 8440p[63] 31.3 × 335.6 × 236.2 mm 2.12 kg (4.7 lb) up to Intel Core i7-740QM (4 x 1.73 GHz) Intel QM57 16 GB[a] DDR3-1333 (2 slots) Intel GMA HDOption + Nvidia NVS 3100M up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 14.0" LED, up to HD+ (1600x900) 8440w[64] 31.3 × 335.6 × 236.2 mm 2.24 kg (4.9 lb) up to Intel Core i7-840QM (4 x 1.86 GHz) Intel QM57 16 GB DDR3-1333 (2 slots) Intel GMA HD+ NVIDIA Quadro FX 380M up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 14.0" LED, up to HD+ (1600x900) 8540p[65] 32.4 × 373.5 × 251.5 mm 2.89 kg (6.4 lb) up to Intel Core i7-840QM (4 x 1.86 GHz) Intel QM57 16 GB[a] DDR3-1333 (2 slots) Intel GMA HD + MXMNvidia NVS 5100M up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 15.6" LED, up to FHD (1920x1080) 8540w[66] 32.4 × 373.5 × 251.5 mm 2.89 kg (6.4 lb) up to Intel Core i7-840QM (4 x 1.86 GHz) Intel QM57 32 GB DDR3-1333 (4 slots) Intel GMA HD + MXMNVIDIA QuadroFX 1800M/FX 880MATI FirePro M5800 up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 15.6" LED, up to FHD (1920x1080)15.6" LED DreamColor IPS, FHD (1920x1080) 8740w[67] 36.5 × 397.5 × 285.5 mm 3.57 kg (7.9 lb) up to Intel Core i7-920XM (4 x 2.00 GHz) Intel QM57 32 GB DDR3-1333 (4 slots) Intel GMA HD + MXMNVIDIA Quadro5000M/3800M/2800MATI FirePro M7820 up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 16:10 aspect ratio17.0" LED, up to WUXGA (1920x1200)17.0" LED DreamColor IPS, WUXGA (1920x1200) ^ a b 16 GB only with quad-core CPU, dual-core i5 can support only 8 GB EliteBook 8760w workstation The xx60 series, announced on February 23, 2011,[13] comprised the following models: 2560p: 12.5" professional ultraportable 2760p: 12.1" professional tablet PC 8460p: 14.0" professional laptop 8460w: 14.0" mobile workstation 8560p: 15.6" professional laptop 8560w: 15.6" mobile workstation 8760w: 17.3" mobile workstation The xx60 series featured second-generation Intel Core i series processors, a choice of Sandy Bridge integrated or AMD Radeon HD 6470M discrete graphics, and chiclet-style keyboards. All models except the 2760p used 16:9 displays. Mobile workstation models featured Nvidia Quadro or AMD FirePro graphics.[68] The notebooks were also completely redesigned, with a more boxy shape and less plastic used on the surfaces, as well as a larger glass touchpad. The multiple access panels on the bottom of the notebooks were replaced with a single panel enabling access to all of the internal components. The 8460p model was claimed to have battery life in excess of 32 hours[69] using an external ultra-capacity battery. Second Generation (2010) Specification Model Platform Dimensions Weight (min) CPU Chipset Memory (max) Graphics Wireless Screen 2560p[70] Sandy Bridge 27.4 × 305.2 × 209 mm 1.67 kg (3.7 lb) up to Intel Core i7-2620M (2 x 2.7 GHz) Intel QM67 16 GB DDR3-1333 (2 slots) Intel HD 3000 up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 12.5" LED, HD (1366×768) 2760p[71] 32.3 × 290 × 212 mm 1.8 kg (4.0 lb) up to Intel Core i7-2620M (2 x 2.7 GHz) Intel QM67 16 GB DDR3-1333 (2 slots) Intel HD 3000 up to Intel Advanced-N 6205 (802.11a/b/g/n, 300 Mbit/s) 16:10 aspect ratio12.1" LED, WXGA (1280x800)with digitizer and multitouch 8460p[72] 31.8 × 338 × 231.3 mm 2.07 kg (4.6 lb) up to Intel Core i7-2720QM (2 x 2.2 GHz) Intel QM67 16 GB DDR3-1333 (2 slots) Intel HD 3000Option + AMD Radeon HD 6470M up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 14.0" LED, up to HD+ (1600x900) 8460w[73] 31.8 × 338 × 231.3 mm 2.22 kg (4.9 lb) up to Intel Core i7-2820QM (2 x 2.3 GHz) Intel QM67 16 GB DDR3-1333 (2 slots) Intel HD 3000+ AMD FirePro M3900 up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 14.0" LED, up to HD+ (1600x900) 8560p[72] 34.1 × 374 × 250.5 mm 2.73 kg (6.0 lb) up to Intel Core i7-2860QM (2 x 2.5 GHz) Intel QM67 16 GB DDR3-1333 (2 slots) Intel HD 3000Option + AMD Radeon HD 6470M up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 15.6" LED, up to FHD (1920x1080) 8560w[74] 34.5 × 382 × 257.5 mm 3.0 kg (6.6 lb) up to Intel Core i7-2820QM (2 x 2.3 GHz) Intel QM67 32 GB DDR3-1333 (2 or 4 slots) Intel + MXMNVIDIA Quadro2000M/1000MAMD FirePro M5950 up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 15.6" LED, up to FHD (1920x1080)15.6" LED DreamColor IPS, FHD (1920x1080) 8760w[75] 37.4 × 416.5 × 272.7 mm 3.47 kg (7.7 lb) up to Intel Core i7-2920XM (4 x 2.5 GHz) Intel QM67 32 GB DDR3-1333 (4 slots) Intel + MXMNVIDIA Quadro5010M/4000M/3000MAMD FirePro M5950 up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 17.3" LED, up to FHD (1920x1080)17.3" LED DreamColor IPS, FHD (1920x1080) An Elitebook 8770w, mounted in a dock The Third generation, announced on May 9, 2012,[16] comprised the following models: Revolve 810: 11.6" professional tablet PC 2170p: 11.6" professional ultraportable 2570p: 12.5" professional laptop 8470p: 14.0" professional laptop 8470w: 14.0" mobile workstation Folio 9470m: 14.0" ultrabook 8570p: 15.6" professional laptop 8570w: 15.6" mobile workstation 8770w: 17.3" mobile workstation The xx70 series was largely an incremental update to the previous xx60 series, updated with Intel Ivy Bridge processors and new integrated and discrete graphics processors. New additions to the EliteBook family included the 11.6" 2170p and the 14.0" Folio 9470m ultrabook. ElitePad 900 G1 was introduced to this generation in October 2012.[76] Third Generation (2011) Specification Model Platform Dimensions Weight (min) CPU Chipset Memory (max) Graphics Wireless Screen Revolve 810[77] Ivy Bridge 22.2 × 285 × 212 mm 1.4 kg (3.1 lb) up to Intel Core i7-3687U (2 x 2.1 GHz) Intel QM77 12 GB DDR3L-1600 (4 GB soldered, 1 slot) Intel HD 4000 up to Intel Advanced-N 6205 (802.11a/b/g/n, 300 Mbit/s) 11.6" LED, HD (1366×768)with digitizer and multi-touch 2170p[78] 26.5 × 292 × 192 mm 1.33 kg (2.9 lb) up to Intel Core i7-3687U (2 x 2.1 GHz) Intel QM77 16 GB DDR3L-1600 (2 slots) Intel HD 4000 up to Intel Advanced-N 6205 (802.11a/b/g/n, 300 Mbit/s) 11.6" LED, HD (1366×768) 2570p[79] 27 × 305 × 209 mm 1.63 kg (3.6 lb) up to Intel Core i7-3540M (3.0 GHz) Intel QM77 16 GB DDR3L-1600 (2 slots) Intel HD 4000 up to Intel Advanced-N 6205 (802.11a/b/g/n, 300 Mbit/s) 12.5" LED, HD (1366×768) 8470p[80] 34 × 338 × 231 mm 2.07 kg (4.6 lb) up to Intel Core i7-3740QM (4 x 2.70 GHz) Intel QM77 16 GB DDR3L-1600 (2 slots) Intel HD 4000Option + AMD Radeon HD 7570M up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 14.0" LED, up to HD+ (1600x900) 8470w[81] 31.8 × 338 × 231.3 mm 2.25 kg (5.0 lb) up to Intel Core i7-3840QM (4 x 2.8 GHz) Intel QM77 16 GB DDR3L-1600 (2 slots) Intel HD 4000+ AMD FirePro M2000 up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 14.0" LED, up to HD+ (1600x900) Folio 9470m[82] 19 × 338 × 231 mm 1.61 kg (3.5 lb) up to Intel Core i7-3687U (2 x 2.1 GHz) Intel QM77 16 GB DDR3L-1600 (2 slots) Intel HD 4000 up to Intel Advanced-N 6235 (802.11a/b/g/n, Bluetooth 4.0) 14.0" LED, HD+ (1600x900) 8570p[80] 34 × 374 × 251 mm 2.61 kg (5.8 lb) up to Intel Core i7-3740QM (4 x 2.70 GHz) Intel QM77 16 GB DDR3L-1600 (2 slots) Intel HD 4000Option + AMD Radeon HD 7570M up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 15.6" LED, up to FHD (1920x1080) 8570w[83] 34.5 × 382 × 257.5 mm 3.0 kg (6.6 lb) up to Intel Core i7-3840QM (4 x 2.8 GHz) Intel QM77 32 GB DDR3L-1600 (4 slots) Intel + MXMNVIDIA Quadro K2000M/K1000MAMD FirePro M4000 up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 15.6" LED, up to FHD (1920x1080)15.6" LED DreamColor IPS, FHD (1920x1080) 8770w[84] 37.4 × 416.5 × 272.7 mm 3.47 kg (7.7 lb) up to Intel Core i7-3920XM (4 x 2.9 GHz) Intel QM77 32 GB DDR3L-1600 (4 slots) Intel + MXMNVIDIA QuadroK5000M/K4000M/K3000MAMD FirePro M4000 up to Intel Ultimate-N 6300 (802.11a/b/g/n, 450 Mbit/s) 17.3" LED, up to FHD (1920x1080)17.3" LED DreamColor IPS, FHD (1920x1080) EliteBook 840 G1 This generation of EliteBook notebooks feature the Intel Haswell processors or AMD Steamroller Kaveri processors. EliteBook 800 Series G1 products with Intel processors were announced in October 2013.[85] EliteBook Folio 1040 G1 and Revolve 810 G2 were announced in December 2013.[86] EliteBook 700 Series G1 products with Intel processors and 700 Series G2 products with AMD processors were announced in June 2014.[87] This generation brought changes to nomenclature on most products. Models ending with 0 use Intel processors and models ending with 5 use AMD processor. The second last digit relates to the screen size, and the remaining digits indicate the series. G number indicates the generation of the product. The external design was also refreshed, resulting in a less boxy shape and overall thinner chassis. Workstation models were split into a separate ZBook brand. AMD based models were added into EliteBook product line-up for the first time. Previously, ProBook product line-up had featured AMD APUs. EliteBook 720 G1: 12.5" ultraportable with Intel processor EliteBook 740 G1: 14.0" mainstream with Intel processor EliteBook 750 G1: 15.6" mainstream with Intel processor EliteBook 725 G2: 12.5" ultraportable with AMD processor EliteBook 745 G2: 14.0" mainstream with AMD processor EliteBook 755 G2: 15.6" mainstream with AMD processor EliteBook Revolve 810 G2: 11.6" tablet with Intel processor EliteBook 820 G1: 12.5" ultraportable with Intel processor EliteBook 840 G1: 14.0" mainstream with Intel processor EliteBook 850 G1: 15.6" mainstream with Intel processor EliteBook Folio 1040 G1: 14.0" ultrabook with Intel processor EliteBook Folio 9480m : 14.0" ultrabook with Intel processor ElitePad 1000 G2 tablet with Intel processors was introduced with this generation. The product was announced at WMC 2014 in February 2014.[88] ElitePad 1000 G2: 10.1" tablet with Intel processor Fourth Generation (2012) Specification Model Platform Dimensions Weight (min) CPU Chipset Memory (max) Graphics Wireless Screen 820 G1[89] Haswell 21 × 310 × 215.3 mm 1.33 kg (2.9 lb) up to Intel Core i7-4600U (2 x 2.1 GHz) 16 GB DDR3L-1600 (2 slots) Intel HD 4400 up to Intel Wireless-AC 7260 (802.11ac, Bluetooth 4.0) 12.5" LED, HD (1366×768) 840 G1[89] 21 × 338.9 × 237 mm 1.58 kg (3.5 lb) up to Intel Core i7-4600U (2 x 2.1 GHz) 16 GB DDR3L-1600 (2 slots) Intel HD 4400 Option + AMD Radeon HD 8750M up to Intel Wireless-AC 7260 (802.11ac, Bluetooth 4.0) 14.0" LED, up to FHD (1920x1080)14.0" LED, HD+ (1600x900) touch 850 G1[89] 21.4 × 375 × 253 mm 1.88 kg (4.1 lb) up to Intel Core i7-4600U (2 x 2.1 GHz) 16 GB DDR3L-1600 (2 slots) Intel HD 4400 Option + AMD Radeon HD 8750M up to Intel Wireless-AC 7260 (802.11ac, Bluetooth 4.0) 15.6" LED, up to FHD (1920x1080) Revolve 810 G2[90] 22.2 × 285 × 212 mm 1.4 kg (3.1 lb) up to Intel Core i7-4600U (2 x 2.1 GHz) 12 GB DDR3L-1600 (4 GB soldered. 1 slot) Intel HD 4400 up to Intel Wireless-AC 7260 (802.11ac, Bluetooth 4.0) 11.6" LED, HD (1366×768)with digitizer and multi-touch Folio 1040 G1[91] Haswell 15.9 × 338 × 233.5 mm 1.49 kg (3.3 lb) up to Intel Core i7-4600U (2 x 2.1 GHz) 12 GB DDR3L-1600 (4GB soldered, 1 slot) Intel HD 4400 or HD 5000 up to Intel Wireless-AC 7260 (802.11ac, Bluetooth 4.0) 14.0" LED, up to FHD (1920x1080)14.0" LED, FHD (1920x1080) touch 72G[92] Steamroller 21 × 319 × 215.3 mm up to AMD A10 Pro-7350B (2.1 GHz) AMD A76M 16 GB DDR3L-1600 (2 slots) AMD Radeon R4, R5, or R6 Graphics up to Broadcom 802.11ac, Bluetooth 4.0 12-5" LED, up to FHD (1920x1080)12.5" LED, FHD (1920x1080) touch 745 G2[92] Steamroller 21 × 339 × 237 mm 1.58 kg (3.5 lb) up to AMD A10 Pro-7350B (2.1 GHz) AMD A76M 16 GB DDR3L-1600 (2 slots) AMD Radeon R4, R5, or R6 Graphics up to Broadcom 802.11ac, Bluetooth 4.0 14.0" LED, up to FHD (1920x1080)14.0" LED, FHD (1920x1080) touch 755 G2[92] Steamroller 21.5 × 375.5 × 253.6 mm 2 kg (4.4 lb) up to AMD A10 Pro-7350B (2.1 GHz) AMD A76M 16 GB DDR3L-1600 (2 slots) AMD Radeon R4, R5, or R6 Graphics up to Broadcom 802.11ac, Bluetooth 4.0 15.6" LED, up to FHD (1920x1080)15.6" LED, FHD (1920x1080) touch This generation of EliteBook notebooks feature Intel Broadwell processors. EliteBook 700 Series G2, Revolve 810 G3, 800 Series G2, Folio 1020 G1, and Folio 1040 G2 were announced in December 2014.[93] EliteBook Folio 1020 Bang & Olufsen Limited Edition was announced in July 2015.[94] EliteBook 720 G2: 12.5" mainstream with Intel processor EliteBook 740 G2: 14.0" mainstream with Intel processor EliteBook 750 G2: 15.6" mainstream with Intel processor EliteBook Revolve 810 G3: 11.6" tablet with Intel processor EliteBook 820 G2: 12.5" mainstream with Intel processor EliteBook 840 G2: 14.0" mainstream with Intel processor EliteBook 850 G2: 15.6" mainstream with Intel processor EliteBook Folio 1020 G1 Standard/Special Edition/Bang & Olufsen Limited Edition: 12.5" lightweight with Intel processor EliteBook Folio 1040 G2: 14.0" lightweight with Intel processor HP Elite x2 1011 G1 tablet with Intel processors was introduced with this generation. The product was announced in January 2015.[95] Elite x2 1011 G1: 11.6" tablet with Intel processor Fifth Generation (2013-2014) Specification Model Platform Dimensions Weight (min) CPU Chipset Memory (max) Graphics Wireless Screen 720 G2[96] Broadwell 21 × 310 × 215.3 mm 1.36 kg (3.0 lb) up to Intel Core i5-5200U (2 × 2.2 GHz) 32 GB DDR3L-1600 (2 slots) Intel HD 5500 up to Intel Wireless-AC 7265 (802.11ac, Bluetooth 4.0) 12.5" LED, up to FHD (1920x1080)12.5" LED, FHD (1920x1080) touch 820 G2[97] 21 × 310 × 215 mm 1.36 kg (3.0 lb) up to Intel Core i7-5600U (2 × 2.6 GHz) 32 GB DDR3L-1600 (2 slots) Intel HD 5500 up to Intel Wireless-AC 7265 (802.11ac, Bluetooth 4.0) 14" LED, up to FHD (1920x1080)14" LED, FHD (1920x1080) touch 740 G2[98] 21 × 339 × 237 mm 1.58 kg (3.5 lb) up to Intel Core i5-5200U (2 × 2.2 GHz) 32 GB DDR3L-1600 (2 slots) Intel HD 5500 up to Intel Wireless-AC 7265 (802.11ac, Bluetooth 4.0) 14.0" LED, up to FHD (1920x1080)14.0" LED, FHD (1920x1080) touch 840 G2[99] 21 × 339 × 237 mm 1.55 kg (3.4 lb) up to Intel Core i7-5600U (2 × 2.6 GHz) 32 GB DDR3L-1600 (2 slots) Intel HD 5500 Option + AMD Radeon R7 M260X up to Intel Wireless-AC 7265 (802.11ac, Bluetooth 4.0) 14.0" LED, up to FHD (1920x1080)14.0" LED, FHD (1920x1080) touch Folio 1040 G2[100] 15.9 × 338 × 233.5 mm 1.51 kg (3.3 lb) up to Intel Core i7-5650U (2 × 2.2 GHz) 20 GB DDR3L-1600 (4GB soldered,1 slot) Intel HD 5500 or HD 6000 up to Intel Wireless-AC 7265 (802.11ac, Bluetooth 4.0) 14.0" LED, up to FHD (1920x1080)14.0" LED, FHD (1920x1080) touch 750 G2[101] 21.4 × 375 × 254 mm 1.88 kg (4.1 lb) up to Intel Core i5-5200U (2 × 2.2 GHz) 32 GB DDR3L-1600 (2 slots) Intel HD 5500 up to Intel Wireless-AC 7265 (802.11ac, Bluetooth 4.0) 15.6" LED, up to FHD (1920x1080)15.6" LED, FHD (1920x1080) touch 850 G2[102] 21.4 × 375 × 254 mm 1.83 kg (4.0 lb) up to Intel Core i7-5600U (2 × 2.6 GHz) 32 GB DDR3L-1600 (2 slots) Intel HD 5500 Option + AMD Radeon R7 M260X up to Intel Wireless-AC 7265 (802.11ac, Bluetooth 4.0) 15.6" L

Notebookcheck. Retrieved 2018-10-30. ^ a b c d e "HP Inc. Unveils Consumer Style for Modern Professionals with its Thinnest and Lightest Notebook Ever". press.ext.hp.com. Retrieved 2018-10-30. ^ a b c "The HP Elitebook 800 brings more screen real-estate without packing on the pounds". Notebookcheck. Retrieved 2018-10-30. ^ a b c "HP представила бизнес-ноутбуки EliteBook 800G5 Series | CHIP Россия". CHIP (in Russian). 2018-02-09. Retrieved 2018-10-30. ^ a b c "HP EliteBook 700 на процессорах AMD Kaveri :: Ноутбук-Центр". www.notebook-center.ru. Retrieved 2018-10-31. ^ a b c "HP unveils mainstream EliteBook 705G3 series". Notebookcheck. Retrieved 2018-10-30. ^ a b c "HP представила три новых ноутбука EliteBook | CHIP Россия". CHIP (in Russian). 2018-05-08. Retrieved 2018-10-30. ^ "HP: HP EliteBook Folio 9470m sowie neue EliteBooks und ProBooks". Notebookcheck (in German). Retrieved 2018-10-31. ^ "HP: Business-Ultrabook EliteBook Folio 1040G1, EliteBook Revolve 810G2, Spectre 13 Pro und Classmate Notebook PC". Notebookcheck (in German). Retrieved 2018-10-31. ^ "HP launches Second generation EliteBook 1040 for 2016". Notebookcheck. Retrieved 2018-10-30. ^ "HP EliteBook 1040G4 coming later this month". Notebookcheck. Retrieved 2018-10-30. ^ a b "HP Launches New PC Experiences for Work, Life and Collaboration". press.ext.hp.com. Retrieved 2018-10-30. ^ "EliteBook 840rG4: HP releases a Quad-Core refresh of the older EliteBook-design". Notebookcheck. Retrieved 2018-10-30. ^ "HP EliteBook 1030 starts at $1249 USD". Notebookcheck. Retrieved 2018-10-30. ^ "Обновленный HP EliteBook 820G2 появился на сайте HP :: Ноутбук-Центр". www.notebook-center.ru. Retrieved 2018-10-31. ^ "HP: Mit EliteBook 1020 und EliteBook 1020 Special Edition (SE) gegen MacBook Air". Notebookcheck (in German). Retrieved 2018-10-31. ^ "HP представила ультратонкие корпоративные ноутбуки :: Ноутбук-Центр". www.notebook-center.ru. Retrieved 2018-10-31. ^ "HP Inc. Delivers World's First Tablet Truly Built for Business". press.ext.hp.com. Retrieved 2018-10-30. ^ "Представлен планшет-трансформер HP Elite x2 1012 второго поколения". iXBT.com (in Russian). Retrieved 2018-10-30. ^ "HP launches the 810 EliteBook RevolveG2 convertible". Notebookcheck. Retrieved 2018-10-30. ^ "Ноутбук HP EliteBook Revolve обновлен процессором Broadwell :: Ноутбук-Центр". www.notebook-center.ru. Retrieved 2018-10-31. ^ Miller, Paul (September 8, 2008). "HP specs a 24 hour EliteBook, Dell's 19 hour mark hangs its head in shame". Engadget. Retrieved May 28, 2009. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "nVidia Quadro 5000M". Notebookcheck.net. Retrieved December 17, 2010. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Unveils Mobile Workstation Portfolio for Ultimate Performance, Design and Durability" (Press release). April 12, 2011. Retrieved December 27, 2011. ^ "HP EliteBook 8460p Notebook PC overview". Hewlett-Packard Development Company, LP. 2011. Retrieved February 25, 2011. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ a b "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ Wollman, Dana (2012-10-01). "HP announces the ElitePad 900, a business-friendly Windows 8 tablet arriving in January". Engadget. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ a b "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ Wollman, Dana (2013-10-01). "HP intros eight business laptops, including two Ultrabooks; prices at $499". Engadget. ^ Wollman, Dana (2013-12-10). "HP intros EliteBook Folio 1040 G1 business Ultrabook, refreshes its Revolve convertible with LTE". Engadget. ^ Portnoy, Sean (2014-06-05). "HP brings Pro x2 612 detachable laptop, Elite 700 PCs to work". ZDNet. ^ Munro, Craig (2014-02-23). "HP announces the ElitePad 1000 G2". NotebookCheck. ^ a b c "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ "HP Product Bulletin". Archived from the original on 2013-08-19. Retrieved 2014-04-23. ^ a b c "Product documentation". Archived from the original on 2015-10-01. Retrieved 2015-09-30. ^ "HP Discover Barcelona 2014". HP News. Hewlett-Packard. 2014-12-02. ^ Nistoro, Codrut (2015-07-14). "HP announces EliteBook Folio 1020 Bang & Olufsen limited edition laptop". NotebookCheck. ^ Konstantinov, Andrey (2015-01-22). "HP announces Elite x2 1011 G1 convertible". NotebookCheck. ^ "Product documentation". Archived from the original on 2015-10-01. Retrieved 2015-09-30. ^ "Product documentation". Archived from the original on 2015-10-01. Retrieved 2015-09-30. ^ "Product documentation". Archived from the original on 2015-10-01. Retrieved 2015-09-30. ^ "Product documentation". Archived from the original on 2015-10-01. Retrieved 2015-09-30. ^ "Product documentation". Archived from the original on 2015-10-01. Retrieved 2015-09-30. ^ "Product documentation". Archived from the original on 2015-10-01. Retrieved 2015-09-30. ^ "Product documentation". .hp.com. Retrieved 2019-10-14. ^ "HP EliteBook Folio 1020 G1 Notebook PC". hp.com. ^ Howse, Brett (2015-09-29). "HP Announces New EliteBook Business Notebooks PCs with AMD PRO A-Series APU". AnandTech. ^ Ngo, Allen (2016-01-03). "HP refreshes EliteBook 800 series with the 820, 840, and 850 G3". NotebookCheck. ^ Ngo, Allen (2016-01-03). "HP launches third generation EliteBook 1040 for 2016". NotebookCheck. ^ Ngo, Allen (2016-01-03). "HP unveils EliteBook Folio G1 as world's lightest and thinnest business notebook". NotebookCheck. ^ Nistor, Codrut (2016-05-17). "HP EliteBook 1030 starts at $1249 USD". NotebookCheck. ^ McLellan, Charles (2015-11-19). "HP redesigns its second-generation Elite x2 detachable". ZDNet. ^ "HP EliteBook 725 G3 Notebook PC Specifications". hp.com."HP EliteBook 725 G3 Notebook PC, HP EliteBook 745 G3 Notebook PC, HP EliteBook 755 G3 Notebook PC QuickSpecs" (PDF). hp.com. Alt URL"HP EliteBook 725 G3 Notebook PC Datasheet" (PDF). hp.com. Archived from the original (PDF) on 2015-09-25. ^ "HP EliteBook 745 G3 Notebook PC Specifications". hp.com."HP EliteBook 745 G3 Notebook PC Datasheet" (PDF). hp.com. Archived from the original (PDF) on 2015-09-25. ^ "HP EliteBook 755 G3 Notebook PC Specifications". hp.com."HP EliteBook 755 G3 Notebook PC Datasheet" (PDF). hp.com. Archived from the original (PDF) on 2015-09-25. ^ "HP EliteBook 820 G3 Notebook PC Specifications". hp.com."HP EliteBook 820 G3 Notebook PC, HP EliteBook 840 G3 Notebook PC, HP EliteBook 850 G3 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 820 G3 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 840 G3 Notebook PC Specifications". hp.com."HP EliteBook 840 G3 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 850 G3 Notebook PC Specifications". hp.com."HP EliteBook 850 G3 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook Folio G1 Notebook PC Specifications". hp.com."HP EliteBook Folio G1 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook Folio G1 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 1030 G1 Notebook PC Specifications". hp.com."HP EliteBook 1030 G1 Notebook PC QuickSpecs" (PDF). hp.com. Alt URL"HP EliteBook 1030 G1 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 1040 G3 Notebook PC Specifications". hp.com."HP EliteBook 1040 G3 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 1040 G3 Notebook PC Datasheet" (PDF). hp.com. ^ "HP Elite x2 1012 G1 Specifications". hp.com."HP Elite x2 1012 G1 QuickSpecs" (PDF). hp.com."HP Elite x2 1012 G1 Datasheet" (PDF). hp.com. Archived from the original (PDF) on 2018-12-30. Retrieved 2020-01-17. ^ Medley, Sam (2016-11-12). "HP Announces new HP EliteBook 705 G4 series of notebooks". NotebookCheck. ^ Nistor, Codrut (2016-12-15). "HP EliteBook 800 G4 series coming soon". NotebookCheck. ^ Woods, Rich (2017-01-03). "HP announces a new 15.6-inch Spectre x360 and EliteBook x360 for CES". Neowin. ^ Woods, Rich (2017-09-12). "HP announces a pair of powerful new EliteBook PCs". Neowin. ^ Herzig, Benjamin (2018-04-15). "EliteBook 840r G4: HP releases a Quad-Core refresh of the older EliteBook-design". NotebookCheck. ^ Rubino, Daniel (2017-05-10). "HP Elite x2 1012 G2 refresh is a powerful 2-in-1 for enterprise". Windows Central. ^ "HP EliteBook 725 G4 Notebook PC Specifications". hp.com."HP EliteBook 725 G4 Notebook PC, HP EliteBook 745 G4 Notebook PC, HP EliteBook 755 G4 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 725 G4 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 745 G4 Notebook PC Specifications". hp.com."HP EliteBook 745 G4 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 755 G4 Notebook PC Specifications". hp.com."HP EliteBook 755 G4 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 820 G4 Notebook PC Specifications". hp.com."HP EliteBook 820 G4 Notebook PC, HP EliteBook 840 G4 Notebook PC, HP EliteBook 850 G4 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 820 G4 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 840 G4 Notebook PC Specifications". hp.com."HP EliteBook 840 G4 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 850 G4 Notebook PC Specifications". hp.com."HP EliteBook 850 G4 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 840r G4 Notebook PC Specifications". hp.com."HP EliteBook 840r G4 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 840r G4 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook x360 1020 G2 Notebook PC Specifications". hp.com."HP EliteBook x360 1020 G2 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook x360 1020 G2 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook x360 1030 G2 Notebook PC Specifications". hp.com."HP EliteBook x360 1030 G2 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook x360 1030 G2 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 1040 G4 Notebook PC Specifications". hp.com."HP EliteBook 1040 G4 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 1040 G4 Notebook PC Datasheet" (PDF). hp.com. ^ "HP Elite x2 1012 G2 Specifications". hp.com."HP Elite x2 1012 G2 QuickSpecs" (PDF). hp.com."HP Elite x2 1012 G2 Datasheet" (PDF). hp.com. ^ "HP Delivers Premium Style and Substance for the Modern Workforce". HP Press Center. Hewlett-Packard. 2015-01-05. ^ Ngo, Allen (2019-05-10). "HP EliteBook 735/745/755 G5 and ProBook 645 G4 launching this month with AMD Ryzen PRO". NotebookCheck. ^ Herzig, Benjamin (2018-05-15). "EliteBook 1050 G1 with the GeForce GTX 1050 & Coffee Lake: HP challenges the Dell XPS 15". NotebookCheck. ^ Shilov, Anton (2018-05-18). "HP Unveils EliteBook x360 1030 G3 Convertible: Quad-Core CPU, 700-Nits LCD, 18 Hrs". AnandTech. ^ Shilov, Anton (2018-10-23). "HP Launches EliteBook x360 1040 G5: Now with 14-Inch Display and 32 GB of RAM". AnandTech. ^ Ngo, Allen (2019-01-06). "HP EliteBook x360 830 G5 display will be two times brighter than the MacBook Pro 13". NotebookCheck. ^ Ngo, Allen (2018-10-25). "HP has no plans for an EliteBook x360 1020 G2 successor for now". NotebookCheck. ^ Shilov, Anton (2018-05-17). "HP 13-inch Elite x2 1013 2-in-1 PC: Quad-Core, Thunderbolt 3s". AnandTech. ^ "HP EliteBook 735 G5 Notebook PC Specifications". hp.com."HP EliteBook 735 G5 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 735 G5 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 745 G5 Notebook PC Specifications". hp.com."HP EliteBook 745 G5 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 745 G5 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 755 G5 Notebook PC Specifications". hp.com."HP EliteBook 755 G5 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 755 G5 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook x360 830 G5 Notebook PC Specifications". hp.com."HP EliteBook x360 830 G5 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook x360 830 G5 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 830 G5 Notebook PC Specifications". hp.com."HP EliteBook 830 G5 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 830 G5 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 840 G5 Notebook PC Specifications". hp.com."HP EliteBook 840 G5 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 840 G5 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 850 G5 Notebook PC Specifications". hp.com."HP EliteBook 850 G5 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 850 G5 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook x360 1030 G3 Notebook PC Specifications". hp.com."HP EliteBook x360 1030 G3 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook x360 1030 G3 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook x360 1040 G5 Notebook PC Specifications". hp.com."HP EliteBook x360 1040 G5 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook x360 1040 G5 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook x360 1050 G1 Notebook PC Specifications". hp.com."HP EliteBook 1050 G1 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 1050 G1 Notebook PC Datasheet" (PDF). hp.com. ^ "HP Elite x2 1013 G3 Specifications". hp.com."HP Elite x2 1013 G3 QuickSpecs" (PDF). hp.com."HP Elite x2 1013 G3 Datasheet" (PDF). hp.com. ^ Ngo, Allen (2019-04-16). "Like a G6 — HP EliteBook 830 G6, 840 G6, and 850 G6 coming with updated security features and a super-bright 1000-nit display". NotebookCheck. ^ Ngo, Allen (2019-04-16). "HP EliteBook x360 830 G6 coming with Whiskey Lake-U vPro, WiFi-6, and privacy camera shutter". NotebookCheck. ^ Ngo, Allen (2019-05-28). "HP EliteBook x360 1030 G4 and EliteBook x360 1040 G6 will have "world's only" 1000-nit displays". NotebookCheck. ^ Ngo, Allen (2019-06-19). "HP EliteBook 735 G6 and 745 G6 coming with 2nd generation Ryzen 7 Pro 3700U options". NotebookCheck. ^ Ngo, Allen (2019-05-28). "HP Elite x2 G4 detachable will be over two times brighter than the Microsoft Surface Pro 6". NotebookCheck. ^ Ngo, Allen (2019-05-28). "HP Elite Dragonfly is a beautified EliteBook x360 1030, will offer features missing on the Dell XPS 13 7390 2-in-1". NotebookCheck. ^ "HP EliteBook 735 G6 Notebook PC Specifications". hp.com."HP EliteBook 735 G6 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 735 G6 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 745 G6 Notebook PC Specifications". hp.com."HP EliteBook 745 G6 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 745 G6 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook x360 830 G6 Notebook PC Specifications". hp.com."HP EliteBook x360 830 G6 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook x360 830 G6 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 830 G6 Notebook PC Specifications". hp.com."HP EliteBook 830 G6 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 830 G6 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 840 and 846 G6 Notebook PC Specifications". hp.com."HP EliteBook 840 G6 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 840 G6 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook 850 and 856 G6 Notebook PC Specifications". hp.com."HP EliteBook 850 G6 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook 850 G6 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook x360 1030 G4 Notebook PC Specifications". hp.com."HP EliteBook x360 1030 G4 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook x360 1030 G4 Notebook PC Datasheet" (PDF). hp.com. ^ "HP EliteBook x360 1040 G6 Notebook PC Specifications". hp.com."HP EliteBook x360 1040 G6 Notebook PC QuickSpecs" (PDF). hp.com."HP EliteBook x360 1040 G6 Notebook PC Datasheet" (PDF). hp.com. ^ "HP Elite x2 G4 Tablet with Keyboard Specifications". hp.com."HP Elite x2 G4 Tablet with Keyboard QuickSpecs" (PDF). hp.com."HP Elite x2 G4 Tablet with Keyboard Datasheet" (PDF). hp.com. ^ "HP Elite Dragonfly Notebook PC Specifications". hp.com."HP Elite Dragonfly Notebook PC QuickSpecs" (PDF). hp.com."HP Elite Dragonfly Notebook PC Datasheet" (PDF). hp.com. ^ Herzig, Benjamin (2020-05-26). "New HP EliteBook 800 & 805 G7 business laptops adopt AMD Ryzen 4000 & Intel Comet Lake". NotebookCheck. ^ Subramaniam, Vaidyanathan (2020-05-26). "HP Elitebook x360 1030 G7 and x360 1040 G7 business convertibles get a redesigned keyboard, Comet Lake-U, OLED display option, and 5G connectivity". NotebookCheck. ^ Shilov, Anton (2020-01-05). "CES 2020: HP's Elite Dragonfly to Get 10th Gen Intel Core, Tile Tag, & 5G Modem". Anandtech. ^ Endicott, Sean (2020-12-07). "HP's EliteBook 800 Series PCs and new ZBook Firefly laptops come with Tile preinstalled". Windows Central. ^ "HP at CES 2021: The Future of PC Innovation is Now". HP Inc. 2021-01-10. ^ Bonshor, Gavin (2021-01-14). "CES 2021: HP EliteBook 805 G8, With Ryzen Pro 5000". Anandtech. ^ Larabel, Michael (12 June 2022). "HP Dev One - A Great, Well Engineered AMD Ryzen Linux Laptop Review". Phoronix. Retrieved 30 June 2022. ^ a b Sneddon, Joey (2 June 2022). "HP's New Linux Laptop is Available to Pre-Order". OMG! Ubuntu!. Retrieved 1 July 2022. ^ "HP Dev One". HP Dev One. Retrieved 28 June 2022. ^ Harding, Scharon (2 June 2022). "HP releases its $1,099 Linux laptop for developers". Ars Technica. Retrieved 30 June 2022. ^ Wallen, Jack (16 June 2022). "Dev One laptop review: System76 and HP strike the perfect balance of form and function". TechRepublic. Retrieved 30 June 2022. ^ Viswanathan, Pradeep (2022-01-04). "HP announces several new Windows 11 laptops targeting commercial customers". MSPowerUser. ^ "HP at CES 2022: Unlocking the Power of Hybrid Work Experiences with Intelligent Collaboration and Creation Technology". HP Inc. 2022-01-04. ^ Murtaza, Fawad (2022-01-05). "CES 2022 HP announces the Elitebook 805 G9 series of business laptops with the latest AMD Ryzen processors and 16:10 screens". NotebookCheck. ^ Rubino, Daniel (2022-01-04). "HP refreshes its mid and entry tier EliteBook 800 and 600 series with G9 for 2022". Windows Central. ^ "HP at CES 2023: Leading in Hybrid and Gaming Experiences". ^ "HP Unveils Industry's Largest Portfolio of AI PCs". www.hp.com. Retrieved 2024-08-20. ^ Cheng, Cisco (October 16, 2008). "HP EliteBook 6930p Review & Rating". PC Mag. Retrieved May 28, 2009. ^ Crocker, Warner (October 1, 2008). "GBM Review: The HP 2730p Elitebook Tablet PC". GottaBeMobile. Retrieved May 28, 2008. ^ Jackson, Jerry (October 6, 2008). "HP EliteBook 8530w Review". Notebook Review. Retrieved September 19, 2011. ^ Cohn, David (March 2, 2009). "HP EliteBook 8530w Mobile Workstation Includes Brains and Beauty". Desktop Engineering. Retrieved September 19, 2011. ^ Cangeloso, Sal (March 23, 2010). "Review: HP EliteBook 8540p laptop". Geek.com. Archived from the original on December 11, 2011. Retrieved December 11, 2011. ^ Vogel, Sandra (August 2, 2010). "Hewlett-Packard - EliteBook 8540p review". IT Reviews. Retrieved December 11, 2011. ^ Stapley, Will (September 29, 2010). "HP EliteBook 8440p laptop review". V3.co.uk. Retrieved December 11, 2011. ^ Sklavos, Dustin (December 8, 2010). "HP EliteBook 8740w: IPS on the Go". AnandTech. Retrieved December 11, 2011. [* Elite Family, Hewlett Packard], Hewlett Packard Retrieved from " 2Computer architecture bit width Computer architecture bit widths Bit 148121618242630313236454860641282565 12bit slicing Application 8163264 Binary floating-point precision 16 (×½)2432 (×1)4064 (×2)80128 (×4)256 (×8) Decimal floating-point precision 3264128 vte In computer architecture, 32-bit computing refers to computer systems with a processor, memory, and other major system components that operate on data in a maximum of 32-bit units.[1][2] Compared to smaller bit widths, 32-bit computers can perform large calculations more efficiently and process more data per clock cycle. Typical 32-bit personal computers also have a 32-bit address bus, permitting up to 4 GiB of RAM to be accessed, far more than previous generations of system architecture allowed.[3] 32-bit designs have been used since the earliest days of electronic computing, in experimental systems and then in large mainframe and minicomputer systems. The first hybrid 16/32-bit microprocessor, the Motorola 68000, was introduced in the late 1970s and used in systems such as the original Apple Macintosh. Fully 32-bit microprocessors such as the HP FOCUS, Motorola 68020 and Intel 80386 were launched in the early to mid 1980s and became dominant by the early 1990s. This generation of personal computers coincided with and enabled the first mass-adoption of the World Wide Web. While 32-bit architectures are still widely-used in specific applications, the PC and server market has moved on to 64 bits with x86-64 and other 64-bit architectures since the mid-2000s with installed memory often exceeding the 32-bit address limit of 4 GiB on entry level computers. The latest generation of smartphones have also switched to 64 bits. A 32-bit register can store 232 different values. The range of integer values that can be stored in 32 bits depends on the integer representation used. With the two most common representations, the range is 0 through 4,294,967,295 (232 − 1) for representation as an (unsigned) binary number, and −2,147,483,648 (−231) through 2,147,483,647 (231 − 1) for representation as two's complement. One important consequence is that a processor with 32-bit memory addresses can directly access at most 4 GiB of byte-addressable memory (though in practice the limit may be lower). Motorola 68020 prototype from 1984. It features a 32-bit ALU and 32-bit address and data buses. The world's first stored-program electronic computer, the Manchester Baby, used a 32-bit architecture in 1948, although it was only a proof of concept and had little practical capacity. It held only 32 32-bit words of RAM on a Williams tube, and had no addition operation, only subtraction. Memory, as well as other digital circuits and wiring, was expensive during the first decades of 32-bit architectures (the 1960s to the 1980s).[4] Older 32-bit processor families (or simpler, cheaper variants thereof) could therefore have many compromises and limitations in order to cut costs. This could be a 16-bit ALU, for instance, or external (or internal) buses narrower than 32 bits, limiting memory size or demanding more cycles for instruction fetch, execution or write back. Despite this, such processors could be labeled 32-bit, since they still had 32-bit registers and instructions able to manipulate 32-bit quantities. For example, the IBM System/360 Model 30 had an 8-bit ALU, 8-bit internal data paths, and an 8-bit path to memory,[5] and the original Motorola 68000 had a 16-bit data ALU and a 16-bit external data bus, but had 32-bit registers and a 32-bit oriented instruction set. The 68000 design was sometimes referred to as 16/32-bit.[6] However, the opposite is often true for newer 32-bit designs. For example, the Pentium Pro processor is a 32-bit machine, with 32-bit registers and instructions that manipulate 32-bit quantities, but the external address bus is 36 bits wide, giving a larger address space than 4 GB, and the external data bus is 64 bits wide, primarily in order to permit a more efficient prefetch of instructions and data.[7] Prominent 32-bit instruction set architectures used in general-purpose computing include the IBM System/360, IBM System/370 (which had 24-bit addressing), System/370-XA, ESA/370, and ESA/390 (which had 31-bit addressing), the DEC VAX, the NS320xx, the Motorola 68000 family (the first two models of which had 24-bit addressing), the Intel IA-32 32-bit version of the x86 architecture, and the 32-bit versions of the ARM,[8] SPARC, MIPS, PowerPC and PA-RISC architectures. 32-bit instruction set architectures used for embedded computing include the 68000 family and ColdFire, x86, ARM, MIPS, PowerPC, and Infineon TriCore architectures. On the x86 architecture, a 32-bit application normally means software that typically (not necessarily) uses the 32-bit linear address space (or flat memory model) possible with the 80386 and later chips. In this context, the term came about because DOS, Microsoft Windows and OS/2[9] were originally written for the 8088/8086 or 80286, 16-bit microprocessors with a segmented address space where programs had to switch between segments to reach more than 64 kilobytes of code or data. As this is quite time-consuming in comparison to other machine operations, the performance may suffer. Furthermore, programming with segments tend to become complicated; special far and near keywords or memory models had to be used (with care), not only in assembly language but also in high level languages such as Pascal, compiled BASIC, Fortran, C, etc. The 80386 and its successors fully support the 16-bit segments of the 80286 but also segments for 32-bit address offsets (using the new 32-bit width of the main registers). If the base address of all 32-bit segments is set to 0, and segment registers are not used explicitly, the segmentation can be forgotten and the processor appears as having a simple linear 32-bit address space. Operating systems like Windows or OS/2 provide the possibility to run 16-bit (segmented) programs as well as 32-bit programs. The former possibility exists for backward compatibility and the latter is usually meant to be used for new software development.[10] In digital images/pictures, 32-bit usually refers to RGBA color space; that is, 24-bit truecolor images with an additional 8-bit alpha channel. Other image formats also specify 32 bits per pixel, such as RGBE. In digital images, 32-bit sometimes refers to high-dynamic-range imaging (HDR) formats that use 32 bits per channel, a total of 96 bits per pixel. 32-bit-per-channel images are used to represent values brighter than what sRGB color space allows (brighter than white); these values can then be used to more accurately retain bright highlights when either lowering the exposure of the image or when it is seen through a dark filter or dull reflection. For example, a reflection in an oil slick is only a fraction of that seen in a mirror surface. HDR imagery allows for the reflection of highlights that can still be seen as bright white areas, instead of dull grey shapes. A 32-bit file format is a binary file format for which each elementary information is defined on 32 bits (or 4 bytes). An example of such a format is the Enhanced Metafile Format. History of video games (32-bit era) Word (computer architecture) Physical Address Extension (PAE) ^ Prosise, Jeff (1995-11-07). "16 or 32 Bits: Should It Matter to You?". PC Magazine. pp. 321–322. Retrieved 2022-11-30. ^ Buchanan, William (1997). Software Development for Engineers : C/C++, Pascal, Assembly, Visual Basic, HTML, Java Script, Java DOS, Windows NT, UNIX. Burlington: Elsevier Science. p. 230. ISBN 978-0-08-054137-2. OCLC 854975383. ^ Venkateswarlu, N.B. (2012). Essential Computer and IT Fundamentals for Engineering and Science Students. S. Chand Publishing. p. 143. ISBN 978-81-219-4047-4. ^ Patterson, David; Ditzel, David (2000). Readings in Computer Architecture. San Diego: Academic Press. p. 136. ISBN 9781558605398. ^ IBM System/360 Model 30 Functional Characteristics (PDF). IBM. August 1971. pp. 8, 9. GA24-3231-7. ^ "Motorola 68000 Family Programmer's Reference Manual" (PDF). 1992. p. 1-1. Retrieved 18 January 2022. ^ Gwennap, Linley (16 February 1995). "Intel's P6 Uses Decoupled Superscalar Design" (PDF). Microprocessor Report. Retrieved 3 December 2012. ^ "ARM architecture overview" (PDF). ^ There were also variants of UNIX for the 80286. ^ This article is based on material taken from 32-bit+application at the Free On-line Dictionary of Computing prior to 1 November 2008 and incorporated under the "relicensing" terms of the GFDL, version 1.3 or later. HOW Stuff Works "How Bits and Bytes work" "Ken Colburn on LockerGnome.com: 32-Bit Vs. 64-Bit Windows". Archived from the original on 2016-03-30. Retrieved from " 3 Color depth 1-bit monochrome 8-bit grayscale 8-bit color 15- or 16-bit color (high color) 24-bit color (true color) 30-, 36-, or 48-bit color (deep color) Related Indexed color Palette RGB color model Web-safe color vte Number of bits used to represent a color Color depth, also known as bit depth, is either the number of bits used to indicate the color of a single pixel, or the number of bits used for each color component of a single pixel. When referring to a pixel, the concept can be defined as bits per pixel (bpp). When referring to a color component, the concept can be defined as bits per component, bits per channel, bits per color (all three abbreviated bpc), and also bits per pixel component, bits per color channel or bits per sample.[1][2][3] Modern standards tend to use bits per component,[1][2][4][5] but historical lower-depth systems used bits per pixel more often. Color depth is only one aspect of color representation, expressing the precision with which the amount of each primary can be expressed; the other aspect is how broad a range of colors can be expressed (the gamut). The definition of both color precision and gamut is accomplished with a color encoding specification which assigns a digital code value to a location in a color space. The number of bits of resolved intensity in a color channel is also known as radiometric resolution, especially in the context of satellite images.[6] Same image on five different color depths, showing resulting (compressed) file sizes. 8 and smaller use an adaptive palette so quality may be better than some systems can provide. 24 bit.png 16,777,216 colors98 KB 8 bit.png 256 colors37 KB (−62%) 4 bit.png 16 colors13 KB (−87%) 2 bit.png 4 colors6 KB (−94%) 1 bit.png 2 colors4 KB (−96%) Main article: Indexed color With the relatively low color depth, the stored value is typically a number representing the index into a color map or palette (a form of vector quantization). The colors available in the palette itself may be fixed by the hardware or modifiable by software. Modifiable palettes are sometimes referred to as pseudocolor palettes. Old graphics chips, particularly those used in home computers and video game consoles, often have the ability to use a different palette per sprites and tiles in order to increase the maximum number of simultaneously displayed colors, while minimizing use of then-expensive memory (and bandwidth). For example, in the ZX Spectrum the picture is stored in a two-color format, but these two colors can be separately defined for each rectangular block of 8×8 pixels. The palette itself has a color depth (number of bits per entry). While the best VGA systems only offered an 18-bit (262,144 color) palette[7][8][9][10] from which colors could be chosen, all color Macintosh video hardware offered a 24-bit (16 million color) palette. 24-bit palettes are nearly universal on any recent hardware or file format using them. If instead the color can be directly figured out from the pixel values, it is "direct color". Palettes were rarely used for depths greater than 12 bits per pixel, as the memory consumed by the palette would exceed the necessary memory for direct color on every pixel. Headings of subsections refer to bits-per-pixel. Main article: Binary image 2 colors, often black and white direct color. Sometimes 1 meant black and 0 meant white, the inverse of modern standards. Most of the first graphics displays were of this type, the X Window System was developed for such displays, and this was assumed for a 3M computer. In the late 1980s there were professional displays with resolutions up to 300 dpi (the same as a contemporary laser printer) but color proved more popular. 4 colors, usually from a selection of fixed palettes. Gray-scale early NeXTstation, color Macintoshes, Atari ST medium resolution. 8 colors, almost always all combinations of full-intensity red, green, and blue. Many early home computers with TV displays, including the ZX Spectrum and BBC Micro. 16 colors, usually from a selection of fixed palettes. Used by IBM CGA (at the lowest resolution), EGA, and by the least common denominator VGA standard at higher resolution. Color Macintoshes, Atari ST low resolution, Commodore 64, and Amstrad CPCs also supported 4-bit color. 32 colors from a programmable palette, used by the Original Amiga chipset. 64 colors. Used by the Master System, Enhanced Graphics Adapter, GIME for TRS-80 Color Computer 3, Pebble Time smartwatch (64 color e-paper display), and Parallax Propeller using the reference VGA circuit. Main article: 8-bit color 256 colors, usually from a fully-programmable palette: