DH310V2

SLIM PC

PROCESSOR	Supports Intel® 8th/9th generation Core® i3/i5/i7/i9 series, Pentium®, and Celeron® LGA 1151v2 65W processors
MEMORY	2 x 260 pin DDR4 2400/2666 MHz (PC4-19200/21300) SDRAM at 1.2V Supports dual channel up to 32GB (16GB x 2)
VIDEO GRAPHICS	Intel HD Graphics
VIDEO OUTPUT	HDMI 2.0 + DisplayPort, Supports dual independent displays, Supports 4K Ultra HD
AUDIO	Realtek ALC662 HD audio
ETHERNET	Intel i211 x 2 Dual LAN Supports Wake on LAN function 10/100/1000 MB/s operation Supports Teaming mode [5]*
STORAGE INTERFACE	SATA 6 GB/s
ONBOARD CONNECTORS	(1) 4 pin fan connector (1) VGA connector (for PVG01 use) (1) USB 2.0 (2) Serial interface (COM) (1) CMOS battery connector (1) Jumper for power on after power fail [7]*
FRONT PANEL	(1) Power Button (2) USB 3.1 Gen 1 (1) Power LED (1) External microphone jack 1/8" (1) HDD LED (1) External headphone jack 1/8" (2) USB 2.0 (1) SD Card Reader
BACK PANEL	(1) HDMI 2.0 [1]* (1) RS232/RS422/RS485 (1) DisplayPort 1.2 [2]* (1) Clear CMOS button (2) USB 3.1 Gen 1 (2) USB 2.0 (2) Gigabit LAN ports (2) Wireless Antenna holes (2) Kensington Lock (1) VGA connector (optional PVG01) [4]* (1) RS232 [3]* (1) DC-in
DRIVE BAYS	(1) 2.5" HDD/SSD bay
DIMENSIONS	7.5(L) x 6.5(W) x 1.7(H) inches
POWER	Input: 100 - 240V AC, 50/60 Hz 90W power supply Output: 19V/4.74A DC or 12V
ACCESSORIES	Quick Guide VESA mount Screw package VESA mount quick guide SATA cable Driver DVD Power cord Adapter cable for external power button (CXP01) Vertical stand (PS02) 802.11 a/c and Bluetooth 4.0 WLAN module (optional)
EXPANSION SLOT	(1) M.2 MAX to 2280 Type M (1) M.2 MAX to 2230 Type E key socket
OS SUPPORT	Windows 10 64 bit, Linux 64 bit

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DH310V2

SLIM PC

CHASSIS	Black slim type metal chassis Kensington lock slot on the back as part of anti-theft system Dimensions: 7.5 (L) x 6.5 (W) x 1.7 (H) inches Weight: 2.8 LBS (net) / 4.6 LBS (gross)
MAINBOARD AND CHIPSET	Shuttle mainboard FS310, Shuttle form factor proprietary design for XPC DH310V2 Chipset: Intel® H310 Supports hardware monitoring and watch dog functionality Solid capacitors for sensitive areas provide excellent heat resistance for enhanced system durability
BIOS	AMI BIOS, SPI Interface, 16 MB Flash-EPROOM Supports Firmware-TPM (fTPM) v2.0 Supports boot up from external USB flash memory Supports Unified Extensible Firmware Interface (UEFI) Supports power on after power failure [7]*
POWER SUPPLY	External 90W power adapter (fanless) AC input voltage: 100 - 240V, 50 - 60 Hz Output: 19V DC 4.74A This system can also be powered by a power adapter with an output voltage of 12V or 19V DC
OPERATING SYSTEM	The system comes without an operating system installed. Compatibility: Windows 10, Linux 64bit
PROCESSOR SUPPORT	LGA 1151v2 Socket supports Intel® Core® i3/i5/i7/i9, Pentium, and Celeron processors Supports the 8th and 9th generation Intel Core processors, codename "Coffee Lake (Refresh)" [9]* Max supported processor power consumption (TDP): 65W 14++nm process technology, up to 8 CPU cores and 16 threads, up to 16MB of L3 cache The unlock function for Intel® K-Series processors is not supported with this model Not compatible with older socket LGA 1151 processors (6th Gen Skylake and 7th Gen Kabylake) The processor integrates PCI-Express, the memory controller, and graphics engine on the same die (performance features depend on the processor type) Please refer to the support list for more detailed processor information at global.shuttle.com
SYSTEM COOLING	Shuttle I.C.E. (Integrated Cooling Engine) advanced heatpipe cooling technology, two 60 mm fans
MEMORY SUPPORT	2 x 260 pin SODIMM slots Supports DDR4 2400/2666 MHz memory (PC3-19200/21300) at 1.2V Supports Dual Channel mode Supports a max. of 16GB per DIMM, up to 32GB total Supports two unbuffered DIMM modules (no ECC or registered)
DRIVE BAYS	1 x 2.5" drive bay supports one hard disk or SSD drive, max height 12.5 mm
M.2 SLOTS	M.2 2280 M slot provides the following interfaces: PCI-Express Gen 2.0 X4 (supports NVMe), SATA v3.0 (6 GB/s) interface Supports M.2 cards with a width of 22 mm and a length of 42, 60, or 80 mm (type 2242/2260/2280). Supports M.2 SSDs with SATA or PCI-Express interface. M.2 2230 E slot provides the following interfaces: PCI-Express v2.0 X1, USB 2.0 interface Supports M.2 cards with a width of 22 mm and a length of 30 mm (type 2230) Supports WLAN extension cards (optional WLN-M accessory)
AUDIO	Realtek® ALC 662 5.1 channel HD audio Two analog audio connectors (3.5 mm) on the front panel: 2 channel line-out (headphones), Microphone input Digital multi-channel audio output (HDMI and DisplayPort)

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DH310V2

SLIM PC

INTEGRATED GRAPHICS	Intel HD graphics function features depend on the processor type used, supports DirectX 12 and OpenGL 4.5 This model has two video outputs: -1 x HDMI 2.0 (1080p/60 Hz and 2160p/60 Hz supported) -1 x DisplayPort 1.2 (1080p/60 Hz and 2160p/60 Hz supported) Supports displays with 4K Ultra HD resolution at 3840 x 2160 Supports two independent displays with integrated graphics function Supports Blu-Ray playback with HDCP content protection [1]* Hardware video decoding/encoding: H.264, H.265 (8 and 10 bit, encoding via QuickSync), VP9 (10 bit decoding) DisplayPort and HDMI support multi-channel digital audio over the same cable Optional analog VGA video output [4]*
MULTI-CHANNEL AUDIO	5.1 channel High Definition Audio with Realtek ALC662 codec Two analog audio connectors (3.5mm) on the front panel: -2 channel line out (headphones) -Microphone input
GIGABIT LAN CONTROLLER	Two RJ45 ports Intel i211 Ethernet Controller with MAC, PHY, and PCIe interface Supports 10/100/1000 MB/s operation Supports Wake-on-LAN Supports Teaming mode [5]* Supports network boot by Preboot eXecution environment (PXE)
SATA CONNECTORS	The mainboard provides one Serial-ATA III interface, max 6GB/s supported Serial-ATA power connector (onboard)
CARD READER	Integrated card reader supports SD, SDHC, SDXC (up to v3.01) memory flash cards Supports boot up from SD card
FRONT PANEL CONNECTORS	Microphone input Power button Headphone output (line-out) Power indicator (Blue LED) 2 x USB 3.1 Gen 1 Hard disk drive indicator (Yellow LED) 2 x USB 2.0 SD Card Reader
BACK PANEL CONNECTORS	HDMI 2.0 [1]* Clear CMOS button DisplayPort 1.2 [2]* Gigabit LAN (RJ45) x 2 VGA connector (optional PVG01) [4]* WLAN antenna holes x 2 USB 3.1 Gen 1 x 2 RS232 x 2 (5/12V, 1 x RS422/RS485) [3]* USB 2.0 x 2 DC-input connector for external power adapter (12V/19V) Kensington Lock x 2
OTHER CONNECTORS (ONBOARD)	Analog VGA graphics (2x1 pin) [4]* Fan connectors x 1 (4 pin), one occupied by cooling system COM port x 2 Power on after power failure (hardware solution by jumper) [7]* Connector for CMOS battery (occupied) USB 2.0 x 1 (4 pin)
INCLUDED ACCESSORIES	XPC installation guide External 90W power adapter with cord Driver DVD VESA mount (75/100mm standard) SATA and power cables for 2.5" drive Screw pack Heatsink compound Protector cap for CPU socket (don't use if heatpipe/fan is mounted)
OPTIONAL ACCESSORIES	Vertical stand (PS02) VGA port adapter (PVG01) [4]* WLN-M (WLAN module) Adapter cable for external power button (CXP01)
ENVIRONMENTAL CRITERIA	Operating temperature: 0 - 50°C [6]* Humidity: 10 - 90% (non-condensing)
CERTIFICATIONS	EMI: FCC, CE, BSMI, RCM, VCCI Other: RoHS, Energy Star, ErP Safety: ETL, CB, BSMI This model is classed as a technical information equipment (ITE) in class B and is intended for use in living rooms and offices. The CE mark approves conformity by the EU directives: (1) 2004/108/EC relating to electromagnetic compatibility (EMC) (2) 2006/95/EC relating to Electrical Equipment designed for use within certain voltage limits (LVD) (3) 2009/125/EC relating to eco-design requirements for energy related products (ErP)

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DH310V2

[1] HDMI OUTPUT

HDMI output supports DVI-D with optional adapter

[2] HOW TO CONVERT DISPLAYPORT TO HDMI/DVI

The DisplayPort output can be converted into a HDMI or DVI output using an additional passive adapter cable.
The integrated graphics automatically detects the connected display and outputs the appropriate electric signal - either DisplayPort (without an adapter) or HDMI/DVI (with an adapter). However, a monitor with a DisplayPort connector cannot be connected to the HDMI port with a simple passive adapter.

[3] SERIAL PORTS

This PC features two serial RS232 ports with 9 pin VGA connectors on the back panel (pin 9 is a multi-functional signal). The left COM1 port can also be configured as RS422 and RS485 in the BIOS setup. Based on the Jumper JP1 configuration on the mainboard, it can be configured as Ring Indicator (RI) or external power supply with a voltage level of either 5V or 12V (each COM port can be configured separately; the maximum current is 500 mA per connector).

[4] OPTIONAL VGA CONNECTOR

The mainboard features one analog graphics port (CN6). This 15 pin VGA connector can be lead to the outside of the back panel by using an optional adapter PVG01. Doing so will occupy one serial port (COM) on the back panel.

[5] TEAMING MODE

The teaming function allows for grouping both available network adapters to work as a single adapter. This mode enables load balancing and failover (the driver download can be found here: https:\\downloadmirror.intel.com\22283\eng\23_2.zip

[6] OPERATING TEMPERATURE

For high ambient temperature over 40°C, SSDs are strongly recommended instead of hard disk drives (supporting at least 70°C) and rugged SODIMM memory modules for temperature ranges up to 95°C.

[7] POWER ON AFTER POWER FAIL

The BIOS setup provides a "Power-On after Power Fail" function that can be found under "Power Management Configuration". As the name indicates, this function determines the PC's behavior after a power failure: (1) unconditional power on, (2) restore former status, or (3) keep system turned off. This function may fail after short power failures, but the DH310V2 comes with a hardware based solution in these cases. By removing the Jumper JP2 on the mainboard (behind the power button), the system will start unconditionally once power is supplied.

[8] DH310 AND DH310V2

The front panel and chipset driver for the DH310V2 is different but other features are the same

[9] 9TH GENERATION PROCESSORS

9th generation Intel® Core™ processors (9000 series "Coffee Lake Refresh") are supported from BIOS version DH310200.101 (3/22/2019 update). If a BIOS update is necessary, then a 8th generation processor must be used temporarily while the update is downloaded. You can find the latest BIOS update here: http://global.shuttle.com/support/download. Do not use processors with model numbers ending in "F" (eg Intel Core i5-9400F) as they do not support integrated graphics.

BIOS DOWNLOADS: http://global.shuttle.com/products/productsDownload?productId=2360
SUPPORT LIST: http://global.shuttle.com/products/productsSupportList?productId=2360
FAQ LIST: http://global.shuttle.com/support/faq
PRODUCT WARRANTY: https://us.shuttle.com/barebone-support/policy-xpc-barebone/

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DH310V2

SLIM PC

Front View

1 Microphone input	**5** Power Button
2 Headphone input	**6** SD Card Reader
3 Power LED	**7** USB 3.1 Gen 1 x 2
4 Hard Disk LED	**8** USB 2.0 x 2

Back View
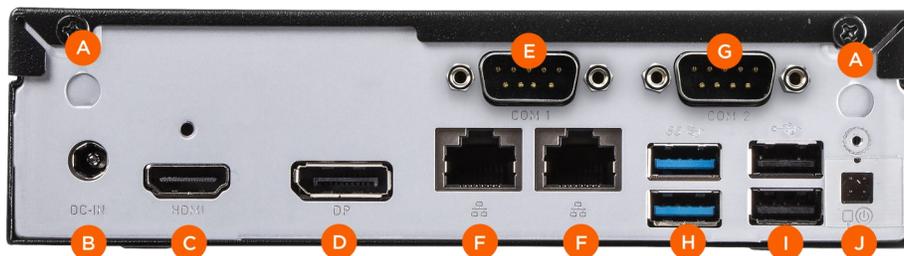
A WLAN antenna hole x 2	**F** RJ45 Gigabit LAN
B DC power input	**G** RS232/RS422/RS485 (COM2)
C HDMI 2.0 video output	**H** USB 3.1 Gen 1 x 2
D DisplayPort 1.2 video	**I** USB 2.0 x 2
E RS232 (COM1 or optional VGA port)	**J** Clear CMOS connector

Kensington lock hole on left and right side

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DH310V2

INTEL® 8TH AND 9TH GENERATION PROCESSORS

Equipped with a LGA 1151v2 socket, the DH310V2 supports Intel® Celeron®, Pentium®, and Core® 65W processors. Support for up to 32GB DDR4 2400/2666 MHz memory, integrated UHD graphics, and PCI-E controllers provide outstanding graphics performance.

VESA MOUNTABLE

The supplied 75/100mm VESA mount allows for installation of the DH310V2 on walls or monitors, for use in company buildings, public institutions, or other industry buildings. With a thickness of 43mm, it allows for versatile integration into hardware systems and well suited for areas with limited space.

4K ULTRA HD

The DH310V2 supports 4K output at 60Hz resolution (4096x2160) at a maximum of 60 FPS as well as the transmission of HDR (high dynamic range) video for vivid streaming, higher contrast, and more accurate color from displays and TVs.

GREAT CONNECTIVITY

In addition to two video outputs for dual displays, the DH310V2 also features four USB 3.1 Gen 1 ports, four USB 2.0 ports, two RS232 interfaces, and an SDXC card reader for convenient and flexible connectivity options.

SMART FAN DESIGN

A heat-pipe cooling system with smart fan design can be set in the BIOS for faster fan speed automatically when CPU temperature increases for high stability and low noise during long term operation.

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DH310V2

SLIM PC

ACCESSORY	PS02
DESCRIPTION	The PS02 stand is required for placing 1.3L slim PC models into a vertical orientation.
COMPATIBILITY	DX30, DL10J, DS61, DS81, DH110, DH110SE, DH170, DQ170, DH270, DH310, DH370, DH02U

ACCESSORY	PVG01
DESCRIPTION	The PVG01 equips compatible slim PCs with an analog VGA output, For slim 1L PCs, this means only one serial interface (COM 1) can be used after installation.
SPECIFICATIONS	Length: 6.3 inches, Back panel connector: 15 pin Mini D-sub female socket, Internal connector: Subminiature 2x10 pin female
REMARKS	Slim PCs with H81/H110 chipsets can support up to two displays at the same time, so only two out of the available video outputs can be used.

ACCESSORY	WLN-M
DESCRIPTION	The WLN-M wireless LAN kit can be used to equip XPC cube and slim series models with the wireless LAN standard 802.11 n/ac at 2.4/5 GHz. The combo device supports Bluetooth 4.0.
REMARKS	M.2 2230 (NGFF) WLAN card, Antenna cable (XPC slim) x 2, Antenna cable (XPC cube) x 2, Dipole antenna x 2, Quick Guide, Driver DVD
OS SUPPORT	Windows 7, Windows 8.1, Windows 10, Linux (32/64 bit)

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DH310V2

SLIM PC

8th Generation Intel Core Desktop Processors (LGA 1151v2 14 nm++ Coffee Lake-S)

Processors with a TDP > 65W are not supported (marked in red)

Name	Model	Cores/Threads	CPU Clock	Turbo Clock	Cache	TDP	Graphics	Graphics Clock
Core i7	8700K	6 / 12	3.7 GHz	4.7 GHz	12 MB	95W	HD 630	350 - 1200 MHz
	8700	6 / 12	3.2 GHz	4.6 GHz	12 MB	65W	HD 630	350 - 1200 MHz
	8700T	6 / 12	2.4 GHz	4.0 GHz	12 MB	35W	HD 630	350 - 1200 MHz
Core i5	8600K	6 / 6	3.6 GHz	4.3 GHz	9 MB	95W	HD 630	350 - 1150 MHz
	8600	6 / 6	3.1 GHz	4.3 GHz	9 MB	65W	HD 630	350 - 1150 MHz
	8600T	6 / 6	2.3 GHz	3.7 GHz	9 MB	35W	HD 630	350 - 1150 MHz
	8500	6 / 6	3.0 GHz	4.1 GHz	9 MB	65W	HD 630	350 - 1100 MHz
	8500T	6 / 6	2.1 GHz	3.5 GHz	9 MB	35W	HD 630	350 - 1100 MHz
	8400	6 / 6	2.8 GHz	4.0 GHz	9 MB	65W	HD 630	350 - 1050 MHz
	8400B	6 / 6	2.8 GHz	4.0 GHz	9 MB	65W	HD 630	350 - 1150 MHz
	8400T	6 / 6	1.7 GHz	3.3 GHz	9 MB	35W	HD 630	350 - 1050 MHz
Core i3	8350K	4 / 4	4.0 GHz	-	8 MB	91W	HD 630	350 - 1150 MHz
	8300	4 / 4	3.7 GHz	-	8 MB	62W	HD 630	350 - 1150 MHz
	8300T	4 / 4	3.2 GHz	-	8 MB	35W	HD 630	350 - 1150 MHz
	8100	4 / 4	3.6 GHz	-	6 MB	65W	HD 630	350 - 1100 MHz
	8100T	4 / 4	3.1 GHz	-	6 MB	35W	HD 630	350 - 1100 MHz
Pentium	G5600	2 / 4	3.9 GHz	-	4 MB	51W	HD 630	350 - 1100 MHz
	G5500	2 / 4	3.8 GHz	-	4 MB	51W	HD 630	350 - 1100 MHz
	G5500T	2 / 4	3.2 GHz	-	4 MB	35W	HD 630	350 - 1100 MHz
	G5400	2 / 4	3.7 GHz	-	4 MB	51W	HD 630	350 - 1050 MHz
	G5400T	2 / 4	3.1 GHz	-	4 MB	35W	HD 630	350 - 1050 MHz
Celeron	G4920	2 / 2	3.2 GHz	-	2 MB	54W	HD 610	350 - 1050 MHz
	G4900	2 / 2	3.1 GHz	-	2 MB	54W	HD 610	350 - 1050 MHz
	G4900T	2 / 2	2.9 GHz	-	2 MB	35W	HD 610	350 - 950 MHz

K = unlocked, **T** = power optimized, **HT** = hyper threading. The DH310V2 does not support the unlock function of Intel K-series processors.

See more support information at **global.shuttle.com**

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DH310V2

SLIM PC

9th Generation Intel Core Desktop Processors (LGA 1151v2 14 nm++ Coffee Lake-S)

Processors with a TDP > 65W are not supported (marked in red)

Name	Model	Cores/Threads	CPU Clock	Turbo Clock	Cache	TDP	Memory	Graphics	Graphics Clock
Core i9	9900K	8 / 16	3.6 GHz	5.0 GHz	16 MB	95W	DDR4-2666	HD 630	350 - 1200 MHz
	9900KF	8 / 16	3.6 GHz	5.0 GHz	16 MB	95W	DDR4-2666	None	None
	9900	8 / 16	3.1 GHz	5.0 GHz	16 MB	65W	DDR4-2666	UHD 630	350 - 1200 MHz
	9900T	8 / 16	2.1 GHz	4.4 GHz	16 MB	35W	DDR4-2666	UHD 630	350 - 1200 MHz
Core i7	9700K	8 / 8	3.6 GHz	4.9 GHz	12 MB	95W	DDR4-2666	UHD 630	350 - 1200 MHz
	9700KF	8 / 8	3.6 GHz	4.9 GHz	12 MB	95W	DDR4-2666	None	None
	9700	8 / 8	3.0 GHz	4.7 GHz	12 MB	65W	DDR4-2666	UHD 630	350 - 1200 MHz
	9700T	8 / 8	2.0 GHz	4.3 GHz	12 MB	35W	DDR4-2666	UHD 630	350 - 1200 MHz
Core i5	9600K	6 / 6	3.7 GHz	4.6 GHz	9 MB	95W	DDR4-2666	UHD 630	350 - 1150 MHz
	9600KF	6 / 6	3.7 GHz	4.6 GHz	9 MB	95W	DDR4-2666	None	None
	9400	6 / 6	2.9 GHz	4.1 GHz	9 MB	65W	DDR4-2666	UHD 630	350 - 1050 MHz
	9400F	6 / 6	2.9 GHz	4.1 GHz	9 MB	65W	DDR4-2666	None	None
	9400T	6 / 6	1.8 GHz	3.4 GHz	9 MB	35W	DDR4-2666	UHD 630	350 - 1050 MHz
Core i3	9350KF	4 / 4	4.0 GHz	4.6 GHz	8 MB	91W	DDR4-2400	None	None

K = unlocked, T = power optimized, F = without integrated graphics (requires discrete graphics card), TDP = Thermal Design Power (max power consumption). Note: The Shuttle XPC slim barebone DH310V2 does not support the unlock function of Intel K-series processors. The 9th generation Intel Core processors "Coffee Lake" are supported from BIOS version DH310200.101. If a BIOS update is necessary, then a processor of the 8th generation must be temporarily used for the update. Download update at http://global.shuttle.com/support/download. See more support information at global.shuttle.com