

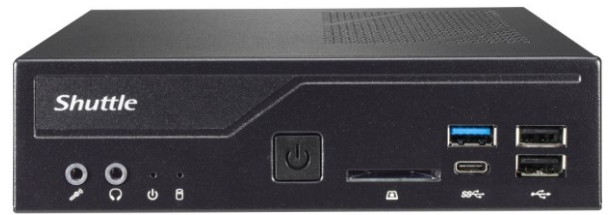
### Affordable 1-litre Slim PC for powerful Coffee Lake processors

The Shuttle XPC slim Barebone DH310S is a robust 1.3l Barebone PC with H310 chipset for Intel LGA1151v2 desktop processors, code-named "Coffee Lake (Refresh)". It allows for two digital displays to be operated at the same time and supports up to 32 GB DDR4 SO-DIMM memory. Its slim metal chassis provides versatile connectivity and reliable operation in environments with ambient temperatures of up to 50 °C. This platform is targeted at applications such as office, healthcare, Digital Signage, POS, and industry.

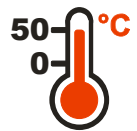
#### Feature Highlights

<b>Slim Design</b>	<ul style="list-style-type: none"> <li>• Slim 1.3-litre metal chassis, black</li> <li>• 190 x 165 x 43 mm (LWH)</li> <li>• Operating temperature: 0~50 °C</li> </ul>
<b>Operating System</b>	<ul style="list-style-type: none"> <li>• The operating system is not included</li> <li>• Supports Windows 10 and Linux (64-bit)</li> </ul>
<b>Processor</b>	<ul style="list-style-type: none"> <li>• Socket LGA 1151v2 supports Intel Core CPUs Gen. 8/9 "Coffee Lake", max. 65W TDP Core i9/i7/i5/i3, Pentium Gold, Celeron [5]</li> <li>• Including heatpipe cooling system</li> </ul>
<b>Chipset</b>	<ul style="list-style-type: none"> <li>• Intel H310 Chipset</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>• 2x 260-pin SO-DIMM slot</li> <li>• Supports DDR4-2400/2666, max. 2x 16 GB</li> </ul>
<b>Graphics</b>	<ul style="list-style-type: none"> <li>• Integrated Intel HD graphics, 4K support (features depend on processor)</li> <li>• Supports two independent displays</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>• 1x 2.5" bay for SATA hard disk or SSD</li> </ul>
<b>M.2 slots</b>	<ul style="list-style-type: none"> <li>• 1x M.2 2280M slot (PCIe x4, SATA)</li> <li>• 1x M.2 2230E for optional WLAN (WLN-M)</li> </ul>
<b>Connectors</b>	<ul style="list-style-type: none"> <li>• HDMI 1.4b, DisplayPort 1.2, optional VGA</li> <li>• SD card reader, 2x audio (line out, mic)</li> <li>• 4x USB 3.0 (1x Type C), 4x USB 2.0</li> <li>• Gigabit LAN (RJ45)</li> <li>• Connector for external power button</li> <li>• "Always on" Jumper</li> </ul>
<b>Power Supply</b>	<ul style="list-style-type: none"> <li>• External 90W / 19V power adapter</li> </ul>
<b>Optional Accessories</b>	<ul style="list-style-type: none"> <li>• WLAN Module (WLN-M), Vertical Stand (PS02)</li> <li>• VGA Port (PVG01), Rackmount kit (PRM01)</li> <li>• Cable for external power button (CXP01)</li> <li>• VESA mount (PV04)</li> </ul>

### XPC slim Barebone DH 310S



Images for illustration only.  
Processor, memory, storage and  
operating system not included.

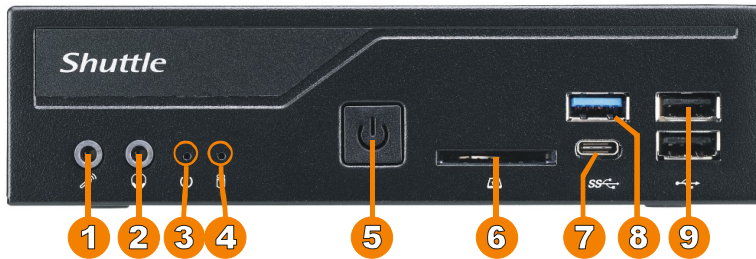


4K 2160p  
**ULTRAHD**  
3840 x 2160



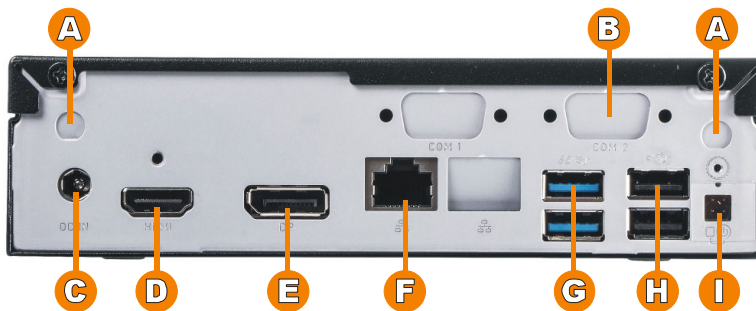
Shuttle XPC slim Barebone DH310S – Front and Back Panel

Front view



- 1 Microphone input
- 2 Headphones output
- 3 Power LED
- 4 Hard disk LED
- 5 Power Button
- 6 SD Card Reader
- 7 USB 3.1 Gen 1 Type C
- 8 USB 3.1 Gen 1
- 9 2x USB 2.0

Rear view



- A 2x WLAN perforation
- B Optional D-Sub/VGA port (accessory PVG01)
- C DC power input
- D HDMI 1.4b video output
- E DisplayPort (DP 1.2) video output
- F 2x RJ45 Gigabit LAN
- G 2x USB 3.0 (USB 3.1 Gen 1)
- H 2x USB 2.0
- I Connector for external power button, Clear CMOS and 5 V DC voltage (4-pin, 2.54 mm pitch)
- J 2x hole for Kensington Lock
- K Threaded holes for optional VESA mount (accessory PV04)

Right side



Left side



## Shuttle XPC slim Barebone DH310S – Required Components

The following components need to be added to make it a fully-configured Mini PC

LGA1151v2 processor, Intel Core Gen 8/9  
 “Coffee Lake (Refresh)” TDP max. 65 W  
 Core i7 / i5 / i3, Pentium Gold or Celeron [5]

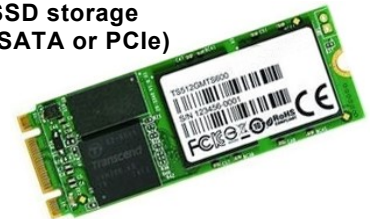


2.5” SATA hard disk  
 or Solid State Disk (SSD)  
 (max. height: 12.5 mm)

Windows 10 / Linux  
 Operating System



Optional:  
 M.2 2280/2260/2242  
 SSD storage  
 (SATA or PCIe)



Up to two DDR4-2400/2666  
 SO-DIMM memory modules  
 max. 16 GB each



## Optional Accessories

VGA port Accessory **PVG01**  
 Note that only two displays can  
 be operated at the same time.



WLAN-Accessory **WLN-M**  
 M.2-2230 card supports  
 IEEE 802.11 b/g/n/ac  
 including 2 antennas



VESA mounting kit **PV04**



Vertical Stand **PS02**  
 for vertical operation



Rack Mount Kit **PRM01**  
 2U front plate to install two 1.3L  
 Shuttle XPCs in a 19" cabinet.



Cable for external push  
 button switch **CXP01**  
 (without button)



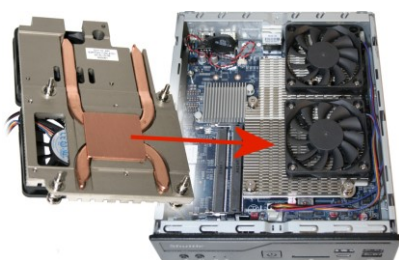


## Shuttle XPC slim Barebone DH310S – Product Features



### Robust, stylish and particularly small

You should have held it in your own hands to see how small it actually is. At barely a volume of 1.35 litres, its steel chassis gives it the appropriate stability required for professional applications in digital signage. Despite its dimensions of 19 x 16.5 x 4.3 cm (LWH), the overall system performance is very high thanks to support of Intel Core desktop processors of the Coffee Lake generation. The interior of the DH310S is very tidy too so that it won't take long to set up. Its sleek and stylish looks let it easily find a place in both home and office environments.



### Low noise thanks to heatpipe cooling system

An active dual-fan heatpipe cooling system ensures whisper-quiet operation and system stability.



### Extended temperature range and reliability

The DH310S is outstandingly robust thanks to its rugged chassis. With an ambient temperature range from 0-50 °C it is suitable for use in the most demanding environments. Solely designed with all solid capacitors, the DH310S is guaranteed to deliver maximum stability, reliability and longer system lifetime for long-term applications like digital signage.

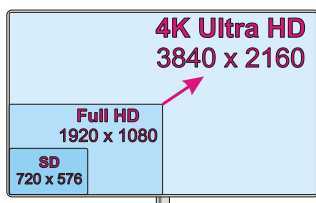
**Caution:** For high ambient temperatures over 40 °C we strongly recommend to use SSDs instead of hard disks (supporting at least 70 °C).



### Dual Display with HDMI and DisplayPort (optional VGA)

The DH310S features two digital video outputs: HDMI 1.4b and DisplayPort (DP). Dual View technology offers multiple display support on up to two separate monitors. This helps improve on productivity by allowing for spreading multiple windows across two monitors while working with them simultaneously.

Furthermore, the DH310S supports an optional D-Sub/VGA port.



### Supports 4K Ultra HD at 60 Hz

#### Supports 4K Ultra HD at 60 Hz

The DH310S supports displays running at 4K (3840 x 2160 / 2160p) high resolution at 60 Hz frames per second when connected to its DisplayPort video outputs. Being the successor to the Full HD standard, Ultra HD delivers a four times higher resolution with a wider colour space and colour depth.



### One M.2-2280M-Slot for SSD card

The M.2-2280M slot supports one M.2 SSD storage card with NVMe PCIe or SATA interface.

Type 2280 means, it supports the usual M.2 cards with a width of 22 mm and a length of 80 mm, but also 2242 and 2260 standard cards are supported.



**M.2-2230E-Slot for optional WLAN**

The M.2-2230E slot is intended for Wireless LAN (Wifi), Bluetooth, GSM/UMTS cards and others.

Shuttle offers the optional accessory „WLN-M“ (see picture), which provides WLAN 802.11ac and Bluetooth 4.0 functionality.



**VESA mount (optional)**

The optional 75/100mm VESA mount allows for installation on to walls or monitors which is particularly interesting for the industry segment, company buildings and public institutions. Other than this, the chassis bears numerous threaded holes (M3) enabling it to be fitted almost anywhere.



**Kensington Lock**

This is a small, metal-reinforced hole as part of an anti-theft system. The DH310S provides an appropriate hole on both sides of its chassis. The lock and cable are not included.



**External power button by separate remote line**

If, because of space constraints (e.g. in case of fixed installation), the machine cannot be switched on by pressing the front power button, it can be powered on by a separate remote line. You will find an appropriate four-pin connector at the back panel of the DH310S (pitch 2.54 mm). Furthermore, this connector provides a Clear CMOS function and +5V DC voltage supply for external devices.

+5V voltage (2)  (4) Power Button  
 Clear CMOS (1)  (3) Ground

**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 behaviour after power failure: (1) unconditional power on, (2) restore former status (3) keep system turned off (4) Power-On by LAN or (5) Power-On by Real-Time-Clock. As a matter of the nature of this function, it may fail after short power failures. This is why the DH310S also comes with a hardware-based solution. By removing Jumper JP2 (see image) the system will start unconditionally once power is applied.

- Front Panel -



Product Comparison

	DH110SE	DH110	DH170	DH310S	DH310(V2)	DH370
Processor support	Socket LGA1151, TDP max. 65 W "Skylake" (Gen. 6) or "Kaby Lake" (Gen. 7)			Socket LGA1151v2, TDP max. 65 W "Coffee Lake (Refresh)" (Gen. 8 und 9) [5]		
Chipset	Intel H110	Intel H110	Intel H170	Intel H310	Intel H310	Intel H370
Operation system support	Windows 10 and Linux Windows 7/8.1 with "Skylake" CPU only			Windows 10 and Linux		
Multi-display	max. 2	max. 2	max. 3	max. 2	max. 2	max. 3
Max. memory (SO-DIMM)	2x 16 GB DDR4-2400	2x 16 GB DDR3L-1600		2x 16 GB <b>DDR4-2400/2666</b>		
2.5" bay	1x 2.5" SATA drive bay (max. height: 12.5 mm)					
M.2 SSD slot	M.2-2260M	M.2-2260M		M.2-2280M		
WLAN slot	M.2-2230AE	Mini-PCIe Half-Size		M.2-2230E		
Buttons / LEDs	Power Button, 2x LED (Power, HDD)			Power Button, 2x LED (Power, HDD)		
SD card reader	Yes			Yes		
Graphics-ports	HDMI 1.4b DP 1.2	HDMI 1.4b DP 1.2	HDMI 1.4b <b>2x DP 1.2</b>	HDMI 1.4b DP 1.2	<b>HDMI 2.0a</b> DP 1.2	<b>HDMI 2.0a</b> <b>2x DP 1.2</b>
USB 3.1 Gen. 2	-	-	-	-	-	<b>4</b>
USB 3.1 Gen. 1	2	4	-	4 (1x Type-C)	4	<b>4</b>
USB 2.0	6	3	-	4	4	-
PS/2 combo	-	1	-	-	-	-
COM ports	-	2	2	-	2	2
Gigabit network	Single LAN Realtek 8111G	<b>Dual LAN</b> Intel 211/219LM		Single LAN Realtek 8111H	<b>Dual LAN</b> 2x Intel 211	
Audio	Realtek ALC662, Mic-Input, Line-Out			Realtek ALC662, Mic-Input, Line-Out		
Optional Accessories [1]	WLAN: <b>WLN-M</b> Stand: <b>PS02</b> Rack: <b>PRM01</b> Cable: <b>CXP01</b> VESA: <b>PV04</b>	WLAN: <b>WLN-P</b> Stand: <b>PS02</b> Rack: <b>PRM01</b> VGA: <b>PVG01</b> Cable: <b>CXP01</b>	WLAN: <b>WLN-P</b> Stand: <b>PS02</b> Rack: <b>PRM01</b> VGA: <b>PVG01</b> Cable: <b>CXP01</b>	WLAN: <b>WLN-M</b> Stand: <b>PS02</b> Rack: <b>PRM01</b> VGA: <b>PVG01</b> Cable: <b>CXP01</b> VESA: <b>PV04</b>	WLAN: <b>WLN-M</b> Stand: <b>PS02</b> Rack: <b>PRM01</b> VGA: <b>PVG01</b> Cable: <b>CXP01</b>	WLAN: <b>WLN-M</b> Stand: <b>PS02</b> Rack: <b>PRM01</b> VGA: <b>PVG01</b> Cable: <b>CXP01</b>
VESA mount	optional	supplied	supplied	optional	supplied	supplied
19 V power adp.	90 W / 19 V			90 W / 19 V		
12 V support?	No	Yes	No	No	Yes	No

[1] **WLAN:** WLAN card with two external antenna, **Stand:** two feet for vertical operation, **Rack:** 2U rack mount kit to install two Slim-PCs in a 19" server rack, **Cable:** 2-meter cable to connect an external power button, **VESA:** VESA mounting kit, **VGA:** D-sub adapter to connect an analog VGA monitor



Note: DH310 and DH310V2 differ regarding the front panel design and chipset driver, but other features are the same.

## Shuttle XPC cube slim DH310S - Specifications

<p><i>Chassis</i></p>	<p>Slim PC with black chassis made of metal  Dimensions: 190 x 165 x 43 mm (LWH) = 1.35-litre  Weight: 1.3 kg net and 2.1 kg gross  Two holes for Kensington Locks and numerous threaded holes (M3) at both sides of the chassis</p>
<p><i>Power Adapter</i></p>	<p>External 90 W power adapter (fanless)  Input: 100~240 V AC, 50/60 Hz  Output: 19 V DC, 4.74 A, max. 90 W  DC Connector: 5.5/2.5 mm (outer/inner diameter)</p>
<p><i>Operation System</i></p>	<p>This system comes without operating system.  It is compatible with Windows 10 and Linux (64-bit)</p>
<p><i>Processor Support</i></p>	<p>Processor Socket LGA 1151v2  Supports Intel Core i9 / i7 / i5 / i3, Pentium and Celeron processors  Supports the 8th and 9th generation Intel Core processors, codename "Coffee Lake (Refresh)" in 14+ nm process technology  Supports processors with integrated graphics only <b>[5]</b>  Maximum supported processor power consumption (TDP) = 65 W  Up to 8 CPU cores, 16 threads and 16 MB of L3 cache  Does not support the unlock-function of Intel K-Series processors.  <u>Not compatible</u> with older Socket LGA 1151 processors (6th Gen. "Skylake" and 7th Gen. "Kaby Lake").  The processor integrates PCI-Express, memory controller and the graphics engine on the same die (performance features depending on processor type)  Please refer to the support list for detailed processor support information at <a href="http://global.shuttle.com">global.shuttle.com</a>.</p>
<p><i>Processor Cooling</i></p>	<p>Heatpipe processor cooling with two 60 mm fans on the upper side of the chassis</p>
<p><i>Mainboard &amp; Chipset</i></p>	<p>Shuttle mainboard FS310S, Shuttle form factor, proprietary design for XPC DH310S  Chipset/Southbridge: Intel® H310, Passive chipset cooling with heat sink  The Northbridge is integrated in the processor.  Solid Capacitors for sensitive areas provide excellent heat resistance for enhanced system durability</p>
<p><i>BIOS</i></p>	<p>AMI BIOS, SPI Interface, 16 MB Flash-EPROM  Supports Hardware Monitoring and watch dog functionality  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 [4]</p>

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<p><i>Memory Support</i></p>	<p>2x SO-DIMM slot with 260 pins          Supports DDR4-2400/2666 (PC4-19200/21300) SDRAM at 1.2 V          Supports Dual Channel mode          Supports a maximum of 16 GB per DIMM, maximum total size: 32 GB          Supports two unbuffered DIMM modules (no ECC or registered)</p>
<p><i>Integrated graphics</i></p>	<p>The features of the integrated Intel UHD graphics function depend on the processor type used.          Supports DirectX 12, OpenGL 4.5          The PC features two digital video outputs:          - 1x HDMI v1.4b supports 1080p/60 and 2160p/30          - 1x DisplayPort v1.2 supports 1080p/60 and 2160p/60          Supports displays with 4K Ultra HD resolution at 3840 x 2160          Supports two independent displays with the integrated graphics function          Supports Blu-ray (BD) playback with HDCP content protection          Hardware video decoding/encoding: H.264, H.265 (8- and 10-bit, encoding via QuickSync), VP9 (10-bit VP9 can only be decoded)          DisplayPort and HDMI support multi-channel digital audio over the same cable.          Shared Memory max. 512 MB          Optional analog D-Sub/VGA video output (Accessory PVG01)</p>
<p><i>Storage Bay</i></p>	<p>1x 6.35 cm / 2.5" storage bay supports one hard disk or SSD drive with SATA connector          Device height: 12.5 mm (max.)</p>
<p><i>SATA Connector</i></p>	<p>1x Serial-ATA III, 6 Gb/s (600 MB/s) bandwidth          With Serial-ATA power connector (onboard)</p>
<p><i>M.2-2280M SSD Slot</i></p>	<p>The M.2 2280M slot provides the following interfaces:          - PCI-Express Gen. 2.0 X4, supports NVMe          - SATA v3.0 (max. 6 Gbps)          It 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</p>
<p><i>M.2-2230E Slot</i></p>	<p>M.2-2230E slot for WLAN cards          Interfaces: PCI-Express Gen. 2.0 X1 und USB 2.0          Supports M.2 cards with a width of 22 mm and a length of 30 mm (type 2230)          Supports WLAN extension cards (optional Shuttle accessory: WLN-M)</p>
<p><i>Audio</i></p>	<p>Audio Realtek ALC 662 5.1 channel High-Definition Audio          Two analog audio connectors (3.5 mm) at the front panel:          1) 2-channel line-out (headphones)          2) microphone input          Digital multi-channel audio output: by HDMI and DisplayPort</p>
<p><i>Gigabit-LAN Controller</i></p>	<p>Realtek 8111H Ethernet network controller (Gigabit)          Supports 10 / 100 / 1.000 MBit/s operation          Supports WAKE ON LAN (WOL)          Supports network boot by Preboot eXecution Environment (PXE)</p>



<p><i>Card Reader</i></p>	<p>Integrated card reader                  Supports SD, SDHC and SDXC up to v3.01 memory flash cards                  UHS-I interface supports up to 104 MB/s (SDR104) transfer speed                  Realtek RTS5227S chip with PCIe chipset interface                  Supports boot up from SD card</p>
<p><i>Front panel Connectors and Buttons</i></p>	<p>Microphone input                  Audio Line-out (headphones)                  1x USB 3.1 Gen 1                  1x USB 3.1 Gen 1 Type C                  2x USB 2.0                  SD card reader                  Power button                  Power LED (blue)                  HDD LED (yellow)</p>
<p><i>Back Panel Connectors</i></p>	<p>1x HDMI 1.4b connector [1]                  1x DisplayPort 1.2 connector (DP) [2]                  Optional: 1x D-Sub VGA connector (Accessory PVG01)                  2x USB 3.1 Gen 1                  2x USB 2.0                  1x Gigabit LAN (RJ45)                  1x DC-input connector for external power adapter                  1x 4-pin connector (2.54 mm pitch) supports:                  - external power on button                  - Clear CMOS function                  - +5V DC voltage for external components                  2x Perforation for optional Wireless LAN antennas                  2x hole for Kensington Locks</p>
<p><i>Other Connectors (onboard)</i></p>	<p>1x jumper JP2 for power-on-after-power-fail (hardware solution) [4]                  1x analog VGA graphics output CN6 (2x 1-pin, 1 mm pitch)                  1x USB 2.0 (4-pin)                  1x fan connector (4-pin) occupied by the cooling system                  1x connector for CMOS battery (occupied)</p>
<p><i>Supplied Accessories</i></p>	<p>Multi-language user guide (EN, DE, FR, ES, JP, KR, SC, TC)                  Four screws M3 x 4 mm (to mount a 2.5" storage device into the bay)                  Two screws M3 x 5 mm (silver colour, to mount two M.2 cards)                  Driver DVD (Windows 64-bit)                  Serial ATA cable for 2.5" drive including power cable                  External 90 W power adapter with power cord                  Protection cap for CPU socket (do not use if heatpipe or fan is mounted)                  Heatsink compound</p>

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<p><i>Optional Accessories</i></p>	<ul style="list-style-type: none"> <li>- <b>PVG01:</b> optional D-Sub VGA video output [4]</li> <li>- <b>WLN-M.</b> WLAN module in M.2-2230 format with two external antennas supports IEEE 802.11ac and Bluetooth 4.0</li> <li>- <b>PS02:</b> Stand for vertical operation</li> <li>- <b>CXP01:</b> adapter cable for external power button</li> <li>- <b>PRM01:</b> 2U rack mount front plate for two Shuttle XPC slim PCs</li> <li>- <b>PV04:</b> VESA mounting kit</li> </ul>
<p><i>Environmental Spec</i></p>	<p>Operating temperature range: 0~50 °C [3] Relative humidity, non-condensing: 10~90 %</p>
<p><i>Certifications Compliance</i></p>	<p>EMI: FCC, CE, BSMI, RCM, VCCI Safety: ETL, CB, BSMI Other: RoHS, Energy Star, ErP</p>
<p><i>Conformity</i></p>	<p>This device is classed as a technical information equipment (ITE) in class B and is intended for use in living room and office. The CE-mark approves the conformity by the EU directives:</p> <ul style="list-style-type: none"> <li>(1) 2004/108/EC relating to electromagnetic compatibility (EMC),</li> <li>(2) 2006/95/EC relating to Electrical Equipment designed for use within certain voltage limits (LVD),</li> <li>(3) 2009/125/EC relating to ecodesign requirements for energy-related products (ErP)</li> </ul>

**Notes:**

**[1] HDMI output** supports DVI-D with optional adapter

**[2] How to convert DisplayPort into HDMI/DVI**

The DisplayPort output can be converted to HDMI or DVI by an additional, passive adapter cable. For example:

DELOCK 82590: 1 m, DisplayPort (male, 20p) to HDMI-A (male, 19p)

DELOCK 82435: 5 m, DisplayPort (male, 20p) to DVI-D (male, 24p)

The integrated graphics automatically detects the connected display and puts out the appropriate electric signal - either through 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] Operating temperature**

For high ambient temperatures over 40 °C we strongly recommend to use SSDs (supporting at least 70 °C) and rugged SO-DIMM memory modules with a temperature range of up to 95 °C.

**[4] 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 behaviour after power failure: (1) unconditional power on, (2) restore former status or (3) keep system turned off. As a matter of the nature of this function, it may fail after short power failures. This is why the DH310 also comes with a hardware-based solution. By removing Jumper JP2 (on the mainboard behind the power button) the system will start unconditionally once power is supplied.

**[5] Important notes regarding 9th generation processors**

The 9th generation of Intel Core desktop processors (9000 series with code name "Coffee Lake Refresh") are supported since BIOS version DH310100.103 (date 2019-04-22). Download area: [global.shuttle.com](http://global.shuttle.com)

Please don't use processors with model numbers ending with "F" (e.g. Intel Core i5-9400F) which do not support integrated graphics.

8<sup>th</sup> Generation Intel Core Desktop Processor Family

Socket LGA1151v2 14 nm++ "Coffee Lake S" processor overview (Date: May 2018)

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

Name	Model	Cores/ Threads	CPU Clock	Turbo Clock	Smart Cache	TDP	Memory Support	Graphics Engine (clock in MHz)
Core i7	8700K	6 / 12	3.7 GHz	4.7 GHz	12 MB	95 W	DDR4-2666	UHD 630, 350-1200 MHz
	8700	6 / 12	3.2 GHz	4.6 GHz	12 MB	65 W	DDR4-2666	UHD 630, 350-1200 MHz
	8700T	6 / 12	2.4 GHz	4.0 GHz	12 MB	35 W	DDR4-2666	UHD 630, 350-1200 MHz
Core i5	8600K	6 / 6	3.6 GHz	4.3 GHz	9 MB	95 W	DDR4-2666	UHD 630, 350-1150 MHz
	8600	6 / 6	3.1 GHz	4.3 GHz	9 MB	65 W	DDR4-2666	UHD 630, 350-1150 MHz
	8600T	6 / 6	2.3 GHz	3.7 GHz	9 MB	35 W	DDR4-2666	UHD 630, 350-1150 MHz
	8500	6 / 6	3.0 GHz	4.1 GHz	9 MB	65 W	DDR4-2666	UHD 630, 350-1100 MHz
	8500T	6 / 6	2.1 GHz	3.5 GHz	9 MB	35 W	DDR4-2666	UHD 630, 350-1100 MHz
	8400	6 / 6	2.8 GHz	4.0 GHz	9 MB	65 W	DDR4-2666	UHD 630, 350-1050 MHz
	8400B	6 / 6	2.8 GHz	4.0 GHz	9 MB	65 W	DDR4-2666	UHD 630, 350-1050 MHz
	8400T	6 / 6	1.7 GHz	3.3 GHz	9 MB	35 W	DDR4-2666	UHD 630, 350-1050 MHz
Core i3	8350K	4 / 4	4.0 GHz	-	8 MB	91 W	DDR4-2400	UHD 630, 350-1150 MHz
	8300	4 / 4	3.7 GHz	-	8 MB	62 W	DDR4-2400	UHD 630, 350-1150 MHz
	8300T	4 / 4	3.2 GHz	-	8 MB	35 W	DDR4-2400	UHD 630, 350-1150 MHz
	8100	4 / 4	3.6 GHz	-	6 MB	65 W	DDR4-2400	UHD 630, 350-1100 MHz
	8100T	4 / 4	3.1 GHz	-	6 MB	35 W	DDR4-2400	UHD 630, 350-1100 MHz
Pentium Gold	G5600	2 / 4	3.9 GHz	-	4 MB	51 W	DDR4-2400	UHD 630, 350-1100 MHz
	G5500	2 / 4	3.8 GHz	-	4 MB	51 W	DDR4-2400	UHD 630, 350-1100 MHz
	G5500T	2 / 4	3.2 GHz	-	4 MB	35 W	DDR4-2400	UHD 630, 350-1100 MHz
	G5400	2 / 4	3.7 GHz	-	4 MB	51 W	DDR4-2400	UHD 630, 350-1050 MHz
	G5400T	2 / 4	3.1 GHz	-	4 MB	35 W	DDR4-2400	UHD 630, 350-1050 MHz
Celeron	G4920	2 / 2	3.2 GHz	-	2 MB	54 W	DDR4-2400	UHD 610, 350-1050 MHz
	G4900	2 / 2	3.1 GHz	-	2 MB	54 W	DDR4-2400	UHD 610, 350-1050 MHz
	G4900T	2 / 2	2.9 GHz	-	2 MB	35 W	DDR4-2400	UHD 610, 350-1050 MHz

K = unlocked: einstellbarer Takt-Multiplikator, T = stromsparend, TDP = Thermal Design Power (max. Verlustleistung)  
Hinweis: Das Shuttle XPC slim Barebone DH310S unterstützt nicht die Unlock-Funktion von Intel Prozessoren der K-Serie  
Detaillierte Informationen über kompatible Prozessoren finden Sie in der Support-Liste unter [global.shuttle.com](http://global.shuttle.com).

## 9<sup>th</sup> Generation Intel Core Desktop Processor Family

Socket LGA1151v2 14 nm++ "Coffee Lake S" processor overview (Date: May 2018)  
Processors with a TDP>65W and processors without graphics function (ID ends with "F")  
are **not** supported (marked in red)

The 9th generation of Intel Core Prozessors  
are supported since BIOS version DH310100.103 (date 2019-04-22).  
Download area: [global.shuttle.com](http://global.shuttle.com)

Name	Model	Cores/ Threads	CPU Clock	Turbo Clock	Smart Cache	TDP	Memory Support	Graphics Engine (clock in MHz)
Core i9	9900K	8 / 16	3.6 GHz	5.0 GHz	16 MB	95 W	DDR4-2666	UHD 630, 350-1200 MHz
	9900KF	8 / 16	3.6 GHz	5.0 GHz	16 MB	95 W	DDR4-2666	No integrated graphics
	9900	8 / 16	3.1 GHz	5.0 GHz	16 MB	65 W	DDR4-2666	UHD 630, 350-1200 MHz
	9900T	8 / 16	2.1 GHz	4.4 GHz	16 MB	35 W	DDR4-2666	UHD 630, 350-1200 MHz
Core i7	9700K	8 / 8	3.6 GHz	4.9 GHz	12 MB	95 W	DDR4-2666	UHD 630, 350-1200 MHz
	9700KF	8 / 8	3.6 GHz	4.9 GHz	12 MB	95 W	DDR4-2666	No integrated graphics
	9700	8 / 8	3.0 GHz	4.7 GHz	12 MB	65 W	DDR4-2666	UHD 630, 350-1200 MHz
	9700T	8 / 8	2.0 GHz	4.3 GHz	12 MB	35 W	DDR4-2666	UHD 630, 350-1200 MHz
Core i5	9600K	6 / 6	3.7 GHz	4.6 GHz	9 MB	95 W	DDR4-2666	UHD 630, 350-1150 MHz
	9600KF	6 / 6	3.7 GHz	4.6 GHz	9 MB	95 W	DDR4-2666	No integrated graphics
	9400	6 / 6	2.9 GHz	4.1 GHz	9 MB	65 W	DDR4-2666	UHD 630, 350-1050 MHz
	9400F	6 / 6	2.9 GHz	4.1 GHz	9 MB	65 W	DDR4-2666	No integrated graphics
	9400T	6 / 6	1.8 GHz	3.4 GHz	9 MB	35 W	DDR4-2666	UHD 630, 350-1050 MHz
Core i3	9350KF	4 / 4	4.0 GHz	4.6 GHz	8 MB	91 W	DDR4-2400	No integrated graphics

**K** = unlocked, **T** = Power optimized lifestyle, **F** = without integrated graphics

**TDP** = Thermal Design Power (max. Power Consumption).

Note: The Shuttle XPC slim Barebone DH310S does not support the Unlock-function of Intel K-Series processors.  
Please refer to the support list for detailed processor support information at [global.shuttle.com](http://global.shuttle.com).