

DH310S

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 SDRAM at 1.2V Supports dual channel up to 32GB (16GB x 2)	
VIDEO GRAPHICS	Intel HD Graphics (features depend on processor)	
VIDEO OUTPUT	HDMI + DisplayPort + VGA (optional), Supports dual independent displays, Supports 4K Ultra HD	
AUDIO	Realtek ALC662 HD audio	
ETHERNET	Realtek RTL8111H 10/100/1000 MB/s operation	Supports Wake on LAN function
STORAGE INTERFACE	SATA 6 GB/s	
ONBOARD CONNECTORS	(1) 4 pin fan connector (1) USB 2.0 (4 pin) (1) connector for CMOS battery (occupied)	(1) VGA connector (1) JP2 jumper for power on after power fail [4]*
FRONT PANEL	(1) Power Button (1) Power LED (1) HDD LED (2) USB 2.0	(2) USB 3.1 Gen 1 ports (Type A x 1, Type C x 1) (1) External microphone jack 1/8" (1) External headphone jack 1/8" (1) SD Card Reader
BACK PANEL	(1) HDMI 1.4b [1]* (1) DisplayPort 1.2 [2]* (1) VGA connector (optional PVG01) (2) USB 3.1 Gen 1 ports (1) Gigabit LAN port (RJ45)	(2) Kensington Lock (2) USB 2.0 (2) Wireless Antenna holes (1) DC-in (1) Clear CMOS header
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 Output: 19V/4.74A DC	90W power supply
ACCESSORIES	Quick Guide Driver DVD Power cord Optional 802.11 ac WLAN module Optional VESA mount	Thermal grease 90W power adapter Screw package Optional vertical stand (PS02) Optional VGA port (PVG01)
EXPANSION SLOT	(1) M.2 MAX to 2280 Type M	(1) M.2 MAX to 2230 Type E
OS SUPPORT	Windows 10, Linux (64 bit)	

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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: 2.6 LBS (net) / 4.2 LBS (gross)
MAINBOARD AND CHIPSET	Shuttle mainboard FS310S, Shuttle form factor proprietary design for XPC DH310S Chipset: Intel® H310, passive chipset cooling with heat sink 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-EPROM 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]*
POWER SUPPLY	External 90W power adapter (fanless) AC input voltage: 100 - 240V, 50 - 60 Hz Output: 19V DC 4.74A
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/9th generation Intel Core processors, codename "Coffee Lake (Refresh)" 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 Supports processors with integrated graphics only [5]* The unlock function for Intel® K-Series processors is not supported with this model 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 2280M 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 2230E 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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INTEGRATED GRAPHICS	<p>Intel HD graphics function features depend on the processor type used, supports DirectX 12 and OpenGL 4.5</p> <p>This model has two video outputs: -1 x HDMI 1.4b (1080p/60 Hz and 2160p/30 Hz supported) -1 x DisplayPort 1.2 (1080p/60 Hz and 2160p/60 Hz supported)</p> <p>Supports displays with 4K Ultra HD resolution at 3840 x 2160 Supports two independent displays with integrate graphics function Supports Blu-Ray playback with HDCP content protection 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 (PVG01 accessory) Shared memory max: 512 MB</p>	
MULTI-CHANNEL AUDIO	<p>High Definition Audio with Realtek ALC662 codec Front: MIC in, Headphones in Back: Line-in (blue), line-out (green), MIC in (pink) 5.1 channel Digital Audio via HDMI and DisplayPort outputs</p>	
GIGABIT LAN CONTROLLER	<p>Realtek 8111H ethernet network controller (Gigabit) Supports 10/100/1000 MB/s operation Supports Wake-on-LAN Supports network boot by Preboot eXecution environment (PXE)</p>	
SATA CONNECTORS	<p>The mainboard provides one Serial-ATA interface, max 6GB/s supported Serial-ATA power connector (onboard)</p>	
CARD READER	<p>Integrated card reader supports SD, SDHC, SDXC (up to v3.01) memory flash cards UHS-I interface supports up to 104 MB/s transfer speed Supports boot up from SD card</p>	
FRONT PANEL CONNECTORS	<p>Microphone input Headphone output (line-out) 2 x USB 3.1 Gen 1 (Type A, Type C) 2 x USB 2.0</p>	<p>Power button Power indicator (Blue LED) Hard disk drive indicator (Yellow LED) SD Card Reader</p>
BACK PANEL CONNECTORS	<p>HDMI 1.4b [1]* DisplayPort 1.2 [2]* VGA connector (optional PVG01) USB 3.1 Gen 1 x 2 USB 2.0 x 2</p>	<p>Clear CMOS button Gigabit LAN (RJ45) x 1 WLAN antenna holes x 2 DC-input connector for external power adapter x 1 Kensington Lock x 2</p>
OTHER CONNECTORS (ONBOARD)	<p>Analog VGA graphics (2x1 pin) USB 2.0 x 1 (4 pin) Connector for CMOS battery</p>	<p>Fan connectors x 1 (4 pin), one occupied by cooling system Power on after power failure (hardware solution by jumper) [4]*</p>
INCLUDED ACCESSORIES	<p>XPC installation guide Driver DVD SATA and power cables Heatsink compound</p>	<p>External 90W power adapter with cord Screw pack Protector cap for CPU socket (don't use if heatpipe/fan is mounted)</p>
OPTIONAL ACCESSORIES	<p>Vertical stand (PS02) WLAN-M (WLAN module) VESA mounting kit (PV04)</p>	<p>VGA port adapter (PVG01) [4]* Rack mount front plate (PRM01) Adapter cable for external power button (CXP01)</p>
ENVIRONMENTAL CRITERIA	<p>Operating temperature: 0 - 50°C [3]*</p>	<p>Humidity: 10 - 90% (non-condensing)</p>
CERTIFICATIONS	<p>EMI: FCC, CE, BSMI, RCM, VCCI Safety: ETL, CB, BSMI</p>	<p>Other: RoHS, Energy Star, ErP</p>
	<p>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)</p>	

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[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 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 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.

[4] POWER ON AFTER POWER FAILURE

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 DH310S 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.

[5] 9TH GENERATION PROCESSORS

9th generation Intel® Core™ processors (9000 series "Coffee Lake Refresh") are supported from BIOS version DH310100.103 (4/22/2019 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=2363>

SUPPORT LIST: <http://global.shuttle.com/products/productsSupportList?productId=2363>

FAQ LIST: <http://global.shuttle.com/support/faq>

PRODUCT WARRANTY: <https://us.shuttle.com/barebone-support/policy-xpc-barebone/>

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SLIM PC

Front View



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

Back View



- | | |
|----------------------------|---------------------|
| A WLAN antenna hole x 2 | F Optional VGA port |
| B DC power input | G USB 3.1 Gen 1 x 2 |
| C HDMI 1.4 video output | H USB 2.0 x 2 |
| D DisplayPort video output | I Clear CMOS header |
| E RJ45 Gigabit LAN | |



Kensington lock hole on left and right side

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INTEL® 8TH AND 9TH GENERATION PROCESSORS

Equipped with a LGA 1151v2 socket, the DH310S supports Intel® Celeron®, Pentium®, and Core® 65W processors. With up to 8 cores of processing power, support for up to 32GB DDR4 2400/2666 MHz memory, integrated UHD graphics, and PCI-E controllers provide outstanding graphics performance.



VESA MOUNTABLE

The DH310S is VESA mount compliant and allows for versatile integration into hardware systems. This space saving capability is well suited for digital signage and kiosk applications with limited space.



SUPPORTS FASTER SD CARD SPEEDS

With support for SD ver. 3.01, the PCIe interface of the DH310S offers faster speed for SD memory cards with a maximum capacity of 2 TB.

*UHS-I SDHC/SDXC cards will be needed to gain data transfer speeds faster than 25 MB/s. Up to 104 MB/s speed supported



GREAT CONNECTIVITY

In addition to two video outputs for dual displays, the DH310S also features four USB 3.1 Gen 1 ports, four USB 2.0 ports, and 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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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	PV04
DESCRIPTION	The PV04 (VESA 75/100 mm) can be attached to a wall, monitor, or TV with a VESA standard mounting hole pattern. The PC affixes securely in the metal mount with the screw fittings included.
COMPATIBILITY	DX30, DL10J, DS61, DS81(L), DH110, DH170, DQ170, DH270, DH310, DH370, DS47, DS407(T), DS57Ux, DS67Ux, DS77Ux, DH02Ux
REMARKS	Supports 75 and 100 mm VESA standards



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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DH310S vs DH310V2

SLIM PC



MODEL	DH310V2	DH310S
CHIPSET	Intel H310	Intel H310
PROCESSOR SUPPORT	LGA 1151v2, max TDP 65W 14++nm Coffee Lake (8th and 9th Gen Core CPU) Intel® Core™ i3/i5/i7/i9, Pentium, Celeron	LGA 1151v2, max TDP 65W 14++nm Coffee Lake (8th and 9th Gen Core CPU) Intel® Core™ i3/i5/i7/i9, Pentium, Celeron
MEMORY	2 x 16GB DDR4 2400/2666 MHz max	2 x 16GB DDR4 2400/2666 MHz max
VIDEO OUTPUT	HDMI 2.0 + DisplayPort 1.2, Supports dual displays, Supports 4K Ultra HD	HDMI 1.4b + DisplayPort 1.2, Supports dual displays, Supports 4K Ultra HD
AUDIO	Realtek AL662, 5.1 channel HD audio	Realtek AL662, 5.1 channel HD audio
ETHERNET	Intel i211 x 2 10/100/1000 MB/s operation Supports Wake on LAN function Supports Teaming mode	Realtek 8111H 10/100/1000 MB/s operation Supports Wake on LAN function
SATA ONBOARD	SATA 6G x 1	SATA 6G x 1
FRONT PANEL	Power button with LED, HDD LED, MIC-in, Headphone out, SD Card Reader, USB 3.0 x 2, USB 2.0 x 2	Power button with LED, HDD LED, MIC-in, Headphone out, SD Card Reader, USB 3.0 x 2 (1 x Type-C), USB 2.0 x 2
BACK PANEL	HDMI 2.0, DisplayPort 1.2 USB 3.0 x 2, USB 2.0 x 2 Gigabit LAN (Intel i211) x 2 RS232 + RS232/RS422/RS485 WLAN antenna x 2 (optional) Clear CMOS button	HDMI 1.4b, DisplayPort 1.2 USB 3.0 x 2, USB 2.0 x 2 Gigabit LAN (Realtek 8111H) x 1 WLAN antenna x 2 (optional) Clear CMOS button
DRIVE BAYS	(1) 2.5" HDD/SSD bay	(1) 2.5" HDD/SSD bay
OPTIONAL ACCESSORIES	Vertical Stand (PS02) VGA adapter (PVG01) WLAN kit (WLN-M) Rack mount (PRM01)	Vertical Stand (PS02) VGA adapter (PVG01) WLAN kit (WLN-M) Rack mount (PRM01) VESA mount (PV04)
EXPANSION SLOT	M.2 2280 M slot M.2 2230 E slot, Supports optional WLAN	M.2 2280 M slot M.2 2230 E slot, Supports optional WLAN
OS SUPPORT	Windows 10, Linux 64 bit	Windows 10, Linux 64 bit

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

K = unlocked, T = power optimized. The DH310S does not support the unlock function of Intel K-series processors.

See more support information at global.shuttle.com

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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 DH310S does not support the unlock function of Intel K-series processors. The 9th generation Intel Core processors "Coffee Lake" are supported from BIOS version DH310100.103. 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

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