

XH310/XH310R

SLIM PC



PROCESSOR	Supports Intel® Coffee Lake-S 65W Core® i3/i5/i7/i9 series, Pentium, and Celeron® LGA 1151v2 processors [10]*	
MEMORY	DDR4 2400/2666 MHz, Supports dual channel up to 32GB (16GB x 2)	
VIDEO GRAPHICS	Intel HD Graphics, Supports DirectX 12	
VIDEO OUTPUT	HDMI + DisplayPort + VGA, Supports dual independent displays, Supports 4K Ultra HD	
AUDIO	Realtek ALC662, 5.1 channel HD audio	
ETHERNET	Intel i211 x 2 10/100/1000 MB/s operation	Supports Wake on LAN function Supports Teaming mode [5]*
STORAGE INTERFACE	SATA 6 GB/s	
ONBOARD CONNECTORS	(2) 4 pin fan connector (3) SATA 6.0 connectors (1) ATX 12V power (1) LPC interface (2x5 pin header)	(2) Front audio header (2) 1x5 pin USB header (4) RS232 COM port (2x5 pin header) (1) Jumper for power on after power fail [1]*
FRONT PANEL	(1) Power Button (1) Power LED (1) HDD LED (2) USB 2.0	(2) USB 3.0 (1) External microphone jack 1/8" (1) External headphone jack 1/8"
BACK PANEL	(1) HDMI 2.0 (1) DisplayPort 1.2 [2]* (1) VGA (2) USB 3.0 (2) USB 2.0 (2) LAN ports (1) Kensington Lock (1) RS232	(1) RS232/RS422/RS485 (1) Line-in jack 1/8" (1) Line out jack 1/8" (1) Clear CMOS button (1) MIC in (2) Antenna holes (1) DC input
DRIVE BAYS	(1) 2.5" HDD/SSD bay (1) Slim ODD bay	Users can install either a slim ODD or 2.5" HDD/SSD drive Optional PHD4 accessory allows for installation of 3.5" HDD [8]*
DIMENSIONS	9.4(L) x 7.9(W) x 2.8(H) inches	
POWER	Input: 100 - 240V AC Output: 19V 4.74A DC	90W power supply
ACCESSORIES	Quick Guide Screw package SATA cable x 2 preinstalled Power adapter	Power Cord Driver DVD Protector cap for CPU socket (do not use if heatpipe or fan is mounted)
EXPANSION SLOT	(1) M2. MAX to 2280 Type M	(1) M.2 MAX to 2230 Type E key socket
OS SUPPORT	Windows 10, Linux	

For more information on all products, please contact us at sales@us.shuttle.com or 626.820.9000

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CHASSIS	<p>Black slim 3.5L type chassis, covers for optical drive and front panel (XH310RV) Horizontal or vertical orientation with optional stand PS01 Kensington lock slot on the back as part of anti-theft system Dimensions: 9.4 (L) x 7.9 (W) x 2.8 (H) inches Weight: 4.8 LBS (net) / 7.7 LBS (gross)</p>
MAINBOARD AND CHIPSET	<p>Shuttle mainboard FH310V, Mini-ITX form factor 17 x 17 cm Chipset: Intel® H310 (XH310)/H310C (XH310R/XH310RV) Supports hardware monitoring and watch dog functionality Solid capacitors for sensitive areas provide excellent heat resistance for enhanced system durability</p>
BIOS	<p>AMI BIOS, SPI Interface, 8 MB EEPROM with SPI interface Supports boot up from external USB flash memory Supports Unified Extensible Firmware Interface (UEFI) Supports power on after power failure [1]* Supports firmware TPM v2.0 (fTPM)</p>
POWER SUPPLY	<p>External 90W power adapter (fanless) AC input voltage: 100 - 240V, 50 - 60 Hz Output: 19V DC 4.74A AC connector with protective earth contacts This system can also be powered by a power adapter with an output voltage of 12V or 19V DC</p>
OPERATING SYSTEM	<p>The system comes without an operating system installed. Compatibility: Windows 10, Linux 64bit</p>
PROCESSOR SUPPORT	<p>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 14nm++ process technology, up to 8 CPU cores and 16 threads, up to 16MB of L3 cache [10]* Supports processors with integrated graphics only [10]* Not compatible with older socket LGA 1151 processors (6th gen "Skylake" and 7th gen "Kabylake") 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</p>
SYSTEM COOLING	<p>Shuttle I.C.E. (Integrated Cooling Engine) advanced heatpipe cooling technology, two 6 cm fans</p>
MEMORY SUPPORT	<p>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)</p>
DRIVE BAYS	<p>This system features three drive bays: 1) One 5.25" optical drive (ODD), max height 12.7 mm (can alternatively be used for a 2.5" drive) 2) Upper 2.5" bay supports one 2.5" drive with max 12.7 mm height 3) Lower 2.5" bay supports one 2.5" drive with max 9.5 mm height</p> <p>System is ready for one 2.5" drive (SSD/HDD) and one DVD/Blu-ray drive (slimline format) to be installed Pre-installed cables: 2 x power cable for 2.5" drives (5V) [6]*, 1 x SATA cable for one 2.5" drive (HDD/SSD), For further 2.5" drives, additional SATA cables and screws are required. For a possible third 2.5" drive, a Y power cable is also required (all not included) The optional accessory PHD4 allows the installation of a 3.5" hard disk [8]*</p>
M.2 SLOTS	<p>-M.2 2280 M slot: PCI-Express Gen 2.0 X4 (supports NVMe), SATA v3.0 (6 GB/s) interface, Supports M.2 SSDs with SATA or PCI-E interface -M.2 2230 E slot: PCI-Express v2.0 X1, USB 2.0 interface, Supports WLAN extension card (with optional accessory WLN-M) -Supports M.2 cards with a width of 22 mm and a length of 30 mm (Type 2230) or 42/60/80 mm (Type 2242/2260/2280)</p>

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INTEGRATED GRAPHICS	<p>Intel HD graphics function features depend on the processor type used Supports DirectX 12, Open GL 4.5</p> <p>This model has three video outputs: -HDMI v2.0a (1080p/60 and 2160p/30 supported) -DisplayPort v1.2 (1080p/60 and 2160p/60 supported) -Analog VGA (15 pin)</p> <p>Supports two independent displays simultaneously Supports Blu-Ray playback with HDCP content protection [3]* Hardware video decoding/encoding: H.264, H.265 (8/10 bit, encoding via QuickSync), VP9 (only 10 bit VP9 can be decoded)</p>	
MULTI-CHANNEL AUDIO	<p>High Definition Audio with Realtek ALC662 codec, 5.1 channel Digital Audio via HDMI and DisplayPort outputs Front: Headphones in Rear: Surround line-out (shared with MIC input) Center: Line-out (shared with line-in)</p>	
GIGABIT LAN CONTROLLER	<p>Dual network with two RJ45 ports Intel i211 x 2 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)</p>	
SATA CONNECTORS	<p>The mainboard provides three Serial-ATA interfaces, max 6GB/s supported Supports NCQ and AHCI Package includes pre-installed cables (for SATA and power) and mounting screws for 2.5" drive and one slimline ODD drive</p>	
FRONT PANEL CONNECTORS	<p>Microphone input Headphone output (line-out) 2 x USB 3.0 2 x USB 2.0</p>	<p>Power button Power indicator (Blue LED) Hard disk drive indicator (Yellow LED)</p>
BACK PANEL CONNECTORS	<p>HDMI v2.0a DisplayPort v1.2 (audio/video output) [2]* USB 3.0 x 2 USB 2.0 x 2 Audio x 3 (line-in, line-out, MIC in) Kensington Lock x 1</p>	<p>Gigabit LAN (RJ45) x 2 WLAN antenna holes x 2 1 x RS232, 1 x RS232/RS422/RS485 1 x DC input connector for external power adapter (12V/19V input) 1 x 4 pin connector (for external power or Clear CMOS function)</p>
OTHER CONNECTORS (ONBOARD)	<p>USB 2.0 headers (4 pin) RS232 COM port x 4 (2x5 pin, 2mm pitch) Power input (4 pin ATX 12V Female)</p>	<p>Fan connectors x 2 (4 pin), one occupied by cooling system LCP interface (2x5 pin header, 2 mm pitch) Power on after power failure (hardware solution by jumper) [1]*</p>
INCLUDED ACCESSORIES	<p>XPC installation guide Driver DVD SATA and power cables</p>	<p>AC Power Cord (with protective earth contacts) Protector cap for CPU socket (don't use if heatpipe/fan is mounted) Screw packs (for M.2 cards, 2.5" drives, optional slimline drive)</p>
OPTIONAL ACCESSORIES	<p>Vertical stand (PS01) VESA mount (PV02) WLAN module (WLN-M) [4]* MY01: cover for slimline drive bay [11]*</p>	<p>3.5" hard disk rack (PHD4) [8]* CXP01 adapter cable for external power button PCM31 adapter for 3 additional RS232 COM ports [9]*</p>
ENVIRONMENTAL CRITERIA	<p>Operating temperature: 0 - 50°C [7]*</p>	<p>Humidity: 10 - 90% (non-condensing)</p>
CERTIFICATIONS	<p>EMI: FCC, CE, BSMI, C-Tick Safety: ETL, CB, BSMI</p>	<p>Other: RoHS, Energy Star 5.0, 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] POWER ON AFTER POWER FAILURE

The BIOS setup provides a power on after power fail function that can be found under "Power Management Configuration". The function determines the PC's behavior after power failure: (1) unconditional power on, (2) restore former status, or (3) keep system turned off. The function may fail after short power failures, but the PC comes with a hardware based solution. By removing the appropriate jumper JP4, the system will start unconditionally once power is supplied.

[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] FOR BLU-RAY PLAYBACK

Appropriate software and a Blu-ray drive is required (not included)

[4] OPTIONAL WIRELESS LAN MODULE

This model supports an optional WLAN module (WLN-M) which includes a M.2 card with IEEE 802.11 ac and Bluetooth 4.0 functionality and two external antennas with appropriate antenna cables.

[5] TEAMING MODE

The teaming function allows for grouping both available network adapters to work as one single adapter. This mode enables load balancing and failover (the driver downloads can be found here: <https://downloadcenter.intel.com/download/21642>)

[6] POWER CONNECTOR FOR SATA DRIVES

The supplied power cables for SATA drives provide a voltage of 5V. Only in very exceptional cases, a 2.5" hard disk also requires a 12V line, which is not supported out of the box (only via an optional adapter, included with PHD4)

[7] HIGH AMBIENT TEMPERATURE

For high ambient temperature over 40°C, SSDs are strongly recommended instead of hard disk drives.

[8] OPTIONAL ACCESSORY PHD4

The PHD4 accessory allows for the installation of one 3.5" hard drive. Doing so means that other drives such as a slimline DVD drive or 2.5" HDD/SSD can't be used.

[9] OPTIONAL COM PORT ACCESSORY PCM31

This accessory provides three additional COM ports to the front panel which means the upper bay can no longer be used for an optical drive.

[10] 9TH GENERATION PROCESSORS

9th generation Intel® Core™ processors (Coffee Lake Refresh) are supported from BIOS version XH310000.103 (4-25-2019 update). You can find the latest BIOS update here: <http://global.shuttle.com/support/download>. Processors with model numbers ending with "F" do not support integrated graphics.

[11] MY01 OPTIONAL DRIVE BAY COVER

If the XH310R is used without an optical slimline drive, this cover helps close the open bay to prevent dust and objects from coming into the PC. Please contact us if you are interested in the optional accessory "Mylar POI-MY01"

BIOS DOWNLOADS: <http://global.shuttle.com/products/productsDownload?productId=2319>
<http://global.shuttle.com/products/productsDownload?productId=2361> (XH310R/XH310RV)

SUPPORT LIST: <http://global.shuttle.com/products/productsSupportList?productId=2319>
<http://global.shuttle.com/products/productsSupportList?productId=2361> (XH310R/XH310RV)

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

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

For more information on all products, please contact us at sales@us.shuttle.com or **626.820.9000**

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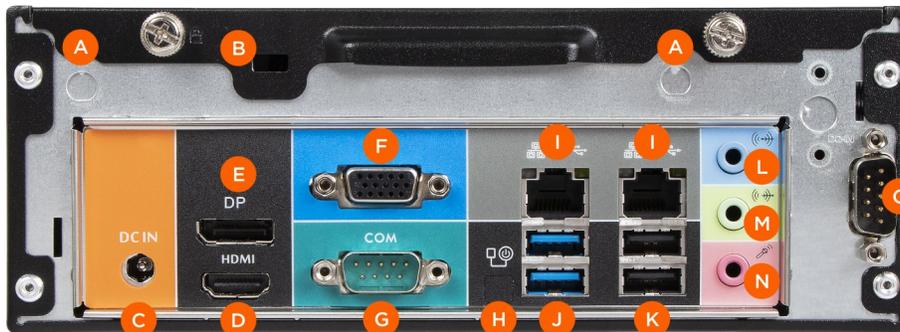
SLIM PC

Front View



- | | |
|--|-------------------------------------|
| 1 5.25" bay for optical slimline drive | 5 Headphone input |
| 2 USB 3.0 port x 2 | 6 Power on button with LED |
| 3 USB 2.0 port x 2 | 7 LED indicator for hard disk drive |
| 4 Microphone input | |

Back View



- | | |
|----------------------------------|------------------------|
| A WLAN antenna hole x 2 | I Gigabit LAN (RJ45) |
| B Kensington Lock | J USB 3.0 x 2 |
| C DC-in connector (12V/19V) | K USB 2.0 x 2 |
| D HDMI 2.0 (video/audio) | L Audio line-in |
| E DisplayPort 1.2 (video/audio) | M Headphone / line-out |
| F VGA video output | N Microphone input |
| G RS232/RS422/RS485 | O RS232 |
| H 4 pin connector for Clear CMOS | |

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XH310RV

SLIM PC

Front View (Closed)



Front View (Open)



- | | | | |
|---|--------------------------------------|---|--------------------------|
| 1 | 5.25" bay for optical slimline drive | 4 | Microphone input |
| 2 | USB 3.0 port x 2 | 5 | Headphone input |
| 3 | USB 2.0 port x 2 | 6 | Power on button with LED |

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SUPPORTS INTEL® 8TH GENERATION PROCESSORS

Equipped with a LGA1151v2 socket, the XH310 supports Intel® Celeron®, Pentium®, and Core™ i3/i5/i7 65W processors*. Integrated ultra HD graphics and PCI-E controllers support onboard graphics output for outstanding graphics performance.

*XH310R/XH310RV supports 9th generation Celeron®, Pentium®, and Core™ i3/i5/i7/i9 processors



FLEXIBLE DRIVE CONFIGURATIONS

With flexible expansion, users can equip the XH310/XH310R with one of the following drive configurations:*

1. One slim ODD and two 2.5" SSD/slim HDD drives
2. One 3.5" HDD (requires PHD4 bracket accessory)
3. Three 2.5" SSD/slim HDD drives

*PHD4 accessory is optional and must be purchased. Max height for 2.5" SSD/HDD bay: top bay 9.5mm, bottom bay 12.7mm. Cables pre-installed for one 2.5" drive, additional SATA cables and screws required to install more drives.



HIGH STORAGE CAPACITY

With native M.2 2280/2260/2242 Type M and M.2 2230 Type E key slots*, the XH310/XH310R offers faster storage performance and expansion capacity for M.2 SSD and Wi-Fi modules.

*M.2 supports both SATA and PCI-E storage interfaces, M.2 2280 slot supports NVMe SSDs



GREAT CONNECTIVITY

With USB 2.0, USB 3.0, and serial ports (RS232 and RS232/RS422/RS485), the XH310/XH310R provides convenient and flexible connectivity options. With the use of the PCM31 accessory, users can add three extra serial ports for more peripheral uses.



SMART FAN DESIGN

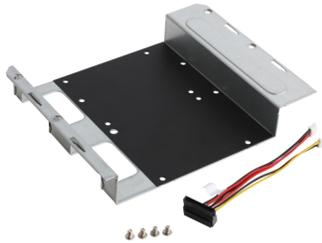
A heat-pipe cooling system with smart fan design can be set in the BIOS for faster fan speed automatically when CPU temperature increases for high stability and low noise during long term operation.

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ACCESSORY	PHD4
DESCRIPTION	The PHD4 allows for the installation of one 3.5" hard drive. Installing the rack will take the space needed for installing a slimline DVD drive
ITEMS INCLUDED	3.5" HDD bracket x 1, power cable x 1, screws x 4, quick guide
REMARKS	Hard disks in XPC slim PCs should only be used in ambient temperatures of up to 40°C. For higher temperatures, SSDs are recommended.



ACCESSORY	PS01
DESCRIPTION	The PS01 stand is required for stability when placing the slim PC for vertical orientation
COMPATIBILITY	XG41, XH61, XH61V, XH81V, XH97V, XH110, XH110V, XH110G, XH170V, XH270, XH310, XH310V, XC60J



ACCESSORY	PCM31
DESCRIPTION	The PCM31 provides three additional RS232 to the front panel, allowing for a slim model to support a maximum of five serial ports to connect peripheral devices.
ITEMS INCLUDED	Triple COM port adapter board x 1, Front panel cover x 1, Screws x 2, Quick installation guide
REMARKS	If the PCM31 accessory is installed in the upper bay, an optical drive (ODD) cannot be used.



ACCESSORY	PV02
DESCRIPTION	The PV02 can be attached to a wall, monitor, or TV with a VESA standard mounting hole pattern. The PC fixes securely in the robust metal frame with the screw fittings included.
ITEMS INCLUDED	VESA mount x 1, Screws x 2, Quick Guide
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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XH110 vs XH310/XH310R

SLIM PC



MODEL	XH110	XH310/XH310R
CHIPSET	Intel H110	Intel H310/H310C (XH310R)
PROCESSOR SUPPORT	LGA 1151, max TDP 65W 14nm Skylake (6th Gen Core CPU) 14nm Kabylake (7th Gen Core CPU) Intel® Core™ i3/i5/i7, Pentium, Celeron	LGA 1151v2, max TDP 65W 14nm Coffee Lake (8th/9th Gen Core CPU) Intel® Core™ i3/i5/i7/i9, Pentium, Celeron
MEMORY	2 x 16GB DDR3L 1333/1600 MHz max	2 x 16GB DDR4 2400/2666 MHz max
VIDEO OUTPUT	HDMI + DisplayPort, Supports dual displays, Supports 4K Ultra HD, DirectX 12	HDMI + DisplayPort + VGA, Supports dual displays, Supports 4K Ultra HD, DirectX 12
AUDIO	Realtek AL662, 5.1 channel HD audio	Realtek AL662, 5.1 channel HD audio
ETHERNET	Intel i211 + i219LM 10/100/1000 MB/s operation Supports Wake on LAN function	Intel i211 x 2 10/100/1000 MB/s operation Supports Wake on LAN function
SATA ONBOARD	SATA 6G x 3	SATA 6G x 3
FRONT PANEL	Power button with LED, HDD LED, MIC-in, Headphone out, USB 3.0 x 2, USB 2.0 x 2	Power button with LED, HDD LED, MIC-in, Headphone out, USB 3.0 x 2, USB 2.0 x 2
BACK PANEL	HDMI, DisplayPort USB 3.0 x 2, USB 2.0 x 2 Gigabit LAN (Intel i211 + i219LM) x 2 Audio x 3, Clear CMOS button	HDMI, DisplayPort, VGA USB 3.0 x 2, USB 2.0 x 2 Gigabit LAN (Intel i211) x 2 Audio x 3, Clear CMOS button
DRIVE BAYS	(1) 5.25" ODD bay** (2) 2.5" HDD/SSD bay**	(1) 5.25" ODD bay** (2) 2.5" HDD/SSD bay**
OPTIONAL ACCESSORIES	Vertical Stand (PS01) VESA mount (PV02) VGA adapter (PVG01) RS232 port (H-RS232) WLAN kit (WLN-M) 3.5" HDD rack (PHD4)	Vertical Stand (PS01) VESA mount (PV02) Adapter cable (CXP01) RS232 ports (PCM31) [9]* WLAN kit (WLN-M) [4]* 3.5" HDD rack (PHD4)
EXPANSION SLOT	M.2 2280 M x 2 slot M.2 2230 AE slot, Supports optional WLAN	M.2 2280 M slot M.2 2230 E slot, Supports optional WLAN
OS SUPPORT	Windows 7, Windows 8.1, Windows 10, Linux 64 bit***	Windows 10, Linux 64 bit

*Supports one ODD and 2.5" drives or three 2.5" drives

**PHD4 HDD rack accessory can be used to install one 3.5" drive, but ODD or one 2.5" HDD/SSD cannot be installed if used.

***Kabylake CPU doesn't support Windows 7 and Windows 8.1

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XH310/XH310R

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	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, TDP = Thermal Design Power (max. power consumption).

The XH310 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	Smart Cache	TDP	Memory	Graphics	Graphics Clock
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	None	None
	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	None	None
	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	None	None
	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	None	None
	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	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 XH310/XH310R does not support the unlock function of Intel K-series processors. Processors with F in the model name cannot be used as the XH310/XH310R does not support the installation of a graphic card.**

See more support information at global.shuttle.com

For more information on all products, please contact us at sales@us.shuttle.com or 626.820.9000

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