

SH310R4 V2

CUBE PC



PROCESSOR	Supports Intel® 8th and 9th Generation Core™ i3/i5/i7/i9 series, Pentium®, and Celeron® 95W processors	
MEMORY	DDR4 2400/2666 MHz, dual channel up to 32GB (16GB x 2)	
VIDEO GRAPHICS	Integrated Intel UHD graphics (depends on processor type used)	
VIDEO OUTPUT	HDMI + DisplayPort + VGA, Supports dual independent displays	
AUDIO	Realtek ALC662, 5.1 channel HD audio	
ETHERNET	Intel i219LM 10/100/1000 MB/s operation	Supports Wake on LAN function
STORAGE INTERFACE	SATA 6 GB/s	
ONBOARD CONNECTORS	(2) 4 pin fan connector (3) SATA 6.0 connectors (1) ATX main power (2x10) (1) ATX 12V power (2x2) (1) Low pin count header	(1) RS232 header (1) Front audio header (1) Front USB 3.1 FCC connector (1) 1x4 USB 2.0 wafer
FRONT PANEL	(1) Power Button (1) Power LED (1) HDD LED (2) USB 3.1 Gen 1 port	(1) External microphone jack 1/8" (1) External headphone jack 1/8"
BACK PANEL	(1) HDMI (1) DisplayPort (1) VGA (2) USB 3.0 (4) USB 2.0 (1) Clear CMOS button	(1) MIC in (1) Line-in jack 1/8" (1) Line out jack 1/8" (1) Kensington Lock (1) LAN (3) Antenna hole
DRIVE BAYS	(1) 5.25" ODD bay (2) 3.5" HDD bay	Supports up to 2.5" HDD/SSD x 3 if PHD3 HDD rack accessory is used
DIMENSIONS	13(L) x 8.5(W) x 7.79(H) inches	
POWER	Input: 100 - 240V AC Supports 80 PLUS Bronze	80 PLUS 300W power supply
ACCESSORIES	Quick Guide CPU Thermal Grease Screw Package	Driver DVD Power Cord
EXPANSION SLOT	(1) PCI-E X16 Gen 3.0 slot (1) PCI-E X1 Gen 2.0 slot	(1) M.2 MAX to 2230 Type E key socket (1) M.2 MAX to 2280 Type M key socket
OS SUPPORT	Windows 10 64 bit, Linux	

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R4-CHASSIS	<p>Black aluminum chassis with acrylic front plate Easily customize front panel design by changing the mylar and adding a photo, graphics, or logo Drive bays: 1 x 5.25" ODD, 2 x 3.5" (internal) HDD Supports up to 2 x 2.5" HDD if PHD3 rack accessory x1 or x2 is used Dimensions: 13 (L) x 8.5 (W) x 7.79 (H) inches Weight: 7.5 LBS (net) / 9.9 LBS (gross)</p>
MAINBOARD AND CHIPSET	<p>Shuttle mainboard FH310, proprietary design for XPC SH310R4 Chipset/Southbridge: Intel® H310 Passive chipset cooling with heatsink Solid capacitors for sensitive areas provide excellent heat resistance for enhanced system durability</p>
BIOS	<p>AMI BIOS, SPI Interface, 16MB Flash-EPROM Supports PnP, ACPI 3.0, Hardware Monitoring Supports Firmware TPM (fTPM) v2.0 Supports boot up from external USB flash memory Supports Unified Extensible Firmware Interface (UEFI)</p>
POWER SUPPLY	<p>Built-in 300W mini switching power supply (model PC61J) AC input voltage: 100 - 240V, 50 - 60 Hz 80 PLUS Bronze compliant: PSU provides at least 82/85/82% of efficiency at 20/50/100% load Active PFC Circuit (Power Factor Correction) ATX main power connectors: 2x10 and 2x2 pin Graphics power connector: 6 pin Other connectors: 4 x SATA, 2 x Molex, 1 x Floppy</p>
OPERATING SYSTEM	<p>The system comes without an operating system. Compatibility: Windows 10 64 bit, Linux 64 bit</p>
PROCESSOR SUPPORT	<p>LGA 1151 v2 socket supports 8th/9th generation Intel® Core® i3/i5/i7/i9, Pentium, and Celeron processors Max supported processor power consumption (TDP): 95W 14nm process technology, up to 8 CPU cores, 16MB of L3 cache Not compatible with older LGA 1151 socket processors (6th/7th generation processors) 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, linear-controlled 92 mm fan Silent X cooling and noise reduction technology with Active Airflow</p>
MEMORY SUPPORT	<p>2 x 288 pin slots Supports DDR4 2400/2666 MHz memory (PC4-19200/21300) at 1.2V Supports Dual Channel mode Supports a max. of 16GB per DIMM, up to 32GB total</p>
PCI-E SLOTS	<p>1 x PCI-Express x16 v3.0 slot 1 x PCI-Express x1 v2.0 slot, open-ended [3]* Supports dual slot (double width) graphic cards (occupies the second PCI-Express slot) The maximum size acceptable for display cards is 10.7 x 3.9 x 1.5 inches 6 pin power connector for graphic card</p>
M.2 SLOTS	<p>This model features two M.2 expansion slots: (1) M.2 2280 M SSD slot (2) M.2 2230 E slot for WLAN cards</p> <ul style="list-style-type: none"> -PCI-Express Gen. 3.0 X4, supports NVMe -SATA v3.0 (max 6 GB/s) -Supports M.2 cards with a width of 22mm and a length of 42, 60, or 80 mm (type 2242/2260/2280) - PCI-Express Gen. 2.0 X1 and USB 2.0 -Supports M.2 cards with a width of 22mm and a length of 30 mm (type 2230) -Supports WLAN expansion cards (optional accessory WLN-M [4]*)

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<p>INTEGRATED GRAPHICS (OPTIONAL)</p>	<p>Intel HD graphics function features depend on the processor type used Supports DirectX 12, OpenGL 4.4</p> <p>This model has three video outputs: -HDMI v2.0 (1080p/60 and 2160p/60 supported) -DisplayPort v1.2 (1080p/60 and 2160p/60 supported) -VGA / 15 pin D-sub (supports analog video in Full HD)</p> <p>Supports displays with 4K Ultra HD resolution at 3840 x 2160 Supports two independent displays with integrated graphics function Supports more displays in combination with a discrete graphics card [6]* Supports Blu-Ray playback with HDCP content protection [2]* Video decoding/encoding: H.264, H.265 (8/10 bit via QuickSync), VP9 (only 10 bit VP9 can be decoded) DisplayPort and HDMI supports multi-channel digital audio over the same cable Maximum shared memory of 64 MB</p>	
<p>6-CHANNEL AUDIO</p>	<p>Audio Codec: Realtek ALC662, 5.1 channel Three analog audio connectors (3.5mm) on the back panel: Line-in (blue), Line-out (green), MIC in (pink) shared with 5.1 channel line-out (front, rear, center/bass) Front panel: MIC in (input) and Headphone output (line-out) DisplayPort and HDMI supports multi-channel digital audio over the same cable</p>	
<p>GIGABIT LAN CONTROLLER</p>	<p>Intel i219LM PHY connected to the MAC of the processor Supports 10/100/1000 MB/s operation Supports Wake-on-LAN Supports network boot by Preboot eXecution environment (PXE)</p>	
<p>DRIVE CONNECTORS</p>	<p>3x Serial ATA 6G (rev. 3.0, max 6GB/s, color: blue), Storage bays: 1 x 5.25" ODD, 2 x 3.5" HDD</p>	
<p>FRONT PANEL CONNECTORS</p>	<p>Microphone input (3.5 mm) Headphone output (3.5 mm) 2x USB 3.0</p>	<p>Power button Power indicator (Blue LED) Hard disk drive indicator (Yellow LED)</p>
<p>BACK PANEL CONNECTORS</p>	<p>HDMI 2.0a (digital video and audio) DisplayPort 1.2 (digital video and audio) VGA (analog video) USB 2.0 x 4 USB 3.0 x 2 Audio line-out (3.5 mm)</p>	<p>Audio line-in (3.5 mm) MIC in (3.5 mm) Clear CMOS button Gigabit LAN (RJ45) WLAN antenna holes (optional) [4]* Serial RS232 port (optional, H-RS232 accessory)</p>
<p>OTHER CONNECTORS (ONBOARD)</p>	<p>Front panel: USB, audio, buttons, LEDs RS232 x 1 (serial interface, 5 pin)</p>	<p>Fan connectors x 2 (4 pin) USB 2.0 interface x 1 (4 pin)</p>
<p>INCLUDED ACCESSORIES</p>	<p>XPC installation guide Driver DVD Serial ATA cables x 2</p>	<p>AC Power Cord (with protective earth contacts) Thermal paste, screw pack Protector cap for CPU socket (don't use if heatpipe or fan is mounted)</p>
<p>OPTIONAL ACCESSORIES</p>	<p>Back panel adapter for serial RS232 port (H-RS232) Wireless LAN 802.11ac kit and Bluetooth kit with two antennas (WLN-M) [4]* Adapter for 2.5" drives (PHD3 rack) 500W power supply, 80 PLUS Silver (PC63J)</p>	
<p>ENVIRONMENTAL CRITERIA</p>	<p>Operating temperature: 0 - 40°C</p>	<p>Humidity: 10 - 90%</p>
<p>CERTIFICATIONS</p>	<p>EMI: FCC, CE, BSMI, RCM/C-Tick, VCCI 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] ABOUT OVERCLOCKING

Please note there is a certain risk involved with overclocking, including adjusting the BIOS settings or using third party overclocking tools. Overclocking may affect your system stability or even cause damage of the components and devices in the system. Shuttle cannot be held responsible for possible damage caused by overclocking as it is done at your own risk and expense.

[2] BLU-RAY PLAYBACK

The appropriate software and an installed Blu-Ray drive is required (these are not included)

[3] OPEN-ENDED PCI-E SLOT

The X1 slot uses an open ended socket to allow physical longer cards to be installed (ie X4 or X8), but the speed will be limited to that of an X1.

[4] OPTIONAL WIRELESS LAN MODULE (WLN-M)

This XPC barebone supports an optional accessory that consists of a M.2 2230 card with IEEE 802.11 ac and BT 4.0 functionality and two external antennas with appropriate antenna cables.

[5] 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.

[6] SUPPORTS ADDITIONAL DISPLAYS

The integrated graphics already supports two additional displays via digital video outputs but with a discrete PCI-Express graphics card, this model can support more displays. This function is based on the Switchable Graphics feature introduced with the 2nd generation of Intel® Core™ processors. This can be enabled in the BIOS setup utility by pressing the "Delete" key after powering on the PC and going to the "Advanced" tab to change the "Initiate Graphics Adapter" setting to "Switchable".

BIOS DOWNLOADS: <http://global.shuttle.com/products/productsDownload?productId=2349>

SUPPORT LIST: <http://global.shuttle.com/products/productsSupportList?productId=2349>

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

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

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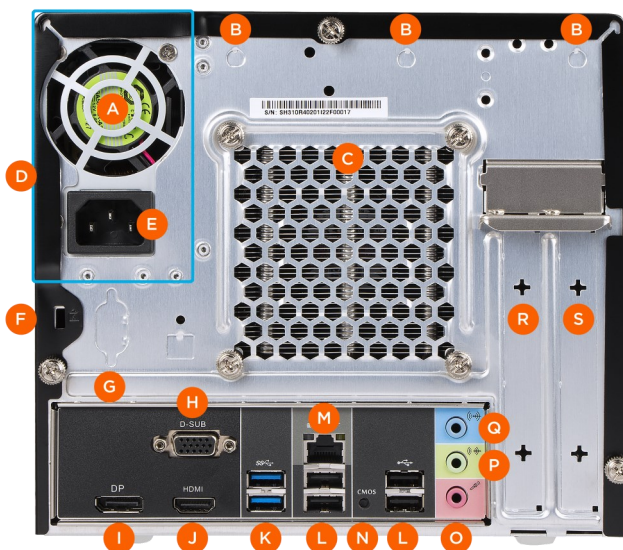
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Front View



- 1 5.25" optical drive bay
- 2 Hard disk LED indicator
- 3 Power switch with LED
- 4 Removable acrylic plate
- 5 USB 3.0 ports
- 6 Microphone input
- 7 Headphone input

Back View



- A Power supply fan
- B Optional WLAN antennas
- C Heatpipe cooling system
- D Power supply
- E AC power connector
- F Kensington Lock
- G Optional COM port
- H VGA video output
- I DisplayPort video output
- J HDMI video output
- K USB 3.0 x 2
- L USB 2.0 x 4
- M Gigabit LAN port (RJ45)
- N Clear CMOS button
- O Microphone input
- P Audio line-out
- Q Audio line-in
- R PCI-Express X16 slot
- S PCI-Express X1 slot

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SUPPORTS INTEL[®] 8TH AND 9TH GENERATION PROCESSORS

The SH310R4 V2 supports both Intel[®] 8th/9th Generation Core™, Pentium®, and Celeron® processors. With up to 8 cores, DDR4 2666 MHz memory is supported up to 32GB and integrated UHD graphics and PCI-E controllers support onboard graphics output for outstanding graphics performance.



SUPERB PCI-E SCALABILITY

One PCI-E X16 3.0 and PCI-E X1 2.0 slots are provided for use with multi-display graphic cards, monitor cards, RAID cards, professional sound cards, network video recorder and more.



FRONT PANEL CUSTOMIZATION

The R4 chassis is easily customized by changing the acrylic front plate. Insert any design such as a photo, graphic, or a company logo to the front panel.



24/7 NONSTOP OPERATION

Officially approved for 24/7 operation, the SH310R4 provides stable operation to run reliably for long term demands of computing work.



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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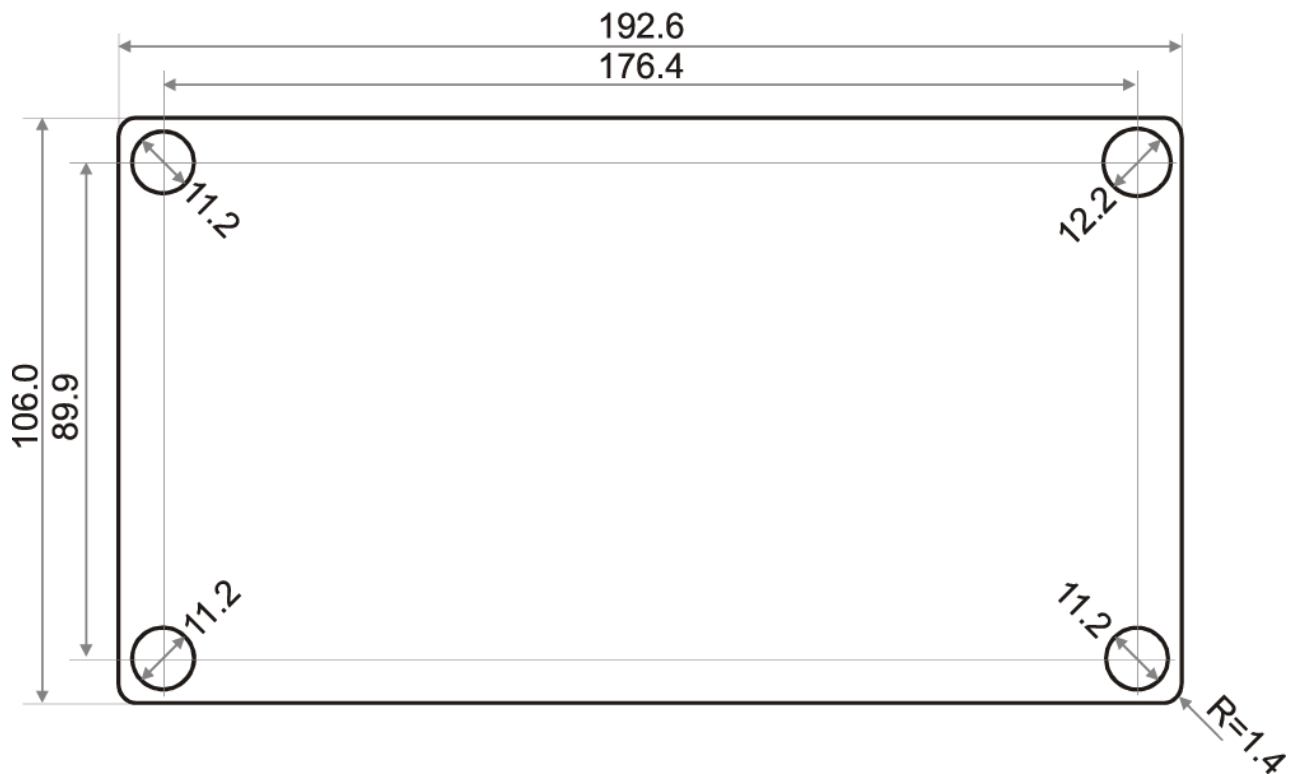
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MYLAR DIMENSIONS

The R4 front panel comes with a removable acrylic plate which allows for easy customization of the front design. Simply change the mylar and add your individual design such as a photo, graphics, or a company logo to the front panel in just a few steps.



*Measurements are in mm

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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.
ITEMS INCLUDED	M.2 2230 (NGFF) WLAN card, XPC slim antenna cables x 2 (8.3 in and 11.4 in), XPC cube antenna cables x 2 (20.8 in), Dipole antennas x 2, Quick guide, Driver DVD
OS SUPPORT	Windows 7, Windows 8.1, Windows 10, Linux (32/64 bit)



ACCESSORY	H-RS232
DESCRIPTION	With the help of this adapter, a serial RS232 port can be equipped in several XPCs. A sub-D connector is added to the back panel and is connected to the serial interface on the motherboard.
PORTS	External: Sub-D, 9 pins, male Internal: 10 pin (2x5), female



ACCESSORY	PC63J
DESCRIPTION	The PC63J can be utilized as a power supply upgrade for entry level and mainstream XPC cube models. With 80 PLUS Silver certification, it consumes less power and saves more energy.
REMARKS	Input voltage: 100 - 240V AC Input current: 8A/4A for 115V - 230V AC Input frequency: 50 - 60 Hz Operating temperature: 10°C to 50°C Storage temperature: -40°C to 70°C Watt: 500W



ACCESSORY	PHD3
DESCRIPTION	The PHD3 allows for installation of up to two 2.5" HDD/SSD into a larger 3.5" drive bay. With a second PHD3, up to four 2.5" drives can be installed (4th drive can only be installed in XPCs of the J & R series)
REMARKS	Please check number of available SATA data and power connectors. Current XPC models usually offer four SATA data connector and three SATA power connectors.

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SH110R4 vs SH310R4 V2

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MODEL	SH110R4	SH310R4 V2
CHIPSET	Intel H110*	Intel H310*
PROCESSOR SUPPORT	LGA 1151, max TDP 95W 14nm Skylake (6th Gen Core CPU) 14nm Kabylake (7th Gen Core CPU) Intel® Core™ i3/i5/i7, Pentium, Celeron	LGA 1151 v2, max TDP 95W 14nm Coffee Lake (8th/9th Gen Core CPU) Intel® Core™ i3/i5/i7/i9, Pentium, Celeron
MEMORY	2 x 16GB DDR4 2133 MHz max	2 x 16GB DDR4 2400/2666 MHz max
PCI-E SLOTS	(1) PCI-E X16 v3.0 (1) PCI-E X1 v2.0	(1) PCI-E X16 v3.0 (1) PCI-E X1 v2.0
VIDEO OUTPUT	HDMI + DisplayPort, Supports two independent displays, Supports 4K Ultra HD, DirectX 12	HDMI 2.0 + DisplayPort, Supports two independent displays, Supports 4K Ultra HD, DirectX 12
AUDIO	Realtek ALC662, 5.1 channel HD audio	Realtek ALC662, 5.1 channel HD audio
ETHERNET	Intel i219LM 10/100/1000 MB/s operation Supports Wake on LAN function	Intel i219LM 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	Power button with LED, HDD LED, MIC-in, Headphone out, USB 3.0 x 2
BACK PANEL	HDMI 1.4b, DisplayPort, VGA USB 2.0 x 4, USB 3.0 x 2, PS/2 combo Gigabit LAN (Intel i219LM) Audio x 3, Clear CMOS button	HDMI 2.0a, DisplayPort, VGA USB 2.0 x 4, USB 3.0 x 2 Gigabit LAN (Intel i219LM) Audio x 3, Clear CMOS button
DRIVE BAYS	(1) 5.25" ODD bay (2) 3.5" HDD bay	(1) 5.25" ODD bay (2) 3.5" HDD bay
POWER	300W 80 PLUS Bronze	300W 80 PLUS Bronze
OPTIONAL ACCESSORIES	500W power supply (PC63J) RS232 port (H-RS232) WLAN kit 802.11n/ac + Bluetooth (WLN-M) 2.5" drive rack (PHD3)	500W power supply (PC63J) RS232 port (H-RS232) WLAN kit 802.11n/ac + Bluetooth (WLN-M) 2.5" drive rack (PHD3)
EXPANSION SLOT	(1) M.2 2280 Type M key socket (1) M.2 2230 Type AE key socket	(1) M.2 2280 Type M key socket (1) M.2 2230 Type E key socket
OS SUPPORT	Windows 7, Windows 8.1, Windows 10, Linux 64 bit	Windows 10, Linux 64 bit

*The H110 and H310 chipsets both support four SATA devices in total. Three are available for regular SATA drives and one is being used for the M.2 2280 slot

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8th Generation Intel Core Desktop Processors (LGA 1151v2 14 nm)

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 - 1100 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 - 1050 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 - 1050 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 Gold	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 - 1050 MHz

K = unlocked, T = power optimized, TDP = Thermal Design Power (max power consumption). Note: The Shuttle XPC cube barebone SH310R4 V2 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)

Name	Model	Cores/Threads	CPU Clock	Turbo Clock	Cache	TDP	Graphics	Graphics Clock
Core i5	9600K	6 / 6	3.7 GHz	4.6 GHz	9 MB	95W	HD 630	350 - 1150 MHz
Core i7	9700K	8 / 8	3.6 GHz	4.9 GHz	12 MB	95W	HD 630	350 - 1200 MHz
Core i9	9900K	8 / 16	3.6 GHz	5.0 GHz	16 MB	95W	HD 630	350 - 1200 MHz

K = unlocked, T = power optimized, TDP = Thermal Design Power (max power consumption). Note: The Shuttle XPC cube barebone SH310R4 does not support the unlock function of Intel K-series processors. See more support information at global.shuttle.com

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