Shuttle Mini PC with heatpipe cooling for LGA1151 "Skylake" processors

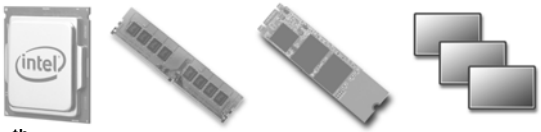
The Shuttle XPC Barebone SH170R6 packs the 6th Generation of Intel Core desktop processors for LGA1151 socket into an elegant, fresh case design. The aluminium case cover with a black-brushed surface has a volume of 14 litre which is just a third of the volume of a standard Midi tower. Despite its small dimensions, it is brimming with features. Set up a top-performer with the latest LGA1151 "Skylake" processor, a dual-slot PCI Express graphics card, M.2-SSD, two 6 TB hard disks in RAID mode and 32 GB of DDR4 memory, plus Blu-ray drive. However, also cost-effective configurations without dedicated graphics cards are possible, since Intel's Skylake generation offers an amazing inbuilt CPU and graphics performance with low energy consumption.

Feature Highlights

R6 Chassis	• Black aluminium chassis (14.2 litre) • Bays: 1x 5.25“, 2x 3.5“ (1x external)
CPU	• Supports 6th Gen. Intel® Core™ Processors Codename “Skylake”, Socket LGA1151 • Supports Core i3, i5, i7, Pentium, Celeron • Shuttle I.C.E. heatpipe cooling system
Operating System	• An operating system is not included • Supports Windows 7/8.1/10, Linux - 64 bit
Slots	• 1x PCIe x16 (v3.0) supports dual-slot PCI-Express X16 graphics cards • 1x PCIe x4 (v3.0) • 1x M.2 2280 supports PCIe 3.0 x4 & SATA 3 • 1x Mini-PCIe Half-Size, supports WLAN
Chipset	• Intel H170 PCH
Integrated Graphics	• Supports three Full HD displays at once • Supports one UHD display (with Core CPU)
Memory	• Supports 4x DDR4-2133, max. 64 GB
Drive Connectors	• 4x SATA 3.0 (6Gb/s) supports RAID and RST • 1x eSATA, 1x M.2 SSD slot
Other Connectors	• Video: HDMI 1.4 and 2x DisplayPort 1.2 • Audio: 7.1-ch Line-out, Line-in, Microphone • GigaBit LAN (RJ45) • 8x USB 3.0, 2x USB 2.0, 1x External SATA
Optional	• COM-Port (H-RS232), Wireless LAN (WLN-C)
PSU	• 300 Watt power supply (80 PLUS Bronze)

XPC cube Barebone

SH170R6



6th.Gen. Intel Core | **4x DDR4 max. 64GB** | **M.2 2280** | **Triple Display**

Heat-pipe Cooling System

Images for illustration purposes only.

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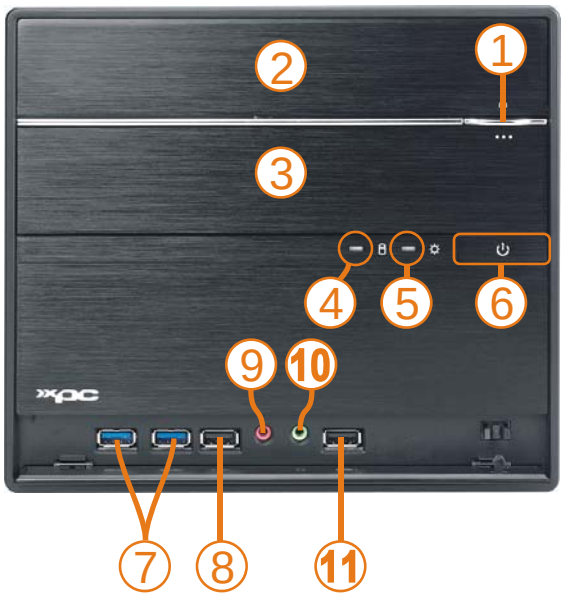
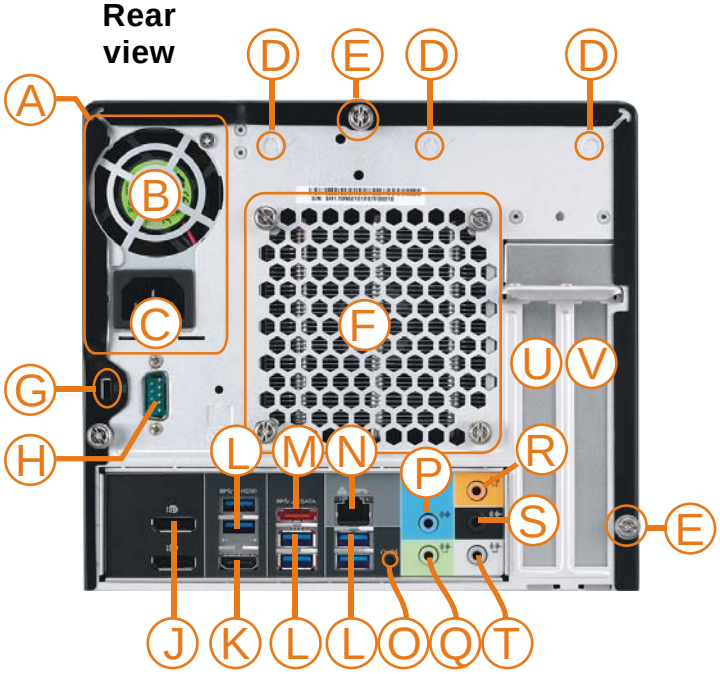
Shuttle XPC cube Barebone SH170R6 – Connectors

Front view



Rear view



1	Eject button (optical drive)
2	5.25“ bay (optical drive)
3	3.5“ bay
4	Hard disk LED indicator
5	Power LED indicator
6	Power button
7	2x USB 3.0 port
8	USB 2.0 port
9	Microphone input
10	Headphone output
11	USB 2.0 fast-charge port

A	Power supply
B	Power supply fan
C	AC power connector
D	Perforation for optional WLAN module
E	Three thumbscrews
F	Heatpipe cooling system
G	Hole for Kensington Lock
H	COM / RS232 (optional)
J	2x DisplayPort output
K	HDMI output

L	6x USB 3.0
M	External Serial-ATA
N	Gigabit LAN (RJ45)
O	Clear-CMOS-Button
P	Audio Line-in
Q	Audio Surround Front
R	Audio Center/Bass
S	Audio Surround Rear
T	Audio Surround Side
U	PCI-Express X16 slot
V	PCI-Express X4 slot

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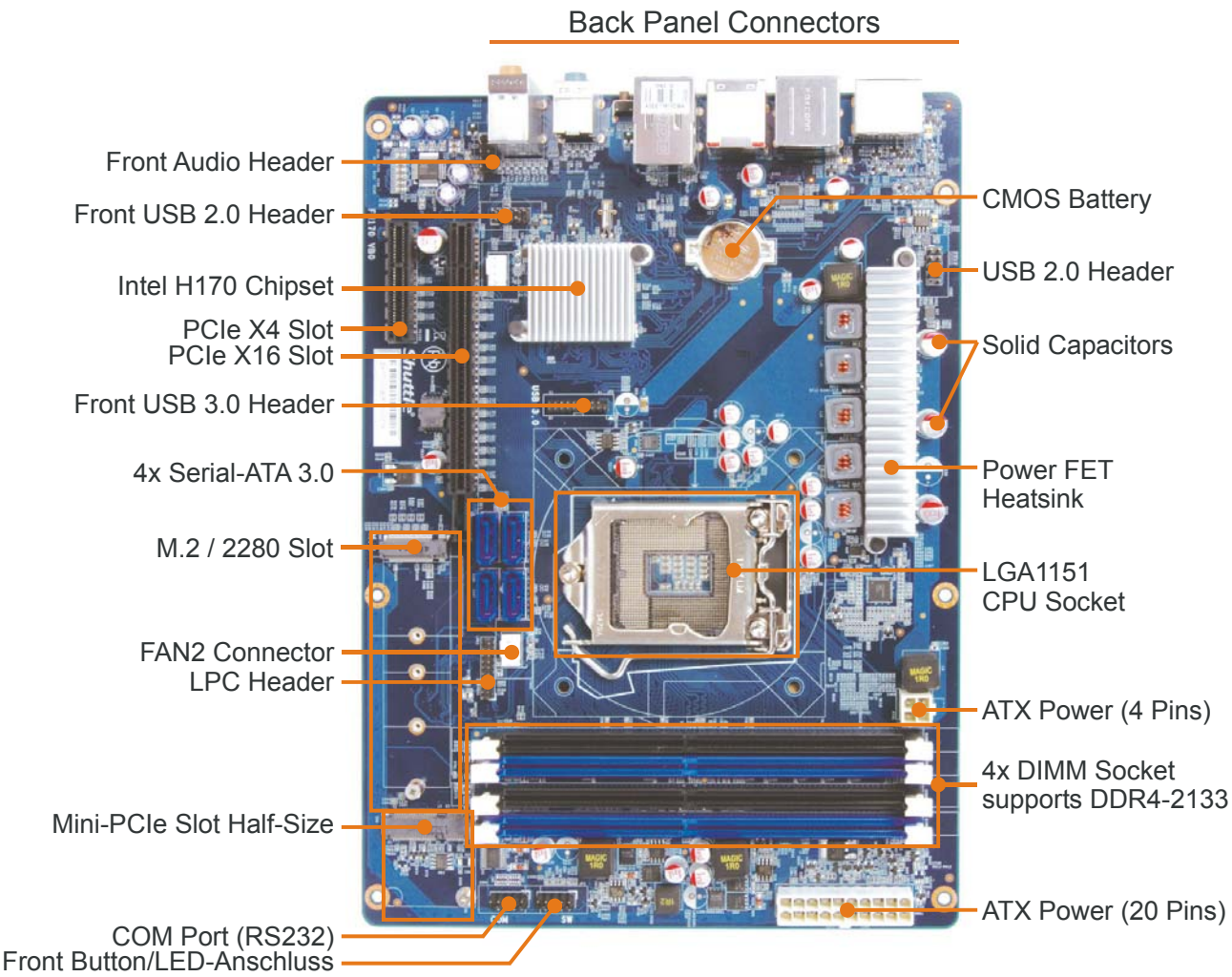
Shuttle XPC cube Barebone SH170R6 – Mainboard



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Shuttle XPC cube Barebone SH170R6 – Product Features

The R6 chassis design: a clean and modern look

R6 is Shuttle's chassis design for the high-end series XPCs. Shuttle has always placed great emphasis on the interior and exterior aesthetics of the XPC cubes with the belief that a good blend of style and form factor will enable it to be attractive, versatile, and work well in almost any environment. The case cover is made of aluminium, while the drives and front panel connectors are elegantly hidden by drive doors for superior style and visual appeal.

Small, but easy to install

Shuttle XPC cubes offer the performance of a desktop PC at a third of the size while using standard desktop components. Shuttle keeps the concept of being "futureproof" in mind when designing the new R6 chassis. The meticulously designed internal layout already comes with cables fitted to reduce clutter, increase airflow and make the installation of components easy.

What is a Barebone?

The Shuttle XPC cube Barebone SH170R6 consists of a stylish case with pre-installed mainboard, power supply unit (PSU) and cables. Despite its small form factor, it offers outstanding connectivity, functionality and performance. For a full PC system, a processor, memory, mass storage and operating system need to be added. Shuttle XPC cube Barebones are completely customisable meaning users can pick certain components on their own to ideally match their individual needs.

Supports Intel 14nm Skylake Processors

Skylake is the codename for Intel's 6th Generation of Intel Core Processors introduced in 2015 along with the 100-Series chipsets. The Shuttle XPC cube Barebone SH170R6 supports the desktop version with socket LGA1151, while the previous generation (code name “Haswell”, LGA1150) is not compatible.

Integrated Cooling Engine (I.C.E.)

Shuttle XPC cubes offer the performance of a desktop PC at a third of the size. In order to ensure proper airflow inside such a small case, more advanced cooling technologies have been developed and implemented. Shuttle's industry-leading I.C.E. heatpipe technology delivers efficient cooling and is exceptionally quiet.

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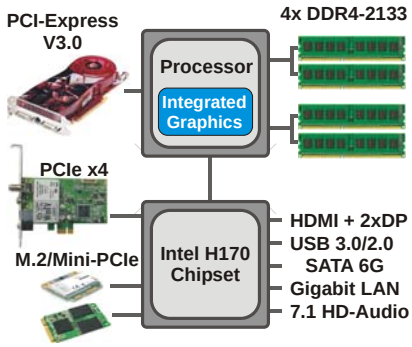

Single-Chip Chipset: Intel H170

The Shuttle XPC cube Barebone SH170R6 sports Intel's H170 Platform Controller Hub (PCH) which is part of the 100 Series "Sunrise Point" chipset. The H170 chipset consists of a single chip and integrates the hard drive controller, network controller, firmware interface, PCIe links, USB and other connectors.

Supports up to 64 GB DDR4 memory

The Shuttle XPC cube Barebone SH170R6 supports up to 64 GB of DDR4-2133 memory which is ideal for workstations powered by 64-bit operating systems, so users take full advantage of high-performance configurations. Compatible memory comes in 288-pin DIMM modules at 1.2V operating voltage, while the predecessor is 244-pin at 1.5V operating voltage. ForDDR3L it is 1.35V.

Two Mini-Slots: Mini PCI-Express and M.2

The **Half-Size Mini-PCI-Express slot** is intended for Wireless LAN adapter cards (e.g. the Shuttle Accessory WLN-C) as shown in the picture on the right.

The **M.2 slot (type 2280)** is fully-equipped with 4X PCI-Express v3.0 lanes, SATA 3.0 und USB 2.0 interfaces. Modern M.2 SSDs with PCI Express interface (PCIe) provide a significant higher bandwith compared to the usual SATA standard. Type 2280 means it supports the usual M.2 cards with a width of 22mm and a length of 80mm, but also 2230, 2242 and 2260 standard cards are supported.

80 PLUS BRONZE certified 300W Power Supply

The Shuttle XPC cube Barebone SH170R6 is equipped with a rock-stable built-in 300W power supply which was tested with the latest graphics cards and powerful Core i3/i5/i7 processors. Its 80 Plus Bronze logo indicates that it provides more than 82/85/82% of energy efficiency at 20/50/100% of rated load. This means a reduction of energy consumption while increasing the computer's reliability.

8x USB 3.0

The Shuttle XPC cube Barebone SH170R6 sports eight USB 3.0 ports (2x front, 6x rear) besides two USB 2.0 ports. USB 3.0 achieves a maximum data transfer rate of up to 5.0Gbps (640MBytes/sec) which is ten times faster than USB 2.0. USB 3.0 is fully downward compatible to USB 2.0.

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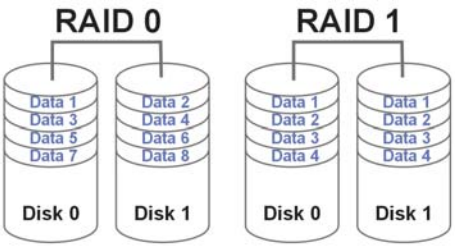
Quick charge USB port for Apple iPhone/iPad

The USB port on the outter right of the front panel (marked with a flash symbol) does not only serve as a normal USB port, it can also be used as a fast-charge port for your Apple iPhone/iPad. Simply charge as quickly from your Shuttle XPC cube as from a wall socket. Moreover, it even charges your Apple device, if your PC is turned off. By supporting a maximum current of 2A, it will cut down on charging time compared to traditional USB ports.



Intel Rapid Storage Technology – RAID support

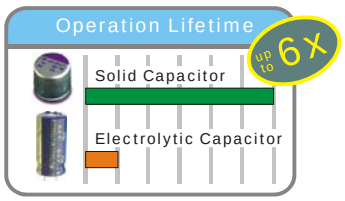
Intel® Rapid Storage Technology offers new levels of protection, performance and expandability for desktop platforms. No matter if one or multiple hard drives are used, users take advantage of enhanced performance and lower power consumption. Valuable digital memories are protected from hard drive failures, if the system is configured in any of these three fault-tolerant RAID configurations: RAID 1, RAID 5, and RAID 10. By seamlessly storing copies of data on one or more additional hard drives, any hard drive may fail without loss of data or system downtime. Once the defective drive is removed and a replacement hard drive is installed, data security is guaranteed again.

Supports one optical drive and two hard disks

Users can install one optical drive and up to two hard disks (or SSDs) into the XPC cube Barebone SH170R6. But how about heat? The solution is right here - the drive rack built into the SH170R6 leaves space between the hard disks to improve air flow. Intelligently-engineered airflow mechanics channels cool air where it is needed the most - protecting components and providing optimum performance.

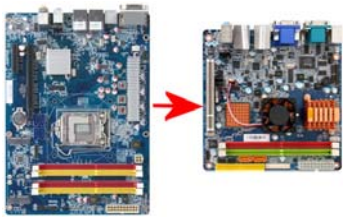
7.1 HD Audio capabilities

The Shuttle XPC cube Barebone SH170R6 supports 7.1 channel audio via four analog stereo audio ports and via its HDMI and DisplayPort connectors which combine high bandwidth video with digital audio in a single port.



Solid Capacitors

By using all-solid capacitors (except the audio part) Shuttle mainboards are long-life and provide industry leading stability and reliability. The average lifespan of one solid capacitor is more than six times greater than the more common and less expensive electrolytic capacitors.



Mini-ITX Mainboard Support

Shuttle expands the capabilities of its R chassis by adding support for Mini-ITX mainboards (17 x 17cm or 6.7 x 6.7 inches). This makes upgrading or downgrading the mainboard easy without having to modify the chassis.

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Shuttle XPC cube Barebone SH170R6 – Graphics Features

PCI-Express v3.0 for high-performance graphics cards

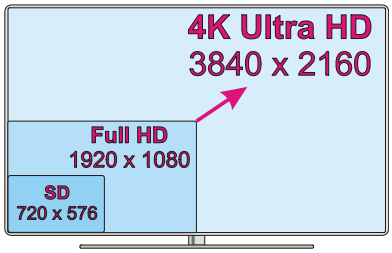
The Shuttle XPC cube Barebone SH170R6 supports PCI-Express x16 Version 3.0 combined with the 14nm Intel Skylake processor to deliver a bandwidth of up to 32 GB/s. So expect plenty of potential for the newest graphics cards.

PCI-Express 3.0 Expansion Slot supports Dual-Slot Graphics Cards

Despite the small housing, the Shuttle XPC cube Barebone SH170R6 is capable of running dual-slot (double-height) PCI Express graphics cards. The system provides an additional 6-pin power connector for power hungry graphics cards. Please refer to the support list for detailed support information. Shuttle's Power Supply Calculator helps to determine whether the power supply should be upgraded to 500W or not. (see http://global.shuttle.com/support)

Built-in Intel® HD Graphics Engine

The integrated Intel HD Graphics processor has been moved onto the same die as the CPU. Some of the graphics features depend on the processor type. It supports 3D stereoscopic playback, hardware encoding for H.264 and MPEG-2 video, Blu-ray playback with HDCP, 4K resolution, DirectX 12, OGL 5.x and OCL 2.x. With all these features, this GPU is comparable to entry level discrete cards.



Supports 4K Ultra HD at 60Hz

The Shuttle XPC cube Barebone SH170R6 supports one 4K display running at 3840 x 2160 / 2160p when connected to one of the barebone's DisplayPort video outputs. As the successor to the Full HD standard, Ultra HD delivers a four times higher resolution with a wider colour space and colour depth. An Intel Core i3 processor or higher and dual channel memory (2 or 4 modulels) is required for smooth 4K (2160p) video playback.

Triple Display with HDMI and 2x DisplayPort

The Shuttle XPC cube Barebone SH170R6 features three digital video outputs: 1x HDMI 1.4 and 2x DisplayPort 1.2. Triple View technology brings you multiple display support on up to three separate monitors at Full HD resolution. This helps improve on productivity by allowing for spreading multiple windows across three monitors while working with them simultaneously. [6]

Connect even more displays with a discrete graphics card

The Shuttle XPC cube Barebone SH170R6 supports at least five displays in combination with a discrete PCI-Express graphics card, based on the Switchable Graphics feature. Expand your Windows desktop across many monitors, but note it does not support a 2x2 configuration or clone mode with the monitors connected.

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Shuttle XPC cube Barebone SH170R6 – Optional Accessories

Optional: Wireless LAN (Accessory WLN-C)

The Shuttle Accessory WLN-C is a wireless LAN kit consisting of a Mini-PCIe card, two antennas and appropriate cables. Using this, the Shuttle XPC cube Barebone SH170R6 can be equipped with a wireless LAN module according to IEEE 802.11b/g/n standards. Data transfer speeds of up to 300 MBit/s can be reached and WPA2 with AES encryption is supported, too.

Optional: Serial RS-232 port (Accessory H-RS232)

Add one serial COM port (RS232) to the back panel. Not found any longer on today's consumer PCs, as it has been superseded by USB, it is still commonly used for applications of industrial automation systems, scientific analysis and POS systems.

Two 2.5" drives in one 3.5" bay

The optional Shuttle Accessory PHD3 allows for installation of up to two 63.5mm (2.5") hard drives or SSDs into a larger 89 mm (3.5") drive bay. This makes for a more flexible configuration in your drive rack.

500 Watt Power Supply (Accessory PC63J)

The optional Shuttle Accessory PC63J is a high-end power supply with a maximum output wattage of 500W. Thanks to its 80 PLUS Silver certification for power-efficient devices, this power supply is also suitable for ENERGY STAR® compliant systems. The power supply features two additional power connectors for graphics cards (6 and 8-pin). An upgrade to the PC63J power supply is required, if the total wattage of the system under full load exceeds 300 Watt. The maximum power consumption depending on the components chosen can be determined using the Shuttle Power-Supply Calculator: http://global.shuttle.com/support/power.

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Comparison with previous models

Shuttle XPC cube Barebone	SH87R6	SZ87R6	SH97R6	SH170R6
Chipset	**Intel H87**	**Intel Z87**	**Intel H97**	**Intel H170**
CPU Support	LGA1150 / 95W "Haswell"	LGA1150 / 95W "Haswell"	LGA1150 / 95W "Haswell"	**LGA1151 / 95W "Skylake"**
K-Series Overclocking	-	Yes	-	-
Heatpipe (CPU cooling)	3 Pipes	4 Pipes	3 Pipes	3 Pipes
Max. Memory	4x 8GB DDR3-1600	4x 8GB DDR3-1600	4x 8GB DDR3-1600	**4x 16 GB DDR4-2133**
Video Output	HDMI, DVI-I Dual Display	HDMI, DVI-I Dual Display	HDMI, 2x DisplayPort Triple Display	HDMI, 2x DisplayPort Triple Display
4K Support (Ultra HD)	-	-	HDMI: 2160p/30 DP: 2160p/60	HDMI: 2160p/30 DP: 2160p/60
PCI Express Slots	1x PCIe X16 V3 1x PCIe X1 V2	1x PCIe X16 V3 1x PCIe X1 V2	1x PCIe X16 V3 1x PCIe X4 V2	1x PCIe X16 V3 1x PCIe X4 **V3**
M.2 Slot	-	-	-	**1x M.2 slot (2280)**
Mini PCI Express Slots	1x Full-Size (mSATA 6G) 1x Half-Size	1x Full-Size (mSATA 6G) 1x Half-Size	1x Full-Size (mSATA 6G) 1x Half-Size	1x Half-Size
Gigabit LAN	Realtek RTL 8111E	Dual Realtek RTL 8111E	Realtek RTL 8111G	**Intel i219LM PHY**
Audio	7.1-ch, S/PDIF Realtek ALC888S	7.1-ch, S/PDIF Realtek ALC888S	7.1-ch Realtek ALC892	7.1-ch Realtek ALC892
USB	4x USB 3.0 6x USB 2.0	4x USB 3.0 6x USB 2.0	4x USB 3.0 6x USB 2.0	**8x USB 3.0 2x USB 2.0**
Drive Bays	1x 5.25" optical drive 2x 3.5" (1x external)	1x 5.25" optical drive 2x 3.5" (1x external)	1x 5.25" optical drive 2x 3.5" (1x external)	1x 5.25" optical drive 2x 3.5" (1x external)
SATA Ports	4x SATA 6G 1x eSATA 3G	4x SATA 6G 1x eSATA 3G	4x SATA 6G 1x eSATA 3G	4x SATA 6G 1x eSATA **6G**
Power Supply	300W (PC61J) 80+ Bronze	500W (PC63J) 80+ Silver	300W (PC61J) 80+ Bronze	300W (PC61J) 80+ Bronze
Graphics card power connectors	6-pin	6+8-pin	6-pin	6-pin
Front Face	R6 chassis design Glossy plastic with horizontal line textures	R6 chassis design Brushed aluminium	R6 chassis design Glossy plastic with horizontal line textures	R6 chassis design Glossy plastic with horizontal line textures
Optional Accessories	PHD3: 3.5" to 2.5" Adapter H-RS232: COM-Port WLN-C: WLAN Adapter PC63J: 500W Power Supply	PHD3: 3.5" to 2.5" Adapter H-RS232: COM Port r WLN-C: WLAN Adapter	PHD3: 3.5" to 2.5" Adapter H-RS232: COM Port WLN-C: WLAN Adapter PC63J: 500W Power Supply	PHD3: 3.5" to 2.5" Adapter H-RS232: COM Port WLN-C: WLAN Adapter PC63J: 500W Power Supply
Front Panel				
Rear Panel				

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Shuttle XPC cube Barebone SH170R6 - Specifications

R6-Chassis	Front panel: glossy plastic with horizontal line textures Storage bays: 1 x 5.25" (external), 2 x 3.5" (1x internal, 1x external) Using the optional accessory PHD3 two 2.5" drives can be installed into one 3.5" bay. Front doors for I/O ports and storage drives Kensington Security Slot at the back panel (also called K-Slot or Kensington lock) as a part of an anti-theft system Dimensions: 33.2 x 21,6 x 19.8 cm (LWH), 14.2 litre Weight: 3.5 kg net / 5.0 kg gross
Mainboard and Chipset	Shuttle "FH170", Shuttle Form Factor proprietary design for XPC cube Barebone SH170R6 Dimensions: 270 x 195 mm Chipset: Intel® H170 Chipset (Intel® DH82H170 PCH, code name "Sunrise Point") Platform Controller Hub (PCH) as Single-Chip-Solution Solid Capacitors for sensitive areas provide excellent heat resistance for enhanced system durability
BIOS	AMI BIOS, SPI Interface, 32 MBit Flash-ROM with SPI interface Supports PnP, ACPI 3.0, Hardware Monitoring Supports Unified Extensible Firmware Interface (UEFI) Supports boot up from external USB flash memory
Power Supply	Built-in 300 Watt mini switching power supply (Shuttle PC61J) AC input voltage: supports 100~240V, 50~60 Hz 80 PLUS® Bronze compliant: the PSU provides at least 82/85/82% of efficiency at 20/50/100% of load. Active PFC circuit (Power Factor Correction) ATX main power connectors: 2x10 and 2x2-pin Graphics power connector: 6-pin Other connectors: 4x SATA, 2x Molex, 1x Floppy
Operation System	This system comes without operating system. It is compatible with Windows 10 / 8 / 8.1 / 7 and Linux – 64 bit
Processor Support	Socket LGA 1151 (H4) supports the sixth generation of Intel Core i7 / i5 / i3, Pentium and Celeron processors Maximum supported processor power consumption (TDP) = 95W Codename "Skylake", 14nm process technology, up to 8 MB of L3 cache Not compatible with older Socket LGA 1150 processors. Does not support the unlock-function of Intel K-Series processors. 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 global.shuttle.com.

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Processor Cooling	Shuttle I.C.E. (Integrated Cooling Engine) Advanced I.C.E. Heatpipe technology with 3 pipes Temperature controlled 92 mm fan SilentX cooling and noise reduction technology with Active Airflow
Memory Support	4 x 288-pin slot Supports DDR4-2133 memory (PC4-17066) at 1.2V Supports 2+2 Dual Channel mode Supports max. 16 GB per DIMM, maximum total size of 64 GB
Integrated graphics	The features of the integrated Intel HD graphics function depend on the processor type used. Supports DirectX 12, OGL 5.x, OCL 2.x The PC features three digital video outputs [6]: - HDMI v1.4 (supports 1080p/60 and 2160p/30) - 2x DisplayPort v1.2 (support 1080p/60 and 2160p/60) Supports displays with 4K Ultra HD resolution at 3840 x 2160 [3] Supports three independent Full HD displays with the integrated graphics function Supports more displays in combination with a discrete graphics card [2] Supports Blu-ray (BD) playback with HDCP content protection Supports multi-channel digital audio over the same cable Maximum shared memory of 512 MB
PCIe-Expansion Slots	1x PCI-Express x16 v3.0 slot (PEG, for graphics cards only) 1x PCI-Express x4 v3.0 slot This XPC supports dual-slot (double-width) graphics cards - in this case the second PCI-Express slot will be occupied. Graphics power connector: 6-pin
M.2 Slot	The M.2 2280 BM slot provides the following interfaces: - PCI-Express Gen. 3.0 X4 with up to 32 Gbps Data Transfer Speed - SATA v3.0 (max. 6 Gbps) - USB 2.0 It supports M.2 cards with a width of 22 mm and a length of 30, 42, 60 or 80 mm (type 2230, 2242, 2260, 2280). Supports M.2 SATA SSDs, M.2 PCIe SSDs and other M.2 cards.
Mini-PCIe Slot	Mini-PCIe Half-Size slot with PCIe 2.0 and USB 2.0 interface supports one optional Wireless Network (WLAN) card
7.1 Channel Audio	7.1 channel High Definition Audio with Realtek ALC892 codec Analog: line-out (7.1-ch), line-in, microphone, AUX input (onboard) Digital Audio via HDMI and DisplayPort outputs
Gigabit-LAN Controller	Intel i219LM PHY connected to the MAC of the processor Supports 10 / 100 / 1.000 MBit/s operation Supports WAKE ON LAN (WOL) Supports network boot by Preboot eXecution Environment (PXE)

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SATA Connectors	The mainboard provides six Serial-ATA 3.0 interfaces, max. 6 Gbps supported 4x Serial ATA connector onboard 1x External Serial ATA (eSATA) connector at the back panel 1x M.2 slot onboard for flash memory cards Supports Intel Rapid Storage Technology (RST, Raid 0/1/5/10, JBOD)
Front panel Connectors and Buttons	Microphone input Headphone output (line-out) 2x USB 3.0 2x USB 2.0 (1x fast-charge port with up to 2A) [4] Power button Power indicator (blue LED) Hard disk drive indicator (yellow LED)
Back Panel Connectors	HDMI v1.4 2x DisplayPort v1.2 [5] 6x USB 3.0 GigaBit LAN (RJ45) External Serial ATA (eSATA 6 Gb/s) 7.1-ch Audio line-out (2x rear/front, bass/center, surround/back) Audio Line-in Clear CMOS button Optional: serial port RS-232 (Accessory: H-RS232) 3x perforation for optional WLAN antennas
Other Connectors (onboard)	2x USB 2.0 (2x 5-pin) 1x RS232 (2x 5-pin) for optional accessory H-RS232 2x fan connector (4-pin), one connector is occupied Low Pin Count header (LPC, 2x 10-pin, 2 mm pitch size) Occupied front connectors: USB 3.0, USB2.0, audio, power buttons, LEDs
Included Accessories	Multi-language XPC Installation Guide (EN, DE, FR, ES, JP, KR, SC, TC) 32/64- bit driver disk 2x Serial ATA cables AC Power Cord (with protective-earth contacts) Heatsink Compound Protector cap for the CPU socket (do not use if heat-pipe or fan is mounted) Bag with screws
Optional Accessories	**PHD3**: 3.5" to 2.5" adapter **H-RS232**: Backpanel COM port adapter for RS232 serial interface **WLN-C**: Wireless LAN 802.11n module with external antennas **PC63J**: 500W power supply, 80 PLUS® Silver
Environmental Spec	Operating temperature range: 0~35°C Relative humidity range: 10~90% (non-condensing)
Certifications Compliance	EMI: FCC, CE, BSMI, C-Tick Safety: ETL, CB, BSMI Other: RoHS, ErP 2013 Lot 3, Energy Star 5.2

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Conformity	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-guidelines: - EMV-guideline 89/336/EWG electromagnetic tolerance - LVD-guideline 73/23/EWG use of electric devices within certain voltage limits

Notes:

[1] Overclocking Warning

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

[2] Supports additional displays in combination with a discrete graphics card

The integrated graphics function already supports three independent displays via its digital video outputs. This PC can even support more displays in combination with a discrete PCI-Express graphics card. This function is based on the Switchable Graphics feature introduced with the 2nd Generation of Intel® Core™ processors. To enable this, please enter the BIOS Setup Utility by pressing the "Delete" key after powering on the PC, then go to the "Advanced" tab and change the "Initiate Graphics Adapter" setting to "Switchable".

[3] 4K Ultra HD resolution

A 4K-display with Ultra HD resolution (3840 x 2160) should be connected via DisplayPort, as only this port supports a higher refresh rate of 60Hz. The video playback performance depends on the video format, bitrate and the processor used. Daily office applications usually won't require the system to run under full load, however for smooth 4K (2160p) video playback requirements are different. An Intel Core i3 processor or higher is required here.

[4] Right Front USB port with Fast-Charge feature

Fast-charge Apple iPhone/iPad devices with up to 2A under Windows (not under Linux).

[5] How to convert DisplayPort to HDMI/DVI

The DisplayPort outputs can be converted to HDMI or DVI by an additional, passive adapter cable. For example:
DELOCK 82590: 1m, DisplayPort (male, 20p) to HDMI-A (male, 19p)
DELOCK 82435: 5m, DisplayPort (male, 20p) to DVI-D (male, 24p)
The integrated graphics automatically detects the connected display and puts out 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] Three independent displays simultaneously

The Shuttle XPC cube Barebone SH170R6 supports a maximum of two displays with a DVI or HDMI input. A third digital display, if required, must be connected directly to the DisplayPort output (without an adapter).

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6th Generation Intel Core Desktop Processor Family

Socket LGA1151 14 nm "Skylake-S" processor overview (Date: September 2015)

Name	Model	Cores/ Threads	CPU Clock	Turbo Clock	Cache	TDP	Graphics Engine	Graphics Clock
Core i7	6700K	4 / 8	4.0 GHz	4.2 GHz	8 MB	91 W	HD 530	350~1150 MHz
	6700	4 / 8	3.4 GHz	4.0 GHz	8 MB	65 W	HD 530	350~1150 MHz
	6700T	4 / 8	2.8 GHz	3.6 GHz	8 MB	35 W	HD 530	350~1100 MHz
Core i5	6600K	4 / 4	3.5 GHz	3.9 GHz	6 MB	91 W	HD 530	350~1150 MHz
	6600	4 / 4	3.3 GHz	3.9 GHz	6 MB	65 W	HD 530	350~1150 MHz
	6600T	4 / 4	2.7 GHz	3.5 GHz	6 MB	35 W	HD 530	350~1100 MHz
	6500	4 / 4	3.2 GHz	3.6 GHz	6 MB	65 W	HD 530	350~1150 MHz
	6500T	4 / 4	2.5 GHz	3.1 GHz	6 MB	35 W	HD 530	350~1100 MHz
	6400	4 / 4	2.7 GHz	3.3 GHz	6 MB	65 W	HD 530	350~1150 MHz
	6400T	4 / 4	2.2 GHz	2.8 GHz	6 MB	35 W	HD 530	350~1100 MHz
Core i3	6320	2 / 4	3.9 GHz	–	4 MB	65 W	HD 530	350~1150 MHz
	6300	2 / 4	3.8 GHz	–	4 MB	65 W	HD 530	350~1150 MHz
	6300T	2 / 4	3.3 GHz	–	4 MB	35 W	HD 530	350~1100 MHz
	6100	2 / 4	3.7 GHz	–	4 MB	65 W	HD 530	350~1150 MHz
	6100T	2 / 4	3.2 GHz	–	4 MB	35 W	HD 530	350~1100 MHz
Pentium	G4520	2 / 2	3.6 GHz	–	3 MB	65 W	HD 530	350~1150 MHz
	G4500	2 / 2	3.5 GHz	–	3 MB	65 W	HD 530	350~1150 MHz
	G4500T	2 / 2	3.0 GHz	–	3 MB	35 W	HD 530	350~1100 MHz
	G4400	2 / 2	3.3 GHz	–	3 MB	65 W	HD 510	350~1100 MHz
	G4400T	2 / 2	2.9 GHz	–	3 MB	35 W	HD 510	350~1100 MHz
Celeron	G3920	2 / 2	2.9 GHz	–	2 MB	65 W	HD 510	350~1100 MHz
	G3900	2 / 2	2.8 GHz	–	2 MB	65 W	HD 510	350~1100 MHz
	G3900T	2 / 2	2.6 GHz	–	2 MB	35 W	HD 510	350~1100 MHz

K = unlocked, **S** = Performance optimized lifestyle, **T** = Power optimized lifestyle
Note: The SH170R6 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*.

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