Shuttle®

XPC *Barebone*
SZ77R5

intel inside CORE i3 — intel inside CORE i5 — intel inside CORE i7

High performance Mini-PC platform supports 22nm "Ivy Bridge" processors

This XPC delivers top performance and a and a large feature list despite its small aluminum chassis. Thanks to the support of newest hardware components like 22nm Ivy Bridge processors, PCI-Express v3.0 graphics cards and 32GB DDR3 RAM support, this platform can be transformed to a high end PC with amazing performance. Demanding peripheral cards can be populated into the PCIe X4 slot and two Mini PCIe slots can be used e.g. for a WLAN and a mSATA-SSD card. The XPC also features 10 USB connectors, four of them comply the USB 3.0 standard. The SZ77R5 provides SATA ports with 6G-speed for modern hard disks and SSDs, and it also supports RAID and Smart Response (SSD caching). The highly efficient 500W power supply guarantees reliable operation even with a fully equipped system. Let yourself bewitched from the inner values und stylish exterior of this Shuttle XPC!

Images for illustration purposes only.

Feature Highlights

|	
R5 chassis	• Black aluminium chassis (14.2 litre) • Bays: 1x 5.25" external, 2x 3.5" int./ext.
CPU	• Supports Socket 1155 Desktop CPUs • Supports Intel Core i3, i5, i7, Pentium, Cel. 32nm Sandy Bridge and 22nm Ivy Bridge • Shuttle I.C.E. Heat-pipe cooling system
Slots	• 1x PCIe x16 (v3.0) supports dual-slot PCI-Express X16 graphics cards • 1x PCIe x4 (v2.0) • 2x Mini-PCIe x1 (1x mSATA)
Chipset	• Intel Z77 Express PCH
Optional: Integrated Graphics	• Intel HD graphics with HDCP and 1080p - dependent on processor type • Output: HDMI and DVI-I
Memory	• Supports 4x DDR3-1333/1600, max. 32 GB
Drive connectors	• 2x SATA 6Gb/s and 2x SATA 3Gb/s, RAID • 1x External SATA, 1x mSATA (3 Gb/s)
Other connectors	• 7.1-ch HD-audio, SPDIF output • GigaBit LAN (RJ45) • 4x USB 3.0 (2x front, 2x rear) • 8x USB 2.0 (2x front, 4x rear, 2x onboard) • optional: RS232 COM-Port (H-RS232)
Power supply	• 500 Watt power supply (80 PLUS Bronze)

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Shuttle Order No: PC-SZ77R511

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Shuttle XPC Barebone SZ77R5 – Special Product Features

The R5 chassis design: a clean and modern look

R5 is the new chassis design for the middle / high-end series XPCs in the year 2012. Shuttle has always placed great emphasis on the interior and exterior aesthetics of the XPC, with the belief that a good blend of style and form factor allows the XPC to be attractive, versatile, and work well in almost any environment. The chassis and case cover are made of aluminium and come with a sleek brushed metal front fascia. The drives and front panel connectors are elegantly hidden by drive doors for superior style and visual appeal.

19.8 cm
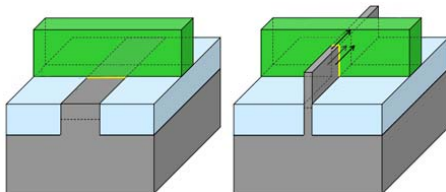
14.2 l

21.6 cm **33.2**
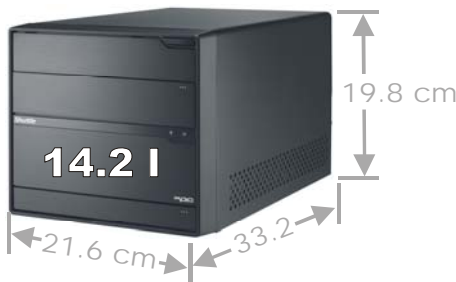
Small, but easy to install

Shuttle XPCs 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 R5 chassis. The meticulously designed internal layout features pre-routed cables to reduce clutter, increase airflow and make the installation of components easy.

What is a Barebone?

The Shuttle XPC Barebone SZ77R5 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, at least a processor, memory, hard disk and operating system need to be added. Shuttle XPC Barebones are completely customizable meaning users can pick certain components on their own to ideally match their individual needs.

Supports the Intel 22nm Ivy Bridge Processor

Ivy Bridge (IVB) is the codename for Intel's new 22nm processor microarchitecture introduced in April 2012 along with the 7-series chipsets. Ivy Bridge is the first chip to use Intel's 22nm tri-gate transistors, which will help scale frequency and reduce power consumption. At a high level Ivy Bridge looks a lot like Sandy Bridge - one monolithic die incorporates up to four CPU cores, the shared L3 cache, the memory controller, PCIe links and the graphics processor. Compared to its predecessor Sandy Bridge, the new design brings some improvements in overall performance, overclocking, power management and also features PCIe v3.0 and DDR3-1600 capability, an updated DirectX 11 graphics, new security features and CPU instructions. Ivy Bridge still uses the known LGA1155 socket - this allows cash conscious users to upgrade their XPC to SZ77R5 immediately and wait to upgrade their Sandy Bridge CPU later on in the year.

Traditional Planar Transistor

22nm Tri-Gate Transistor

Overclocking with K series processors

Starting from Sandy Bridge, Intel has moved the clock reference generator from the motherboard into the CPU, so overclocking BCLK more than a few MHz can create massive instability and corrupted Windows installations. With Sandy Bridge and Ivy Bridge, Intel launched the new, affordable "K" series of multiplier unlocked CPUs, specifically for enthusiasts who want get an incredible performance. However, it is very important to note that overclocking and over-voltage may affect your system stability, or even cause permanent damage to your hardware components. Shuttle is not liable for any damages resulting from this.
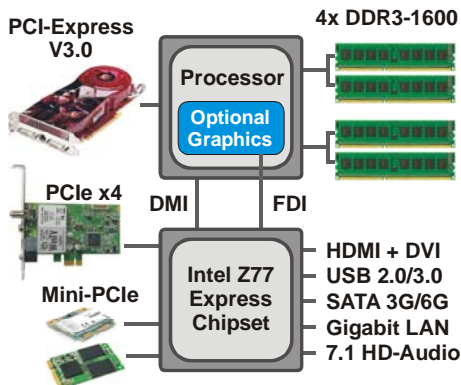
Single-Chip Chipset: Intel Z77 Express

The Shuttle XPC Barebone SZ77R5 sports the Intel's Z77 Express Platform Controller Hub (PCH) which is the most advanced chipset in the 7-series "Panther Point" chipset range (note, that Z75 does not support SRT / SDD-caching and H77 does not support overclocking). The Z77 chipset consists of a single chip and integrates the hard drive controller, network controllers, monitor and physical interfaces, PCIe links and other input/output functionalities. It combines the advantages of the predecessor Z68 plus native support for four USB 3.0 ports.

Intel® Smart Response Technology ("SSD caching")

The Shuttle XPC Barebone SZ77R5 supports the Intel Smart Response Technology which allows a SATA solid-state drive (SSD up to 60GB) to function as cache for a conventional hard disk drive (HDD). It uses intelligent block-based caching of frequently used applications to improve system performance and responsiveness. This is allowing users to experience system performance similar to SSD-only systems and deliver a 60% performance improvement over HDD-only systems in PC Mark Vantage Suite. SRT is implemented in the device driver and firmware and it can be enabled, when the disk controller is configured in RAID mode (not AHCI or IDE).

2x expansion slots for Mini-PCI-Express cards

SZ77R5 features two expansion slots for Mini-PCIe cards. One is a half size slot dedicated for Wireless LAN adapter cards (e.g. the accessory PW01). The second has full size format and not only features a PCIe interface, but also mSATA (Mini Serial ATA), supporting the new generation of Solid State Drives (SSD) in a compact Mini PCIe card form factor.
Photos: half size WLAN card (left) and mSATA SSD card (right).

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

The Shuttle XPC Barebone SZ77R5 supports the new PCI-Express x16 Version 3.0 specification in combination with the 22nm Intel Ivy Bridge processor slot delivering a bandwidth of up to 16GB/s which is twice the speed of PCI-E 1.0. So there is plenty of potential for the newest graphics cards. It is downward compatible, allowing for use of most of the present graphics cards as well.

Supports Dual-Slot Graphics Cards

Despite the small housing, the SZ77R5 is capable of running dual-slot (double-height) PCI Express graphics cards, for example AMD HD7970 and NVIDIA GTX580. Please refer to the support list for detailed support information.

80 PLUS BRONZE certified 500W Power Supply

Additional power plugs for graphics cards with 6 and 6+2 pins

The Shuttle XPC Barebone SZ77R5 is equipped with a rock stable 500W power supply which has been tested with some of 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 which reduces energy consumption and increases the computer's reliability. In addition, the power supply uses a 50mm cooling fan providing the same airflow, but spins slower than previous 40mm models to make the system run even more quietly.

PCI-Express v2.0 4X expansion slot

SZ77R5 features two PCI Express expansion slot: PCIe 16X for graphics cards and PCIe 4X for further expansion. The PCIe 4X slot provides four times the performance for high performance expansion cards, such as SSD drives, multiport Ethernet cards or other high speed adapters for USB 3.0 or external SATA 6Gb/s. Beside this, it is downward compatible to PCIe 1X.

Integrated Cooling Engine (I.C.E.)

Shuttle XPCs 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 in the Shuttle XPC. Shuttle's industry-leading I.C.E. heatpipe technology delivers efficient cooling and is exceptionally quiet.

4x USB 3.0

The Shuttle XPC Barebone SZ77R5 sports four USB 3.0 ports (2x front, 2x rear) besides six USB 2.0 ports. USB 3.0 achieves a maximum data rate of up to 5.0Gbps (640MBytes/sec) which is ten times faster than USB 2.0. USB 3.0 is fully compatible to USB 2.0. At a glance, USB 3.0 connectors seem no different to USB 2.0 connectors, however USB 3.0 connectors have 5 more pins placed inside the connector itself. USB 2.0 can provide a maximum of 500mA power to the USB device while USB 3.0 can provide a maximum output of 900mA, which is important for portable hard drives. USB 3.0 also comes with better power saving features to let your devices consume less power when in idle mode.

Quick charge USB port for Apple iPhone/iPad

The USB port on the right side of the front panel (marked with a flash symbol) does not only act as a normal USB port, but also double as a quick charge ports for your Apple iPhone/iPad just as quickly from your Shuttle XPC as from the charger. As an added bonus, it can even be charged when your PC is turned off, so even if you forget to plug it into your charger after you've synced up your music, it will be fully charged when you need it. By supporting a maximum current of 2A*) it will cut the charging time compared to traditional USB ports.

*) 2A only available for Windows XP and Windows 7, not under Linux

SATA 3.0 with up to 6 Gbit/s speed

The Shuttle XPC Barebone SZ77R5 sports two onboard Serial ATA ports Revision 3.0 delivering super-fast 6Gbps link speeds for twice the data transfer rates of SATA Revision 2.0 (3 Gbps). A move from SATA 3 Gbit/s to SATA 6 Gbit/s allows the new generation of Solid-State Drives (SSDs) to work at their full speed. As for standard hard disks (HDDs), reading times from their built-in DRAM cache will be faster too..

Intel Rapid Storage Technology 11 – RAID support

Intel® Rapid Storage Technology offers new levels of protection, performance, and expandability for desktop platforms. Whether using one or multiple hard drives, users can take advantage of enhanced performance and lower power consumption. Valuable digital memories are protected against a hard drive failure when the system is configured for any one of three fault-tolerant RAID levels: RAID 1, RAID 5, and RAID 10. By seamlessly storing copies of data on one or more additional hard drives, any hard drive can fail without data loss or system downtime. When the failed drive is removed and a replacement hard drive is installed, data fault tolerance is easily restored..
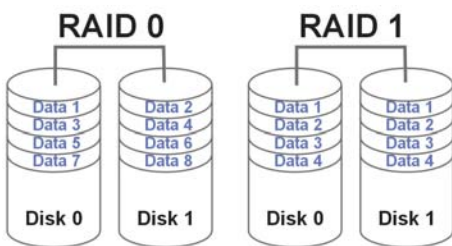
Supports one optical drive and two hard disks

Furthermore, users can install one optical drive and up to two hard disks (or SSDs) into the SZ77R5. But what about heat? Many of the clever design elements of the XPC get little attention. For example, the drive rack built into the SZ77R5 leaves space between the hard disks to improve air flow. Intelligently-engineered airflow mechanics channels cool air to where it's needed most - protecting components and providing optimal performance.

Two 2.5" drives in one 3.5" bay

The optional Shuttle XPC 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.

External Serial ATA (eSATA)

eSATA bears the following advantages:
+ Up to six times faster than USB 2.0/Firewire
+ Robust and user-friendly external connector
+ High-performance, cost-effective expansion storage

+ Up to two meter shielded cables and connectors

HD Audio capabilities

The Shuttle XPC Barebone SZ77R5 supports 7.1 channel audio via four analog stereo audio ports or the optical S/PDIF out. In addition, HDMI combines high bandwidth video with digital audio in a single port. It supports up to 8 channels of uncompressed audio at sample sizes of 16-bit, 20-bit, and 24-bit, with sample rates of 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, and 192 kHz. HDMI also supports such as Dolby Digital and DTS, lossless compressed audio streams Dolby TrueHD and DTS-HD Master Audio.

Supports up to 32 GB of memory

The Shuttle XPC Barebone SZ77R5 supports up to 32 GB DDR3-1600 memory which is ideal for workstations powered by 64-bit operating systems, enabling users to take full advantage of high-performance configurations.

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

As an option, you can install one serial COM port (RS232) in the back panel. Today, many consumer PCs do no longer have this legacy port, since that interface has been superseded by USB. Still, they are commonly used for applications of industrial automation systems, scientific analysis, and POS systems.
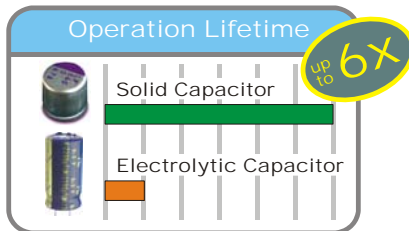
Solid Capacitors

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, adding support for Mini-ITX mainboards (17 x 17cm or 6.7 x 6.7 inches). The Shuttle chassis can go beyond the Shuttle mainboard, so you can easily upgrade or downgrade the mainboard to your desire, without any modifications to the chassis.
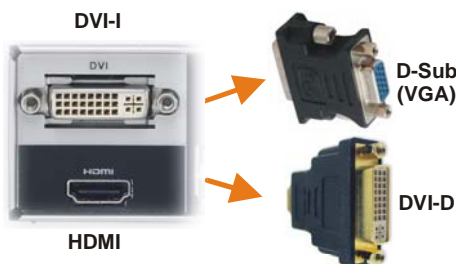
Optional: Built-in Intel® HD Graphics Engine *)

The integrated Intel graphics processor has been moved onto the same die as the CPU. It supports HDMI 1.4a/1.3 [2] standard with 3D stereoscopic playback, hardware encoding for H.264 and MPEG-2 video, full 1080p high-definition video playback - including Blu-ray disc movies, DirectX 11/10.1 and Shader 4.1. Depending on processor type, it has 6~16 execution units (similar to shader/stream processors). With all these features, this GPU is comparable to entry level discrete cards like AMD Radeon HD 5450.

DVI-I

D-Sub (VGA)

DVI-D

HDMI

Video output options *)

With optional adapters (not included) DVI-D devices can be connected to the HDMI port or VGA devices to the DVI-I port, respectively.

DVI-D means the connector only outputs digital video signals.
DVI-I means digital and analog video signals are put out.
HDMI supports digital video plus multi-channel digital audio output.

Dual View Technology with HDMI and DVI (or VGA) *)

Dual View technology offers multiple display support on up to two separate monitors. This help to improve on productivity by allowing to spread multiple windows across two monitors while working with them simultaneously. SZ77R5 features two video outputs: HDMI and DVI-I.

SZ77R5 supports 4 displays in combination with a discrete graphics card *)

With Shuttle SZ77R5 the user can support 4 displays in combination with a discrete PCI-Express graphics card, when the initial display is connected to the integrated graphics. For this, you have to enter the BIOS Setup Utility by pressing the "Delete" key after power on the PC. In the "Advanced" BIOS menu please set "Initiate Graphic Adapter" to "Onboard VGA". The Windows Device Manager will show the integrated graphics and the external discrete graphics card as well. Note, that the graphics performance is limited to the integrated graphics engine. This function is based on the Switchable Graphics feature of the Intel® Core™ Processors with Socket LGA1155.

*) Note: Certain processor models do not include the integrated graphics, e.g. Intel Core i5-2380P, Core i5-2450P and Core i5-2550K.

Shuttle XPC Barebone SZ77R5 Specifications

R5-Chassis	Black aluminum chassis Storage bays: 1 x 5.25" (external), 2 x 3.5" (1x internal, 1x external) Front door for I/O ports and storage drives Kensington Security Slot at the back panel (also called a 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 litres Weight: 3.5 kg net / 5.0 kg gross
Mainboard and Chipset	Shuttle FZ77, Shuttle form factor, proprietary design for XPC SZ77R5 Dimensions: 270 x 195 mm Chipset/Southbridge: Intel® Z77 Express (codename: Panther Point) Platform Controller Hub (PCH) as Single-Chip-Solution Passive chipset cooling with heat sink The Northbridge is integrated into the processor. Solid Capacitors for sensitive areas provide excellent heat resistance for enhanced system durability
BIOS	AMI BIOS, SPI Interface, 32MBit Flash-ROM with SPI interface Supports PnP, ACPI 3.0, Hardware Monitoring Supports Unified Extensible Firmware Interface (UEFI) [3] Supports boot up from external USB flash memory
Power Supply	500 Watt mini PSU, AC input voltage: 100~240V 80PLUS Bronze compliant: the PSU provides at least 82/85/82% efficiency at 20/50/100% load. Active PFC circuit (Power Factor Correction) ATX main power connectors: 2x10 and 2x2 pins Graphics power connector: 6 and 6+2 pins
Processor Support	Socket 1155 (LGA 1155) supports the second and third generation of Intel Core i3 / i5 / i7 / Pentium / Celeron processors with up to 95W TDP - Codename "Sandy Bridge", 32nm process technology and - Codename "Ivy Bridge", 22nm process technology Supports Intel® K-Series unlocked CPU Not compatible with older Socket-1156 processors. The Processor integrates PCI-Express, memory controller and the graphics engine on the same die (depends on processor type) Ivy Bridge processors are supported since BIOS version SZ77R000.107. Please refer to the support list for detailed processor support information.
Processor Cooling	Shuttle I.C.E. (Integrated Cooling Engine) advanced I.C.E. Heatpipe technology, linear controlled 92mm fan SilentX cooling and noise reduction technology with Active Airflow

Memory Support	4 x 240 pin slots Supports DDR3-1333/1600 SDRAM memory (PC3-10600/12800) Supports 2+2 Dual Channel mode Supports max. 8 GB per DIMM, maximum total size of 32 GB
Optional: Integrated graphics [2]	Intel® HD Graphics 2000/3000 integrated in the processor Supports Pixel Shader 4.1, DirectX 10.1 Maximum shared memory size: 1692MB Supports HDMI 1.4a, max. resolution up to 1920x1200 @ 60Hz Supports DVI, max. resolution up to 1920x1200 @ 60Hz Supports D-Sub, max. resolution up to 2048x1536 @ 75Hz (optional VGA-to-DVI-adapter required) Supports Blu-ray Stereoscopic 3D with HDMI 1.4a [2] Supports HDCP function with DVI and HDMI ports Supports Full HD 1080p Blu-ray (BD) / HD-DVD playback with DVI and HDMI ports Supports Dual-Independent-Display via HDMI and DVI-I port [2] SZ77R5 supports 4 displays in combination with a discrete graphics card HDMI supports HD-video plus multi-channel digital audio on a single cable
PCIe-Expansion Slots	1x PCI-Express x16 v3.0 slot (PEG, for graphics cards only) 1x PCI-Express x4 v2.0 slot SZ77R5 supports Dual-slot (double-width) graphics cards - in this case the second PCI-Express slot will be occupied. Graphics power connector: 6 and 6+2 pins
Mini-PCIe Expansion Slots	SZ77R5 features two Mini PCI Express expansion slots: 1) half size, supports PCIe 2.0 and USB 2.0, e.g. for WLAN cards [4] 2) full size, supports PCIe 2.0, SATA 3G and USB 2.0 e.g. for Mini SATA (mSATA) flash memory cards [5]
8-channel Audio	7.1 channel High Definition Audio with Realtek ALC888S codec Azalia standard support Analog: line-out (7.1-ch), line-in, microphone, AUX input (onboard) Digital: optical S/PDIF-out (Digital Audio also via HDMI output)
Gigabit-LAN Controller	Realtek RTL 8111E Ethernet network controller PCI Express interface IEEE 802.3u 1000Base-T compliant Supports 10 / 100 / 1.000 MBit/s operation Supports Wake-on-LAN (WOL) Drive connectors
Drive connectors	2x Serial ATA rev. 3.0, max. 6 Gbit/s (onboard) 2x Serial ATA rev. 2.0, max. 3 Gbit/s (onboard) 1x External Serial ATA rev. 2.0, max. 3 Gbit/s (back panel) Supports Intel Rapid Storage Technology (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 Quick charge with up to 2A, see [7] Power button Power indicator (LED) Hard disk drive indicator (LED)
Back panel connectors	HDMI rev. 1.4a (supports digital audio) [2] DVI-I (supports analog VGA with optional adapter) [2] 4x USB 2.0 2x USB 3.0 GigaBit LAN (RJ45) 8-ch Audio line-out (2x rear/front, bass/center, surround/back) Audio Line-in External Serial ATA (eSATA 3Gb/s) Digital Audio: optical S/PDIF output Clear CMOS button optional: Serial port RS-232 (Accessory H-RS232) 3x perforations for optional WLAN antennas [4]
Other connectors (onboard)	2x USB 2.0 (one set with 2x5 pins) 1x RS232 (2x5 pins) for optional accessory H-RS232 2x fan connectors (4 pins) Audio AUX input
Included Accessories	Multilanguage XPC Installation Guide 32/64bit driver disk 2x Serial ATA cables Power Cord, Screws, Heatsink Compound
Optional Accessories	Backpanel COM port adapter for the RS232 serial interface (H-RS232)
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, TÜV Other: Windows 7 Premium Logo, RoHS, ErP Lot 6, Energy Star 5.0

Notes:

[1] Overclocking Warning
Please note there is a certain risk involved with overclocking, including adjusting the setting 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] The integrated video outputs (HDMI and DVI-I)
cannot be used, if the processor does not integrate a graphics function, e.g. Intel Core i5-2380P, Core i5-2450P and Core i5-2550K. Not all compatible Intel Prozessors with integrated graphics support the HDMI 1.4a standard. Please check the specification of the used processor.

[3] The Unified Extensible Firmware Interface (UEFI)
is required when booting from hard disks larger than 2.2 TB under Windows 64 bit operating systems such as Windows 7, Windows Vista SP1 and Windows Server 2008/2003 SP1.

[4] Optional Wireless LAN module: this XPC supports an optional WLAN module. For this, you require a half-size Mini-PCIe WLAN card and an external antenna with appropriate 30 cm antenna cable.

[5] mini-SATA (mSATA) not to be confused with the " micro SATA" connector, is a newer industry standard which converts the electrical SATA interface (1.5 or 3.0 Gbit/s) to the pysical " Mini PCI Express" mini card form factor. Applications include mobile devices that require a smaller solid-state drive, and e.g. Intel Z68/Z77 mainboards that utilize Intel's Smart Response Technology (SRT).

[6] Intel Smart Response Technology (SRT, formerly "SSD caching") The Shuttle XPC Barebone SZ77R5 supports the Intel Smart Response Technology which allows a SATA solid-state drive (SSD up to 60GB) to function as cache for a conventional hard disk drive (HDD). This is allowing users to experience system performance similar to SSD-only systems.

[7] Right Front USB port with Quick Charge feature
Quick charge with up to 2A only for Apple iPhone/iPad unter Windows XP and Windows 7 (not under Linux)

Shuttle XPC Barebone SZ77R5 – Connectors

Front view

Rear view
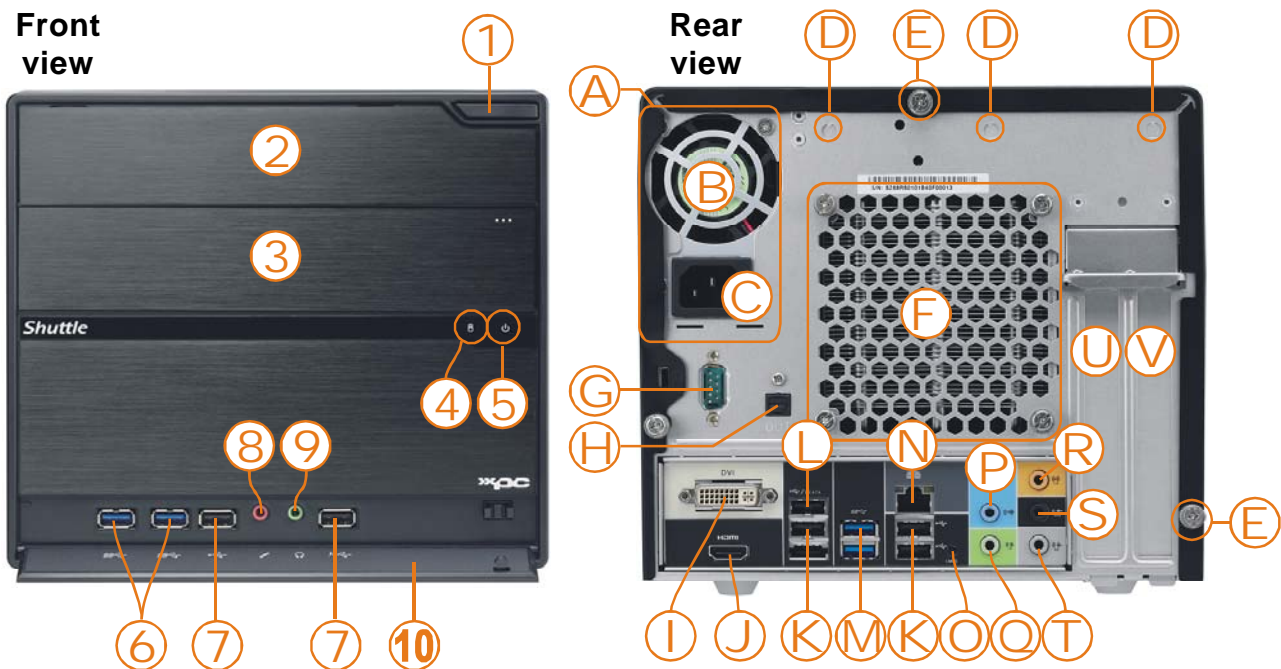
1	Eject button (optical drive)	**A**	Power supply
2	5.25" bay (optical drive)	**B**	Power supply fan
3	3.5" bay	**C**	AC power connecntor
4	Hard disk LED indicator	**D**	Perforation for optional
5	Power button and power LED		WLAN module
6	2x USB 3.0 ports	**E**	Three thumbscrews
7	2x USB 2.0 ports	**F**	Heat-pipe cooling system
8	Microphone input	**G**	COM / RS232 (optional)
9	Headphone output	**H**	Dig. S/PDIF audio output
10	Front door for I/O ports	**I**	DVI-I video output *)
		J	HDMI video output *)

K	4x USB 2.0
L	External Serial-ATA
M	2x USB 3.0
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

*) Remark:: The integrated video outputs (HDMI and DVI-I) cannot be used, if the processor does not integrate a graphics function, e.g. Intel Core i5-2380P, Core i5-2450P and Core i5-2550K.

Shuttle XPC Barebone SZ77R5 – Mainboard

Back Panel

Front audio header

2x USB 2.0 headers

PCIe X4 slot

Chassis fan connector

Audio AUX input

Intel Z77 chip

PCIe X16 slot

2x Serial-ATA 6G

USB 3.0 header

Mini-PCIe X1 slot

LPC header

CPU fan connector

Mini-PCIe X1 slot supports mSATA

2x Serial-ATA 3G

COM port (RS232)

CIR header (infrared)

Digital Audio S/PDIF output

USB headers

Solid capacitors

CPU socket 1155

ATX power (4 pin)

4x DIMM sockets for DDR3 memory

ATX power (20 pin)

CMOS battery

Front panel header (buttons and LEDs)

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2rd Generation Intel Core Processor Family
LGA1155 socket "32nm Sandy Bridge" processor overview (Date: April 2013)

Name	Model	Cores	HT	Clock	Turbo	Cache	TDP	Graphics	Graphics clock
Celeron	G440	1	-	1.6 GHz	-	1 MB	35 W	HD	650~1000 MHz
	G460	1	Yes	1.8 GHz	-	1.5 MB	35 W	HD	650~1000 MHz
	G465	1	Yes	1.9 GHz	-	1.5 MB	35 W	HD	650~1000 MHz
	G530	2	-	2.4 GHz	-	2 MB	65 W	HD	850~1000 MHz
	G530T	2	-	2.0 GHz	-	2 MB	35 W	HD	650~1100 MHz
	G540	2	-	2.5 GHz	-	2 MB	65 W	HD	850~1000 MHz
	G540T	2	-	2.1 GHz	-	2 MB	35 W	HD	650~1000 MHz
	G550	2	-	2.6 GHz	-	2 MB	65 W	HD	850~1000 MHz
	G550T	2	-	2.2 GHz	-	2 MB	35 W	HD	850~1000 MHz
	G555	2	-	2.7 GHz	-	2 MB	65 W	HD	850~1000 MHz
Pentium	G620T	2	-	2.2 GHz	-	3 MB	35 W	HD	650~1100 MHz
	G620	2	-	2.6 GHz	-	3 MB	65 W	HD	850~1100 MHz
	G622	2	-	2.6 GHz	-	3 MB	65 W	HD	850~1100 MHz
	G630	2	-	2.7 GHz	-	3 MB	65 W	HD	850~1100 MHz
	G630T	2	-	2.3 GHz	-	3 MB	35 W	HD	650~1100 MHz
	G632	2	-	2.7 GHz	-	3 MB	65 W	HD	850~1100 MHz
	G640	2	-	2.8 GHz	-	3 MB	65 W	HD	850~1100 MHz
	G640T	2	-	2.4 GHz	-	3 MB	35 W	HD	650~1100 MHz
	G645	2	-	2.9 GHz	-	3 MB	65 W	HD	850~1100 MHz
	G645T	2	-	2.5 GHz	-	3 MB	35 W	HD	650~1100 MHz
	G840	2	-	2.8 GHz	-	3 MB	65 W	HD	850~1100 MHz
	G850	2	-	2.9 GHz	-	3 MB	65 W	HD	850~1100 MHz
	G860	2	-	3.0 GHz	-	3 MB	65 W	HD	850~1100 MHz
	G860T	2	-	2.6 GHz	-	3 MB	35 W	HD	650~1100 MHz
	G870	2	-	3.1 GHz	-	3 MB	65 W	HD	850~1100 MHz
Core i3	2100T	2	Yes	2.5 GHz	-	3 MB	35 W	HD 2000	650~1100 MHz
	2100	2	Yes	3.1 GHz	-	3 MB	45 W	HD 2000	850~1100 MHz
	2102	2	Yes	3.1 GHz	-	3 MB	65 W	HD 2000	850~1100 MHz
	2105	2	Yes	3.1 GHz	-	3 MB	65 W	HD 3000	850~1100 MHz
	2120	2	Yes	3.3 GHz	-	3 MB	45 W	HD 2000	850~1100 MHz
	2120T	2	Yes	2.6 GHz	-	3 MB	35 W	HD 2000	650~1100 MHz
	2125	2	Yes	3.3 GHz	-	3 MB	65 W	HD 3000	850~1100 MHz
	2130	2	Yes	3.4 GHz	-	3 MB	65 W	HD 2000	850~1100 MHz
Core i5	2300	4	-	2.8 GHz	3.1 GHz	6 MB	95 W	HD 2000	850~1100 MHz
	2310	4	-	2.9 GHz	3.2 GHz	6 MB	95 W	HD 2000	850~1100 MHz
	2320	4	-	3.0 GHz	3.3 GHz	6 MB	95 W	HD 2000	850~1100 MHz
	2380P	4	-	3.1 GHz	3.4 GHz	6 MB	95 W	-	-
	2390T	2	Yes	2.7 GHz	3.5 GHz	3 MB	35 W	HD 2000	650~1100 MHz
	2400S	4	-	2.5 GHz	3.3 GHz	6 MB	65 W	HD 2000	850~1100 MHz
	2400	4	-	3.1 GHz	3.4 GHz	6 MB	95 W	HD 2000	850~1100 MHz
	2405S	4	-	2.5 GHz	3.3 GHz	6 MB	65 W	HD 3000	850~1100 MHz
	2450P	4	-	3.2 GHz	3.5 GHz	6 MB	95 W	-	-
	2500T	4	-	2.3 GHz	3.3 GHz	6 MB	45 W	HD 2000	650~1250 MHz
	2500S	4	-	2.7 GHz	3.7 GHz	6 MB	65 W	HD 2000	850~1100 MHz
	2500	4	-	3.3 GHz	3.7 GHz	6 MB	95 W	HD 2000	850~1100 MHz
	2500K	4	-	3.3 GHz	3.7 GHz	6 MB	95 W	HD 3000	850~1100 MHz
	2550K	4	-	3.5 GHz	3.8 GHz	6 MB	95 W	-	-

Core i7	2600S	4	Yes	2.8 GHz	3.8 GHz	8 MB	65 W	HD 2000	850~1100 MHz
	2600	4	Yes	3.4 GHz	3.8 GHz	8 MB	95 W	HD 2000	850~1350 MHz
	2600K	4	Yes	3.4 GHz	3.8 GHz	8 MB	95 W	HD 3000	850~1350 MHz
	2700K	4	Yes	3.5 GHz	3.9 GHz	8 MB	95 W	HD 3000	850~1350 MHz

K = unlocked, S = Performance optimized lifestyle, T = Power optimized lifestyle, HT = Hyper Threading (SMT).
Intel HD graphics HD 3000/2000 supports 12/6 Execution Units (Shader-Quads) and DirectX 10.1.
Certain processor models do not include integrated graphics.
Please refer to the support list for detailed processor support information at global.shuttle.com.

3rd Generation Intel Core Processor Family
LGA1155 socket "22nm Ivy Bridge" processor overview (Date: April 2013)

Name	Model	Cores	HT	Clock	Turbo	Cache	TDP	Graphics	Graphics clock
Celeron	G1610	2	-	2.6 GHz	-	2 MB	55 W	HD	650~1050 MHz
	G1610T	2	-	2.3 GHz	-	2 MB	35 W	HD	650~1050 MHz
	G1620	2	-	2.7 GHz	-	2 MB	55 W	HD	650~1050 MHz
Pentium	G2010	2	-	2.8 GHz	-	3 MB	55 W	HD	650~1050 MHz
	G2020T	2	-	2.5 GHz	-	3 MB	35 W	HD	650~1050 MHz
	G2020	2	-	2.9 GHz	-	3 MB	55 W	HD	650~1050 MHz
	G2100T	2	-	2.6 GHz	-	3 MB	35 W	HD	650~1050 MHz
	G2120	2	-	3.1 GHz	-	3 MB	55 W	HD	650~1050 MHz
	G2130	2	-	3.2 GHz	-	3 MB	55 W	HD	650~1050 MHz
Core i3	3210	2	Yes	3.2 GHz	-	3 MB	55 W	HD 2500	650~1050 MHz
	3220T	2	Yes	2.8 GHz	-	3 MB	35 W	HD 2500	650~1050 MHz
	3220	2	Yes	3.3 GHz	-	3 MB	55 W	HD 2500	650~1050 MHz
	3225	2	Yes	3.3 GHz	-	3 MB	55 W	HD 4000	650~1050 MHz
	3240	2	Yes	3.4 GHz	-	3 MB	55 W	HD 2500	650~1050 MHz
	3240T	2	Yes	2.9 GHz	-	3 MB	35 W	HD 2500	650~1050 MHz
Core i5	3330S	4	-	2.7 GHz	3.2 GHz	6 MB	65 W	HD 2500	650~1100 MHz
	3330	4	-	3.0 GHz	3.2 GHz	6 MB	77 W	HD 2500	650~1100 MHz
	3350P	4	-	3.1 GHz	3.3 GHz	6 MB	69 W	-	-
	3450S	4	-	2.8 GHz	3.5 GHz	6 MB	65 W	HD 2500	650~1100 MHz
	3450	4	-	3.2 GHz	3.5 GHz	6 MB	77 W	HD 2500	650~1100 MHz
	3470T	4	-	2.9 GHz	3.6 GHz	3 MB	35 W	HD 2500	650~1100 MHz
	3470S	4	-	2.9 GHz	3.6 GHz	6 MB	65 W	HD 2500	650~1100 MHz
	3470	4	-	3.2 GHz	3.6 GHz	6 MB	77 W	HD 2500	650~1100 MHz
	3475S	4	-	2.9 GHz	3.6 GHz	6 MB	65 W	HD 4000	650~1100 MHz
	3550S	4	-	3.0 GHz	3.7 GHz	6 MB	65 W	HD 2500	650~1150 MHz
	3550	4	-	3.3 GHz	3.7 GHz	6 MB	77 W	HD 2500	650~1150 MHz
	3570S	4	-	3.1 GHz	3.8 GHz	6 MB	65 W	HD 2500	650~1150 MHz
	3570T	4	-	2.3 GHz	3.3 GHz	6 MB	45 W	HD 2500	650~1150 MHz
	3570	4	-	3.4 GHz	3.8 GHz	6 MB	77 W	HD 2500	650~1150 MHz
	3570K	4	-	3.4 GHz	3.8 GHz	6 MB	77 W	HD 4000	650~1150 MHz
Core i7	3770T	4	Yes	2.5 GHz	3.7 GHz	8 MB	45 W	HD 4000	650~1150 MHz
	3770S	4	Yes	3.1 GHz	3.9 GHz	8 MB	65 W	HD 4000	650~1150 MHz
	3770	4	Yes	3.4 GHz	3.9 GHz	8 MB	77 W	HD 4000	650~1150 MHz
	3770K	4	Yes	3.5 GHz	3.9 GHz	8 MB	77 W	HD 4000	650~1150 MHz

K = unlocked, S = Performance optimized lifestyle, T = Power optimized lifestyle, HT = Hyper Threading (SMT).
Intel HD graphics HD 4000/2500 features 16/6 Execution Units (Shader-Quads) and supports DirectX 11/OpenGL 3.1.
Certain processor models do not include integrated graphics.
Please refer to the support list for detailed processor support information at global.shuttle.com.