

## Highly efficient entry-level Mini-PC: Shuttle XPC R4 6100B (configurable)

The Shuttle XPC R4 6100B is based on Intel's H61 Express chipset for second-generation Intel Core processors (LGA1155) and features new, energy-efficient technologies and innovative functions like USB 3.0 for the office and home environment. It can be configured with up to three drives and up to 16 GB of DDR3 memory at the same time. The two digital monitor connectors on the rear can be controlled by the graphics function integrated in the Intel Core processors - without any add-on graphics card required in the PC. However, the PCI-Express X16 slot can be equipped with an optional discrete graphics card. The front panel can be customized by adding individual design motifs for the maximum individuality possible.

### Feature Highlights

<b>R4 chassis</b>	<ul style="list-style-type: none"> <li>Black aluminium chassis (13.3 litre)</li> <li>Bays: 1x 5.25" external, 2x 3.5" internal</li> </ul>
<b>CPU</b>	<ul style="list-style-type: none"> <li>Intel Core i3 / i5 / i7, Pentium or Celeron Socket 1155</li> <li>Shuttle I.C.E. Heat-pipe cooling system</li> </ul>
<b>Slots</b>	<ul style="list-style-type: none"> <li>1x PCIe x16 (v2.0) supports dual-slot PCI-Express X16 graphics cards with 6 pin power connector</li> <li>1x PCIe X1 (v2.0), 1x Mini-PCIe X1 (v2.0)</li> </ul>
<b>Chipset</b>	<ul style="list-style-type: none"> <li>Intel H61 Express PCH</li> </ul>
<b>Graphics</b>	<ul style="list-style-type: none"> <li>Intel HD graphics integrated in the Intel processor, Supports HDCP, 1080p Full-HD</li> <li>Video output: 2x DVI (DVI-I und DVI-D)</li> <li>Optional PCI-Express X16 graphics card</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>Up to 16 GB DDR3-1333 memory</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>One or two hard disks or SSDs</li> <li>optional: DVD R/W or Blu-ray drive</li> </ul>
<b>Other connectors</b>	<ul style="list-style-type: none"> <li>5.1-ch HD-audio</li> <li>GigaBit LAN (RJ45)</li> <li>2x USB 3.0 (rear)</li> <li>8x USB 2.0 (2x front, 6x rear)</li> <li>optional: RS232 COM-Port (H-RS232)</li> </ul>
<b>Power supply</b>	<ul style="list-style-type: none"> <li>250 Watt mini power supply</li> </ul>
<b>Application</b>	<ul style="list-style-type: none"> <li>Business, Office, Entry-level</li> </ul>

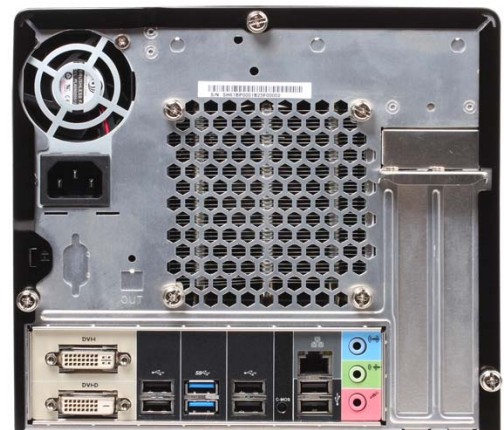
## XPC System R4 6100B



Product photo without optical drive.



Photo with built-in DVD drive.



Images for illustration purposes only.

## Shuttle XPC R4 6100B – Product Features



### The R4 chassis design: a clean and modern look

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 construction and cover of the R4 chassis is made of aluminium. This leads to a stylish-robust appearance and makes it a popular design. The drives and media connectors on the front are easy to access in daily use.



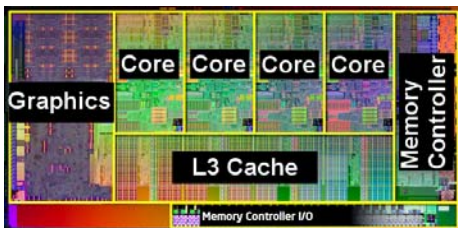
### Customizable

The front of this XPC can easily be customized by simply changing the mylar behind the acrylic front plate. Add your individual design such as a photo, graphics or a company logo to the front panel in just a few steps.



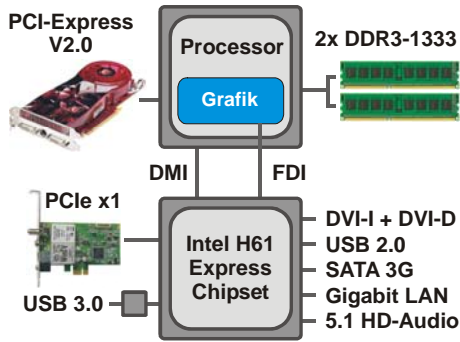
### Small

Shuttle XPCs offer the performance of a desktop PC at a third of the size while using standard desktop components.



### With Intel LGA1155 Sandy Bridge Processor

Sandy Bridge is the codename for Intel's new 32nm processor microarchitecture introduced in early 2011. It is the most sweeping architectural transition from Intel since the introduction of Pentium 4. In addition up to four CPU cores, the design incorporates the memory controller, PCIe links and the graphics processor. This integration brings higher performance, lower platform power consumption and more compact packaging. The integrated graphics processor (IGP) has become more capable. It can decode and encode H.264 high-definition video streams. The architecture provides a high-bandwidth, ring-style interconnect between the cores with their associated L3 cache partitions and the IGP. This also allows the IGP to expand its available bandwidth by making use of the L3 cache.



### Single-Chip Chipset: Intel H61 Express

The design of the Core i3/i5/i7 processors will eliminate the need for the traditional Northbridge found on previous generation mainboards. Thus the Shuttle XPC R4 6100B sports Intel's H61 Express Platform Controller Hub (PCH) from the Intel 6-Series "Cougar Point" family which integrates the hard drive controller, network controllers, monitor and physical interfaces, PCIe links and other input/output functionalities.



### 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.



### 2x USB 3.0

The Shuttle XPC R4 6100B sports two USB 3.0 ports on the back panel besides eight USB 2.0 ports on both front and rear. 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, but not to USB 1.1. At first 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 output of 500mA to the USB device while USB 3.0 can provide a maximum output of 900mA which is particularly important for portable hard drives. USB 3.0 also comes with better power saving features to let devices draw less power when idle.



### PCI-Express V2.0 for high-performance graphics cards

The Shuttle XPC R4 6100B is equipped with one PCI-Express x16 Version 2.0 slot delivering a bandwidth of up to 16GB/s which is twice the speed of PCI-E 1.0. Thus there is plenty of potential for the newest graphics cards. It is also downward compatible, allowing for use of most of the current present graphics cards. R4 6100B also features a 6 Pin ATX auxiliary power connector for powerful graphics cards.



### Internal Drives

Up to one optical drive and two hard disks can be fitted in the R4 6100B. To reduce heat and improve on airflow, the drive rack built into the R4 6100B leaves generous space between the hard disks. Intelligently-engineered airflow mechanics channels cool air to where it is needed most - protecting components and providing optimal performance.



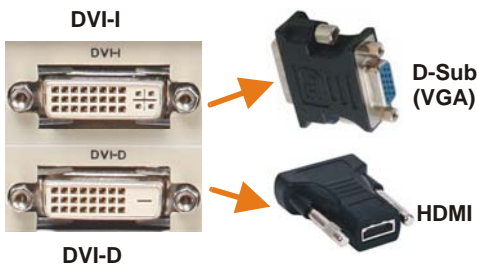
**Built-in Intel® HD Graphics Engine**

The Intel GMA HD 3000 / 2000 graphics processor has been moved onto the same die as the CPU. It supports HDMI 1.4a standard with 3D stereoscopic playback, hardware encoding for H.264 and MPEG-2 video, full 1080p high-definition video playback - including Blu-ray, DirectX 10.1 and Shader 4.1. HD 2000 has 6 execution units (similar to shader/stream processors) while HD 3000 has 12, the latter is only available on the "K" series, though the i7's allow for a higher maximum dynamic graphics frequency. With all these improvements and changes to the architecture, this GPU is comparable to entry-level discrete graphics cards such as the AMD Radeon HD 5450.



**Dual View Technology with two digital video ports**

Dual View technology offers multiple display support for up to two separate monitors. This helps to improve on productivity by allowing to spread multiple windows across two monitors while working with them simultaneously. The R4 6100B features two digital DVI video outputs.



**Video outputs**

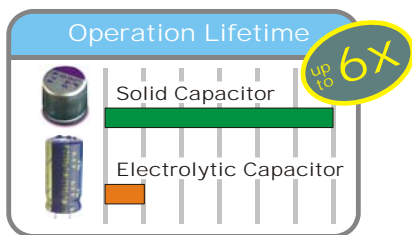
With optional adapters (not included) DVI-D devices can be connected to the HDMI port or VGA devices to the DVI-I port, respectively.

**D-Sub (VGA)** means the connector only outputs analog video signals.  
**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, but the DVI port and the adapter do not provide digital audio signals.



**Optional: Serial RS-232 port (COM)**

One serial COM port (RS232) can optionally be configured. This is particularly relevant to professional applications such as electronic POS systems, industrial automation systems and scientific analysis.



**Solid Capacitors**

By using all-solid capacitors (audio excepted) Shuttle mainboards are long-life and provide industry-leading stability and reliability. The average lifespan of one solid capacitor is more than six times longer compared to the previous generation of electrolytic capacitors.

## Shuttle XPC R4 6100B Specifications

<i>Application</i>	Recommended range of application: Business
<i>Basis</i>	System based on: Shuttle XPC Barebone SH61R4
<i>Operation system</i>	Microsoft Windows 7 Home Premium or Professional 32 or 64 Bit version 6 languages available: German, English, French, Dutch, Italian, Spanish
<i>Chassis</i>	Black aluminum chassis with acrylic front plate Customizable front panel design: simply change the mylar and add your individual design such as a photo, graphics or a company logo to the front panel. Storage bays: 1 x 5.25" (external), 2 x 3.5" (internal) Dimensions: 32.5 x 21.5 x 19 cm (LWH) = 13.3 liters (without foot rubber) 9.2cm rpm-controlled system fan with 4 pin connector Kensington Security Slot at the back panel (also called a K-Slot or Kensington lock) as a part of an anti-theft system
<i>Chipset</i>	Chipset/Southbridge: Intel® H61 Express (Codename: Cougar 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
<i>BIOS</i>	AMI BIOS, SPI Interface, 32MBit Flash-ROM Supports PnP, ACPI 3.0, Hardware Monitoring Supports boot up from external USB flash memory Supports Unified Extensible Firmware Interface (UEFI) **)
<i>Processor</i>	Intel Core i3 / i5 / i7 or Pentium/Celeron processor Socket 1155 (max. 95W TDP) Codename "Sandy Bridge", 32nm process technology The Processor integrates PCI-Express, memory controller and the graphics engine on the same die.
<i>Heatpipe Processor Cooling</i>	Shuttle I.C.E. (Integrated Cooling Engine) advanced I.C.E. heat-pipe technology, linear controlled 92mm fan SilentX cooling and noise reduction technology with Active Airflow
<i>Memory</i>	Configurable with 2, 4, 8 or 16GB DDR3-1333 SDRAM (PC3-10600) 2 x 240 pin slots, supports Dual Channel mode
<i>Optical drive (optional)</i>	Optional Multi-format 5.25" DVD writer or Blu-ray drive

<p><i>Hard disk(s) or SSD</i></p>	<p>Serial ATA hard disk up to 2000 GB or SSD Second hard disk as an option.</p>
<p><i>Integrated graphics</i></p>	<p>Intel® HD Graphics 2000/3000 integrated in the processor Supports Pixel Shader 4.1, DirectX 10.1 Maximum shared memory size: 1692MB Supports DVI, max. resolution up to 1920x1200 @ 60Hz Supports D-Sub, max. resolution up to 2048x1536 @ 75Hz (optional VGA-to-DVI-adapter required) Supports HDCP function with DVI and HDMI ports (HDMI via optional adapter) Supports Full HD 1080p Blu-ray (BD) / HD-DVD playback Supports Dual-Independent-Display via DVI-D and DVI-I port</p>
<p><i>Graphics card</i></p>	<p>Discrete ATI or NVIDIA graphics card optional If a discrete graphics card is used, the onboard graphics will be deactivated.</p>
<p><i>Expansion slots</i></p>	<p>1x PCI-Express x16 v2.0 slot (PEG, for graphics cards only) 1x PCI-Express x1 v2.0 slot, open-ended ***) 1x Mini-PCI-Express x1 v2.0 half/full-size slot (for the optional WLAN module) Supports Dual-slot (double-width) graphics cards - in this case the second PCI-Express slot will be occupied. With 6 pin power connector for the graphics card. If a discrete graphics card is used, the onboard graphics will be deactivated.</p>
<p><i>Drive Connectors</i></p>	<p>Audio Codec: IDT 92HD89C, 5.1 channel Three analog audio connectors (3.5mm) at the Back-Panel: line-in (blue), line-out (green) and microphone input (pink) shared with 5.1 channel line-out (front, rear, center/bass) Front panel: microphone input and head phone output (line-out)</p>
<p><i>Gigabit-LAN Controller</i></p>	<p>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) Supports boot from LAN (PXE)</p>
<p><i>Front Panel Connectors</i></p>	<p>Microphone input (3.5 mm) Headphone output (3.5 mm) 2x USB 2.0 Power button, Power indicator (Blue LED), Hard disk drive indicator (Yellow LED)</p>
<p><i>Back Panel Connectors</i></p>	<p>DVI-D supports HDMI with optional adapter DVI-I supports analog VGA with optional adapter 6x USB 2.0, 2x USB 3.0 GigaBit LAN (RJ45) Audio Line-out (3.5 mm), Audio Line-in (3.5 mm), Microphone Input (3.5 mm) Clear CMOS button optional: Serial RS232 port (Accessory: "H-RS232") 3x perforations for optional WLAN antennas</p>

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<i>Onboard Connectors</i>	<p>4x Serial ATA rev. 2.0, max. 3 Gbit/s (onboard)                  2x USB 2.0 (2x5 pins) - occupied by front panel                  1x RS232 serial interface (2x5 pins)                  2x fan connectors (4 pins and 3 pins)                  Audio AUX input</p>
<i>Power supply</i>	<p>250 Watt mini power supply unit                  Input voltage range: 100~240V                  Connectors: 20-pin ATX, 4-pin ATX12V                  Other connectors: 4x SATA, 2x Molex, 1x Floppy                  Graphics power connector: 6 pins                  Active PFC (Power Factor Correction)</p>
<i>Optional Accessories</i>	<p>Back panel adapter for serial RS232 port (H-RS232)                  Wireless LAN Modul 802.11n (Mini-PCIe card)                  300W power supply, 80Plus Bronze (PC61J)                  500W power supply, 80Plus Bronze (PC63J)</p>
<i>Further configuration options</i>	<p>It is possible to modify certain components of this basic configuration. Please refer to the "Shuttle Systems Configurator".</p>
<i>Warranty</i>	<p>24 Months Pick-Up-And-Return Service</p>
<i>Conformity</i>	<p>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:</p> <ul style="list-style-type: none"> <li>- EMV-guideline 89/336/EWG electromagnetic tolerance</li> <li>- LVD-guideline 73/23/EWG use of electric devices within certain voltage-limits</li> </ul>

**\*) 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.

**\*\*\*) Unified Extensible Firmware Interface (UEFI)** – 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.

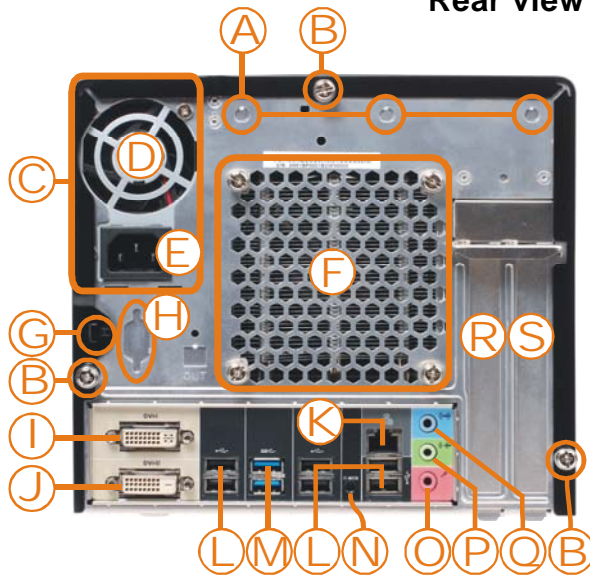
**\*\*\*\*) Open-ended PCI-E slot** - The X1 slot uses an open-ended socket to permit physically longer cards (e.g. X4 or X8) while the speed is limited to X1.

Shuttle XPC R4 6100B – Connectors

Front view



Rear view



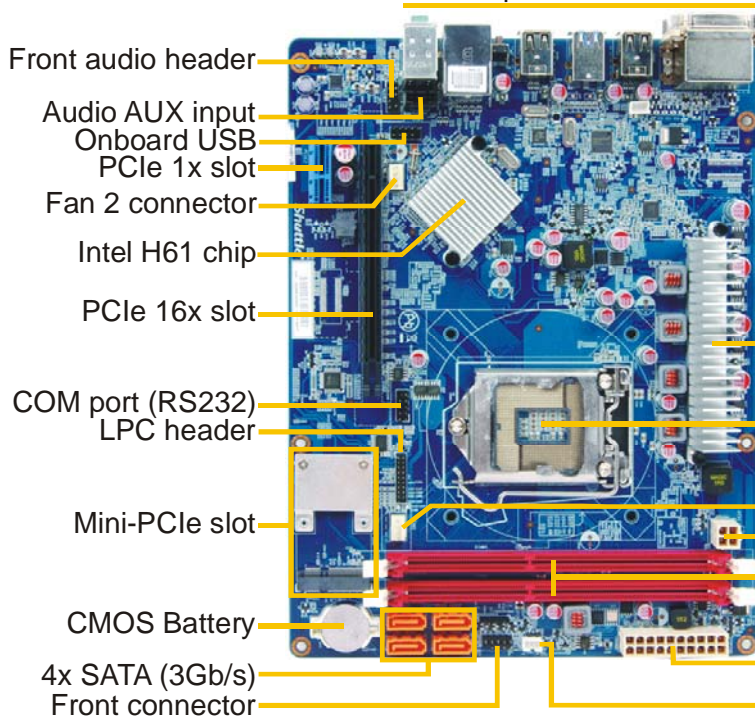
- 1 5.25" bay for the optical drive
- 2 Removable acrylic plate
- 3 Hard disk LED indicator
- 4 Power switch with LED
- 5 2x USB 2.0 ports
- 6 Microphone input
- 7 Headphone output

- A Perforation for optional WLAN module
- B Three thumbscrews
- C Power supply
- D Power supply fan
- E AC power connector
- F Heatpipe cooling system
- G Hole for Kensington Lock
- H COM / RS232 (optional\*\*)
- I DVI-I video output \*
- J DVI-D video output \*

- K Gigabit LAN (RJ45)
- L 6x USB 2.0
- M 2x USB 3.0
- 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

\*) Remark: the DVI video outputs will be disabled, if a PCI-Express graphics card is installed. \*\*) Adapter H-RS232

Back panel connectors



Mainboard

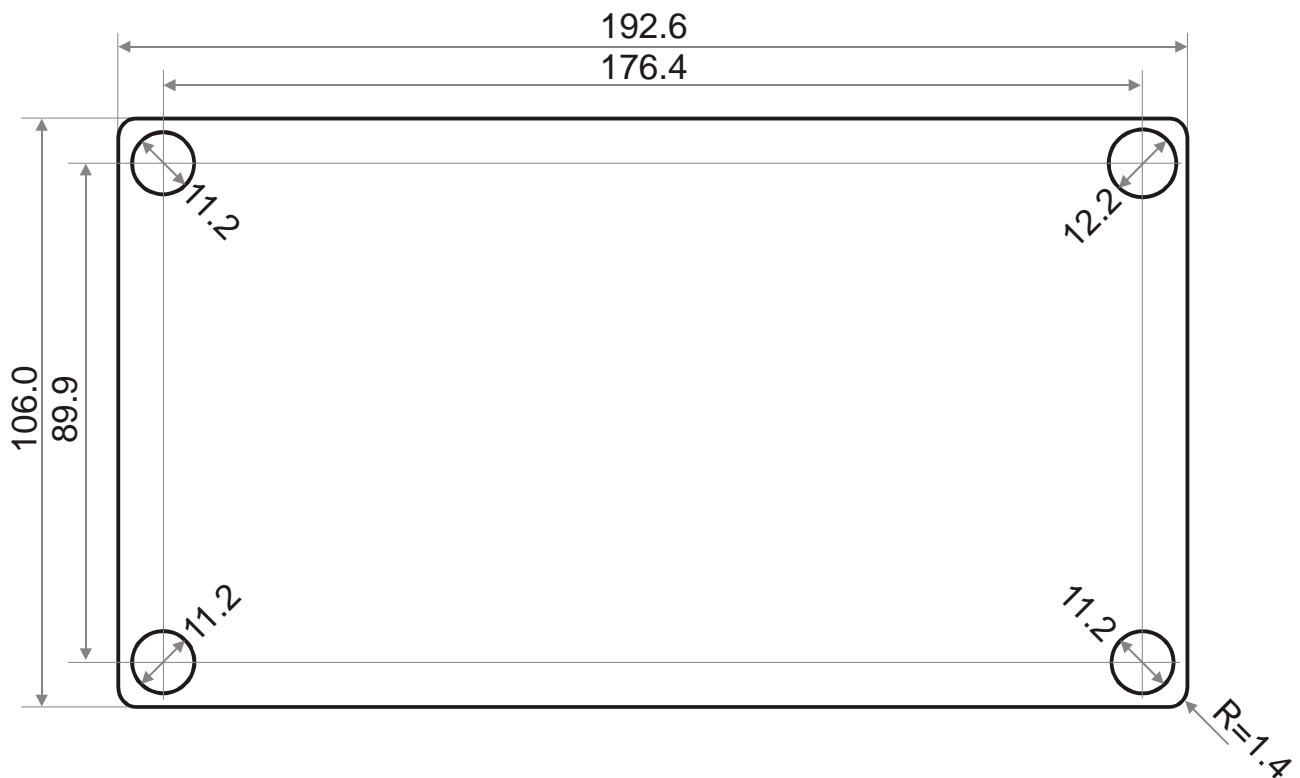
- Front audio header
- Audio AUX input
- Onboard USB
- PCIe 1x slot
- Fan 2 connector
- Intel H61 chip
- PCIe 16x slot
- COM port (RS232)
- LPC header
- Mini-PCIe slot
- CMOS Battery
- 4x SATA (3Gb/s) Front connector

- Voltage regulator
- Processor socket (LGA1155)
- Fan 1 (for CPU)
- ATX power (4 pin)
- 2x DIMM slots for DDR3 memory
- ATX power (20 pin)
- CIR header



### Shuttle R4 6100B – Mylar Dimensions

The R4 front panel comes with a removable acrylic plate which allows for creating individual front designs. 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.



All dimensions in millimeter (mm)



Example