The best cube PC for enthusiasts and professionals

The Shuttle XPC Barebone SX79R5 is the world's first LGA 2011-based platform in a cube-size format. It supports the latest Core i7 3xxx series Sandy Bridge E processors with up to six hyperthreaded cores and 15MB cache. Four DIMMs support not less than 32GB DDR3-1600 in a new quad-channel architecture which doubles the bandwidth to meet the higher requirements of demanding applications. The stylish aluminum chassis offers space for an optical drive, two 3.5" hard disks in RAID configuration and a mSATA-SSD drive in Mini-PCIe form factor. SX79R5 is also equipped with two PCIe X16 Rev 3.0 graphics slots enabling the user to set up a multi-monitoring solution with up to 16 screens or a very capable workstation for creative applications in combination with an appropriate graphics card.

XPC Barebone
SX79R5

intel inside™ CORE i7

Supports Intel Core i7 processors in the LGA2011 package (Socket R)

Feature Highlights

R5 chassis	• Black aluminum chassis (13.5 litre) • Bays: 1x 5.25" external, 2x 3.5" int./ext.
CPU	• Supports Intel Core i7 CPUs with LGA2011 • Shuttle I.C.E. Heat-pipe cooling system
Slots	• 2x PCIe x16 (v3.0) slots for graphics cards Supports NVIDIA SLI and ATI Crossfire • 2x Mini-PCIe slots (1x half size, 1x mSATA)
Chipset	• Intel® X79 Express Chipset
Memory	• Supports 4x DDR3-1600, Quad Channel • Up to 32 GBytes total size
Drive connectors	• 2x SATA 6Gb/s and 2x SATA 3Gb/s, RAID • 1x external SATA, 1x mSATA (mini-PCIe)
Other connectors	• 7.1-ch HD-audio, SPDIF output • Dual GigaBit LAN (RJ45) supports Teaming • 4x USB 3.0 (2x front, 2x rear) • 8x USB 2.0 (2x front, 6x rear) • optional: RS232 COM-Port (H-RS232) • optional: WLAN module 802.11n (PW01)
Power supply	• 500 Watt power supply (80 PLUS Bronze)

Images for illustration purposes only.

Shuttle XPC Barebone SX79R5 – 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 aluminum 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.

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.

19.8 cm

14.2 l

21.6 cm — 33.2

What is a Barebone?

The Shuttle XPC Barebone SX79R5 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, graphics card, 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 32nm Intel Sandy Bridge E Processors

Shuttle SX79R5 supports the 2nd Generation Intel® Core™ i7 processor family, codenamed Sandy Bridge E. Paired with the X79 chipset, Intel presents an entirely new platform in the high-end desktop segment. Compared to the LGA 1155 counterpart, the new Core i7 with LGA 2011 socket has more contact points (2011), more L3 cache (up to 15MB), more cores (up to 6), more threads (up to 12), more PCIe lanes (40), a wider memory interface (quad channel), more transistors (2.27 billion) – as usual on Intel's high-end platforms, it lacks the integrated graphics. The new Intel processors also come with Turbo Version 2.0: when there is load on all cores they will automatically be overclocked by 300 MHz and when there's only load on one core the frequency can increase by up to 600 MHz. Many reviewer stated, that Intels flagship CPU model, the Core i7-3960X, outperforms any other desktop CPU at its launch time.
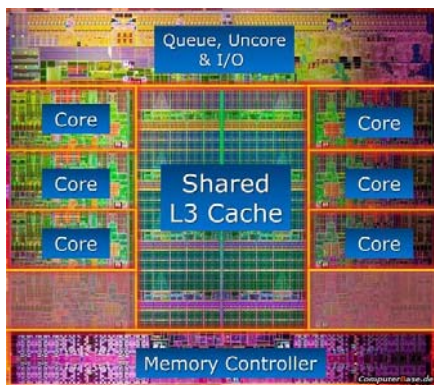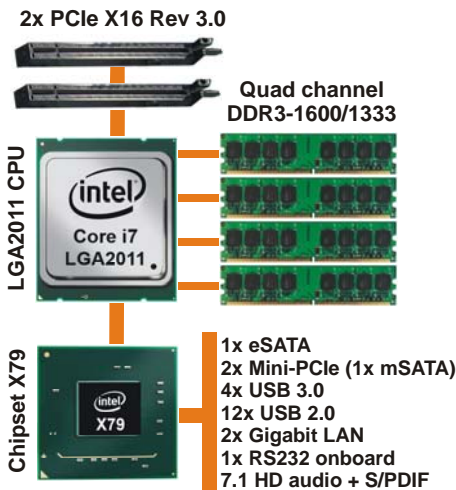
2nd Generation Intel Core 7 processor family

The new 32nm "Sandy Bridge E" processors with Socket 2011 follows the same "Core i7" naming system as its predecessors Bloomfield (45nm) and Gulftown (32nm) with Socket 1366, but are not downward compatible. Please refer to the support list for detailed processor support information at global.shuttle.com.

Available LGA 2011 processors in January 2012:

Processor Model	Clock Frequency	Turbo Boost	Cores / Threads	Max. Multiplier	TDP Wattage
Core i7-3960X	3.3 GHz	3.9 GHz	6 / 12	57x	130W
Core i7-3930K	3.2 GHz	3.8 GHz	6 / 12	57x	130W
Core i7-3820	3.6 GHz	3.9 GHz	4 / 8	43x	130W

Socket LGA 2011 with new retention mechanism

Unlike previous generation, Intel LGA 2011 socket has 2 levers to secure the CPU on the socket. Check out the step-by-step Quick Installation Guide for further information.

2x PCIe X16 Rev 3.0

Quad channel DDR3-1600/1333

LGA2011 CPU

intel Core i7 LGA2011

Chipset X79

intel X79

1x eSATA
2x Mini-PCIe (1x mSATA)
4x USB 3.0
12x USB 2.0
2x Gigabit LAN
1x RS232 onboard
7.1 HD audio + S/PDIF

Intel X79 Express Chipset

The Shuttle XPC Barebone SX79R5 sports Intel's X79 Express Platform Controller Hub (PCH) which delivers maximum processing power and premium digital surround sound exactly through a combination of smart features, giving extreme gamers and demanding enthusiasts exactly what they need.

Supports up to 32 GB DDR3-1600 und Quad Channel

The Shuttle XPC Barebone SX79R5 packs in the latest technologies to give you an uncompromising experience! Unparalleled memory bandwidth with true quad channel DDR3-1600 memory support gives you the expansion you need to maximize the overall performance. For Quad Channel operation you need four memory modules - more and more vendors are selling in 4-DIMM sets exclusively for this Sandy Bridge E plattform.

max. 4x 8GB = 32GB

2x Mini-PCI-Express slots

SX79R5 features two Mini-PCIe expansion slots. One is a half size Mini-PCI-Express slot dedicated for Wireless LAN adapter cards. The second features a mSATA interface (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 rev. 3.0 ready*

The Shuttle XPC Barebone SX79R5 features two PCI Express x16 slots which conform the latest PCI Express Gen. 3.0 technology. With ultra-high 32GB/s transfer bandwidth, PCI Express Gen. 3.0 provides a 2X faster transfer rate than the previous generation, combined with the convenience and seamless transition offered by backward compatibility with PCIe 1.0 and PCIe 2.0 devices.

* PCIe Gen. 3 is dependent on CPU and expansion card compatibility.

Supports Dual-Slot Graphics Cards

Despite the small housing, the SX79R5 is capable of running dual-slot (double-height) PCI Express graphics cards. Please refer to the support list for detailed support information.

80 PLUS BRONZE certified 500W Power Supply

Grafikkarten Stromversorgung mit 6 und 6+2 Pins

The Shuttle XPC Barebone SX79R5 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.

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 SX79R5 sports four USB 3.0 ports (2x front, 2x rear) besides eight 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 SX79R5 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.

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 SX79R5. But what about heat? Many of the clever designed elements of the XPC get little attention. For example, the drive rack built into the SX79R5 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.

HD Audio capabilities

The Shuttle XPC Barebone SX79R5 supports 7.1 channel audio via four analog stereo audio ports or the optical S/PDIF out. The digital S/PDIF output supports up to 8 channels of uncompressed audio at sample sizes of 16-bit, 20-bit, and 24-bit, with sample rates of 44.1 kHz, 48 kHz and 96 kHz.

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

Supports RAID functionality

This Shuttle XPC Barebone provides two 3.5" bays for Serial-ATA hard disks that can also be configured in RAID mode, e.g. a fast RAID 0 stripe set or a redundant RAID 1 array. This would be the ideal solution to enhance hard disk performance or data back up protection without the extra costs of add-on cards.

eSATA with External Power

The back panel provides two external Serial ATA ports and a power port. The included cables make it a snap to connect two external hard drive to the XPC. An eSATA interface is up to six times faster than USB 2.0/Firewire.

Dual Gigabit LAN with Teaming Support

This Shuttle XPC Barebone also features two high-speed Gigabit LAN ports. The teaming function allows for grouping both available network adapters together to work as one single adapter - a method to set up a virtual LAN. The benefit of this approach is to enable load balancing and failover.

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.

Operation Lifetime

up to **6x**

Solid Capacitor

Electrolytic Capacitor
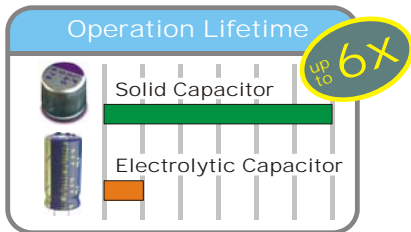
Solid Capacitors

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.
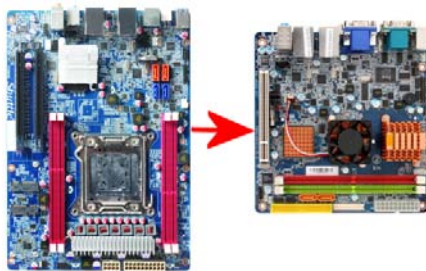
Mini-ITX Mainboard Support

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.

Shuttle XPC Barebone SX79R5 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	Mainboard FX79, Shuttle form factor, proprietary design for SX79R5 Chipset: Intel® X79 Express Chipset (codename: "Patsburg") - also known as the PCH (Platform Controller Hub) or south bridge Solid Capacitors for excellent heat resistance and enhanced system durability, much better than aluminum electrolytic capacitors
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 certified (>82/85/82% energy efficiency at 20/50/100% load) Active PFC circuit (Power Factor Correction) ATX power connectors: 20 pin + 8 pin (12V) Graphics card power connector: 6 pin (75W) and 6+2 pin (150W) Other connectors: 3x SATA, 2x Molex, 1x Floppy
Processor Support	Supports 2nd Generation Intel® Core™ i7 processor family in 32nm process (codename: Sandy Bridge E) in LGA 2011 package for Socket P Supports Core i7 3xxx series Quad- and Hexa-core processors Please refer to the support list for detailed processor support information: http://global.shuttle.com/support/supportList Included in this family of processors is: - up to 6 execution cores, each core supports two threads - up to 15 MB last level cache (LLC), shared among all cores - an integrated 4 channel memory controller (IMC) - 40 (16+16+8) lanes of PCI Express (up to 8.0 GT/s) - 4 lanes of DMI2/PCI Express 2.0 (up to 5.0 GT/s) - Platform Environment Control Interface (PECI)
Processor Cooling	Shuttle Integrated Cooling Engine (I.C.E.) with efficient heat-pipe technology

Memory Support	4 x 240 pin slots, supports 4 channel configuration (Quad Channel) Supports DDR3-1600/1333/1066 SDRAM memory (PC3-12800/10600/8500) Support for 1.5V unbuffered, non-ECC memory modules. Max. 8 GB per DIMM, up to a total size of 32 GB Warning: DIMMs with voltage over 1.65V may damage your CPU. Shuttle recommends to install the DIMMs with voltage setting below 1.6V.
Expansion slots for graphics cards	2x PCI-Express x16 (Gen 3.0 ready) expansion slots for x16 graphics cards (full 16 lanes each slot) Supports ATI CrossFireX™ and NVIDIA SLI™ Technology. Supports two single-slot or one double-width graphics card. Examples for different applications: - Graphics workstation for 3D/CAD e.g. with NVIDIA Quadro series graphics cards - Multi-monitoring: supports up to 16 displays e.g. with two Matrox M91xx LP series graphics cards - Gaming: with a high-end graphics card from NVIDIA or AMD/ATI
Mini-PCIe slots	SX79R5 features two Mini PCI Express expansion slots: 1) half size, supports PCIe 2.0 and USB 2.0, e.g. for WLAN cards 2) full size, supports PCIe 2.0, SATA 3G and USB 2.0 e.g. for Mini SATA (mSATA) flash memory cards (see 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
Dual Gigabit-LAN Controller	2x RJ45 connectors supports Teaming-Mode (2) Realtek 8111E Ethernet network controller IEEE 802.3u 1000Base-T compliant Supports 10 / 100 / 1.000 MBit/s operation Supports Wake-on-LAN
Drive connectors	2x internal Serial-ATA, 6 Gbit/s data transfer rate 2x internal Serial-ATA, 3 Gbit/s data transfer rate 1x external Serial-ATA, 3 Gbit/s data transfer rate (rear port) Power connector for eSATA hard disks Intel Matrix Storage Technology enabled striping and mirroring Supports RAID mode 0 and 1 Supports AHCI und Native Command Queuing (NCQ)
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 6) Power button Power indicator (LED) Hard disk drive indicator (LED)

Back panel connectors	2x USB 3.0 6x USB 2.0 2x GigaBit LAN (RJ45) supports Teaming (2) 1x External Serial ATA Hotplug (eSATA) Power connector for eSATA hard disks 8-ch Audio line-out (2x front, 2x rear, bass/center, surround/back) Audio Line-in Digital audio: optical S/PDIF output Clear CMOS button
Other connectors (onboard)	4x USB 2.0 (two 2x5 pin header) 2x fan connectors (4 pins) 1x Digital Audio S/PDIF output (3 Pins, occupied) 1x Audio AUX input (analog) 1x RS-232 COM port (2x5 pin header)
Included Accessories	Driver DVD ROM Quick Installation Guide (multi-language) 2x SATA cables 1x Power cord Screws Heatsink compound
Optional Accessories	Backpanel COM port adapter for the RS232 serial interface (H-RS232) Wireless LAN 802.11n module (PW01, see 4)
Certifications Compliance	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 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) Teaming Mode – The teaming function allows you to group both available network adapters together to function as a single adapter - a method of creating a virtual LAN. The benefit of this approach is that it enables load balancing and failover.

(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.

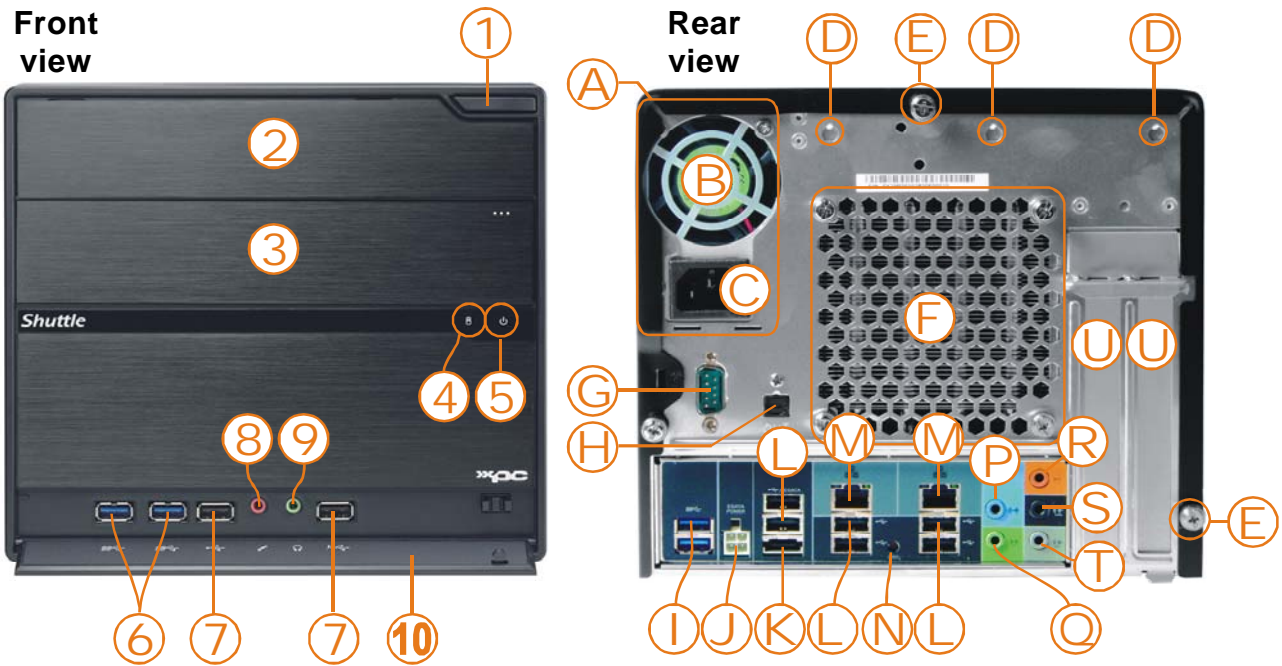**(4) Optional Wireless LAN module:**
This XPC supports the optional WLAN module PW01. The Shuttle XPC accessory PW01 consists of a half-size Mini-PCIe card with IEEE 802.11n functionality and an external antenna with appropriate antenna cable.

(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.

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

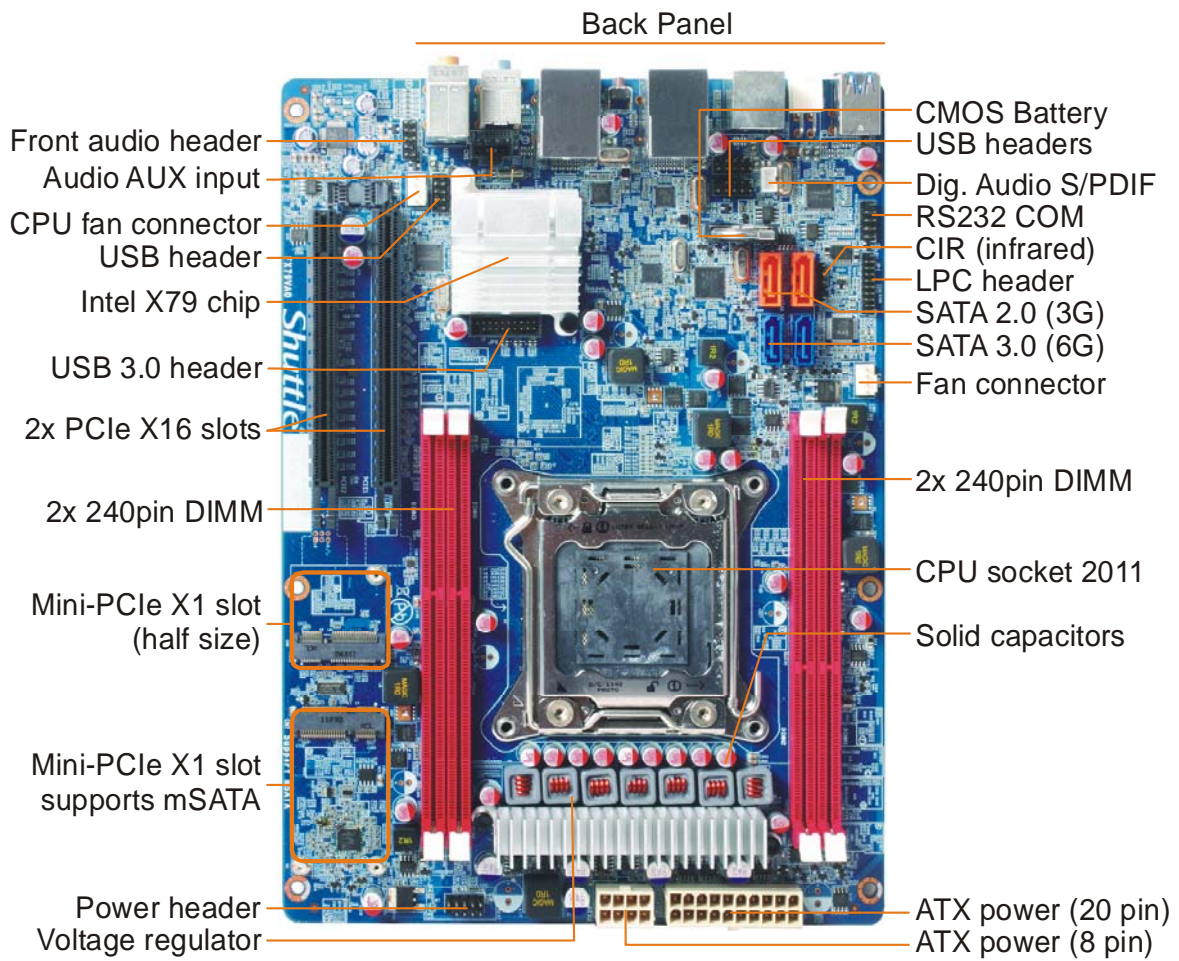©2012 Shuttle Computer Handels GmbH (Germany). All information subject to change without notice. Pictures for illustration purpose only.

Shuttle XPC Barebone SX79R5 – 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 button and power LED	
6	2x USB 3.0 ports	
7	2x USB 2.0 ports	
8	Microphone input	
9	Headphone output	
10	Front door for I/O ports	

A	Power supply
B	Power supply fan
C	AC power connecntor
D	Perforation for optional WLAN module
E	Three thumbscrews
F	Heat-pipe cooling system
G	COM / RS232 (optional)
H	Dig. S/PDIF audio output
I	2x USB 3.0 ports
J	eSATA power connector

K	External Serial-ATA (eSATA)
L	6x USB 2.0 ports
M	2x Gigabit LAN (RJ45)
N	Clear-CMOS-Button
P	Audio Line-in
Q	Audio Surround Front
R	Audio Center/Bass
S	Audio Surround Rear
T	Audio Surround Side
U	2x PCI-Express X16 slot

Shuttle XPC Barebone SX79R5 – Mainboard

Back Panel

Front audio header
Audio AUX input
CPU fan connector
USB header
Intel X79 chip
USB 3.0 header
2x PCIe X16 slots
2x 240pin DIMM
Mini-PCIe X1 slot (half size)
Mini-PCIe X1 slot supports mSATA
Power header
Voltage regulator

CMOS Battery
USB headers
Dig. Audio S/PDIF
RS232 COM
CIR (infrared)
LPC header
SATA 2.0 (3G)
SATA 3.0 (6G)
Fan connector
2x 240pin DIMM
CPU socket 2011
Solid capacitors
ATX power (20 pin)
ATX power (8 pin)

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