Fanless 1-litre PC suitable for 24/7 operation

The Shuttle XPC slim Barebone DX30 is the successor of Shuttle's XS35/XS36 range. This fanless Slim PC barebone with an energy-efficient Intel Celeron J3355 "Apollo Lake" processor is suitable for building particularly slim nettops with drives and operating system as well as for pure network-based applications in client/server environments. The integrated graphics is based on Intel's powerful Intel HD Graphics 500 (9th gen) that supports hardware acceleration for 4K video encoding/decoding with H.265 and VP9. Combined with SSD memory you will obtain a fanless and virtually noiseless PC which is suitable for continuous 24/7 operation.

Shuttle XPC slim Barebone DX30

Feature Highlights

Chassis	• Black 1.35-litre chassis • Dimensions (LWH): 19 x 16.5 x 4.3 cm • Hole for the Kensington Lock • Including VESA75/100 mounting kit • Operating temperature max. 40 °C • Approved for 24/7 non-stop operation
Operating System	• Without operating system • Compatible with Windows 10 (64-bit) and Linux (64-bit)
CPU	• Intel Celeron J3355 "Apollo Lake" 2.0~2.5 GHz Dual Core 10 W SoC • Noiseless, fanless cooling system
Graphics	• Integrated Intel HD Graphics (Gen 9)
Memory	• 2x SO-DIMM socket (204-pin) Supports max. 8 GB DDR3L-1600/1866 (1x 8 GB or 2x 4 GB)
Storage	• Supports one 2.5" SATA storage drive, hard disk or SSD, max. 12.5 mm thick • M.2-2280 slot (PCIe X4, SATA 6G) • With SD card reader (SD/SDHC/SDXC)
Connectors and WLAN	• HDMI 1.4b, DisplayPort 1.2 (optional VGA) • 2x USB 3.0, 4x USB 2.0, 2x COM (serial) • 2x Audio (mic, headphones), PS/2 combo • Intel Gigabit-LAN, WLAN 802.11n (1T1R) • Connector for external power button
Power Supply	• External 40 W fanless power adapter
Applications	• Office, Home Media, Digital Signage...

Images for illustration purposes only. The WLAN antenna is included in the scope of delivery.

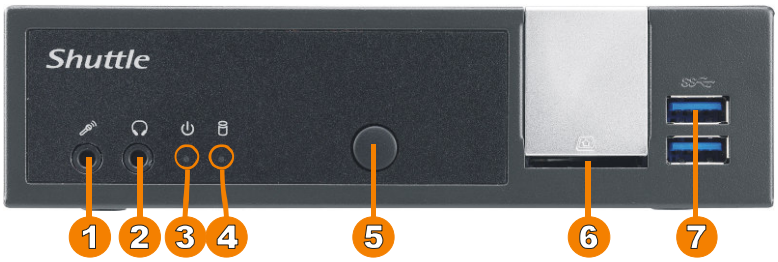
8 887993 00100 5

Shuttle Computer Handels GmbH
Fritz-Strassmann-Str. 5
25337 Elmshorn | Germany

Tel. +49 (0) 4121-47 68 60
Fax +49 (0) 4121-47 69 00
sales@shuttle.eu

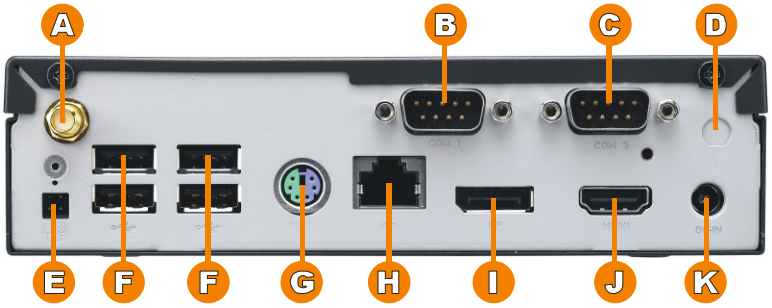
Shuttle XPC slim Barebone DX30 – Front and Back Panel

Front view



1 Microphone input
2 Headphones output
3 Power LED
4 Hard disk / SSD LED
5 Power Button
6 SD Card Reader
7 2x USB 3.0

Rear view



A Connector for the included WLAN antenna
B COM 1 port (supports RS232/RS422/RS485)
C COM 2 port (supports only RS232)
D Perforation for antenna
E Connector for external power button, Clear CMOS and 5 V DC voltage (four pins, 2.54 mm pitch)
F 4x USB 2.0
G PS/2 Combo port for mouse or/and keyboard
H RJ45 Gigabit LAN port
I DisplayPort (DP) video output
J HDMI video output
K DC power input
L 2x hole for Kensington Lock
M VESA mount (two parts)

Right side

Left side

COM port Pin 9 Configuration
Pin 9 is a multi-functional signal. Based on jumper JP2 configuration on the mainboard, it can be configured as Ring Indicator (RI) or external power supply with either 5 V or 12 V voltage level (each COM port separately).

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25337 Elmshorn | Germany

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Fax +49 (0) 4121-47 69 00
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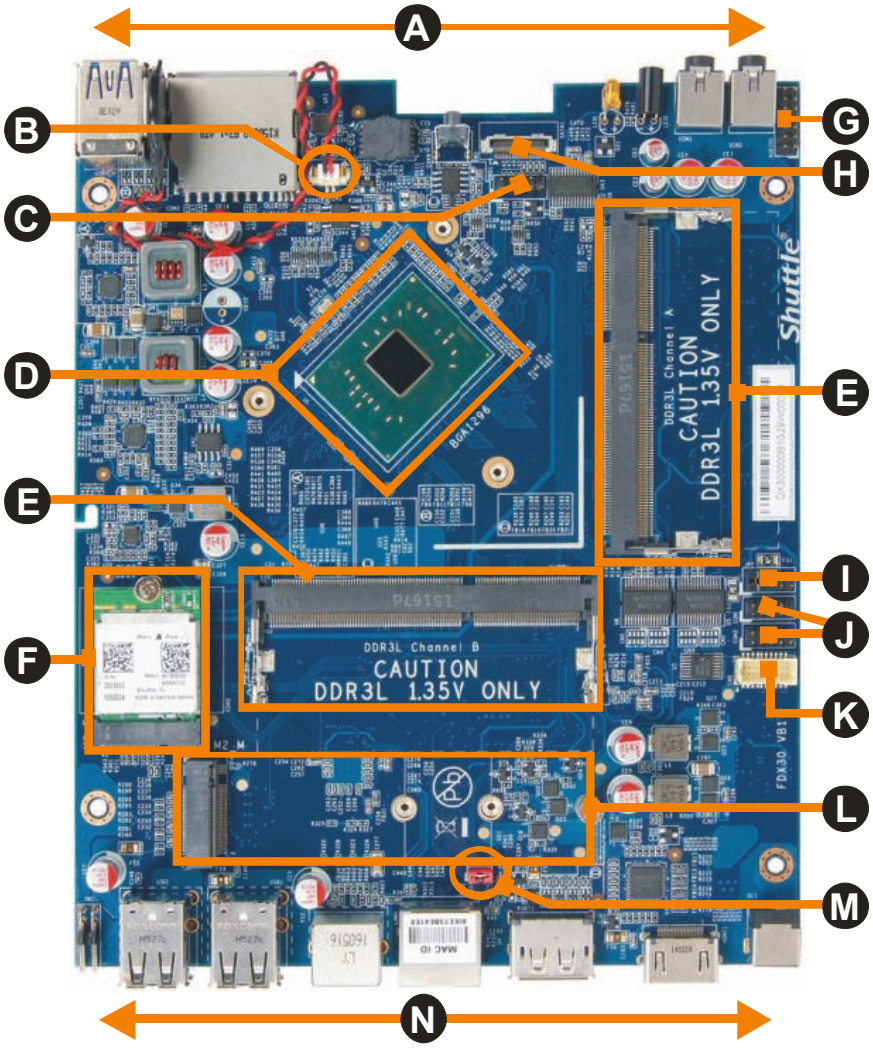
Shuttle XPC slim Barebone DX30 – Mainboard



A	Front Panel
B	Connector for the CMOS battery
C	Debug Header
D	Intel Celeron J3355 processor
E	2x SO-DIMM socket for DDR3L memory
F	M.2-2230 slot with WLAN module
G	Audio connector

H	SATA 3.0 (6 Gbps) connector
I	COM1/COM2 voltage setting
J	COM1/COM2 onboard connectors
K	VGA onboard connector
L	M.2-2280 slot for SSD cards
M	Always-On Jumper (JP5)
N	Back Panel

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25337 Elmshorn | Germany
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Fax +49 (0) 4121-47 69 00
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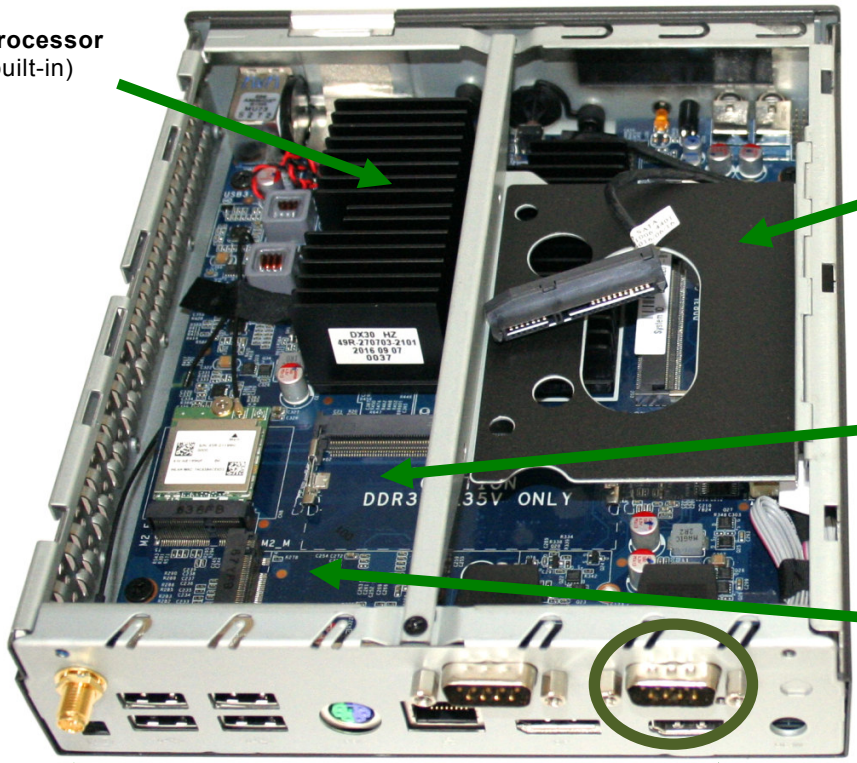
Shuttle XPC slim Barebone DX30 – Required Components

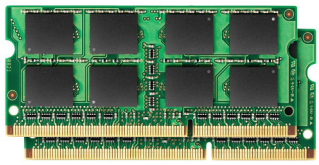
The following components need to be added to make it a fully-configured Mini PC

Processor
(built-in)



2.5” SATA hard disk
or Solid State Disk (SSD)
(max. height: 12.5 mm)

Up to two memory modules
DDR3L-1600/1866 SO-DIMM
Total capacity: max. 8 GB



SSD card in M.2 form factor
- Length: 42, 60 or 80 mm
- Interface: PCIe X4 or SATA

WLAN Antenna
(included in delivery)

Windows 10 or Linux
Operating System
(64-bit only)

Optional: VGA port Accessory PVG01
Installing PVG01 means one serial port (COM) less can be used on the back panel.

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Shuttle XPC slim Barebone DX30 – Product Features

Slim, stylish and robust chassis

The Shuttle XPC slim Barebone DX30 features a slim 1.3-litre steel chassis, giving it the appropriate stability required for professional applications. The decorative silver stripe lets it also easily find a place in both home and office environments.

Fanless, quiet and 24/7 approved

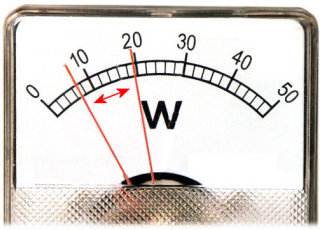
The Shuttle XPC slim Barebone DX30 is officially approved for 24/7 permanent operation. It uses a passive thermal module which makes the system not only quiet, but also dust-free and virtually maintenance free. Thanks to its low power consumption and completely fanless cooling, this PC runs highly reliably making it perfectly suitable for digital signage and POI/POS applications.

Conditions for permanent use:

- Free circulation of air amongst the PC must be guaranteed
- Ventilation holes must be clear
- If a hard disk is installed, this must also be approved for permanent operation by its manufacturer.

Easy assembly

With no daughterboards and pre-installed SATA cable the interior of the Shuttle XPC slim Barebone DX30 is very tidy and it won't take long to set it up.



Highly energy-saving

The Shuttle XPC slim Barebone DX30 barely consumes, depending on system load, about 7~20 Watt. Running the device 5 days a week for eight hours a day, the annual consumption would amount to approx. 15~42 kWh which would mean just 3.7~10.4 Euros on the power bill (25 Euro ct/kWh) - way less than a conventional desktop PC draws. (Based on a configuration with 2x 2 GB of memory, 60 GB 2.5" SSD and Windows 10 Build 1607 64-bit.)

What does "Barebone" mean?

Shuttle's barebones line such as the DX30 is targeted at experienced users seeking to build a complete system to meet their individual requirements. The bulk of components is yet built in, simply the following hardware is to be installed upon purchase which is in this case:

- One 6.35 cm/2.5" Serial ATA hard disk or Solid State Disk (SSD)
- One M.2 SSD card with 42, 60 or 80 mm in length (SATA or PCIe)
- One or two DDR3L-1600/1866 SO-DIMM memory modules (204-pin), max. 2x 4 GB or 8 GB.
- Keyboard and USB mouse with USB or PS/2 connector
- Operating system: Windows 10 (64-bit) or Linux (64-bit)

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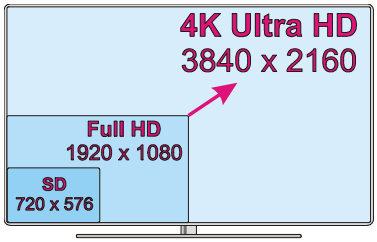
Celeron® J3355 – energy efficient Dual Core CPU

The Shuttle XPC slim Barebone DX30 is equipped with an Intel® Celeron® Processor J3355 which is a power-efficient System-on-a-Chip (SoC) from the Apollo-Lake family. Thanks to the optimized 14 nanometer process, two x86-64 CPU cores and a clock speed of 2.0 to 2.5 GHz (Burst), energy efficiency and performance have been significantly improved compared to the Bay Trail predecessor in 22 nm architecture. In addition, the processor integrates a powerful 9th Gen Intel® HD graphics engine, which is also known from the Skylake and Kaby Lake desktop processors.

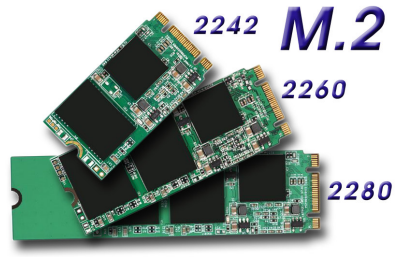
Dual Display with HDMI and DisplayPort (plus optional VGA)

The Shuttle XPC slim Barebone DX30 features two digital video outputs: HDMI and DisplayPort (DP). Dual View technology offers multiple display support on up to two separate monitors. This helps improve on productivity by allowing for multiple windows to be spread across two monitors while working with them simultaneously. Furthermore, the Shuttle XPC slim Barebone DX30 supports an optional D-Sub/VGA port which enables even triple monitoring. [2]



Supports 4K Ultra HD at 60 Hz

The Shuttle XPC slim Barebone DX30 supports displays running at 4K (3840 x 2160 / 2160p) high resolution at 60 Hz per second when connected to its DisplayPort video output. Being the successor to the Full HD standard, Ultra HD delivers a four times higher resolution with a wider colour space and colour depth.



M.2-2280-Slot for SSD cards

The M.2-2280 slot supports M.2 SSD storage cards with SATA or with the more advanced PCIe interface.
Type 2280 means, it supports the usual M.2 cards with a width of 22 mm and a length of 80 mm, but also 2242 and 2260 standard cards are supported.

Wireless LAN with external antenna

The Shuttle XPC slim Barebone DX30 comes with a built-in Wireless-LAN card in M.2-2230 format and one external antenna for better signal reception. The antenna should be aligned vertically or horizontally for best possible range. It supports the wireless network standards IEEE 802.11n at 2.4 GHz.

Two serial RS-232 ports (COM)

The Shuttle XPC slim Barebone DX30 features two serial RS232 COM ports on the back panel. Both ports support 5 V / 12 V auxiliary voltage and the upper port is switchable to RS422 or RS485 mode. Today, many consumer PCs do no longer have this legacy ports, since this interface has been superseded by USB. Still, they are commonly used for applications in the industrial automation field, scientific analysis and POS systems.

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SD card reader

The built-in SD card reader at the front makes it easy to transfer files from your camera so you can share videos and photos on your Shuttle XPC slim Barebone DX30 with ease.

VESA mount

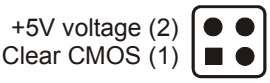
The supplied 75/100mm VESA mount allows for installation on to walls or monitors which is particularly interesting for the industry segment, company buildings and public institutions. Other than this, the chassis bears numerous threaded holes (M3) enabling it to be fitted almost anywhere.

Kensington Lock

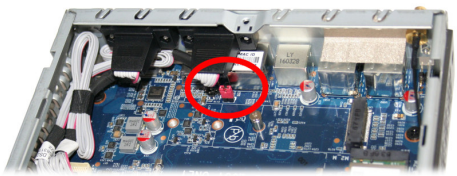
This is a small, metal-reinforced hole as part of an anti-theft system. The Shuttle XPC slim Barebone DX30 provides an appropriate hole on both sides of its chassis. The lock and cable are not included.

External power button by separate remote line

If, because of space constraints (e.g. in case of a fixed installation), the machine cannot be switched on by pressing the front power button, it can be powered on by a separate remote line. You will find an appropriate four-pin-connector on the backpanel of the Shuttle XPC slim Barebone DX30 (pitch 2.54 mm). Furthermore, this connector provides a Clear CMOS function and +5V DC voltage supply for external devices.



- Back Panel -



Power on after Power fail

The BIOS setup provides a "Power-On after Power Fail" function that can be found under "Power Management Configuration". As the name indicates, this function determines the PC's behaviour after power failure: (1) unconditional power on, (2) restore former status (3) keep system turned off (4) Power-On by LAN or (5) Power-On by Real-Time-Clock. As a matter of the nature of this function, it may fail after short power failures. This is why the Shuttle XPC slim Barebone DX30 also comes with a hardware-based solution. By removing Jumper JP5 (see image) the system will start unconditionally once power is applied.

Tiny power adapter

The external fanless 40 W power adapter is virtually noiseless and can easily be hidden behind the desk thanks to its dimunitive size.
You can use ethe supplied 19V power adapter (max. 2.1A), but the DX30 is also compatible with a 12V (max. 3.33A) power adapter.

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25337 Elmshorn | Germany

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Shuttle XPC slim Barebone DX30 - Specifications

Fanless and silent	Completely fanless, virtualy noiseless Passive cooling through convective heat transfer Perfect to be used in noise-sensitive environments Fanless means less dust and thus virtually no maintenance required
Energy Efficient	Power consumption in idle mode: 7.0 W Power consumption under full load: 11.8 W / 19.7 W (CPU / CPU+graphics) (measured with 2x 2 GB DDR3L-1600 SO-DIMMs and 60 GB 2.5" SSD under Windows 10 64-bit)
Chassis	Nettop PC with black chassis made of steel Dimensions: 190 x 165 x 43 mm (LWH) = 1.35-litre Weight: 1.3 kg net and 2.1 kg gross Two holes for Kensington Locks and numerous threaded holes (M3) at both sides of the chassis
Operation Position	1) Horizontal 2) Vertical (e.g. VESA-mounted behind an appropriate monitor) In vertical position, the front USB ports should show upwards. Ventilation holes must not be blocked to ensure sufficient cooling.
Operation System	This system comes without operating system. It is compatible with: - Windows 10 (64-bit) - Linux (64-bit) Note: Windows 7, 8 and 8.1 are not supported
Processor	Intel® Celeron® Processor J3355, Dual Core CPU clock frequency: 2.0 GHz, max. Turbo frequency: 2.5 GHz Apollo Lake platform, Goldmont architecture, 14 nm structure CPU cores / Threads: 2 / 2 L2 Cache: 2 MB Thermal Design Power (TDP): 10 W Supports AES-NI, VT-x (EPT), VT-d, Secure Boot SOC design with integrated graphics processor, no chipset required
Integrated Graphics	The Graphics Processing Unit (GPU) is integrated in the processor Intel® HD Graphics 500 (9th Gen), graphics frequency: 250~700 MHz Supports DirectX 12, OpenGL 4.3, OpenCL 1.2, OpenGL ES 3.0, Intel Quick Sync Video, Intel Clear Video (HD) Execution Units (EU): 12 Video outputs (Resolution): - HDMI 1.4b: max. 1920 x 1200 @ 60 Hz oder 3840 x 2160 @ 30 Hz - DisplayPort 1.2: max. 4096 x 2160 @ 60 Hz - optional: D-Sub (VGA): max. 1920 x 1200 resolution @ 60 Hz **[2]** Supports two digital displays simultaneously via HDMI and DisplayPort. In addition, it supports another analog display, if the optional VGA port is built in. **[2]**

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25337 Elmshorn | Germany
Tel. +49 (0) 4121-47 68 60
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UEFI Firmware	16 MB Flash ROM with AMI's Aptio UEFI BIOS Firmware Based on the Unified Extensible Firmware Interface (UEFI) **[1]** Supports Power fail resume / AC power on state / always on / always off **[3]** Supports Wake-on-LAN (WOL) from S3, S3, S5 ACPI states Supports boot up from external flash memory cards With embedded Firmware TPM v2.0 (fTPM)
Memory	2x SO-DIMM slots with 204-pin Supports DDR3L-1600/1866 (PC3-12800/14900) SDRAM at 1.35V Supports Dual Channel mode Supports max. 8 GB per DIMM Maximum total size: 8 GB (either 1x 8 GB or 2x 4 GB) Supports two unbuffered DIMM modules (no ECC) Note: This mainboard does only support 1.35 V DDR3L memory modules. DDR3L has a lower operation voltage as compared to DDR3.
2.5" Bay	Supports one Serial ATA hard disk (5400 / 7200 rpm) or one SATA SSD drive in 6.35 cm / 2.5" format Serial ATA III Interface with up to 600 MB/s transfer speed Supports a drive with a max. height 12.5 mm Pre-installed SATA cable (data / power) Supports Unified Extensible Firmware Interface (UEFI)
M.2 Slot for SSD card	M.2 2280 BM slot Interfaces: PCI-Express Gen. 2.0 X4 (max. 16 Gbit/s) and SATA v3.0 (max. 6 Gbit/s) Supports M.2 cards with a width of 22 mm and a length of 42, 60 or 80 mm (type 2242, 2260, 2280) Supports SATA SSDs (BM-Key) or PCIe SSDs (M-Key)
Integrated Audio	Realtek ALC662 Audio Codec Two analog audio connectors (3.5 mm): 1) Line out (headphones) 2) Microphone input
Card Reader	Integrated card reader supports standard SD, SDHC and SDXC memory flash cards
Wired Network	RJ45 connector supports Gigabit LAN at 10/100/1000 Mbit/s Intel i211 Ethernet Controller with MAC, PHY and PCIe interface Supports Wake-on-LAN
Wireless Network	M.2-2230 WLAN card with Realtek RTL8188EE Controller Supports IEEE 802.11b/g/n Max. 150Mbps up-/downstream (1T1R) in the 2.4 GHz band One external antenna supplied
LEDs and Buttons	Power button Power LED (blue) HDD LED (yellow)

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Front Panel Connectors	2x USB 3.0 SD card reader
Back Panel Connectors	HDMI 1.4b digital video and audio output DisplayPort 1.2 digital video and audio output optional: D-Sub/ VGA analog video output (15-pin) [2] 4x USB 2.0 Gigabit network (LAN, RJ45) Audio Line-out (headphones) Microphone input 2x RS232 serial port, 9-pin D-Sub (support of an auxiliary voltage of 5 V / 12 V, the left port is switchable to RS422 / RS485) **[6]** PS/2 Combo supports keyboard or mouse DC input for the external power adapter 4-pin connector (2.54 mm pitch) supports - external power on button - Clear CMOS function - +5V DC voltage for external components External WLAN antenna (perforation for second antenna available)
Other Onboard Connectors	Analog VGA graphics output CN6 (2x 1-pin, 1 mm pitch) **[2]** Jumper JP5 for power on after power fail (hardware solution) **[3]**
Power Supply	External 40 W AC/DC power adapter (fanless) AC Input: 100~240 V AC, 50~60 Hz DC Output: 19 V / 2.1 A Automatic voltage adjust Dimensions: 89.5 x 37 x 26.5 mm (LWH) DC Connector: 5.5 /2.5 mm (outer/inner diameter) Remark: the DC-input of the computer supports an external power source with either 12 V ±5% (max. 3.33 A) or 19 V ±5% (max. 2.1 A).
Supplied Accessories	Multi-language user guide (EN, DE, FR, ES, JP, KR, SC, TC) VESA mount for 75 / 100 mm standard (two metal brackets) Four thumbscrews M3 x 5 mm (screws together VESA mount and PC) Four screws M4 x 10 mm (to affix VESA mount on the PC) Four screws M3 x 4 mm (to mount a 2.5" storage into the bay) Driver DVD (Windows 64-bit) External 40 W power adapter with power cord
Optional Accessories	PVG01: optional D-Sub VGA video output **[2]**
24/7 Nonstop Operation	This device is approved for 24/7 permanent operation. Requirements: - Free air circulation around the PC must be guaranteed. - Ventilation holes must be kept clear. - Any installed disk must also be approved for permanent operation by its manufacturer

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Fax +49 (0) 4121-47 69 00
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Environ-mental spec.	Operating temperature range: 0~40 °C Relative humidity range: 10 ~ 90 % (non-condensing)
Certification and Compliance	EMI: FCC, CE, BSMI, RCM, VCCI, R&TTE Safety: CB, BSMI, ETL, CCC Other: RoHS, Energy Star, ErP 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 directives: (1) 2004/108/EC relating to electromagnetic compatibility (EMC), (2) 2006/95/EC relating to Electrical Equipment designed for use within certain voltage limits (LVD), (3) 2009/125/EC relating to ecodesign requirements for energy-related products (ErP), (4) 1999/5/EC related to Radio and Telecommunications Terminal Equipment (R&TTE)

[1] UEFI-Firmware (versus BIOS)
Just as with many modern PCs, the Shuttle XPC slim Barebone DX30 does away completely with a BIOS, but uses a pure UEFI firmware instead. The terms UEFI firmware and BIOS are widely used synonymously, but hardware initialising is now performed by the UEFI. Users might not even notice, but the operating system must be installed and executed in UEFI mode. UEFI creates a GUID Partition Table (GPT) on the system partition instead of a Master Boot Record (MBR). A PC running pure UEFI firmware alone must have a 64-bit operating system installed.

[2] Optional D-Sub/VGA connector
The mainboard features one analog graphics port CN6 on the mainboard. This signal can be lead to the outside as a 15-pin D-Sub VGA connector on the backpanel by using an optional adapter PVG01. However doing so means one serial port (COM) less can be used.

[3] Power on after power fail
The BIOS setup provides a "Power-On after Power Fail" function that can be found under "Power Management Configuration". As the name indicates, this function determines the PC's behaviour after power failure: (1) unconditional power on, (2) restore former status or (3) keep system turned off. As a matter of the nature of this function, it may fail after short power failures. This is why the Shuttle XPC slim Barebone DX30 also comes with a hardware-based solution. By removing Jumper JP2 (on the mainboard behind the power button) the system will start unconditionally once power is supplied.

[4] HDMI output supports DVI-D with optional adapter

[5] How to convert DisplayPort into HDMI/DVI
The DisplayPort output can be converted to HDMI or DVI by an additional, passive adapter cable. For example:
DELOCK 82590: 1 m, DisplayPort (male, 20p) to HDMI-A (male, 19p)
DELOCK 82435: 5 m, DisplayPort (male, 20p) to DVI-D (male, 24p)
The integrated graphics automatically detects the connected display and puts out the appropriate electric signal - either through 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] Serial Ports
This PC features two serial RS232 ports with 9-pin D-Sub connectors on the back panel. The left COM port (COM1) can also be configured as RS422 and RS485 in the BIOS setup.
Pin 9 of the D-Sub COM-Port is a multi-functional signal. Based on the Jumper JP2 configuration on the mainboard, it can be configured as Ring Indicator (RI) or external power supply with a voltage level of either 5 V or 12 V. Each COM port can be configured separately. The maximum current is 500 mA per connector.

Shuttle Computer Handels GmbH
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Shuttle XPC slim Barebone DX30 and its predecessors

Discontinued models
(phase out in January 2017)

Successive product
(from January 2017)

XS35 Series	XS36 Series	DX30
Supports Slimline-DVD drive	Two serial ports	Two serial ports

Model	Graphics	Graphics output	USB 3.0	COM [1]	ODD [2]	Processor	Memory	OS-Support
XS35V4	Intel HD Graphics (7th Gen)	D-Sub, HDMI, DP	1x	-	Yes	Celeron J1900 2.00~2.42 GHz) 22 nm Bay Trail	Max. 8 GB DDR3L-1333 1x SO-DIMM	Windows 7/8.1/10 Linux (64-bit only)
XS36V4			1x	2x	-			
XS35V5 Pro	Intel HD Graphics (8th Gen)	D-Sub, HDMI, DP	2x	-	Yes	Celeron N3050 1.6~2.16 GHz 14 nm Braswell	Max. 8 GB DDR3L-1600 1x SO-DIMM	Windows 7/8.1/10 Linux (64-bit only)
XS36V5			2x	2x	-			
DX30	Intel® HD Graphics 500 (9th Gen)	HDMI, DP (D-Sub [3])	2x	2x	-	Celeron J3355 2.0~2.5 GHz 14 nm Apollo Lake	Max. 8 GB DDR3L-1600/1866 2x SO-DIMM	Windows 10 Linux (64-bit only)

[1] Provides two serial RS232 ports, both support 0V/5V/12V. One port is switchable to RS422 / RS485.
[2] "ODD" means a 5.25" bay for an optical drive in slimline format
[3] You can add a D-Sub VGA video output by using an optional adapter PVG01

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