

### Powerful 1.3-litre PC with NVIDIA graphics supports four Ultra HD displays

This space-saving Slim PC integrates an energy-efficient Intel ULV processor and a dedicated NVIDIA GeForce GTX 1050 MXM graphics card which supports no less than four Ultra HD displays at 60 Hz frame rate via HDMI 2.0b. Its slim metal chassis with a VESA mount included, versatile connectivity and reliable operation in ambient temperatures of up to 50 °C degrees, make it ideal for professional applications such as Video Wall, Digital Signage, Kiosk, Surveillance and others.

### XPC slim Barebone **DH02U5**



#### Feature Highlights

<b>Slim Design</b>	<ul style="list-style-type: none"> <li>• Slim 1.3-litre metal chassis, black</li> <li>• 190 x 165 x 43 mm (LWH)</li> <li>• Operating temperature: 0~50 °C</li> <li>• Including VESA mount (75/100 mm)</li> </ul>
<b>Operating System</b>	<ul style="list-style-type: none"> <li>• Operating system not included</li> <li>• Supports Windows 10 &amp; Linux (64-bit)</li> </ul>
<b>Processor</b>	<ul style="list-style-type: none"> <li>• Intel Core i5-7200U Dual Core 2.5~3.1 GHz 14 nm "Kaby Lake-U", TDP: 15 W</li> </ul>
<b>Graphics Card</b>	<ul style="list-style-type: none"> <li>• NVIDIA® GeForce® GTX 1050 (MXM card) 640 CUDA cores, 4 GB GDDR5 VRAM 128-Bit Supports DX 12, OpenGL 4.5, OpenCL 1.2 Supports four independent UHD displays with max. 4096 x 2160 @ 60 Hz resolution</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>• 2x 260-pin SO-DIMM slot</li> <li>• Supports DDR4-2133 (1.2 V), max. 2x 16 GB</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>• One 2.5" bay for SATA hard disk or SSD</li> <li>• M.2-2280 slot for SSD card with PCIe / SATA</li> </ul>
<b>Connectors</b>	<ul style="list-style-type: none"> <li>• 4x HDMI 2.0b, 4x USB 3.0, 2x USB 2.0</li> <li>• 1x Intel Gigabit LAN (RJ45), 1x COM (RS232)</li> <li>• 2x Audio (Microphone input / Line-out)</li> <li>• Connector for external power button</li> <li>• Onboard: Always Power-On Jumper</li> </ul>
<b>Power Supply</b>	<ul style="list-style-type: none"> <li>• External 120 W fanless power adapter</li> </ul>
<b>Optional Accessories</b>	<ul style="list-style-type: none"> <li>• WLN-M: WLAN/Bluetooth Kit with ext. antennas</li> <li>• PS02: Stand for vertical operation</li> <li>• CXP01: Cable for external power button</li> <li>• PRM01: 2U rack mount plate for two Slim-PCs</li> </ul>
<b>Applications</b>	<ul style="list-style-type: none"> <li>• Digital Signage, Control Room, Surveillance, Vertical Market, multi-display Office PC</li> </ul>



Intel Core i5 ULV CPU



4x HDMI 2.0b



Supports four independent UHD displays



Intel Gigabit



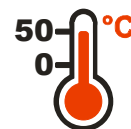
COM Port



Connector for Power Button



Nonstop Operation



Maximum Temperature



Windows 10 and Linux

Images for illustration only. Memory, storage and operating system not included.

#### Product Versions:

Shuttle Product	Processor Model	Cores / Threads	Clock Frq. / Turbo	L3 Cache	Availability
DH02U	Celeron 3865U	2 / 2	1.8 / - GHz	2 MB	Yes
DH02U3	Core i3-7100U	2 / 4	2.4 / - GHz	3 MB	Upon request only
DH02U5	Core i5-7200U	2 / 4	2.5 / 3.1 GHz	3 MB	Yes
DH02U7	Core i7-7500U	2 / 4	2.7 / 3.5 GHz	4 MB	Upon request only



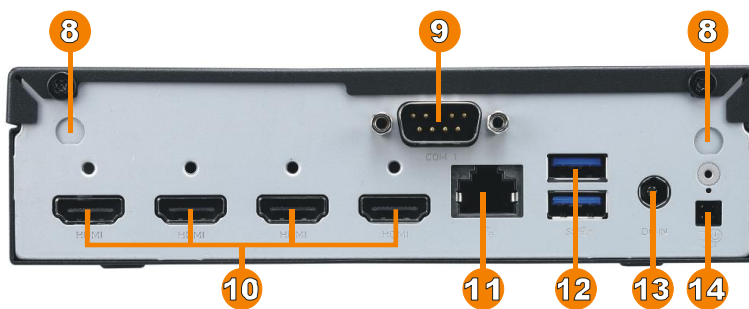
Shuttle XPC slim Barebone DH02U5 – Front and Back Panel

Front view



- 1 Microphone input
- 2 Headphone output
- 3 Power LED
- 4 Hard disk LED
- 5 Power Button
- 6 2x USB 3.0
- 7 2x USB 2.0

Rear view



- 8 2x WLAN perforation
- 9 RS232 COM-Port
- 10 4x HDMI 2.0b
- 11 RJ45 Gigabit LAN
- 12 2x USB 3.0
- 13 DC power input
- 14 Connector for external power button, Clear CMOS and 5V DC voltage (4-pin, 2.54 mm pitch)
- 15 2x hole for Kensington Lock
- 16 VESA mount (two parts)

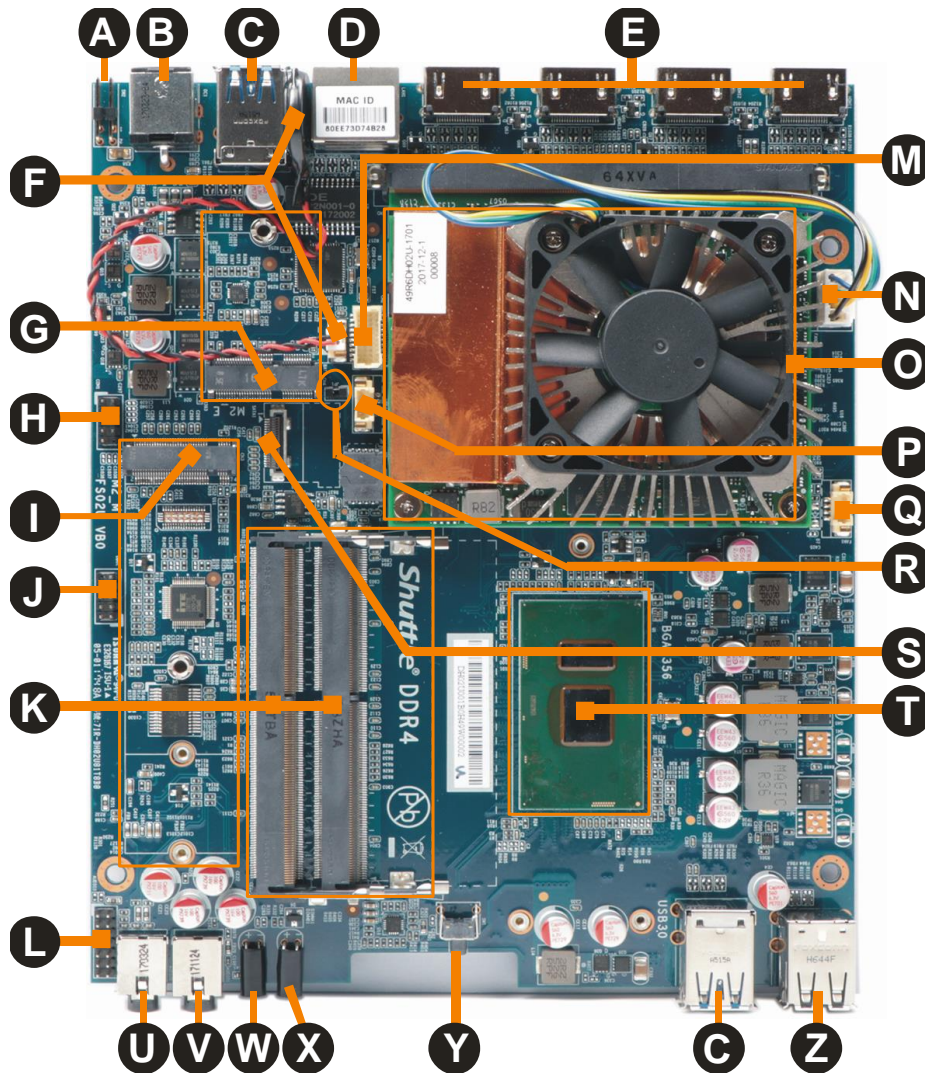
Right side



Left side



Shuttle XPC slim Barebone DH02U5 – Mainboard



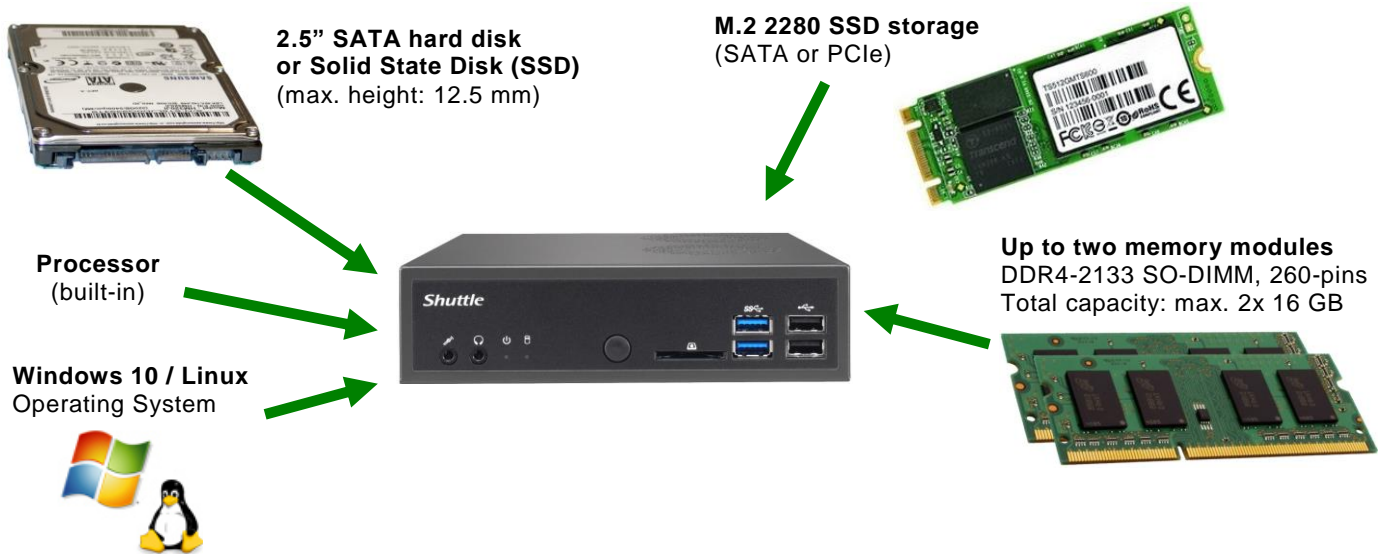
<b>A</b>	Connector for external power button, Clear CMOS & 5V DC voltage (4-pin, 2.54 mm pitch)
<b>B</b>	DC power input for external power adapter
<b>C</b>	4x USB 3.0 (2x front, 2x rear)
<b>D</b>	RJ45 Gigabit LAN connector
<b>E</b>	4x HDMI 2.0b
<b>F</b>	CMOS battery with connector
<b>G</b>	M.2-2230 Slot for an optional WLAN module (Accessory WLN-M)
<b>H</b>	Onboard COM header (occupied)
<b>I</b>	M.2-2280 slot for SSD cards
<b>J</b>	Debug connector
<b>K</b>	2x SO-DIMM socket for DDR4 memory
<b>L</b>	Onboard audio connector

<b>M</b>	Onboard VGA connector (no function [4])
<b>N</b>	4-pin fan connector for MXM graphics card
<b>O</b>	NVIDIA GeForce GTX 1050 (MXM card)
<b>P</b>	USB 2.0 onboard header
<b>Q</b>	4-pin fan connector for processor
<b>R</b>	Always-on Jumper
<b>S</b>	SATA 3.0 (6 Gbps) connector
<b>T</b>	Soldered Intel ULV processor (SoC)
<b>U</b>	Microphone input (3.5 mm jack)
<b>V</b>	Headphones output (3.5 mm jack)
<b>W</b>	Power LED
<b>X</b>	Hard disk LED
<b>Y</b>	Power button
<b>Z</b>	2x USB 2.0

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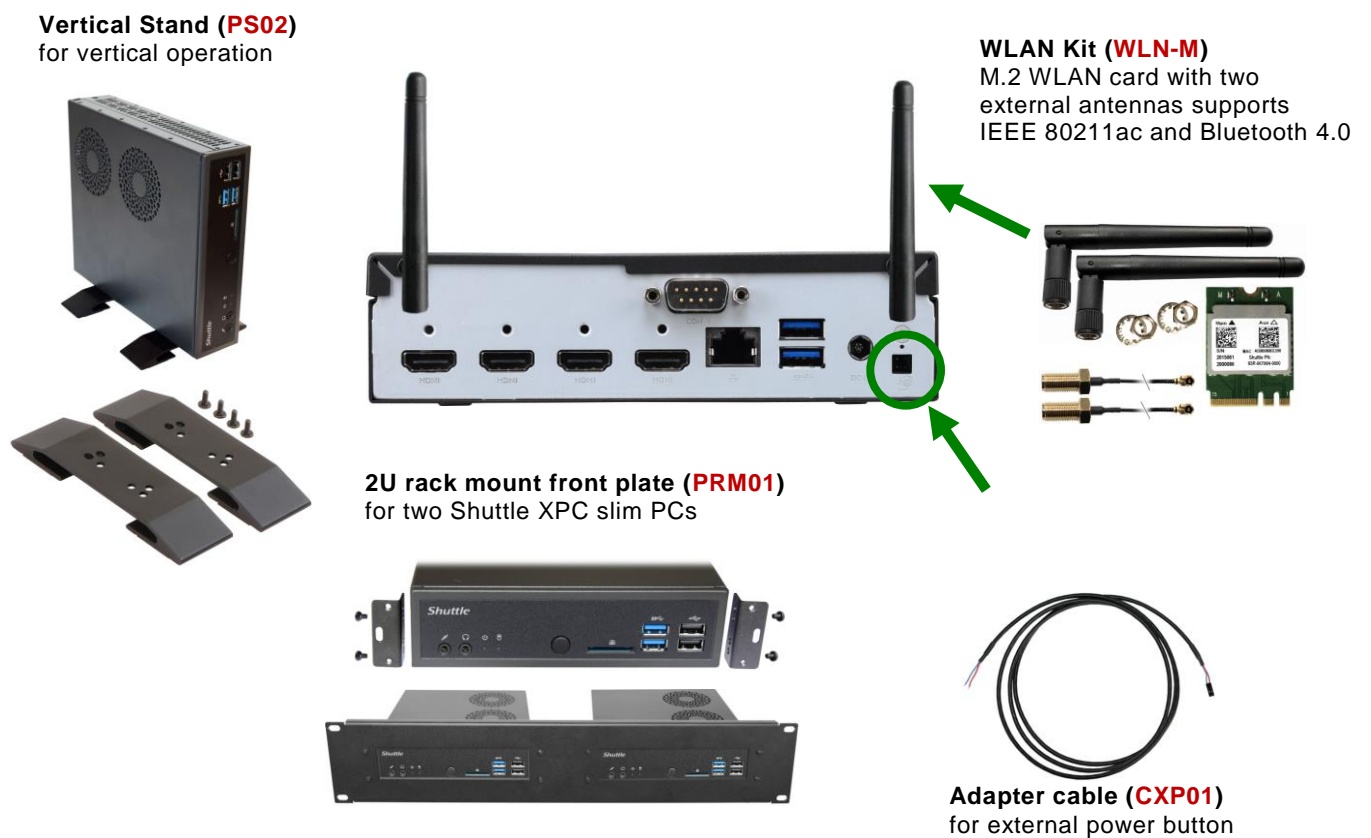
### Required Components

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



### Optional Components

Shuttle offers the following optional accessories for the DH02U5:



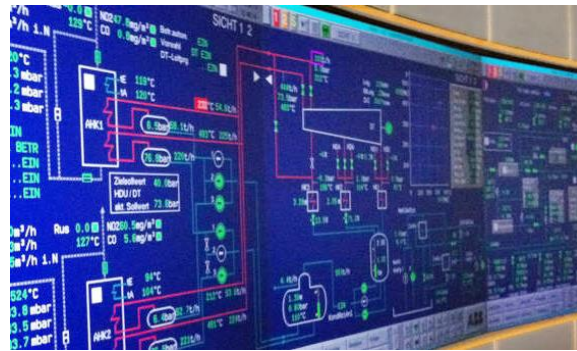
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Exemplary applications with four HDMI ports

Digital Signage: Video Wall



Control room of a power station /  
Visualisation of production  
processes



Surveillance Room



Multi-Display Office PC



## Shuttle XPC slim Barebone DH02U5 - Specifications

<p><i>Chassis</i></p>	<p>Slim PC with black chassis made of metal                  Dimensions: 190 x 165 x 43 mm (LWH) = 1.35-litre                  Weight: 1.03 kg net and 2.2 kg gross                  Two holes for Kensington Locks and numerous threaded holes (M3) at both sides of the chassis</p>
<p><i>Operation System</i></p>	<p>This barebone system comes without operating system.                  It is compatible with Windows 10 (64-bit) and Linux (64-bit).</p>
<p><i>Processor</i></p>	<p>Model: Intel Core i5-7200U (ULV)                  System-on-a-chip architecture (SoC): no chipset required                  BGA1356 package - directly soldered onto the mainboard                  Code name: Kaby Lake-U (7th Generation Intel Core)                  Cores / Threads: 2 / 4                  Clock rate: 2.5~3.1 GHz                  L1/L2/L3 Cache: 128 kB / 512 kB / 3072 kB                  Memory controller: DDR4-2133 Dual Channel (1.2 V)                  TDP wattage: 15 W maximum                  Manufacturing process: 14 nm                  Maximum Tjunction Temperature: 100 °C                  Supports Hyper-Threading (HT), 64-bit, VT-x (EPT), VT-d, Enhanced SpeedStep, NX bit, AES-NI, SSE 4.1/4.2</p>
<p><i>NVIDIA Graphics Card</i></p>	<p>Graphics Processing Unit: NVIDIA® GeForce® GTX 1050 (Pascal™ architecture)                  640x CUDA™ v6.1 Cores at 1354 MHz graphics clock                  Supports DirectX 12, OpenGL 4.5, OpenCL 1.2, HDCP 2.2                  Video outputs: 4x HDMI 2.0b                  Supports up to 4 independent Ultra HD displays at the same time                  Graphics resolution: max. 4096 x 2160 @ 60 Hz (2160p60) each port *)                  Video memory: 4 GB GDDR5 VRAM 128-bit, 3500 MHz, max. 112 GB/s                  Slot / Bus Type: MXM 3.0 Type A with PCIe X4 interface                  *) Dual Channel memory required</p>
<p><i>Mainboard / BIOS</i></p>	<p>Shuttle Mainboard FS02U                  All capacitors are high quality solid capacitors                  AMI BIOS in 8 MByte Flash EEPROM with SPI interface                  Supports resume after power failure [3]                  Supports Wake on LAN (WOL)                  Supports Power on by RTC Alarm                  Supports boot from M.2 SSD cards and USB devices                  Supports hardware monitoring and watch dog function                  Supports Unified Extensible Firmware Interface (UEFI)                  Supports Firmware-TPM (fTPM) Version 2.0</p>

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<p><i>Memory Support</i></p>	<p>2x SO-DIMM slot with 260 pins                  Supports DDR4-2133 (PC4-17000) SDRAM at 1.2 V                  Supports Dual Channel mode                  Supports a maximum of 16 GB per DIMM, maximum total size: 32 GB                  Supports two unbuffered DIMM modules (no ECC or registered)</p>
<p><i>2.5" Bay</i></p>	<p>2.5" Drive Bay with SATA connector                  Supports one Serial ATA hard disk or one SATA SSD drive in 6.35 cm / 2.5" format                  Device height: max. 12.5 mm                  Supports Serial-ATA III, 6 Gb/s (600 MB/s) bandwidth                  Supports Unified Extensible Firmware Interface (UEFI)                  Note: a serial ATA cable is pre-installed</p>
<p><i>M.2-2280 Slot</i></p>	<p>The M.2 2280 M slot provides the following interfaces:                  - PCI-Express v2.0 X4 supports NVMe                  - SATA v3.0 (6 Gbps)                  It supports M.2 cards with a width of 22 mm and a length of 42, 60 or 80 mm (type 2242, 2260, 2280).                  Supports M.2 SATA SSDs (with B+M key) and M.2 PCIe SSDs (with M key)</p>
<p><i>M.2-2230 Slot</i></p>	<p>The M.2 2230 AE slot provides the following interfaces:                  - PCI-Express v2.0 X1                  - USB 2.0                  It supports M.2 cards with a width of 22 mm and a length of 30 mm. This slot is intended for Wireless LAN (Wifi), Bluetooth, GSM/UMTS cards and others. A SATA interface for SSD cards is not available here.</p>
<p><i>Audio</i></p>	<p>Audio Realtek® ALC 662 High-Definition Audio                  Two analog audio connectors (3.5 mm) at the back panel:                  1) 2 channel line out (headphones)                  2) microphone input                  Digital multi-channel audio output: via HDMI</p>
<p><i>Gigabit LAN</i></p>	<p>Intel i211 Ethernet Controller with MAC, PHY and PCIe interface                  Supports 10 / 100 / 1.000 MBit/s operation                  Supports WAKE ON LAN (WOL)                  Supports network boot by Preboot eXecution Environment (PXE)</p>
<p><i>Front Panel Connectors and LEDs</i></p>	<p>2x USB 3.0                  2x USB 2.0                  Power button                  Power LED (blue)                  HDD LED (yellow)</p>

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<p><i>Back Panel Connectors</i></p>	<p>4x HDMI 2.0b (with screw holes for connectors with locking screws)                  2x USB 3.0                  1x Intel Gigabit LAN (RJ45)                  1x D-Sub connector for serial COM port (RS232)                  1x Microphone input                  1x Audio Line-out (headphones)                  1x DC-input connector for external power adapter                  4-pin connector "SW2" (2.54 mm pitch) for power button, Clear CMOS and 5 V DC [1]</p>
<p><i>Always-On Jumper</i></p>	<p>By removing Jumper JP1 (please refer to the quick user guide) the system will start unconditionally once power is applied. [3]</p>
<p><i>Other Onboard Connectors</i></p>	<p>1x serial RS232 interface / COM port (2x 5-pin occupied)                  2x fan connectors (4-pin) occupied by CPU and GPU cooling fans                  1x connector for CMOS battery (2-pin, occupied)                  1x USB 2.0 header (Pitch distance: 1.25 mm, 4-pin, available)                  1x Audio Input/Output (2x7-pins, available)                  1x analog VGA graphics output CN2 (2x 1-pin, 1 mm pitch) [4]</p>
<p><i>Power Adapter</i></p>	<p>External 120 W power adapter (fanless)                  Input: 100~240 V AC, 50/60 Hz, max. 1.8 A                  Output: 19 V DC, max. 6.32 A, max. 120 W output wattage                  AC Connector with protective-earth contacts, cable length: 1.7 m                  Level VI efficiency class</p>
<p><i>DC Input Connector</i></p>	<p>DC Input Connector: 5.5 / 2.5 mm (outer/inner diameter)                  The DC-input of the computer supports an external power source with 19V±5%.</p>
<p><i>Scope of Delivery</i></p>	<p>Multi-language user guide                  Driver DVD for Windows 10 (64-bit)                  VESA mount for 75/100 mm standard (two metal brackets)                  Four screws M3 x 7 mm (screws together VESA mount and PC)                  Four screws M4 x 10 mm (to fix the VESA mount to the external surface)                  Four screws M3 x 4 mm (to mount a 2.5" storage device into the bay)                  Two screws M3 x 5 mm (silver colour, to mount two M.2 cards)                  External 120 W power adapter with DC cable                  3-pin AC power cord with protective-earth contacts, cable length: 1.7 m</p>
<p><i>Optional Accessories</i></p>	<ul style="list-style-type: none"> <li>- <b>WLN-M</b>: Wireless LAN kit supports IEEE 802.11ac and Bluetooth 4.0 including M.2-2230 WLAN card and two external antennas with cables</li> <li>- <b>PS02</b>: Stand for vertical operation</li> <li>- <b>CXP01</b>: adapter cable for external power button</li> <li>- <b>PRM01</b>: 2U rack mount front plate for two Shuttle XPC slim PCs</li> </ul>
<p><i>Environmental Specifications</i></p>	<p>Operating temperature range: 0~50 °C [2]                  Relative humidity, non-condensing: 10~90 %</p>

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### Conformity Certifications

EMI: CE, FCC, BSMI, VCCI, RCM

Safety: CB, BSMI, ETL

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)

### Footnotes:

#### [1] Four-pin header at the back panel

This header allows for connecting an external power button.

It also provides 5 V DC voltage for external devices and the Clear CMOS function. Optional accessory: the adapter cable CXP01.

**[2] Caution: for high ambient temperatures** higher than 35 °C we strongly recommend to use an SSD instead of an HDD

#### [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". This function determines the PC's behaviour after power failure. As a matter of the nature of this function, it may fail after short power failures. This is why the Shuttle XPC slim Barebone DH02U5 also comes with a hardware-based solution. By removing Jumper JP1 (please refer to the quick user guide) the system will start unconditionally once power is applied.

#### [4] Onboard VGA connector

The onboard VGA connector can only be used if the NVIDIA graphics card is removed. This port is disabled by default.

### Power Consumption:

System configuration: DH02Ux, BIOS v1.01, GTX 1050, 2x 4 GB DDR4, 2.5" SSD SATA-6G 120 GB, Win10-1709 (64-bit).

Product model:	DH02U	DH02U3	DH02U5	DH02U7
Processor:	Celeron 3865U	Core i3-7100U	Core i5-7200U	Core i7-7500U
Idle mode:	10.12 W	10.35 W	10.27 W	10.09 W
Full load (CPU only):	14.84 W	19.52 W	25.62 W	30.46 W
Full load (CPU+Graphics):	83.45 W	86.78 W	94.23 W	99.85 W
ACPI mode S3 (Standby):	0.88 W	0.87 W	0.88 W	0.96 W
ACPI mode S5 (EUP=ON):	0.49 W	0.49 W	0.48 W	0.47 W
ACPI mode S5 (EUP=OFF):	0.51 W	0.51 W	0.51 W	0.52 W