AI-PC BAREBONE
XPC slim
DN11H5
Intel® Core™ Ultra 5 Processor 125H

VERSATILE 1.3-LITRE AI PC WITH EXCEPTIONAL CONNECTIVITY

The Shuttle DN11H-series AI-PC is a 1.3-liter barebone PC powered by an Intel® Core™ Ultra series processor, delivering significantly upgraded performance from everyday tasks to business applications. This AI-focused platform integrates CPU, GPU, and a specialized NPU designed to accelerate neural network computations, offering up to 34 TOPS of total system performance to support complex AI workloads. The DN11H stands out with its exceptional connectivity, including four 2.5G LAN ports for high-bandwidth networking, eight high-speed USB-C/USB-A ports, four ports for UHD-displays and three M.2-2280 slots for SSD cards, making it ideal for data-intensive environments. The DN11H excels in diverse modern business and industrial scenarios, such as network video recorders, image processing and data visualization, virtual reality simulations, multimedia production, industrial process control, and more.

Intel Core ULTRA CPU · Supports 4 DISPLAYS · Max. 96 GB DDR5 · Supports 3x M.2-SSD · QUAD LAN 2.5G · 2x USB-C Gen2x2, 3A · 6x USB 3.2 · External Power Button Support · VESA Mount · WLAN / LTE optional · Max. 50 °C · Supports 24/7

SLIM DESIGN
■ Slim 1.35-litre metal chassis, black ■ Dimensions: 190 x 165 x 43 mm (LWH) ■ Weight: 1.23 kg net, 2.46 kg gross ■ Including VESA mount (75/100 mm) ■ Supports 24/7 Nonstop Operation ■ Operating temperature: 0~50 °C (non-condensing)

OPERATING SYSTEM
■ An operating system is not included
■ Supports Windows 11 and Linux (64-bit)

PROCESSOR
■ Intel® Core™ Ultra 5 Processor 125H, code name "Meteor Lake-H"
■ Intel 4 process, TDP Base: 28 W (configurable, see below table)
■ 4x P-Cores, 8x E-Cores, 2x Low-Power E-Cores, 18 MB L3 Cache
■ NPU with 11.5 TOPS AI performance (NPU+CPU+GPU: 34 TOPS)
■ Cooling system with 80 mm CPU fan

INTEGRATED GRAPHICS ENGINE
■ Intel® Arc™ graphics accelerator with 7 Xe cores (112 EUs)
■ supports four independent UHD displays at 60 Hz

MEMORY SUPPORT
■ 2x 262-pin SO-DIMM slot ■ Supports up to 2x 48 GB DDR5-5600

Four M.2 SLOTS
■ 3x M.2-2280M slot supports PCIe 4.0 x4 NVMe SSDs (80 mm length)
Two slots also support SATA
Supports RAID level 0, 1 and 5 (level 5 for PCIe SSDs only)
The third slot supports an optional 4G/5G accessory (WWN04).
■ 1x M.2-2230E for optional WLAN module

CONNECTORS
■ 2x HDMI 2.1 ■ 2x DisplayPort 1.4a ■ 6x USB 3.2 Gen 2 (Type-A)
■ 2x USB 3.2 Gen 2x2 (Type-C), 3A Power Delivery (PD)
■ 4x Intel 2.5G LAN (i226LM) ■ 2x audio (line out, mic)
■ Connector for external power button ■ "Always on" Jumper

POWER SUPPLY
■ External 120W/19V power adapter

OPTIONAL ACCESSORIES
■ WLAN Module with two external antennas (WLN-M1) ■ 4G/5G-kit with four external antennas (WWN04) ■ DIN-Rail mounting kit (DIR01)
■ Rackmount kit (PRM01) ■ Cable for external power button (CXP01)
■ Vertical Stand (PS02)

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MODELS OF THE DN11H SERIES

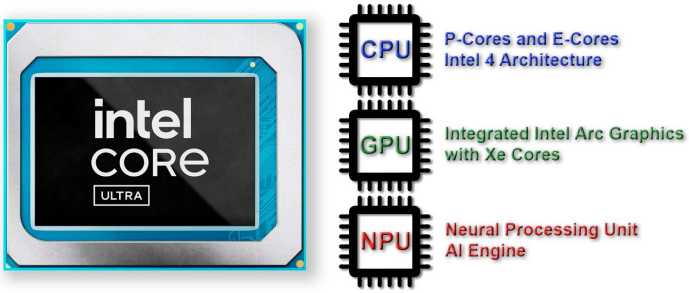
Product	Intel Processor	P-Cores / Threads	E-Cores	Low Power E-Cores	L3 Cache	Intel Arc Graphics	Base TDP	cTDP (configuable TDP) 3 settings: Base-Turbo	UPC Code
DN11H5	Core Ultra 5 – 125H	4 / 8	8	2	18 MB	7 Xe Cores	28 W	20-45W / 28-54W / 54-70W	887993007298
DN11H7	Core Ultra 7 – 155H	6 / 12	8	2	24 MB	8 Xe Cores	28 W	20-45W / 28-54W / 54-70W	887993007304
DN11H9	Core Ultra 9 – 185H	6 / 12	8	2	24 MB	8 Xe Cores	45 W	35-50W / 45-54W / 54-70W	887993007311

PRODUCT FEATURES

Quad 4K/UHD Display support

DN11H5 features four digital video outputs:
2x HDMI 2.1 and 2x DisplayPort 1.4a.

This allows for the connection of four independent displays at 4K resolution (3840 x 2160), leveraging hardware decoding and encoding for popular video codecs including AV1 and H.265 and supports flexible multi-display arrangements e.g. 1x4 horizontal or 4x1 vertical setups with the help of the IGCC software application. Using four displays can be a game-changer in various applications, enhancing productivity and providing a more immersive experience. This is advantageous for scenarios such as: Financial Trading, Software Development, Graphic Design, Video Editing, Gaming, Command Centers, Surveillance.

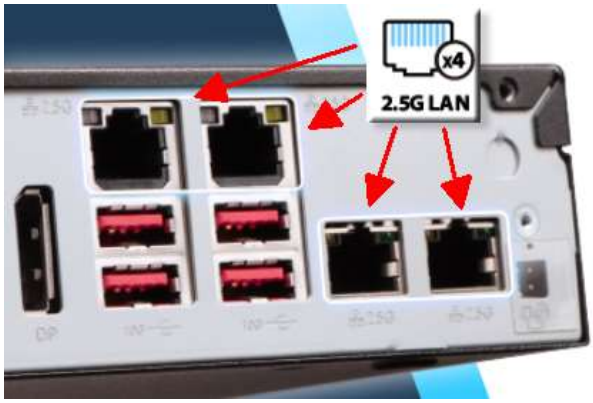


Intel® Core™ Ultra Processor

The DN11H5's advanced Intel® Core™ Ultra Processor supercharges productivity across diverse scenarios. In data analysis, it speeds up complex calculations, while in scientific simulations, it enables real-time modeling. For content creators, AI-enhanced tools accelerate video editing and 3D rendering, significantly reducing production time.

The integrated top-tier Intel Arc graphics (GPU) with Xe cores is one the fastest of its kind and performs competitively in games and real-life applications – best choice if graphics performance is crucial for you.

The integrated Neural Processing Unit (NPU) is designed to accelerate artificial intelligence (AI) and machine learning tasks. It boast a top maximum performance of 11.5 trillion operations per second (TOPS). Additionally, the full processor performance scales up to 34 TOPS, making it a powerful profile suited for demanding and diverse industrial computing workloads.



Quad 2.5G LAN Ports

DN11H5 is equipped with four 2.5G network ports for seamless integration into modern network environments for numerous applications, such as:

- as a firewall/router solution, where the four LAN ports can securely separate the network into four areas: WAN (Internet), internal network, guest network and DMZ for the public.
- in conjunction with virtual machines (VMs) that require dedicated network interfaces, e.g. as a backbone for different areas of the company.
- for setting up a high-performance gateway to connect multiple networks at high speeds, e.g. VPN gateways for external employees or as an industrial IoT gateway that connects sensors, machine controls and a central ERP system.
- for IP video surveillance, using dedicated ports for different camera groups and for a NAS system.
- for the simulation of network topologies, network devices and software in isolated environments before it is used productively.
- as a high-performance NAS system in conjunction with three M.2 SSD cards in a RAID configuration.

Exceptional Connectivity

In addition to the four graphics ports and four network ports, this small 1.3L mini PC offers numerous other I/O connections and expansion options:

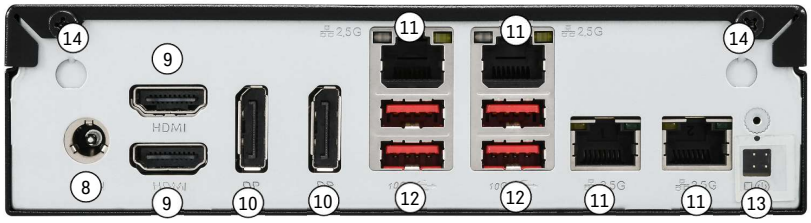
- **Two USB-C 3.2 Gen2x2** for up to 20 Gbit/s speed, enables power delivery (PD) for connected devices up to 3A.
- **Six USB 3.2 Gen2** (red color) for even more fast connections up to 10 Gbit/s.
- **Three M.2-2280 slot** for PCIe Gen4 SSD cards, which can also be operated in a RAID array (0, 1 or 5) for more performance and/or data security.
- **Supports up to 96 GB DDR5 RAM** with two SO-DIMM slots
- **Four external antennas** are supported for optional expansion with **WLAN or 4G/5G** mobile communications.

Product Views

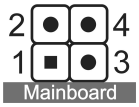
Front Panel

1. Microphone input
2. Headphones output
3. LED indicator for power state
4. LED indicator for storage activity
5. Power button
6. 2x USB 3.2 Gen 2 port (Type-A)
7. 2x USB 3.2 Gen 2x2 port (Type-C)
   supports Power Delivery (PD max. 5V / 3A)

Back Panel

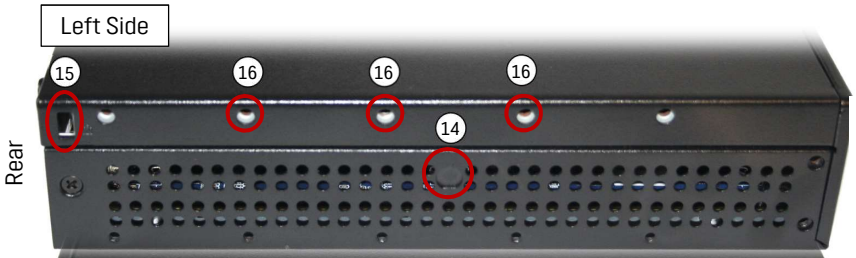


8. DC-in connector for power adapter
9. 2x HDMI 2.1
10. 2x DisplayPort 1.4a
11. 4x 2.5G LAN Port (RJ45)
12. 4x USB 3.2 Gen 2 port (Type-A)
13. 4-pin connector (2.54 mm pitch)
    for external power button, Clear CMOS button and 5V DC voltage

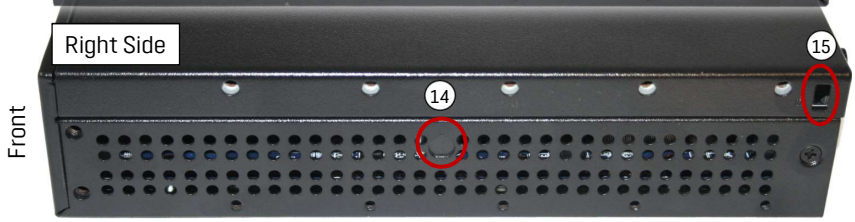


1	Clear CMOS Button
2	+5V DC for Power LED
3	Ground (Common)
4	Ext. Power Button

Left Side



Right Side



14. 4x Perforation for optional antenna
15. 2x Hole for the Kensington Lock
16. Several threaded holes (M3)

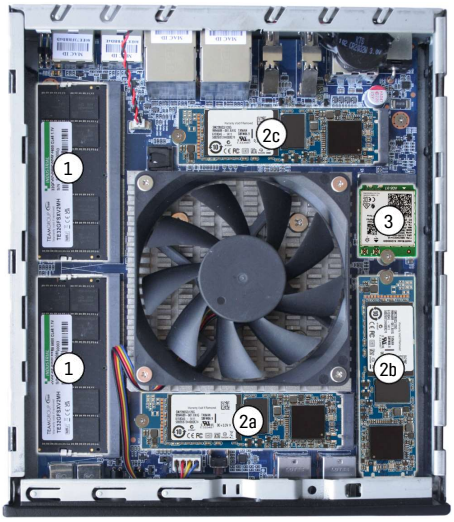
VESA Mount

17. 2x VESA mount bracket included
    supports 75x75 and 100x100 mm

REQUIRED COMPONENTS

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

Inside View



(1) Memory Modules

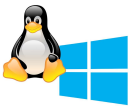
Supports two SO-DIMM DDR5 memory modules
- Type: DDR5-5600 (or higher clock rate)
- Form factor: SO-DIMM with 262 pins
- Max. capacity per module: 48 GB
- Total capacity of two modules: max. 96 GB

(2) up to three M.2 SSD Card

- Form factor: M.2-2280 (the length is 80 mm)
- interface: PCI-Express (supports PCEe Gen4x4 / NVMe)
  Slot 2a and slot 2b also support SATA interface

(3) M.2 WLAN Card (optional)

- Supports one WLAN card in M.2-2230 (E-Key) format
- The housing has four perforations for installing external antennas



(4) Operating System

Windows 11 or Linux (64-bit only)

As an option, up to four external antennas can be installed.

For installation please refer the Quick Installation Guide.

OPTIONAL ACCESSORIES FROM SHUTTLE

WLAN-Accessory **WLN-M1**

M.2-2230 card supports WLAN-ax (Wi-Fi 6) and Bluetooth. Including 2 antennas.

Kit for 4G/5G Adapter **WWN04**

allows the installation of an 4G/5G card and a nano SIM card (occupies slot “2c” on the photo). Including 4 antennas.
Note: The 4G/5G card and the Nano SIM card are not included.

As an option, up to four external antennas can be installed.

Cable **CXP01**

Cable for external push button switch (button not included)

DIN-Rail Kit **DIR01**

This mounting kit allows the installation on a standard 35 mm DIN-Rail

Rack Mount Kit **PRM01**

2U front plate to install two 1.3L Shuttle XPCs in a 19" cabinet.

Vertical Stand **PS02**

For vertical operating position

Shuttle AI-PC Product Overview

	NA10H Series	NT10H Series	DN11H Series
Product Models Processor-Type	**NA10H7** – AMD Ryzen R7-8845HS CPU code name "Hawk Point" (Zen-4)	**NT10H5** – Intel Core Ultra 5-125H **NT10H9** – Intel Core Ultra 9-185H CPU code name "Meteor Lake-H"	**DN11H5** – Intel Core Ultra 5-125H **DN11H7** – Intel Core Ultra 7-155H **DN11H9** – Intel Core Ultra 9-185H) CPU code name "Meteor Lake-H"
Chassis Dimensions	**Nano Chassis** 132 x 143 x 55 mm (WDH) = 1.04 L	**Nano Chassis** 132 x 143 x 55 mm (WDH) = 1.04 L	**Slim Chassis** 165 x 190 x 43 mm (WDH) = 1.35 L
Operation System Support	Windows 11 and Linux (64-bit) Windows drivers as download-link	Windows 11 and Linux (64-bit) Windows drivers as download-link	Windows 11 and Linux (64-bit) Windows drivers included (DVD)
M.2 Slots for SSD Cards	1x Slot M.2-2280 supports PCIe Gen4 x4 / NVMe (SATA not supported)	1x Slot M.2-2280 supports PCIe Gen4 x4 / NVMe (SATA not supported)	**3x Slots M.2-2280** supports PCIe Gen4 x4 / NVMe supports NVMe Raid 0, 1 and 5 supports SATA (only 2 slots) supports SATA Raid 0 and 1
RAM Support	max. **2x 48 GB** DDR5-5600 (SO-DIMM)	max. **2x 48 GB** DDR5-5600 (SO-DIMM)	max. **2x 48 GB** DDR5-5600 (SO-DIMM)
Integrated Graphics	**AMD Radeon™ 780M** **supports 4x UHD-Displays** 2x HDMI 2.0 2x USB4 Type-C (with DP 1.4)	**Intel® Arc™ mit Xe-Cores** **supports 4x UHD-Displays** 2x HDMI 2.0 2x USB4 Type-C (with DP 1.4)	**Intel® Arc™ mit Xe-Cores** **supports 4x UHD-Displays** 2x HDMI 2.1 2x DisplayPort 1.4
USB Ports	2x USB4 Type-C (DP 1.4 graphics) 5x USB 3.2 Gen 2 Type-A 1x USB 2.0	2x USB4 Type-C (DP 1.4 graphics) 5x USB 3.2 Gen 2 Type-A 1x USB 2.0	2x USB 3.2 Gen 2x2 Type-C 6x USB 3.2 Gen 2 Type-A
Audio Ports	Audio Combo Port (3.5 mm) supports Microphone and Line-out	Audio Combo Port (3.5 mm) supports Microphone and Line-out	1x Microphone Input (3.5 mm) 1x Line-out Output (3.5 mm)
SD Card-Reader	Yes	Yes	–
LAN Ports	**Dual LAN – Realtek RTL8125B** 2x 2.5 Gbps RJ45 Ports	**Dual LAN – Intel i226V** 2x 2.5 Gbps RJ45 Ports	**Quad LAN – Intel i226LM** 4x 2.5 Gbps RJ45 Ports
WLAN	prepared *)	prepared *)	optional (WLN-M1)
VESA Mount (75x75, 100x100 mm)	included	included	included
Power Adapter	120 W, 19V	120 W, 19V	120 W, 19V
Optional Accessories	–	–	Cable for ext. Power Button (CXP01) 2U Rack Mount Kit (PRM01) DIN-Rail Mount (DIR01) Vertical Stand (PS02) WLAN Kit with ext. ant. (WLN-M1) 4G/5G Kit with 4 ant. (WWN04)
Front View			
Rear View			

*) Supports one WLAN card in M.2-2230 (E-Key) form factor, which is not included in the scope of delivery (possible models: e.g. Intel AX200, AX210 or AzureWave AW-XB547NF, AW-XB591NF or similar). Two internal antennas are pre-installed, so you just need to install the WLAN module and connect the antennas.

SHUTTLE XPC slim BAREBONE DN11H5 — SPECIFICATIONS

CHASSIS	Slim PC with black chassis made of metal Dimensions: 190 x 165 x 43 mm (LWH) = 1.35-litre Weight: 1.23 kg net and 2.46 kg gross Two holes for Kensington Locks and numerous threaded holes (M3) on both sides of the chassis Includes VESA mount for 75x75 and 100x100 mm standard
OPERATION SYSTEM	This barebone system comes without operating system. It is compatible with: - Windows 11, 64-bit - Linux, 64-bit Windows 11 driver download: go.shuttle.eu/DN11H
PROCESSOR	Model: Intel® Core™ Ultra 5 Processor 125H Code name "Meteor Lake-H" (Intel Core Ultra processors - Series 1) System-on-a-chip architecture (SoC) with integrated memory and graphics controller Lithography: Intel 4 process (7 nm) and TSMC N5/N6 Performance-cores (P-Cores): 4 cores, 8 threads, clock rate: 1.2 - 4.5 GHz Efficient-cores (E-Cores): 8 cores, clock rate: 0.7 - 3.6 GHz Low Power Efficient-cores: 2 cores, clock rate: 0.7 - 2.5 GHz Total Threads: 18 Smart-Cache (L3): 18 MB Base Power (TDP): 28 W Configurable Power (cTDP): 20 W, 28 W or 54 W **[1]** Neural Processing Unit (NPU): Intel® AI Boost NPU AI performance: 11.5 TOPS (NPU+CPU+iGPU: 34 TOPS) **[2]** Maximum operating temperature: 110 °C FCBGA2049 package - directly soldered onto the mainboard
COOLING SYSTEM	Heat-pipe cooling system with 80-mm fan Supports temperature-controlled RPM fan speed **[1]**
INTEGRATED GRAPHICS SUPPORTS QUAD 4K	Intel® Arc™ graphics engine Xe-cores: 7 (112 EUs) Dynamic graphics clock rate: max. 2.2 GHz Supports DirectX 12.2, OpenGL 4.6, OpenCL 3.0 This PC supports up to four independent screens with up to 4K/60Hz (Ultra HD 3840×2160 resolution at 60 frames per second) Graphics ports: - 2x HDMI 2.1 - 2x DisplayPort 1.4a Allows flexible multi-display arrangements e.g. 1x4 horizontal or 4x1 vertical setups with the help of the IGCC software application (Intel® Graphics Command Center).
UEFI FIRMWARE (BIOS)	AMI UEFI Firmware (BIOS) Supports various power-on functions - Power on after power fail - Wake-on-LAN (WOL) - Power on by real time clock (RTC)
TPM FUNCTION	Supports Firmware-TPM (fTPM) v2.0 The TPM function can be switched on/off in the "Advanced" BIOS setup.
MEMORY SUPPORT	2x SO-DIMM slot with 262 pins Supports DDR5-5600 (PC5-44800) SDRAM at 1.1 V Supports Dual Channel mode Supports a maximum of 48 GB per DIMM, maximum total size: 96 GB Supports two unbuffered DIMM modules (no ECC or registered)

THREE M.2-2280M SLOTS FOR SSD CARDS

Three slots for SSD cards in M.2-2280 form factor (length: 80 mm)
Supports M.2 cards with M key or B+M key
The following standards are supported:

Slot	Position	PCIe Gen4 x4 / NVMe	SATA Gen3	WWN04 *)
1	Front	Yes	Yes	—
2	Front/Side	Yes	Yes	—
3	Rear	Yes	—	Yes

Supports NVMe Raid level 0, 1 and 5
Supports SATA Raid level 0 and 1
*) WWN04 is an optional accessory to provide 4G/5G functionality

AUDIO

Audio Realtek® ALC888S High-Definition Audio
Two analog audio connectors (3.5 mm) on the front panel:
1) 2-channel line-out (head-phones)
2) microphone input
Digital multi-channel audio output: by HDMI and DisplayPort

QUAD 2.5G LAN

Four RJ45 ports
Ethernet Controller: Intel i226LM
Supports 10 / 100 / 1.000 / 2.500 MBit/s operation (max. 2.5 Gbps)
Supports WAKE ON LAN (WOL)
Supports network boot by Preboot eXecution Environment (PXE)

M.2-2230-SLOT FOR WLAN CARDS

M.2-2230E slot supports WLAN expansion cards
Interfaces: PCI-Express X1, USB 2.0, CNVi
Supports M.2 cards with a width of 22 mm and a length of 30 mm (type 2230)
Supports WLAN expansion cards (optional Shuttle accessory: e.g. WLN-M1)
The chassis has four perforations for optional external antennas

FRONT PANEL CONNECTORS

Microphone input
Audio Line-out (headphones)
2x USB 3.2 Gen 2 Type A (red), max. 10 Gbps, connected with hub
2x USB 3.2 Gen 2x2 Type C, max. 20 Gbps, supports 3A Power Delivery (PD)
Power button
Power LED (blue)
HDD LED (yellow)

BACK PANEL CONNECTORS

2x HDMI 2.1
2x DisplayPort 1.4
4x USB 3.2 Gen 2 Type A (red), max. 10 Gbps, connected with hub
4x 2.5G Ethernet LAN (RJ45, Intel i226LM)
1x DC-Eingang für externes Netzteil (5,5 / 2,5 mm)
1x 4-pin connector (2.54 mm pitch) supports:
- external power on button
- Clear CMOS function
- +5V DC voltage for external components
2x perforation for optional externe antennas (for WLAN or 4G/5G)

OPENINGS ON THE SIDE

2x perforation for optional externe antennas (for WLAN or 4G/5G)
2x hole for Kensington Lock

ONBOARD JUMPER

Jumper JP1 for power-on-after-power-fail (hardware solution) **[3]**

POWER ADAPTER

Power Adapter
External 120 W power adapter (fanless)
Input: 100~240 V AC, 50-60 Hz, max. 1.8 A
Output: 19.0 V DC, max. 6.32 A, max. 120 W
DC cable ca. 170 cm with coaxial connector: 5.5 / 2.5 mm (outer/inner diameter)
The DC-input of the computer supports 19V ± 5%.
AC cable, ca. 170 cm, 3-pin Micky MM C6 and Schuko earthed safety plug

SUPPLIED ACCESSORIES

- Multi-language Quick Installation Guide
- VESA mount for 75/100 mm standard (two metal brackets)
- Four screws 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 5 mm (silver colour, to mount two M.2 cards)
- Power adapter 120 W with AC power cord (with earthing contact)
- DVD with Windows 11 drivers (driver download: go.shuttle.eu/DN11H)

OPTIONAL ACCESSORIES	**CXP01:** adapter cable for external power button **PRM01:** 2U rack mount front plate for one or two Shuttle XPC slim **DIR01:** mounting kit for 35 mm DIN-Rail **PS02:** Stand for vertical operation **WLN-M1:** WLAN kit with Intel AX200 WLAN card (supports Wi-Fi 6, BT 5.2) and 2 external antennas **WWN04:** 4G/5G kit with M.2 adapter card and 4 external antennas - enables the use of an optional 4G/5G card in M.2 format and a nano SIM card
ENVIRONMENTAL SPECIFICATIONS	Operating temperature range: 0~50 °C Relative humidity range: 10~90% (non-condensing)
CERTIFICATIONS / COMPLIANCE	EMI: CE, FCC, BSMI Safety: CB IEC62368, cTUVus (UL 62368), BSMI 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] Configurable fan speed and power consumption of the processor

In the BIOS setup, there is a "Fan Mode" option on the "Advanced" page to configure the fan control, which also has an effect on the maximum power consumption of the processor. The default setting "Normal Mode" offers a good balance between performance, temperature and fan speed. The "Fan Mode" setting also defines the upper limits for the average power dissipation (cTDP) and short-term power dissipation in turbo mode (Turbo TDP):

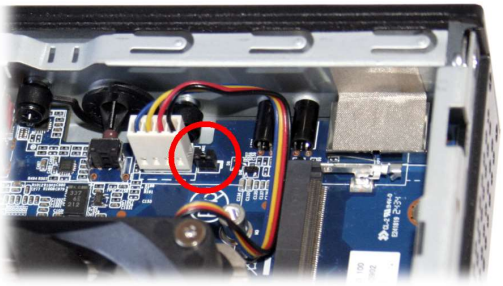
„Fan Mode" Setting	CPU Performance	Fan Speed	cTDP	Turbo TDP
Performance Mode	maximum	high	54 W	70 W
Normal Mode	high	medium	28 W	54 W
Silent Mode	medium	low	20 W	45 W

[2] AI performance

Processors with the support of artificial intelligence (AI) and machine learning (ML) can process many calculations, especially audio, image and video processing, much faster than classic processors. The AI performance is given in the number (trillions) of arithmetic operations per second (TOPS). The processor used in this product integrates the Intel® AI Boost NPU with 11.5 TOPS performance. The Total AI performance (Platform TOPS) is a measure of the aggregate performance of all the processing units in the processor: CPU, NPU and GPU (graphics).

[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 this PC also comes with a hardware-based solution. By removing Jumper JP1 (on the mainboard near to the power button) the system will start unconditionally once power is supplied.



Jumper JP1