AI-PC BAREBONE
XPC nano
NT10H9
Intel® Core™ Ultra 9 Processor 185H

AI-POWERED PERFORMANCE BOOSTER IN NANO DESIGN
The Shuttle nano Barebone NT10H Series is designed as a compact, 1-litre nano-style mini-PC with enhanced features and efficiency for multitasking and AI workloads. Equipped with Intel® Core™ Ultra processors with integrated Intel® Arc™ graphics and AI Boost NPU, it effortlessly handles demanding graphics processing. It supports output to four 4K/UHD displays and offering comprehensive connectivity including dual USB4, dual 2.5G Intel® LAN, and PCIe 4.0 SSD slot. This powerhouse is ideal for gaming, AI inference, image processing, and multimedia content creation tasks, delivering powerful performance at an affordable price point, empowering both everyday tasks and professional projects with outstanding results.

1 L	CPU		M.2	4X			SS←→					24/7
1-LITRE AI-PC	Intel Core Ultra with NPU	Supports 96GB DDR5	M.2 SSD Support	4x DISPLAY Support	2x HDMI 2.0	2x USB4 with DP 1.4	5x USB 3.2 1x USB 2.0	Dual Intel 2.5G LAN	SD CARD READER	VESA MOUNT included	24/7 Support

NANO DESIGN
■ Nano plastic chassis, black ■ Dimensions: 132 x 143 x 55 mm (WLH), 1.04 Litre (height incl. feet: 57.8 mm) ■ Weight: 800g net
■ Operating temperature: 0~40 °C at 10-90 %RH (non-condensing)
■ VESA mount included, supports 75x75 and 100x100 mm

OPERATING SYSTEM
■ An operating system is not included
■ Supports Windows 11 and Linux (64-bit)
■ Windows driver download: go.shuttle.eu/NT10H (no DVD included)

PROCESSOR
■ Intel® Core™ Ultra 9 Processor 185H, code name "Meteor Lake-H"
■ Intel 4 process, cTDP: 35-54W (configurable)
■ 6x P-Cores, 8x E-Cores, 2x Low-Power E-Cores, 24 MB L3 Cache
■ NPU with 11.5 TOPS AI performance (NPU+CPU+GPU: 34 TOPS)
■ Dual fan heat-pipe cooling system for optimized air-flow: 80 mm CPU fan and 60 mm chassis fan

GRAPHICS ENGINE
■ Intel® Arc™ graphics accelerator with 8 Xe cores
■ supports four independent UHD displays at 60 Hz

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

M.2 SLOTS AND CARD READER
■ 1x M.2-2280M slot supports one SSD card with PCIe Gen 4 x4 NVMe
■ 1x M.2-2230E slot supports M.2 WLAN card (not included), two internal antennas are already pre-installed
■ 1x SD Card Reader (left side)

CONNECTORS
■ 2x HDMI 2.0 ■ 2x USB4 Type-C (max. 40 Gbps) supports DisplayPort 1.4 and 3A PD ■ 5x USB 3.2 Gen2 Type-A (max. 10 Gbps) ■ 1x USB 2.0
■ 2x 2.5G LAN (Intel 226V) ■ 3.5 mm Audio Combo port ■ DC input 19 V
■ Power Button with Power LED Indicator

POWER ADAPTER
■ 120W power adapter (DC: 19V/6.32A, 3-pin AC plug with earth contact)

EMC & SAFETY
■ EMI: CE, FCC, BSMI
■ Safety: CB IEC62368, cTUVus (UL 62368), BSMI

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MODELS OF THE NT10H SERIES

| Product	Intel Processor	P-Cores / Threads	E-Cores	Low Power E-Cores	L3 Cache	Intel Arc Graphics	Base TDP	Config. TDP (Turbo TDP)	UPC Code
NT10H5	Core Ultra 5 – 125H	4 / 8	8	2	18 MB	7 Xe Cores	28 W	20/28/54 W	887993007663
NT10H9	Core Ultra 9 – 185H	6 / 12	8	2	24 MB	8 Xe Cores	45 W	35/45/54 W	887993007687

PRODUCT FEATURES

Quad 4K/UHD Display support

NT10H9 features four digital video outputs:
2x HDMI and 2x DisplayPort 1.4 via USB-C.

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. 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.
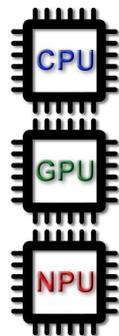
Intel® Core™ Ultra Processor

The NT10H9'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.

Fast Data Access with DDR5 and PCIe 4.0

Experience high-bandwidth, energy-efficient, and unparalleled speed memory for smooth multitasking and data-intensive tasks.
Benefit from the advantages of DDR5 memory with higher bandwidth and lower voltage compared to DDR4.
NT10H9 also features a M.2-2280-Slot with PCI-Express Gen. 4 interface for faster speeds of compact modern M.2 SSD cards.
NT10H9 also integrates a SD card reader for quickly access documents, photos and other files on your SD card.

Multiple modern I/O Ports

The NT10H9 can connect up to four digital 4K/UHD displays. Two USB4 Type-C ports support data transfer speeds of up to 40 Gbps, significantly faster than previous USB versions. Five USB 3.2 plus one USB 2.0 allow you to connect a variety of legacy and modern devices simultaneously. Dual 2.5G LAN ports provide higher network speeds compared to traditional 1G ports, making them ideal for bandwidth-intensive applications like gaming, video streaming, and large file transfers. The Audio Combo port supports both headphone and microphone connections. It allows you to connect a headset with an integrated microphone, making it convenient for activities like video calls, gaming, and listening to music.

Front and Back Panel

Front Panel

1. 4x USB 3.2 Gen 2 Type-A Port
   Note: the left USB port delivers 0.9A/5V even in S5/Off mode
2. 3.5 mm Audio Combo port supports headphones and headsets (with microphone)
3. Power button with Power LED

Back Panel
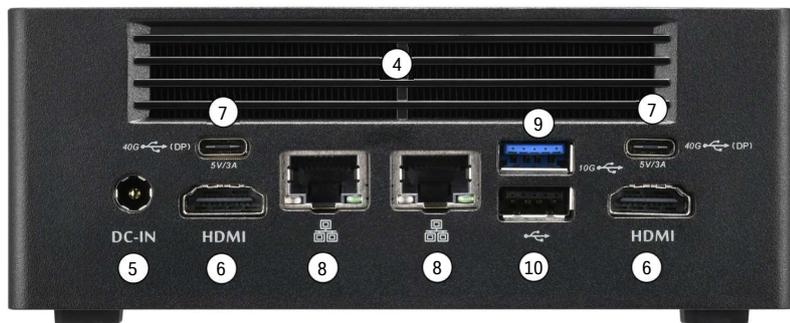
4. Ventilation openings
5. DC-in connector for power adapter
6. 2x HDMI 2.0
7. 2x USB4 Type-C (max. 40 Gbps) with DisplayPort function (DP 1.4) and Power Delivery (PD max. 5V / 3A)
8. 2x 2.5G LAN Port (RJ45)
9. USB 3.2 Gen 2 Port (max. 10 Gbps)
10. 1x USB 2.0 Port
11. SD Card Reader
12. Hole for the Kensington Lock

Left View

Right View

Bottom View

VESA Mount
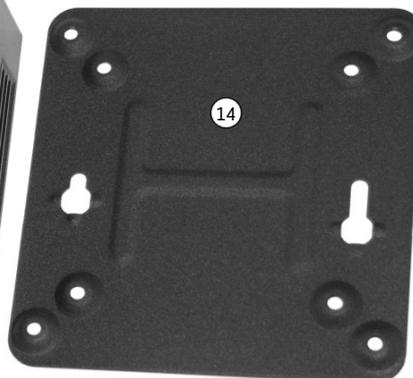
13. Threads for installing the VESA mount (please refer to the Quick Installation Guide)
14. VESA mount supports 75x75 mm and 100x100 mm (screws included)

REQUIRED COMPONENTS

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

(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: 64 GB
– total capacity of two modules: max. 96 GB

(2) M.2 SSD Card

Supports one M.2 SSD card
– form factor: M.2-2280 (the length is 80 mm)
– interface: PCI-Express (supports PCEe Gen4x4 and NVMe)
  Note: SATA is not supported!

(3) M.2 WLAN Card (optional)

Supports one WLAN card in M.2-2230 (E-Key) form factor, which is not in-cluded 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.
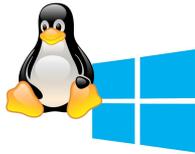
(4) Operating System

Windows 11 or Linux (64-bit only)
Windows driver download: go.shuttle.eu/NT10H

Inside Vew

For installation please refer the Quick Installation Guide.

Shuttle®

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 nano BAREBONE NT10H9 — SPECIFICATIONS

CHASSIS	Barebone PC with a black plastic chassis Dimensions: 132 x 143 x 55 mm (WLH) = 1038 ml The height is 57.8 mm including rubber feet Weight: 0.8 kg net, 1.7 kg gross Hole for Kensington Lock 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/NT10H
PROCESSOR	Model: Intel® Core™ Ultra 9 Processor 185H 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): 6 cores, 12 threads, clock rate: 2.3 - 5.1 GHz Efficient-cores (E-Cores): 8 cores, clock rate: 1.8 - 3.8 GHz Low Power Efficient-cores: 2 cores, clock rate: 0.7 - 2.5 GHz Total Threads: 22 Smart-Cache (L3): 24 MB Base Power (TDP): 45 W Configurable Power (cTDP): 35 W, 45 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 dual fan concept for optimal airflow: 1) Processor fan 80 mm 2) Chassis fan (bottom) 60 mm Supports temperature-controlled RPM fan speed [1]
INTEGRATED GRAPHICS	Integrated Intel® Arc™ graphics engine supports Quad 4K Xe-cores: 8 Dynamic graphics clock rate: max. 2.35 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): - 2x HDMI 2.0b - 2x USB4 Type-C with DisplayPort 1.4 function
UEFI FIRMWARE (BIOS)	AMI UEFI Firmware (BIOS) Supports resume after power failure Supports Wake-on-LAN (WOL) and Power on by real time clock (RTC)
H/W TPM FUNCTION	Hardware TPM function: supports DTPM 2.0 with Infineon SLB9670VQ2.0 The TPM function can be deactivated in the 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)
M.2-2280M SSD SLOT	M.2-2280M slot for SSD cards in M.2 form factor Supports PCIe Gen4 x4 with NVMe (no SATA) Supports M.2 cards with a width of 22 mm and a length of 80 mm Supports M.2 cards with M key or B+M key
AUDIO	Realtek ALC269-VC3 Audio Controller 3.5 mm / 4-pole combo audio connector (combines Line-out and Microphone input) Can be used for headphones/headsets with 3- or 4-pole jack plug [3] Digital multi-channel audio output: via HDMI and DisplayPort (USB-C)

DUAL 2.5G LAN	Two RJ45 ports with 2 status LEDs each Ethernet Controller: Intel i226V 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 and USB 2.0 Supports M.2 cards with a width of 22 mm and a length of 30 mm (type 2230) This PC comes with two pre-installed internal WLAN antennas with I-PEX4/MHF-IV connectors
SD CARD READER (LEFT SIDE)	SD card reader supports SD cards in the size of 24 mm × 32 mm Supports Micro SD cards with appropriate adapter (not included)
FRONT PANEL CONNECTORS	1x Power button with Power LED (blue) 4x USB 3.2 Gen 2 Type-A (max. 10 Gbps) Note: the left USB port supports USB power in S5/Off mode (max. 0.9 A) 1x Audio Combo port (3.5 mm jack plug, 4-pole) **[3]**
BACK PANEL CONNECTORS	2x HDMI 2.0 2x USB4 Type-C (max. 40 Gbps) with DisplayPort function (DP 1.4) and Power Delivery (PD max. 5V / 3A) 1x USB 3.2 Gen 2 Type A (max. 10 GBit/s) 1x USB 2.0 2x 2.5G Ethernet LAN (RJ45, Intel i226V) 1x DC-Eingang für externes Netzteil (5,5 / 2,5 mm)
POWER ADAPTER	External 120 W power adapter (fanless) Dimensions: 64.5 mm x 22.5 mm x 98 mm (WHD) Input: 100~240 V AC, 50-60 Hz, max. 1.4 A Output: 19.0 V DC, max. 6.32 A, max. 120 W DC cable ca. 150 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 with screws (supports 75x75 and 100x100 mm standards) - Heat sink with two thermal pads for the M.2 SSD card - Power adapter 120 W with AC power cord A DVD driver disk is not supplied. Windows 11 driver download: go.shuttle.eu/NT10H
ENVIRONMENTAL SPECIFICATIONS	Operating temperature range: 0~40 °C Relative humidity range: 10~90% (non-condensing)
CERTIFICATIONS / COMPLIANCE	EMI: CE, FCC, BSMI Safety: CB IEC60950/62368, 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	45 W	54 W
Silent Mode	medium	low	35 W	50 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] Audio connector

The 3.5 mm audio jack at the front panel of this device supports both: headphones with a 3-pole connector and also headsets (with microphone) with a 4-pole connector. Headsets with separate connectors for headphones and microphone, though, require an appropriate adapter, if also the microphone should be used.

SHUTTLE XPC nano BAREBONE NT10H9 — Technical Drawings