BAREBONE
XPC nano
NC40U

Processor: Intel Celeron 7305

MANY PORTS AND HIGH PERFORMANCE IN NANO-FORMAT

The NC40U series comes with powerful and efficient 12th generation Intel Core processors, codenamed "Alder Lake-U". Despite the nano format with only 850 ml volume, it offers enormous connection variety and expansion options. Thus, up to three UHD displays (4K/60Hz) and up to seven USB 3.2 devices can be connected, and two NVMe/SSD cards in M.2-2280 format as well as one 2.5" hard drive (up to 15 mm thickness) can be installed. The NC40U series is ideal for Digital Signage, POS, control, office or even multimedia.

2x 32 GB RAM SUPPORT · TRIPLE DISPLAY SUPPORT · HDMI 2.0b · DISPLAY-PORT 1.4a · USB-C WITH DISPLAYPORT · 6x USB 3.2 TYPE-A PORTS · INTEL LAN PORT · 2x NVMe SSD SUPPORT · 2.5" HDD/SSD SUPPORT · VESA MOUNT · VERTICAL STAND · ALWAYS-ON JUMPER JP1

NANO DESIGN

■ Slim plastic chassis, black ■ Dimensions: 142 x 142 x 42 mm (LWH), 850 ml ■ Including vertical Stand and VESA mount (75/100 mm)
■ Operating temperature: 0~40 °C (non-condensing)

OPERATING SYSTEM

■ An operating system is not included
■ Supports Windows 10, Windows 11 and Linux (64-bit)

PROCESSOR

■ Intel Celeron 7305, 1x P-Core, 4x E-Core, 48 Execution Units
■ 12th generation Intel Core, code name "Alder Lake-U"
■ Soldered SoC with 15 W TDP, Intel 7 process (10 nm)

GRAPHICS

■ Integrated Intel UHD graphics (features depend on processor)
■ Supports three independent Ultra-HD displays at 60 Hz

RAM MEMORY SUPPORT

■ 2x 260-pin SO-DIMM slot ■ Supports up to 2x 32 GB DDR4-3200

STORAGE – SATA / M.2

■ 1x M.2-2280M slot (supports PCIe Gen 3 x4 NVMe or SATA)
■ 1x M.2-2280M slot (supports PCIe Gen 4 x4 NVMe)
■ 1x 2.5" bay for SATA hard disk (max. 15 mm) or SSD
■ Supports Intel VMD RAID 0/1 Function with two M.2 PCIe SSDs

CONNECTORS

■ HDMI 2.0b ■ DisplayPort 1.4 ■ USB-C supports USB 3.2 Gen1 or DisplayPort 1.4 ■ 2x USB 3.2 Gen2 (max. 10 Gbps) ■ 4x USB 3.2 Gen2 (max. 5 Gbps) ■ 1x Intel Gigabit LAN (Intel 219) ■ 2x Audio (Microphone-in + Line-out) ■ DC input 19 V

POWER SUPPLY

■ External 65W / 19V power adapter

OPTIONAL WLAN

■ M.2-2230E slot supports one optional WLAN module
■ Two internal WLAN antennas pre-installed
■ Optional Shuttle Accessory: WLAN kit with two external antennas **WLN-M** (Wi-Fi 5 / 802.11ac) or **WLN-M1** (Wi-Fi 6 / 802.11ax)

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MODELS OF THE NC40U SERIES

Shuttle Model	Intel Processor	Cores (Threads)		Base Clock		Smart Cache	Graphics		TDP	UPC Bar Code
		P	E	P	E		Max. Clock	EUs		
NC40U	Celeron 7305	1 (1)	4 (4)	1.1 / — GHz	0.9 / — GHz	8 MB	0.9 GHz	48	15 W	887993005904
NC40U3	Core i3-1215U	2 (4)	4 (4)	1.2 / 4.4 GHz	1.2 / 3.3 GHz	10 MB	1.1 GHz	64	15 W	887993005898
NC40U5	Core i5-1235U	2 (4)	8 (8)	1.3 / 4.4 GHz	0.9 / 3.3 GHz	12 MB	1.2 GHz	80	15 W	887993005881
NC40U7	Core i7-1255U	2 (4)	8 (8)	1.7 / 4.7 GHz	1.2 / 3.5 GHz	12 MB	1.25 GHz	96	15 W	887993005874

PRODUCT FEATURES

850 ml

Stylish and absolutely small

The black plastic case with its curves is certain to be the eye-catcher on your desk. At a volume of barely 850 ml, it may also be elegantly hidden behind monitors thanks to the supplied VESA mount. Despite its dinky dimensions, it provides generous connectivity options and even room for one 2.5 inch drive.

Easy installation

Remove just two screws to unmount the two chassis covers.

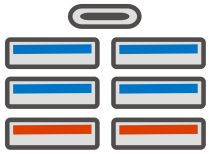
Supports two M.2 SSD cards and one 2.5“ drive

This nano PC has room for two SSD cards in M.2-2280 format with fast PCIe interface and NVMe support (one card with SATA is supported). Two self-adhesive thermal pads are included. NC40U also supports RAID 0/1 configuration for two M.2 PCIe SSDs thanks to the Intel® Volume Management Device Technology (Intel® VMD). For this the SATA mode must be changed to "Raid" in the Advanced BIOS setup.

In addition, the NC40U features a 2.5 inch bay with 15 mm height to support hard disks up to 5 TB, while many other PCs in a similar form factor are limited to drives with a maximum height of 7 mm.

Triple 4K Display support

The NC40U features three digital video outputs: HDMI, DisplayPort and USB-C. This allows for the connection of three independent 4K displays which all can run with 3840 x 2160 Ultra HD resolution at 60 Hz frames per second.

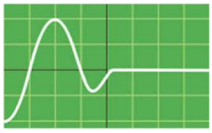


Seven USB 3.2 ports

Up to 7 USB devices can be connected to the NC40U. The USB-C port can also be used as a DisplayPort. The red USB ports even support USB 3.2 Gen2 with up to 10 Gbit/s.

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..



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 NC40U also comes with a hardware-based solution. By removing Jumper JP1 the system will start unconditionally once power is applied.

Kensington Lock

This is a small, metal-reinforced hole as part of an anti-theft system. The Shuttle XPC nano Barebone NC40U provides an appropriate hole on both sides of its chassis. The lock-and-cable is not included.

Front and Back Panel

Front Panel

1. 2x USB 3.2 Gen 1 Port (blue)
2. USB-C (USB 3.2 Gen 1)
3. Microphone input
4. Headphones output
5. LED indicator for storage activity
6. Power button
7. LED indicator for power state

Back Panel

8. DC-in connector for power adapter
9. DisplayPort 1.4a audio/video output
10. HDMI 2.0b audio/video output
11. 2x USB 3.2 Gen 1 Port (blue)
12. 2x USB 3.2 Gen 2 Port (ret)
13. RJ45 Gigabit LAN Port
14. Ventilation openings

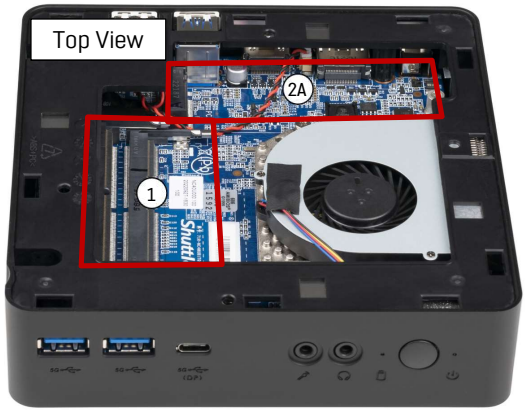
With Stand

14. Ventilation openings
15. Vertical stand
16. Hole for the Kensington Lock
17. 2x perforation for optional WLAN antennas
18. VESA mount (two parts with screws)

VESA Mounting

REQUIRED COMPONENTS

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



(1) Memory Modules

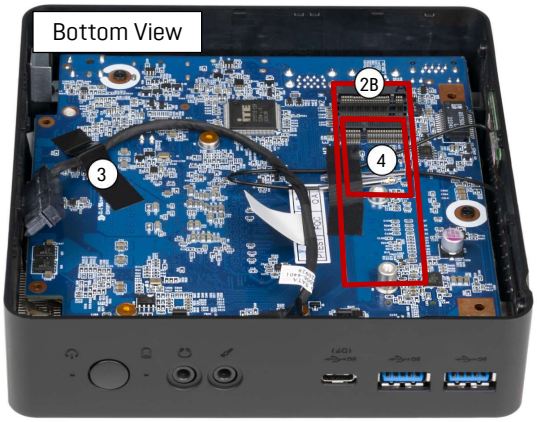
Supports up to two DDR4-3200
SO-DIMM memory modules
Max. capacity: 2 x 32 GB = 64 GB

(2) M.2-2280 SSD

Supports up to two SSD cards-in M.2-2280 form factor
2A) PCIe Gen4/NVMe (from the top)
2B) PCIe Gen3/NVMe or SATA (from the bottom)

(3) 2.5" Storage Drive

Supports one 2.5" SATA hard disk
or Solid State Disk (SSD)
(max. height: 15 mm)

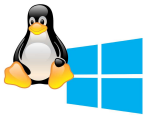


(4) M.2 WLAN Module (optional)

Supports one standard M.2-2230 WLAN module
Two internal antennas are already pre-installed
and antenna cables are ready to be connected.

Optional Shuttle WLAN-Accessory Kit with two external antennas

WLN-M (802.11ac / Wi-Fi 5 / BT 4.2)
WLN-M1 (802.11ax / Wi-Fi 6 / BT 5.2)
Including WLAN card and two external antennas with cables (internal antennas can also be used instead)



(5) Operating System

Windows 10, Windows 11 or Linux (64-bit only)

Shuttle Product Comparison: NC10U versus NC40U

MODEL	NC10U Series	NC40U Series
Chassis	Plastic chassis, black LWH: 142 x 142 x 42 mm (847 ml)	Plastic chassis, black LWH: 142 x 142 x 42 mm (847 ml)
Processor	**NC10U:** Intel Celeron 4205U **NC10U3:** Intel Core i3-8145U **NC10U5:** Intel Core i5-8265U **NC10U7:** Intel Core i7-8565U Intel "Whiskey Lake-U" (8th Gen) Technology: 14 nm, TDP: 15 W	**NC40U:** Intel Celeron 7305 **NC40U3:** Intel Core i3-1215U **NC40U5:** Intel Core i5-1235U **NC40U7:** Intel Core i7-1255U Intel "Alder Lake-U" (12th Gen) Technology: 10 nm, TDP: 15 W
RAM Suppport	2x SO DIMM (260-pins) max. 2x 32 GB DDR4-2133/2400	2x SO DIMM (260-pins) max. 2x 32 GB DDR4-3200
2.5 bay	Supports 2.5" SATA drive max. height: 15 mm	Supports 2.5" SATA drive max. height: 15 mm
M.2-2280 slot	M.2-2280M supports PCIe Gen3 X4 and SATA (PCIe Gen2 for Celeron CPU)	M.2-2280M supports PCIe Gen3 X4 and SATA M.2-2280M supports PCIe Gen4 X4 Supports Intel VMD Raid function
Video	Supports Dual Display via HDMI 2.0a and DP 1.2	Supports Triple Display via HDMI 2.0b and 2x DP 1.4a (1x via USB-C)
Audio	Realtek ALC662 (HD Audio)	C-Media CM6542 (USB)
GIGABIT LAN	Intel i211	Intel i219
WLAN (M.2-2230 Slot)	Realtek RTL8188EE 1x Internal Antenna Supports 802.11n (1T1R)	Prepared for WLAN card, but not included M.2-2230E slot onboard 2x internal antennas pre-installed 2x perforation for optional external antennas
Front Panel	On/Off button Power LED, HDD LED 1x USB 3.2 Gen 1, Type A 1x USB 3.2 Gen 1, Type C SD card reader	On/Off button Power LED, HDD LED 2x USB 3.2 Gen 1, Type A 1x USB 3.2 Gen 1, Type C supports DisplayPort 1.4a 2x 3.5 mm Audio (Mic + Headphones)
Back Panel	HDMI 2.0a DisplayPort 1.2 2x USB 2.0, Type A RJ45 Gigabit LAN Audio Combo Port (Mic + Headphones) DC-Input for power adapter	HDMI 2.0b DisplayPort 1.4a 2x USB 3.2 Gen 2, Type A 2x USB 3.2 Gen 1, Type A RJ45 Gigabit LAN DC-Input for power adapter
Left Side	COM-Port (RS232)	—
Right Side	2x Perforation for optional external antennas	2x Perforation for optional external antennas
Power Adapter	65 W (19 V, 3.42 A)	65 W (19 V, 3.42 A)
Vertical Stand	included	included
VESA Mount	included	included
Optional Accessories	**WLN-M/M1:** WLAN kit with external antennas	**WLN-M/M1:** WLAN kit with external antennas
Front View		
Back View		

SHUTTLE XPC nano BAREBONE NC40U-Series — SPECIFICATIONS

CHASSIS	Barebone PC with a black plastic chassis Dimensions: 142 x 142 x 42 mm (LWH) = 847 ml Weight: 0.4 kg net, 1.2 kg gross Hole for Kensington Lock Includes vertical stand and 75 / 100 mm VESA mount
OPERATION POSITION	1) Horizontal 2) Vertical with stand 3) VESA-mounted behind an appropriate monitor
OPERATION SYSTEM	This barebone system comes without operating system. It is compatible with: - Windows 10, 64-bit - Windows 11, 64-bit - Linux, 64-bit
PROCESSOR	Model: Intel Celeron 7305 12th Generation Intel Core, code name "Alder Lake-U" System-on-a-chip architecture (SoC) with integrated memory and graphics controller FCBGA1744 package - directly soldered onto the mainboard Prozessorkerne: total 5 - Performance Cores: 1 P-Core (1 Thread) at 1.1 GHz basis clock - Efficient Cores: 4 E-Cores at 0.9 GHz basis clock Smart Cache: 8 MB TDP wattage: 15 W maximum Manufacturing process: Intel 7 (10 nm) Maximum Tjunction Temperature: 100 °C
COOLING FAN	Built-in CPU cooling fan with 4-pin connector Supports temperature-controlled RPM fan speed
INTEGRATED GRAPHICS	Intel UHD Graphics with 48 Execution Units (EU) Graphics Max Dynamic Frequency: 0.9 GHz This PC supports up to three independent screens with up to 2160@ 60 Hz (Ultra HD / 4K): 1) DisplayPort (supports DP 1.4a) 2) USB-C Port (supports DP 1.4a and USB 3.2 Gen 1) 3) HDMI-Port (supports HDMI 2.0b)
UEFI FIRMWARE	AMI BIOS in 32 MByte EEPROM with SPI interface Supports resume after power failure Supports Wake on LAN (WOL) Supports Power on by RTC Alarm Supports hardware monitoring and Watchdog function Supports Unified Extensible Firmware Interface (UEFI) Supports Firmware TPM v2.0 (fTPM) (Hardware TPM optional, on project request only)
MEMORY SUPPORT	2x SO-DIMM slot with 260 pins Supports DDR4-3200 (PC4-25600) SDRAM at 1.2 V Supports Dual Channel mode Supports a maximum of 32 GB per DIMM, maximum total size: 64 GB Supports two unbuffered DIMM modules (no ECC or registered)
2.5" DRIVE BAY	Supports one Serial ATA hard disk or one SATA SSD drive in 6.35 cm / 2.5" format Device height: 15 mm (max.) Supports Serial-ATA III, 6 Gb/s (max. 600 MB/s) bandwidth Pre-installed SATA/power cable

Two M.2-2280M SSD SLOTs	This PC comes with two M.2-2280M slot for SSD cards in M.2 form factor: 1) M.2-2280M slot supports PCIe Gen4 x4 (from the top) 2) M.2-2280M slot supports PCIe Gen3 x4 and SATA v3.0 (from the bottom) It 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. Two thermal pads for M.2 SSDs are included. **Supports RAID configuration** thanks to the Intel® Volume Management Device Technology (Intel® VMD). Supports RAID 0 or RAID 1 mode of two M.2 SSD cards with PCIe interface (NVMe protocol). For this the SATA mode must be changed to "Raid" in the Advanced BIOS setup.
AUDIO	C-Media CM6542 Audio Codec with USB interface Two analog audio connectors (3.5 mm) on the front side: 1) Line-out (head-phones) 2) Microphone input Digital multi-channel audio output: via HDMI and DisplayPort
GIGABIT LAN	Ethernet Controller Intel i219 Supports 10 / 100 / 1.000 MBit/s operation (Gigabit) 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 antennas with I-PEX4/MHF-IV connectors Optional Shuttle accessory: WLN-M / WLN-M1 (AC/AX WLAN card with external antennas)
FRONT PANEL CONNECTORS	1x USB-C (supports DisplayPort 1.4a and USB 3.2 Gen 1 at max. 5 GBit/s) 2x USB 3.2 Gen 1 Type A (max. 5 GBit/s, blue) Audio line-out / headphones (3.5 mm jack plug) Microphone input (3.5 mm jack plug) Power button Power LED (blue) Hard Disk LED (orange)
BACK PANEL CONNECTORS	DisplayPort 1.4a **[1]** HDMI 2.0b 2x USB 3.2 Gen 2 Type A (max. 10 GBps, red) 2x USB 3.2 Gen 1 Type A (max. 5 GBps, blue) Gigabit LAN (RJ45, Intel 219) DC-input connector for external power adapter (5.5 / 2.5 mm) 2x perforation (6.5 mm diameter) for optional external WLAN antennas
ALWAYS-ON JUMPER	By removing Jumper JP1 (please refer to the Quick Installation Guide) the system will start unconditionally once power is applied. [3]
CLEAR CMOS JUMPER	Short Jumper JP2 for about 10 seconds to restore factory settings of BIOS.
POWER SUPPLY	External 65 W power adapter (fanless) Input: 100~240 V AC, 50/60 Hz, max. 1.6 A Output: 19 V DC, max. 3.42 A, max. 65 W DC cable ca. 175 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 Driver DVD for Windows 10/11 VESA mount set (two parts), made of steel, with six screws (4x M4x10, 2x M2.5x3) Bracket for a 2.5" drive with eight screws (M3x5) Two aluminium stands (110 mm width) with four screws M3x7 for vertical operation Four black, rounded rubber feet, ca. 10 mm diameter x 2.5 mm Three screws for mounting of M.2 cards Two self-adhesive thermal pads for M.2 SSD cards Power adapter 65 W with AC power cord
OPTIONAL ACCESSORIES	- WLAN module with external antennas **[4]** **WLN-M** (802.11ac, Wifi 5, BT4.2) or **WLN-M1** (802.11ax, Wifi 6, BT5.2)
ENVIRONMENTAL SPECIFICATIONS	Operating temperature range: 0~40 °C **[2]** Relative humidity range: 10~90% (non-condensing)Conformity/Certifications

CERTIFICATIONS / COMPLIANCE	EMI: CE, UKCA, FCC, BSMI, RCM, VCCI 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)

[1] How to convert DisplayPort into HDMI/DVI
The DisplayPort outputs 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 DisplayPort (without an adapter) or HDMI/DVI (with an adapter).

[2] Caution: For high ambient temperatures over 35 °C we strongly recommend to use SSDs (supporting at least 70 °C) instead of hard disks. Ensure free circulation of air amongst the PC and ventilation holes must stay clear.

[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 this PC also comes with a hardware-based solution. By removing Jumper JP1 (please refer to the Quick Installation Guide), the system will start unconditionally once power is applied.

[4] Optional Wireless LAN module:
This Nano PC can optionally be upgraded with WLAN/Bluetooth functionality. Shuttle offers the suitable accessory kits "WLN-M" and "WLN-M1", consisting of a WLAN card in M.2-2230 format and two external antennas with appropriate antenna cables.
Note: two internal antennas are already pre-installed and can also be used instead.

SHUTTLE XPC nano BAREBONE NC40U-Series — Technical Drawings