0.5-litre fanless PC with Android supports HDMI 2.0

The Shuttle XPC nano NS02AV2 is one of the most affordable models Shuttle's product family of Mini PCs has on offer. It not only convinces by its stunning looks and reliable long-term performance alone, it also comes with an integrated Octa-Core ARM processor and pre-installed Android operating system. Featuring HDMI 2.0, 4x USB 2.0, Gigabit-LAN, WLAN-ac and a built-in card reader, they easily connect to diverse peripheral devices for different kinds of application. The NS02EV2 version also includes Power-over-Ethernet (PoE). This product is particularly intended for digital signage and Thin Client applications.

XPC nano System

NS02AV2

Images for illustration purposes only.

Feature Highlights

nano Design	• Slim plastic chassis, black, 577 ml • Dimensions: 141 x 141 x 29 mm (LWH) • Weight: 0.65kg gross, 0.27kg net • VESA mount (75x75 / 100x100mm)
Operating System	• Android 8.1 (“Oreo”) [1]
Processor	• Rockchip RK3368 Octa Core Cortex-A53 64-bit SoC, 1.5 GHz max. clock speed
Graphics	• PowerVR SGX6110 GPU up to 600 MHz • Supports videos at 4K@60fps
Memory / Storage	• 2 GB RAM onboard • 16 GB eMMC onboard
Front Panel	• Power Button with Power LED and HDD LED • 2x USB 2.0, SD card reader
Back Panel	• HDMI 2.0, 2x USB 2.0, RJ45 Gigabit LAN • Audio Line-out 3.5 mm jack • DC-Input, Hole for Kensington Lock • 2-pin connector for external power button • 2-pin connector for flash / recovery mode
Network	• Wired Gigabit LAN (RTL8211-CG) • Wireless LAN (AMPAR AP6256, 1T1R) supports 802.11 n/ac and Bluetooth 5.0
Power Supply	• External 24 W power adapter Input: 100~240 V AC, Output: 12V/2A
Other Features	• Screen rotation function • HDMI output scaler function (zoom in/out) • Auto power-on-after-power-fail • Wake up / Standby by RTC time • Operation temperature range: 0 – 40 °C • Approved for 24/7 permanent operation
Applications	• Digital Signage, Thin Client, etc.

Supplied Software

Shuttle DS Player installed on NS02AV2

Shuttle DS Creator for your Android, iOS or Windows device

Improvements of the NS02AV2

	NS02A	NS02AV2
USB Ports	3	4
WLAN	802.11n	802.11ac
2-pin Port #1	—	Externer Power Button
2-pin Port #2	—	Flash & Recovery mode

© 2022 by Shuttle Computer Handels GmbH (Germany). All information subject to change without notice . Pictures for illustration purposes only.

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

NS02AV2 Connectors

A	2x USB 2.0
B	SD card reader
C	HDD LED indicator
D	On/Off button
E	Power LED indicator
F	DC power input
G	2x USB 2.0
H	HDMI 2.0 audio/video output
I	RJ45 Gigabit network connector
J	4-pin connector
K	Audio Line output (headphones)
L	Perforation for optional WLAN antenna
M	VESA mount

Operating Positions

1. **Horizontal**
2. **VESA-mounted behind a monitor**

Product comparison: NS02AV2 versus NS02EV2

NS02AV2 is powered by the provided 12V/24W power adapter connected to DC-input.
NS02EV2 has no power adapter included. It is intended to be powered by PoE.

Product	Power Adapter	PoE	UPC code
NS02AV2	included	–	887993601526 or 887993601595
NS02EV2	–	supported	887993601540 or 887993601601

© 2022 by Shuttle Computer Handels GmbH (Germany). All information subject to change without notice . Pictures for illustration purposes only.

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

Digital Signage Software

Introduction

Shuttle DS Player

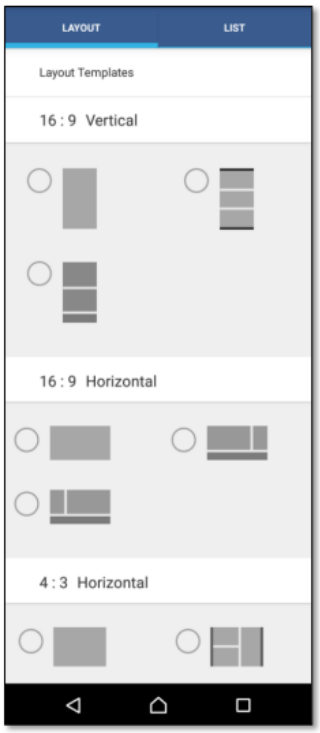
This software is already pre-installed on the Shuttle XPC nano NS02AV2/NS02EV2. This player software plays digital signage content which was previously created and uploaded with the Shuttle DS Creator software.

Shuttle DS Creator Pro

Use this free app on your phone or tablet to upload digital signage content such as scrolling text, pictures, videos and website links to your Shuttle XPC nano NS02AV2/NS02EV2. Connection happens using WLAN within the local network.
For Android: download from Google Play
For Apple: download from the App Store
For Windows: Download from http://global.shuttle.com/main/productsDownload?productId=2519

Preparing for first-time use

1) Please make sure your phone or tablet is in the same local area network (LAN) as the Shuttle XPC nano NS02AV2/NS02EV2.
2) Please install the "DS Creator Pro" app on your phone or tablet with Android or iOS operating system. Start the app and create a new project.
3) Press the new project icon for a long time and tap the Upload icon.
4) Select a "NS02V2_Series8" player, tap the Upload icon (Arrow up symbol) and set the player server password.
5) Click "OK" to upload the project. The project will then run on the player.



© 2022 by Shuttle Computer Handels GmbH (Germany). All information subject to change without notice . Pictures for illustration purposes only.

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

Supplying power to NS02AV2 and NS02EV2

NS02AV2 is powered by the provided 12V/24W power adapter connected to DC-input.
NS02EV2 has no power adapter included. It is intended to be powered by PoE.

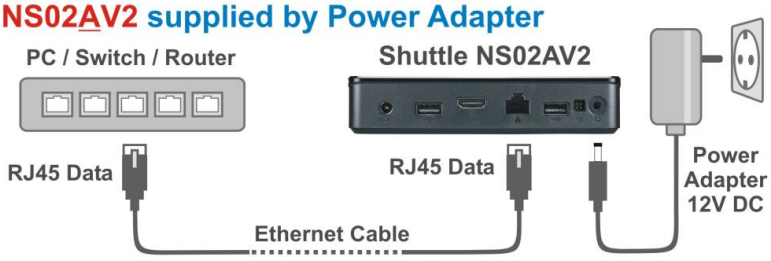
Power-over-Ethernet (PoE) technology enables network devices to be powered over the existing network cable and will not need separate power and data cable installations and costly AC outlets in hard-to-reach places. PoE even works with long cables (CAT5e or better) of up to 100 m (330 ft) and delivers galvanically isolated power supply according to IEEE 802.3af / IEEE 802.3at standards. The Shuttle XPC nano NS02EV2 complies with both:

PoE Standards	Minimum PSE power	Maximum PD power	PD voltage	Sufficient for NS02EV2?
IEEE 802.3**af** (PoE)	15.4 W	12.95 W	44~48 V	NS02EV2 **without** additional components
IEEE 802.3**at** (PoE+)	30.0 W	25.5 W	44~57 V	NS02EV2 **with** external USB peripherals

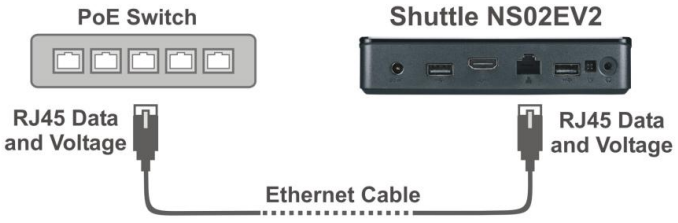
Power Sourcing Equipment (PSE): provides power over the Ethernet cable. The two methods are:
- Endspan: PoE Switch incorporating Powerover-Ethernet technology (see Solution 2 below)
- Midspan: PoE Injector (see Solution 3 below)

Powered Device (PD): In this case the PD is the NS02EV2, which receives power and data over the same cable.
The Shuttle XPC nano System **NS02EV2** accepts a PoE input voltage of 36~57 V. Additionally, it can also be supplied over the 12V DC-in connector (power adapter not included).

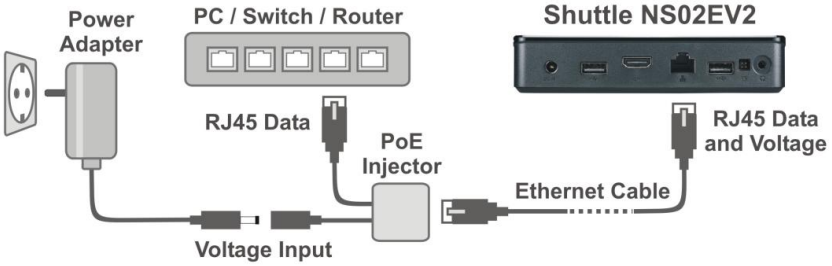
Solution 1: NS02AV2 supplied by Power Adapter



Solution 2: NS02EV2 supplied by PoE Switch



Solution 3: NS02EV2 supplied by PoE Injector



© 2022 by Shuttle Computer Handels GmbH (Germany). All information subject to change without notice . Pictures for illustration purposes only.

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 nano NS02AV2 - Specifications

Chassis	PC system with a black plastic chassis Dimensions: 141 x 141 x 29 mm (LWH) = 577 ml Weight: 0.27 kg net, 0,65 kg gross Hole for Kensington Lock
24/7	Approved for 24/7 permanent operation
Operating System	Android 8.1 (“Oreo”) pre-installed **[1]**
Installed Software	This player software plays digital signage content which was previously created and uploaded with the Shuttle DS Creator software.
Free app	Use this free app on your phone or tablet to upload digital signage content such as scrolling text, pictures, videos and website links to your Shuttle XPC nano NS02AV2. Connection happens using WLAN within the local network. For Android: download from Google Play For Apple: download from the App Store For Windows: Download from global.shuttle.com
Special Features	+ Supports hardware solution for auto power on (power-on-after-power-fail) + Supports wake-up and shut-down by time setting + Supports screen rotation + Supports video output scaler function (zoom in/out)
Processor	Rockchip RK3368 Octa Core Cortex-A53 64-bit SoC with NEON co-processor 28 nm HKMG process Clock speed: 1.5 GHz max.
Integrated Graphics	PowerVR SGX6110 GPU Clock speed: up to 600 MHz Supports OpenGL ES3.1 and OpenCLES3
Power Adapter	External 24 W power adapter (fanless) Input: 100~240 V AC, 50/60 Hz, max. 0.7 A Output: 12 V DC, max. 2.0 A, max. 24 W DC Connector: 5.5/2.5 mm (outer/inner diameter)
Memory	2 GB DDR3L onboard
Flash Memory	16 GB eMMC Flash Memory onboard

© 2022 by Shuttle Computer Handels GmbH (Germany). All information subject to change without notice . Pictures for illustration purposes only.

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

Audio	Audio chip: Realtek® ALC5640-VB Analog 3.5 mm audio line output for headphones Digital audio output via the HDMI connector
Gigabit LAN	LAN chip: Realtek® RTL8211F-CG Supports 10 / 100 / 1.000 MBit/s operation (Gigabit) Supports Wake On LAN (WOL)
Wireless Network (WLAN & BT)	Chipset: AMPAR AP6256 One internal antenna (1T1R) **[3]** Supports Wireless LAN IEEE 802.11b/g/n/ac at 2,4 and 5 GHz Supports Bluetooth 5.0 (UART interface)
Card Reader	Integrated SD card reader Supports SD, SDHC and SDXC memory flash cards Supports booting from SD card for image update
Front Panel Connectors	2x USB 2.0 SD card reader (supports SD, SDHC, SDXC) Power button Power LED (blue), HDD LED (orange)
Back Panel Connectors	HDMI 2.0 supports 2160p/60Hz and CEC 2x USB 2.0 Gigabit LAN (RJ45) Audio Line Out / headphones connector, 3.5 mm jack DC-input connector for external power adapter 2-pin connector for external power button (wakeup/suspend mode) 2-pin connector for image flash or android recovery mode
VESA Mount	VESA mount set (made of steel, includes screws) Supports 75x75 and 100x100 mm
Supplied Accessories	Quick Installation Guide VESA mount includin screws AC Power Adapter (NS02AV2 only) WLAN antenna cable, 10 cm **[3]** Rubber feet
Environmental Specifications	Operating temperature range: 0~40 °C Relative humidity range: 10~90% (non-condensing)

© 2022 by Shuttle Computer Handels GmbH (Germany). All information subject to change without notice . Pictures for illustration purposes only.

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

Conformity Certifications	EMI: CE, FCC, BSMI, RCM, VCCI Safety: CB (IEC 60950/62368 & cTUVus), BSMI, ETL Other: RoHS, 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) 2014/30/EU relating to electromagnetic compatibility (EMC), (2) 2014/35/EU 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) 2014/53/EU Radio Equipment Directive (RED)

[1] An Android image with root privileges is available on request.
[2] The NS02AV2 / NS02EV2 does not support Google Play services which includes Google Play.
[3] The device is equipped with an internal WLAN antenna. The chassis also features a perforation for the optional installation of an external WLAN antenna. The matching antenna cable with SMA connector is included, the antenna, however, is not.

© 2022 by Shuttle Computer Handels GmbH (Germany). All information subject to change without notice . Pictures for illustration purposes only.

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