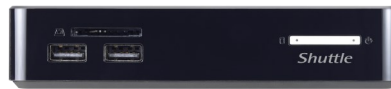


NS02A/NS02E

NANO PC



PROCESSOR	Rockchip RK3368 Octa Core 64 bit SoC, 1.5 GHz max	
MEMORY	2GB onboard	
VIDEO GRAPHICS	PowerVR SGX6110 GPU, supports H.265 videos	
VIDEO OUTPUT	HDMI port	
AUDIO	Realtek ALC5640-VB3	
ETHERNET	RTL8211F-CG 10/100/1000 MB/s operation	Miracast support
WI-FI	RTL8723BS 802.11 b/g/n 1T1R with Bluetooth 4.0	
STORAGE INTERFACE	16GB eMMC onboard	
FRONT PANEL	(1) Power Button (1) Power LED (1) HDD LED	(2) USB 2.0 ports (1) SD Card Reader
BACK PANEL	(1) HDMI 2.0 (1) USB 2.0 (1) RJ45 Gigabit LAN port	(1) Kensington Lock (1) Line-out 3.5mm jack (1) DC-in
POE (NS02E only)	Power over Ethernet (PoE) Powered device with 12V input, 802.3at compliant	
POWER (NS02A only)	Input: 100 - 240V AC Output: 12V 2A DC	24W power adapter
DIMENSIONS	5.55(L) x 5.55(W) x 1.14(H) inches	
ACCESSORIES	Quick Guide HDD rack and cable (optional) 12V/24W power adapter	VESA mount VESA mount screws Rubber mats
EXPANSION SLOT	(1) 2.5" 7mm HDD	
OS SUPPORT	Android 8.1 preinstalled [1]*	

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NS02A/NS02E

NANO PC

CHASSIS	Black plastic chassis Kensington lock slot on one side of chassis Dimensions: 5.55 (L) x 5.55 (W) x 1.14 (H) inches Weight: 0.59 LBS (net) / 1.4 LBS (gross)
POWER ADAPTER (NS02A)	External 24W power adapter (fanless) Input: 100 - 240 V AC, 50/60 Hz, max. 0.7A Output: 12V DC, max 2.0A, max 24W DC Connector: 5.5/2.5mm (outer/inner diameter)
OPERATING SYSTEM	Android 8.1 (Oreo) pre-installed [1]*
PROCESSOR SUPPORT	Rockchip RK3368 Octa Core Cortex A53 64 bit SoC with NEON co-processor 28 nm HKMG process Clock speed: 1.5 GHz max.
MEMORY SUPPORT	16GB eMMC Flash Memory onboard
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)
DS CREATOR PRO FREE APP	Use this 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 NS02E (connect using LAN within the local network). For Android: download from Google Play (requires Android 8.X or later) For Apple: download from the App store (require iOS 11.X or later) For Windows: download from global.shuttle.com
POWER-OVER-ETHERNET (PoE)	NS02E supports Power-over-Ethernet (PoE) according to IEEE 802.3at [2]* PoE voltage range of RJ45 connector: 36 - 57 VDC.
WIRED NETWORK	Realtek® RTL8211F-CG Supports 10/100/1000 MB/s operation Supports Wake-on-LAN
WIRELESS NETWORK	Realtek® RT8723BS One internal antenna (1T1R) Supports wireless LAN IEEE 802.11 b/g/n at 2.4 GHz Max. PHY data rate: 150 MB/s in 802.11n mode Supports Miracast, Supports Bluetooth 4.0
INSTALLED SOFTWARE	The installed player software plays digital signage content that was previously created and uploaded with the Shuttle DS Creator software
INTEGRATED GRAPHICS	PowerVR SGX6110 GPU Clock speed: up to 600 MHz Supports OpenGL ES3.1 and OpenCLES3 Video hardware decoder supports: -4Kx2K, 30 FPS with H.264 coding -4Kx2K, 60 FPS with H.265 coding -1080p, 30 FPS with H.264/MVC/VP8 coding 4K UHD video playback 60 Hz refresh rate (2160p/60Hz) is only supported with H.265 decoder
CARD READER	Integrated card reader supports SD, SDHC, SDXC memory flash cards Supports boot up from SD card for image update
VESA MOUNT	VESA mount set (made of steel, includes screws) Supports 75x75 and 100x100 mm
FRONT PANEL CONNECTORS	SD Card Reader USB 2.0 x 2 Power button Power indicator (Blue LED) Hard disk drive indicator (orange LED)

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NS02A/NS02E

NANO PC

AUDIO	Realtek® ALC5640-VB Analog 3.5 mm audio line output for headphones Digital audio output via the HDMI connector	
BACK PANEL CONNECTORS	HDMI 2.0 supports 2160p/60Hz USB 2.0 Gigabit LAN RJ45 (NS02E supports PoE)	Audio line out/headphones connector, 3.5 mm jack DC input connector for external power adapter
INCLUDED ACCESSORIES	XPC installation guide Rubber feet	AC power adapter (NS02A only) VESA mount (75/100mm standard w/ screws)
ENVIRONMENTAL CRITERIA	Operating temperature: 0 - 40°C	Humidity: 10 - 90% (non-condensing)
CERTIFICATIONS	EMI: FCC, CE, BSMI, R&TTE, VCCI Safety: ETL, CB, BSMI This model is classed as a technical information equipment (ITE) in class B and is intended for use in living rooms and offices. The CE mark approves 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 eco-design requirements for energy related products (ErP) (4) 1999/5/EC related to Radio and Telecommunications Terminal Equipment (R&TTE)	

[1] An Android image with root privileges is available upon request. The NS02A/NS02E does not support Google Play services which includes the Google Play store. The installed operating system Android 5.1.1* is delivered with the security patch level from April 2016. Future updates are not planned.

*Units are now preloaded with Android 8.1

[2] NS02E can be powered by IEEE 802.3 at from either a PoE switch or a PoE injector (it can be powered by an optional external power supply at the same time). Please note that we do not provide this power adapter with the NS02E. If you need a power adapter, you can either use product version NS02A (no PoE function with adapter provided) or purchase a suitable power adapter with these output specifications: 12V DC, at least 2A and 20W, DC connector: 5.5/2.5 mm (outer/inner diameter).

BIOS DOWNLOADS: <http://global.shuttle.com/products/productsDownload?productId=2099>

SUPPORT LIST: <http://global.shuttle.com/products/productsSupportList?productId=2099>

FAQ LIST: <http://global.shuttle.com/support/faq>

PRODUCT WARRANTY: <https://us.shuttle.com/barebone-support/policy-xpc-barebone/>

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NS02A/NS02E

NANO PC

Front View



- | | | | |
|---|----------------|---|--------------|
| 1 | USB 2.0 x 2 | 4 | Power button |
| 2 | SD Card Reader | 5 | Power LED |
| 3 | HDD LED | | |

Back View



- | | | | |
|---|--------------------|---|-------------------|
| A | DC power input | D | USB 2.0 |
| B | HDMI 2.0 | E | Audio line output |
| C | Gigabit LAN (RJ45) | | |



Kensington Lock hole

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NS02A/NS02E

NANO PC



ROCKCHIP RK PROCESSOR

With its compact design, the Rockchip RK3368 Octa Core processor has a built-in DDR3L 2GB low voltage memory to effectively reduce the power consumption of the system.



SPACE SAVING SIZE

The small size of the NS02 makes it suitable to mount or fit in limited spaces with a thickness of only 1.14 inches.



FREE DIGITAL SIGNAGE SOFTWARE

With the free DS Creator Pro app from Google Play or Apple App Store, users can easily schedule and dispatch their content to the NS02 series through their mobile devices ([see guide here](#))



SUPPORTS POWER OVER ETHERNET (NS02E)

The NS02E is designed for PoE support, allowing the device to receive power from a PoE injector or PoE switch hub. Users can easily do on-site installation without having to connect to AC power, resulting in lower installation costs and shorter installation time.



FANLESS DESIGN

With a passive thermal cooling system, the fanless design reduces power consumption required by a fan. Use with solid state disks for an operational platform completely free of noise.

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NS02A/NS02E

NANO PC

Digital Signage Software

Shuttle DS Player

This software is already pre-installed on the Shuttle XPC nano NS02A/NS02E. This player software plays digital signage content that was previously created and uploaded with the Shuttle DS Creator software.

Shuttle DS Creator Pro (for Android 8.1 version)

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 NS02A/NS02E. Connect using WLAN within the local network.

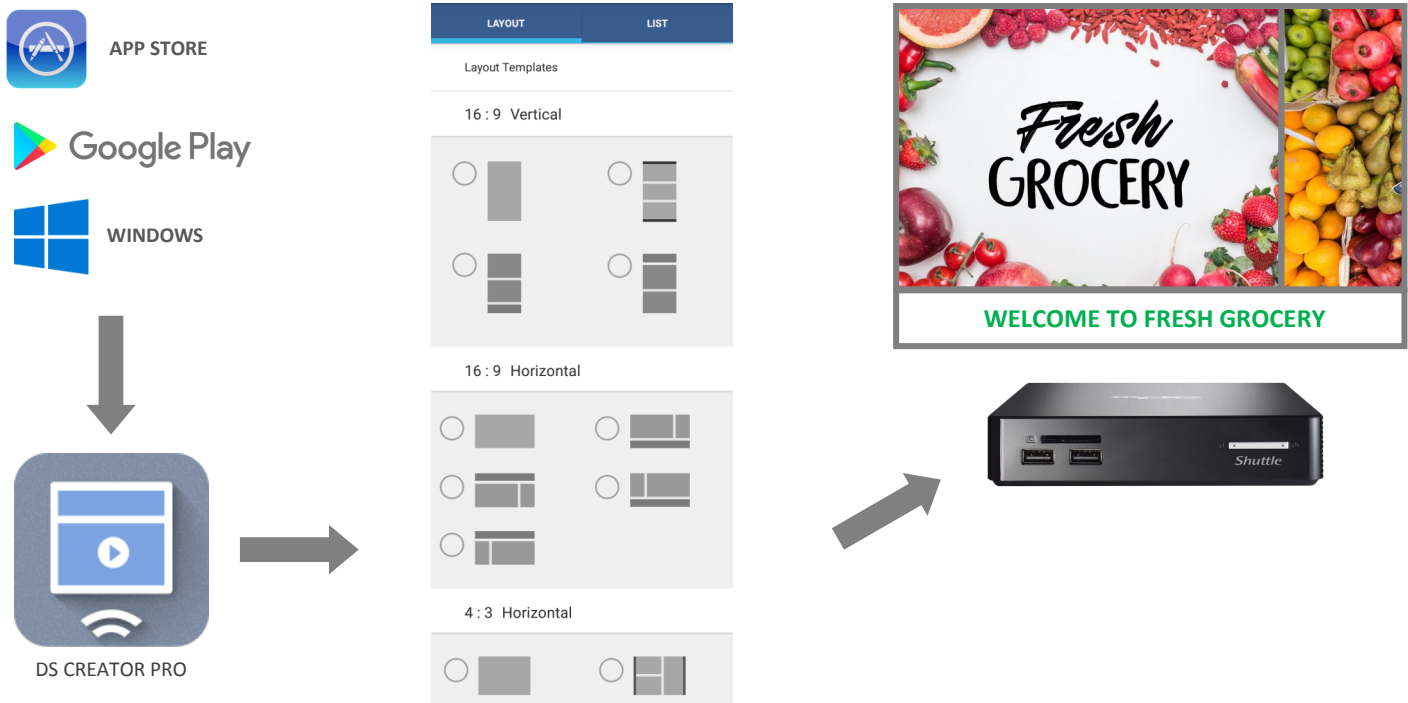
For Android: download from Google Play requires Android 8.X or later

For Apple: download from the App Store requires iOS 11.X or later

For Windows: download from <http://global.shuttle.com/main/productsDownload?productId=2099>

Preparing For First Time Use

- 1) Please install the DS Creator Pro app on your phone or tablet with Android or iOS operating system
- 2) Connect your phone or tablet is on the same local area network (LAN) as the NS02A/NS02E:
 - a) On your client device, click on Settings and select Wi-Fi
 - b) Turn on Wi-Fi then choose the network name
 - c) Confirm that your device is connected to the same LAN as your NS02A/NS02E



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NS02A/NS02E

NANO PC

Supplying Power To NS02A/NS02E

NS02A is powered by the provided 12V/24W power adapter connected to the DC input

NS02E 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, 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 NS02E complies with both:

PoE Standards	Minimum PSE Power	Maximum PD Power	PD Voltage	Sufficient for NS02E?
IEEE 802.3af (PoE)	15.4 W	12.95 W	44 - 48 V	NS02E without additional components
IEEE 802.3at (PoE+)	30.0 W	25.5 W	44 - 57 V	NS02E with 2.5" drive and external USB peripherals

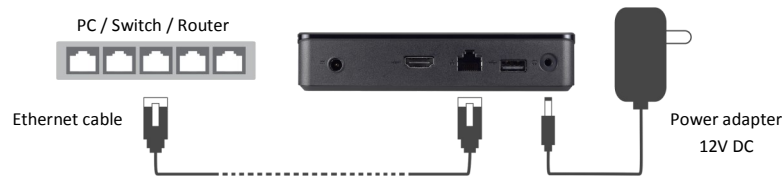
Power Sourcing Equipment (PSE): provides power over the Ethernet cable. The two methods are:

- Endspan: PoE Switch incorporating Power over Ethernet technology (see solution 2 below)
- Midspan: PoE Injector (see solution 3 below)

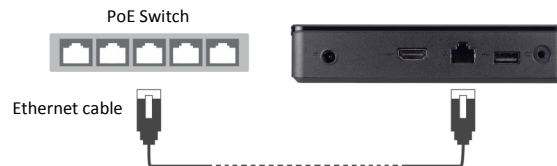
Powered Device (PD): In this case the PD is the NS02E, which receives power and data over the same cable.

The Shuttle XPC nano system NS02E accepts a PoE input voltage of 36~57V. Additionally, it can also be supplied over the 12V DC-in connector (power adapter not included).

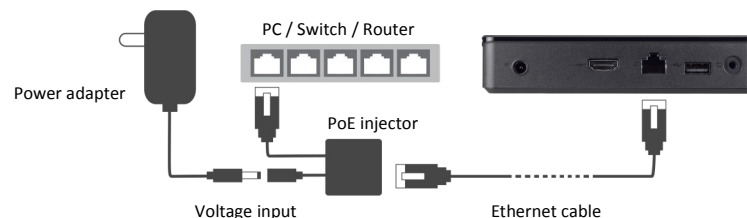
Solution 1: NS02A supplied by Power Adapter



Solution 2: NS02E supplied by PoE Switch



Solution 3: NS02E supplied by PoE Injector



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NS02A/NS02E

NANO PC



ACCESSORY	PV05
DESCRIPTION	The optional PV05 VESA mount allows the NS02 series to be attached to a monitor or TV securely with the metal frame.
ITEMS INCLUDED	VESA mount x 1, screws x 4, quick installation guide
DIMENSIONS	A: 4.9 (L) x 4.9 (W) x 0.03 (H) inches B: 3.14 (L) x 2.16 (W) x 0.03 (H) inches



ACCESSORY	PHD5
DESCRIPTION	The PHD5 rack can be installed inside the NC01U/NS01/NS02 series to hold an additional SSD or hard disk.

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