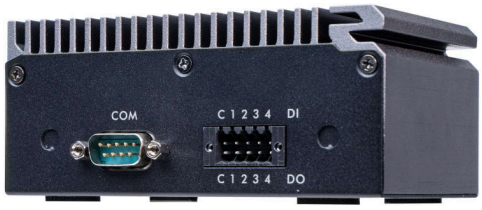
EDGE PC
Barebone
SPCEL03

ROBUST INDUSTRY PC WITH VESA/DIN-RAIL MOUNT

The Shuttle Edge PC SPCEL03 is a fanless IPC barebone in a robust 450 ml metal chassis and intended for DIN-Rail or VESA mounting. It is flexible in use and de-signed for maintenance-free 24/7 operation at ambient temperatures of up to 60°C. Inside there is an Intel Atom "Elkhart Lake" processor with slots for RAM module, M.2 SSD card and WLAN card. The small housing offers an amazing variety of connections, in-cluding dual LAN, COM port and Digital I/O. This product is targeted at professional ap-plications such as edge computing (IoT gateway), automation, digital signage, control, data logging and video surveillance.



Elkhart Lake SoC CPU | M.2 SATA-SSD SUPPORT | HDMI 2.0b | INTEL 2.5G DUAL LAN | 2x USB 3.2 1x USB 2.0 | COM PORT RS232/422/485 | DIO PORT 4 IN, 4 OUT | DIN RAIL MOUNT | VESA MOUNT | FANLESS | 24/7 SUPPORT | TEMPERA-TURE RANGE

INDUSTRIAL DESIGN

■ Rugged aluminum chassis (black) ■ Weight: 970/1200 g net/gross
■ Dimensions: 120 x 75 x 51 mm (WDH), 450 ml ■ VESA mount (100 x 100 & 50 x 50 mm) ■ DIN Rail mount ■ Supports 24/7 Nonstop Operation
■ Operating temperature: -20 ... 60 °C (20-80% RH, non-condensing)

OPERATING SYSTEM

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

PROCESSOR

■ Intel Atom x6413E "Elkhart Lake", 4-core, 1.5~3.0 GHz, TDP: 9 W
■ Soldered System-on-Chip processor (SoC) ■ Passive Cooling

MEMORY/STORAGE/M.2 slots 2)

■ One 260-pin SO-DIMM slot supports up to 32GB DDR4-3200 RAM
■ One M.2-2242/2280 M slot supports M.2-SSDs with SATA interface
■ One M.2-2230 E slot supports M.2 WLAN modules with 2 ext. antennas
Note: If a M.2 WLAN module is installed, then the M.2-SSD card is limited to M.2-2242 format

CONNECTORS

■ 1x HDMI 2.0b ■ 2x USB 3.2 Gen2 Type A ■ 1x USB 2.0 Type A
■ 2x 2.5G RJ45 LAN-Ports (Intel 226V) ■ Digital Input/Output (4+4)
■ 1x COM (RS232/422/485) ■ DC Input ■ Power Button ■ Power LED

DC INPUT

■ DC-Input supports 12-24V DC wide range voltage (the power source used should support at least 65W output wattage)
■ 3-pin terminal connector with terminal block – the third pin "IGN" acts as input for the car ignition lock which enables delayed on/off switching of the Edge PC
■ Adapter cable for external power adapter included (supports 5.5/2.5 mm DC plug), **Note:** the power adapter is not included

OTHER

■ Hardware TPM 2.0 module Infineon SLB9670VQ2
■ EMC certifications: CE, FCC Class A, VCCI
■ Safety certifications: CB/IEC62368-1:2014/2018, cTUVus/UL62368-1:2019 ■ Other: RoHS, EN 50155 OT1, EN 50121-3-2, MIL-STD-810G
■ Warning of hot surface: risk of burns!

OPTIONAL SHUTTLE ACCESSORIES

■ WLAN kit with Intel AX200 module supports WiFi 6 and Bluetooth 5.2, including two 10-cm antenna cables and two external antennas
■ Additional 2.5" bay for SATA drive (SSD or HDD)
■ Power Adapter 90W / 19V with 5.5/2.5 mm DC plug

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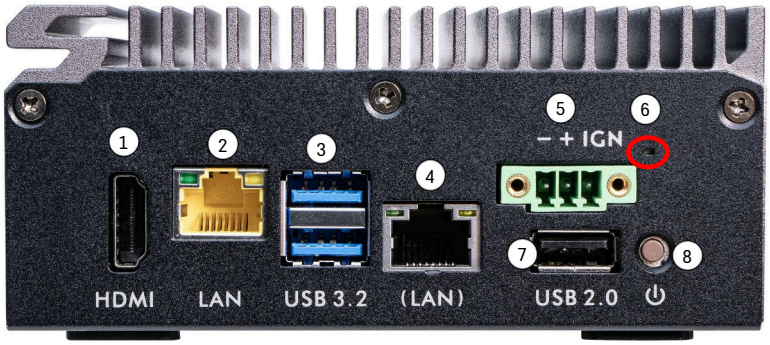
MODELS OF THE SPCELxx/SPCNVxx EDGE PC SERIES

Product UPC-Code	PoE Function	Operating Temperature	SoC Processor (soldered)	Front I/O	Rear I/O	Mounting	DC-Input
SPCEL02 887993007212	–	0 ... 40 °C	**Intel Celeron J6412** (4-core, 2.0-2.6 GHz, 10 W)	1x HDMI 2.0, 2x USB 3.2, 1x USB 2.0 2x 2.5G LAN	COM (RS232/422/485) DIO: 4x in, 4x out	VESA mount & DIN-Rail	12-24 V DC Power adapter not included
SPCEL02P Coming Soon	PoE(PD) 1)						
SPCEL03 887993007229	–	-20 ... 60 °C 2)	**Intel Atom x6413E** (4-core, 1.5-3.0 GHz, 9 W)				
SPCEL12 887993007243	–	0 ... 40 °C	**Intel Celeron J6412** (4-core, 2.0-2.6 GHz, 10 W)	2x HDMI 2.0, 1x DP 2x USB 3.2, USB 2.0 2.5G LAN	2.5G LAN, 2x Audio Nano SIM (opt. 4G) Micro-SD card reader	VESA mount	12-20 V DC Power adapter is included
SPCNV03 Coming Soon	–	-20 ... 55 °C	**NVIDIA Jetson Orin Nano** 8 GB RAM, 40 TOPS AI-Perf.	1x HDMI 1.4b, 2x USB 3.2, 1x USB 2.0 2.5G+1G LAN	COM (RS232/422/485) DIO: 4x in, 4x out	VESA mount & DIN-Rail	12-24 V DC Power adapter not included
SPCNV13 Coming Soon			**NVIDIA Jetson Orin NX** (w. fan) 16 GB RAM, 100 TOPS AI-Perf.				

1) **SPCEL02P:** The PoE feature allows this Edge PC to be powered over the LAN cable and thus it becomes a "Powered Device" (PD).
2) **SPCEL03:** at ambient temperatures >40°C, the RAM memory module and SSD card must support the extended temperature range (-40...+85 °C)

Front and Back Panel

Front panel



1. HDMI 2.0b port
2. 2.5G LAN port (RJ45, Intel 226V)
3. 2x USB 3.2 Gen 2 port (Type-A)
4. 2.5G LAN port (RJ45, Intel 226V)
5. 3-pin DC-in connector supports 12-24V DC *)
6. LED indicator for power state
7. USB 2.0 (Type A)
8. Power button

***) DC connector:** In this photo the supplied pluggable terminal block is already installed. It uses screw terminals to clamp connecting wires (–/+) coming from the power source.
The third pin "IGN" acts as input for the car ignition lock which enables delayed on/off switching of the Edge PC.

Back panel

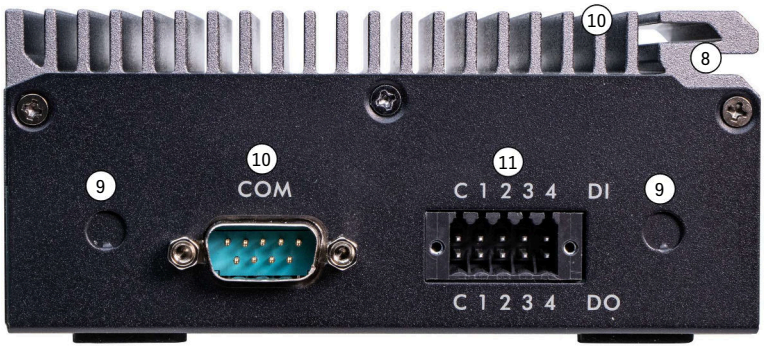


Photo with optional WLAN kit

9. 2x perforation for external WLAN antenna
10. COM port supports RS232/RS422/RS485
11. Digital I/O (4x Input, 4x Output)

Bottom side

12. Four rubber feet
13. Rating label

Warning of hot surface: risk of burns!

REQUIRED COMPONENTS

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

Shuttle Edge PC Barebone SPCEL03

Memory Module (RAM) *)

supports one SO-DIMM memory module (260-pin) DDR4-3200, max. 32 GB

M.2-22**42**
L: 42 mm

M.2-22**80**
L: 80 mm

M.2 SSD card (SATA) *)

supports one M.2-2242 SSD card with SATA interface (not PCIe/NVMe)
Note: A longer M.2-2280 card is also supported, if no WLAN module is installed.

Power Source

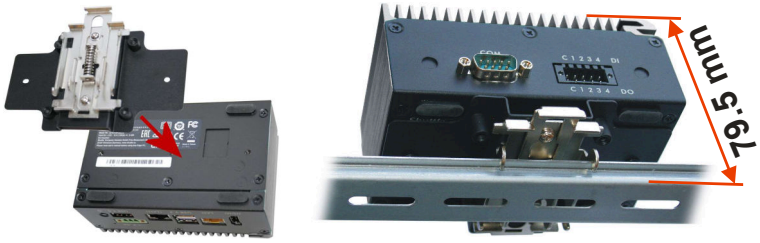
DC input supports 12-24 V DC
The power source should support ≥65W
As a power source, use e.g. a DIN Rail power supply, a car battery, or a standard power adapter with a 2.5/5.5 mm DC-plug.

Operating System

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

*) Note: at ambient temperatures >40°C, the RAM memory module and SSD card must support the extended temperature range (-40...+85 °C)

ACCESSORIES INCLUDED



DIN-Rail clip

The clip can be mounted on the underside of the Edge PC. The Edge PC can then be mounted on a standard 35 mm DIN-Rail, e.g. inside equipment racks.

Note: The black mounting plate also supports 50x50 mm VESA mounting.

VESA Mount

Supports 100x100 mm VESA mounting

DC-Input connector including cable adapter

The pluggable terminal block uses **screw terminals** to clamp connecting wires (-/+) coming from the power source. You can use the supplied **adapter cable** to connect a standard power adapter with a **2.5/5.5 mm** DC-plug.

OPTIONAL ACCESSORIES FROM SHUTTLE

WLAN Kit WLN-M3

Wi-Fi 6 WLAN card including two external antennas.
Note: If a WLAN module is installed, then the M.2-SSD card is limited to M.2-2242 format (with 42 mm length).

Power Adapter PE90

Input: 100-240 VAC, 50-60Hz
AC-Plug: angled Schuko plug (3-pin with earthing contact)
Output: 19 VDC, max. 90W
DC-Plug: 5.5/2.5 mm

2.5" bay for storage drive (coming soon)

Additional drive bay is attached to the Edge PC and supports one 2.5" hard disk or SSD drive with SATA interface

SHUTTLE EDGE PC BAREBONE SPCEL03 — SPECIFICATIONS

FANLESS AND SILENT	Completely fanless, virtually noiseless Large aluminium heatsink Passive cooling through convective heat transfer Ideal for noise-sensitive environments Fanless means less dust inside the case and thus virtually no maintenance required.
24/7 NONSTOP OPERATION	This device is approved for 24/7 permanent operation.
CHASSIS	Rugged cassis made of aluminium Colour: black Dimensions: 120 x 75 x 51 mm (WxDxH) , 460 ml (Height: ca. 53 mm including rubber feet) Weight: 720/970 g net (without/with accessories) and 1.2 kg gross
OPERATION POSITIONS	1) Mounted on a DIN-Rail, e.g. inside equipment racks 2) Vertical, e.g. VESA-mounted behind an appropriate monitor (supports 50x50 and 100x100 mm VESA standard) 3) Standing on its rubber feet like a desktop PC
OPERATING SYSTEM	This system comes without operating system. It is compatible with: - Windows 10/11 (64-bit) - Linux (64-bit)
PROCESSOR	Intel® Atom® Prozessor x6413E, Quad Core CPU clock frequency: 1.5 GHz, max. Turbo frequency: 3.0 GHz Code name: "Elkhart Lake" 10 nm process, FCBGA1493 package (soldered) CPU cores / Threads: 4 / 4 L2 Cache: 1.5 MB Thermal Design Power (TDP): 9 W System-on-Chip processor (SoC) with integrated graphics processor, no additional chipset required
PROCESSOR COOLING	Fanless cooling system with passive heat sink, virtually noiseless
INTEGRATED GRAPHICS	The Graphics Processing Unit (GPU) is integrated in the processor. Intel® UHD Graphics (Intel Gen 10), graphics frequency: 400~800 MHz Execution Units (EU): 16, Shader: 128 Max. Shared Memory (graphics memory): 8 GB Supports DirectX 12, Intel Quick Sync Video, Shared Memory Codec Support in Hardware: h265 (8-/10-bit), h264, VP8, VP9, AVC (only decoding: AV1, VC-1)
UEFI FIRMWARE	16 MB Flash ROM with AMI UEFI BIOS Firmware Based on the Unified Extensible Firmware Interface (UEFI) Supports Wake-on-LAN (WOL) from S3, S4, S5 ACPI states Supports boot up from external flash memory cards (USB or SD card) Hardware TPM v2.0: Infineon SLB9670VQ2
MEMORY SUPPORT	1x SO-DIMM slots with 260 pins Supports DDR4-3200 (PC4-25600) SDRAM at 1.2V Supports one RAM module with max. 32 GB capacity Supports one unbuffered DIMM module (no ECC) Important: at ambient temperatures >40°C, the RAM memory module must support the extended temperature range (-40...+85 °C)
M.2 SLOT FOR SSD CARDS	M.2-2242/2280 slot with SATA interface - supports SSD cards in M.2-2242 format (length: 42 mm) - only supports SSD cards in M.2-2280 format (length: 80 mm) if no WLAN card is installed - only upports SSD cards with SATA interface (not PCIe/NVMe) Important: at ambient temperatures >40°C, the M.2 SSD card must support the extended temperature range (-40...+85 °C)
M.2-2230 SLOT FOR WLAN 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) Supports WLAN expansion cards (optional Shuttle accessory: WLN-M3) Note: If a M.2 WLAN module is installed, then the M.2-SSD card is limited to M.2-2242 format with 42 mm length

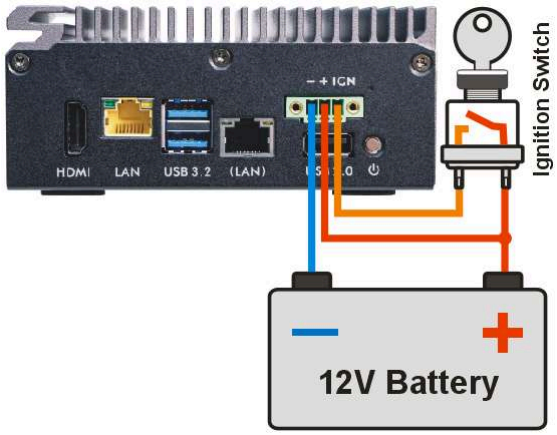
DUAL 2.5G LAN	Dual network with two RJ45 ports with two status LEDs each Used network chips: 2x Intel i226-V Ethernet Controller (PCIe) Supports 100 / 1.000 / 2.500 MBit/s operation Supports WAKE ON LAN (WOL) Supports network boot by Preboot eXecution Environment (PXE)
FRONT PANEL CONNECTORS	- Power Button - Power LED - HDMI 2.0b digital video and audio output - 2x USB 3.2 Gen 2 Type A (max. 10 Gbps) - USB 2.0 Type A - 2x 2.5G network port (LAN, RJ45) - DC input supports 12-24 V (3-pin Euroblock) **[2]**
BACK PANEL CONNECTORS	- Serial Port supports RS232/422/485 (D-Sub) - Digital I/O ports (2x5-pin connector with 4 inputs and 4 outputs) **[1]** - 2x perforated 6.5 mm holes for optional WLAN antennasDC Input
DC-INPUT CONNECTOR	DC-Input connector (3-pin Euroblock) supports a wide voltage range: 12-24V DC. Required output wattage of the power source: =65 W The pin "IGN" acts as input for the car ignition lock which enables delayed on/off switching of the Edge PC. The supplied adapter cable supports standard power adapters with 5.5 / 2.5 mm DC plug. A power adapter is not included in the scope of delivery. For further information see **[2]**
SUPPLIED ACCESSORIES	- Multi-language user guide (EN, DE, FR, ES, JP, RU, SC, TC) - Driver DVD (Windows 11, 64-bit) - Bracket #1 supports 100 x 100 mm VESA mounting standard - Bracket #2 supports 50 x 50 mm VESA mounting standard - DIN-Rail Clip for 35-mm DIN-Rail mounting (in combination with bracket #2) - Seven screws M3 x 6 mm (5x black and 2x silver) - Two thermal pads for a single-side or double-side RAM module - 3-pin Phoenix connector for the DC-input port - DC adapter cable (connects the Phoenix connector to a 2.5 / 5.5 mm coaxial DC plug of a power adapter) Note: A power adapter is not included in the scope of delivery.
OPTIONAL ACCESSORIES	**1) WLN-M3:** WLAN kit including Wi-Fi 6 card (M.2-2230), 2x antenna cable (10 cm), 2x external antennas **2) PE90:** Power Adapter (19V / 90W) **3) Coming soon:** additional 2.5" bay for a hard disk or SSD with SATA interface
ENVIRONMENTAL SPECIFICATIONS	Operating temperature range: -20 ... 60 °C (-4 ... 140 °F) Relative humidity range: 20 - 80 % (non-condensing) Warning: Never touch the heatsink during or just after operation, as it can get very hot during normal operation. Be sure to wait for the heatsink to cool off before touching it. Important: at ambient temperatures >40°C, the RAM memory module and M.2 SSD card must support the extended temperature range (-40...+85 °C)
CERTIFICATIONS / COMPLIANCE	EMI: CE, FCC Class A, VCCI Safety: CB/IEC62368-1:2014/2018, cTUVus/UL62368-1:2019 Other: RoHS, Energy Star, ErP, RoHS, EN 50155 OT1, EN 50121-3-2, MIL-STD-810G 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 eco design requirements for energy-related products (ErP)

Footnotes:

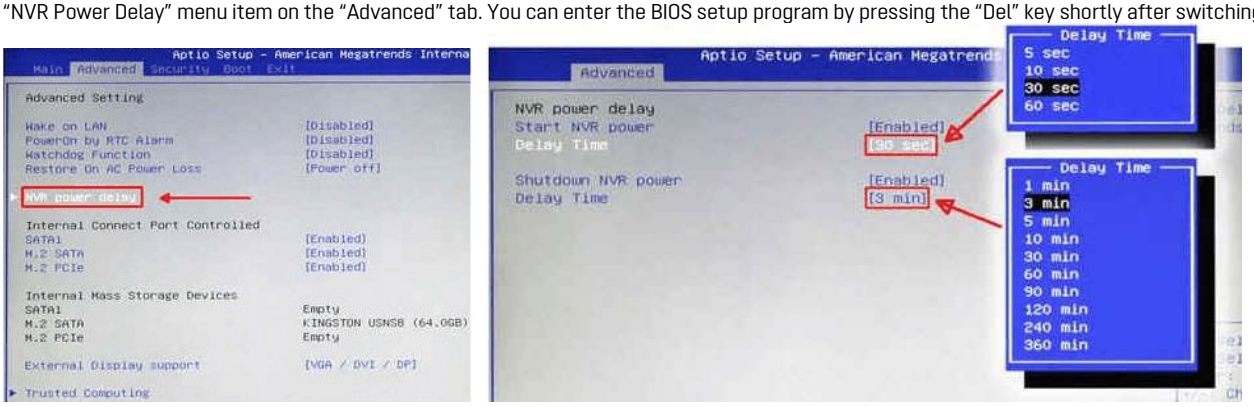
[1] The Digital I/O connection (DIO) with 2x5 pins has 4 inputs and 4 outputs for digital signals in addition to the ground (C = Common).
Technical features
- Isolation Voltage: 2500 Vrms
4x Digital Outputs:
- Voltage Rating: 0...30 V (Open collector, pull-up)
- Output Current: max. 30 mA
4x Digital Inputs:
- Logical 0: 0-3 V or close to ground
- Logical 1: 5-30V or open
Please contact Shuttle Support Hotline for further questions: support@shuttle.eu

[2] The DC input connector is designed as a 3-pin Euroblock with pluggable terminal block which uses screw terminals to clamp connecting wires (-/+) coming from the power source. The permissible input voltage range is 12-24 V and the power source should support an output wattage of at least 65 W. You can use the supplied adapter cable to connect a standard power adapter with a 2.5/5.5 mm DC-plug, such as the Shuttle accessory PE90.

The third pin "IGN" acts as input for the car ignition lock which enables delayed on/off switching of the Edge PC.



The switch-on delay (0, 5, 10, 30, 60 sec.) and switch-off delay (0, 1, 3, 5, 10, 30, 60, 90, 120, 240, 360 min.) can be set in the BIOS setup under the "NVR Power Delay" menu item on the "Advanced" tab. You can enter the BIOS setup program by pressing the "Del" key shortly after switching on the PC.



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