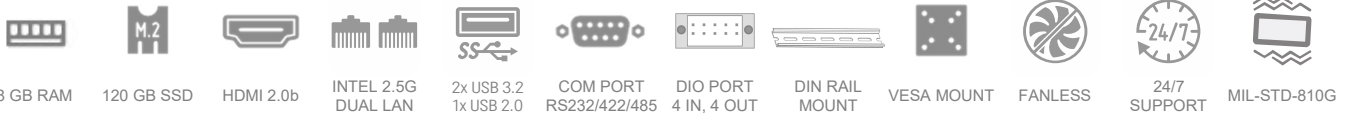# Shuttle®

EDGE PC
System
SPCEL02XA
8 GB RAM / 120 GB SSD / no OS

ROBUST INDUSTRY PC WITH VESA/DIN-RAIL MOUNT

The Shuttle Edge PC SPCEL02XA System (based on SPCEL02) is a fanless IPC bare-bone 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 40℃. Inside there is an Intel Celeron "Elkhart Lake" processor with 8 GB RAM and 120 GB SSD, but no operation system. The small housing offers an amazing variety of connections, including dual LAN, COM port and Digital I/O. This product is targeted at professional applications such as edge computing (IoT gateway), automation, digital signage, control, data logging and video surveillance.

| 8 GB RAM | 120 GB SSD | 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 | MIL-STD-810G |

INDUSTRIAL DESIGN
■ Rugged aluminum chassis (blue-green) ■ Weight: 970/1200 g net/gross ■ Dimensions: 120 x 75 x 51 mm (WDH), 460 ml ■ Mounting: VESA (100x100 & 50x50 mm) & DIN Rail ■ Supports 24/7 Nonstop Operation ■ Operating temperature: 0 … 40 °C (20-80% RH, non-condensing)

OPERATING SYSTEM
■ An operating system is not included
■ Supports Windows 10, Windows 11 and Linux (all 64-bit)
Windows 10/11 Driver Download: https://go.shuttle.eu/SPCEL0203

PROCESSOR
■ Intel Celeron J6412 "Elkhart Lake", 4-core, 2.0~2.6 GHz, TDP: 10 W
■ Soldered System-on-Chip processor (SoC) ■ Passive Cooling

MEMORY/STORAGE/M.2 slots
■ 8 GB DDR4-3200 RAM memory, SO-DIMM
■ 120 GB SSD card in M.2-2242 format with SATA interface
■ One M.2-2230 E slot supports M.2 WLAN modules with 2 ext. antennas

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, VCCI, BSMI, EN 50121-3-2
■ Safety certifications: CB/IEC62368-1:2014/2018, cTUVus/UL62368-1:2019 ■ Vibration and shock: EN61373, 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

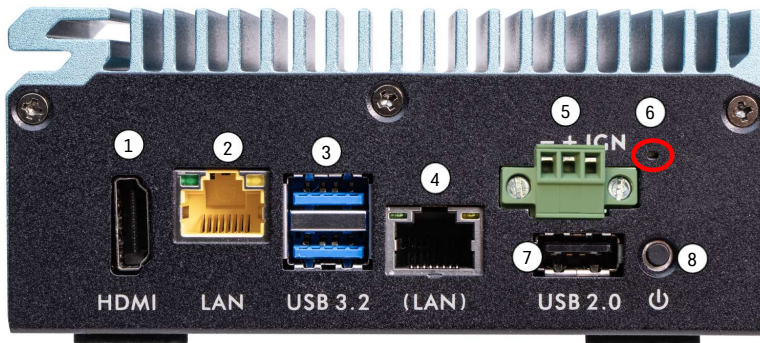4 046047 104291

MODELS OF THE SPCELxx EDGE PC SERIES

Product UPC/EAN-Code	RAM	SSD	OS	PoE	Operating Temperature	SoC Processor (soldered)	Front I/O	Rear I/O	Mounting	DC-Input
SPCEL02 887993007212	—	—	—		0…40 ℃	Intel Celeron J6412 (4-core, 2.0-2.6 GHz)	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 DIN-Rail	12-24 V DC Power adapter not included
SPCEL02XA 4046047104291	8 GB	120 GB	—							
SPCEL02WA 4046047104307	8 GB	120 GB	Win 11 IoT	—						
SPCEL02P 887993602240	—	—	—	PoE 1)						
SPCEL03 887993007229	—	—	—	—	-20…60 ℃ 2)	Intel Atom x6413E (4-core, 1.5-3.0 GHz)				
SPCEL12 887993007243	—	—	—	—	0…40 ℃	Intel Celeron J6412 (4-core, 2.0-2.6 GHz)	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	12-20 V DC Power adap. included

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℃, the RAM memory module and SSD card must support the extended temperature range (-40…+85 ℃)

Front and Back Panel

Front panel

Back panel

Bottom side

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.
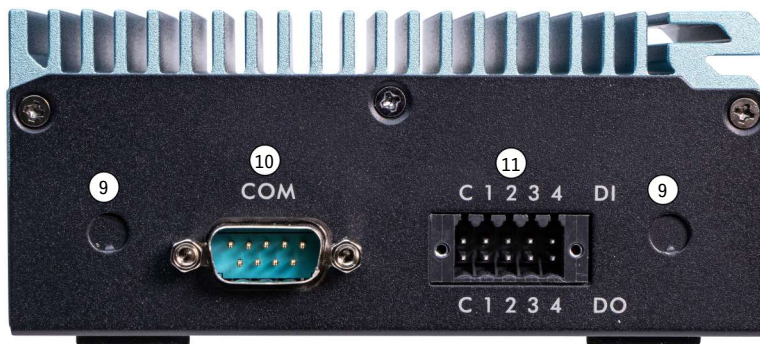

Photo with optional WLAN kit

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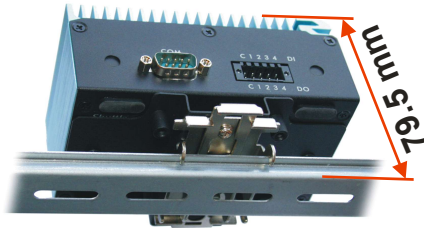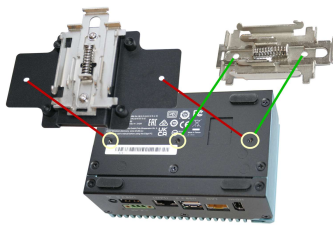11. Digital I/O (4x Input, 4x Output)

12. Four rubber feet
13. Rating label

⚠️ **Warning of hot surface: risk of burns!**
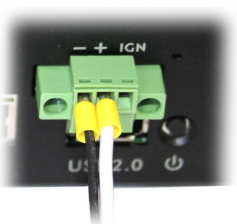
ACCESSORIES INCLUDED

DIN-Rail clip
The clip can be mounted on the underside of the Edge PC – various orientations are possible. 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.

79.5 mm

VESA Mount
Supports 100x100 mm VESA mounting

55.5 mm

Adapter cable supports 2.5/5.5 mm DC-plug

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
PE65 (65 W)
PE90 (90 W)
Input: 100-240 VAC, EU-Plug
Output: 19 VDC, max. 65/90W
DC-Plug: 2.5/5.5 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 SPCELxx EDGE PC Series — Comparison

	SPCEL02 SPCEL02P (PoE)	SPCEL03	SPCEL12
Color	Turquoise (Blue-Green)	Dark Grey	Purple
Operating Temperature	0 … 40 ℃ Fanless cooling	–20 … 60 ℃ Fanless cooling	0 … 40 ℃ Fanless cooling
Processor	Intel Celeron J6412 4-core, 2.0-2.6 GHz, 10 W	Intel Atom x6413E 4-core, 1.5-3.0 GHz, 9 W	Intel Celeron J6412 4-core, 2.0-2.6 GHz, 10 W
RAM Slot	SO-DIMM slot supports max. 32 GB DDR4-3200		SO-DIMM slot supports max. 32 GB DDR4-3200
M.2 Slots	SSD: M.2-2242/2280 slot supports M.2 SSD card with SATA interface WLAN: M.2-2230 for WLAN card *)		SSD: M.2-2242/2280 slot supports M.2 SSD card with SATA interface WLAN: M.2-2230 for WLAN card *)
4G Slot	—		M.2-2242 slot supports 4G mobile network card (30x42 mm) *)
Front View			
Front Connectors	Power Button Power LED HDMI 2.0b 2x USB 3.2 Gen 2 Type A USB 2.0 Type A 2x LAN port (2.5 Gbps) DC input (supports 12-24V)		Power Button Power LED 2x HDMI 2.0b 1x DisplayPort 1.4 2x USB 3.2 Gen 2 Type A USB 2.0 Type A LAN port (2.5 Gbps) DC input (supports 12-20V)
Rear View			
Rear Connectors	Serial Port (RS232/422/485) Digital I/O ports (4x input, 4x output) 2x hole for optional WLAN antennas		LAN port (2.5 Gbps) 2x Audio (Mic-in, Line-out) Micro SD card reader slot Nano SIM slot (for mobile network) 2x hole for opt. WLAN/4G antennas
DC Input Power Adapter	DC Input supports 12-24V Euro block port with screw terminals Incl. adapter cable for 2.5/5.5 mm Power adapter not included		DC Input supports 12-20V Connector: 2.5/5.5 mm 65W power adapter included
PoE Function	SPCEL02: No SPCEL02P: Yes, supports PoE	No	No
VESA Mount	50x50 and 100x100 mm		100x100 mm
DINRail Mount	Including DINRail Clip		—
Optional Accessories	1) WLAN-Kit with two antennas 2) 2.5" bay for HDD/SSD with SATA 3) 65W power adapter		1) WLAN-Kit with 2 antennas 2) 4G antenna kit (without 4G card) 3) 2.5" bay for HDD/SSD with SATA
Dimensions	120 x 75 x 51 mm (WxDxH) , 460 ml		120 x 75 x 51 mm (WxDxH) , 460 ml
UPC Code	SPCEL02: 887993007212 SPCEL02P: 887993602240	887993007229	887993007243

*) If a WLAN or 4G card is installed, then the M.2-SSD card is limited to M.2-2242 format.
SPCEL12 can be equipped with either a WLAN or 4G function.

SHUTTLE EDGE PC SYSTEM SPCEL02XA — 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: turquoise (blue-green) 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) Download Windows-10/11 drivers here: https://go.shuttle.eu/SPCEL0203
PROCESSOR	Intel® Celeron® Prozessor J6412, Quad Core CPU clock frequency: 2.0 GHz, max. Turbo frequency: 2.6 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): 10 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
RAM MEMORY	8 GB DDR4-3200 (PC4-25600) SDRAM SO-DIMM slots with 260 pins Supports max. 32 GB capacity
M.2 SSD CARD	120 GB SSD Flash memory card in M.2-2242 form factor with SATA interface
M.2-2230 SLOT FOR WLAN CARDS	M.2-2230-E slot with these Interfaces: PCI-Express X2 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 Note: Also supports an AI accelerator module for AI applications **[3]**
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) - 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) - 3-pin Phoenix connector for the DC-input port - 2x5-pin connector/adapter for the DIO port - DC adapter cable (connects the Phoenix connector to a 2.5 / 5.5 mm coaxial DC plug of a power adapter) Note: power adapter and Driver-DVD are not included in the scope of delivery. Download Windows-10/11 drivers here: https://go.shuttle.eu/SPCEL0203
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)
ENVIRONMENTAL SPECIFICATIONS	Operating temperature range: 0 - 40 °C (32 - 104 °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.
CERTIFICATIONS / COMPLIANCE	EMI: CE, FCC Class A, VCCI, BSMI, EN 50121-3-2 Safety: CB/IEC 62368-1:2014/2018, cTUVus / UL62368-1:2019, BSMI Vibration and Shock: EN61373, 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:
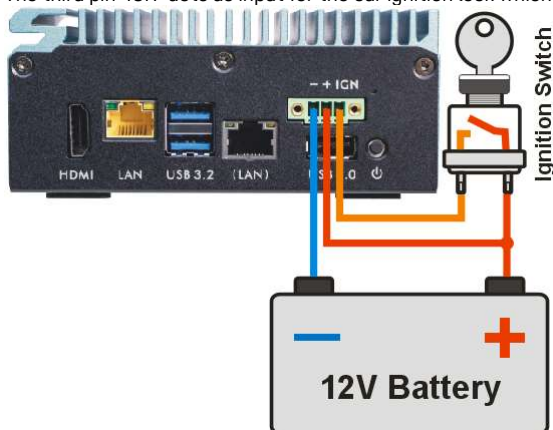- Logical 0: 0-3 V or close to ground
- Logical 1: 5-30V or open
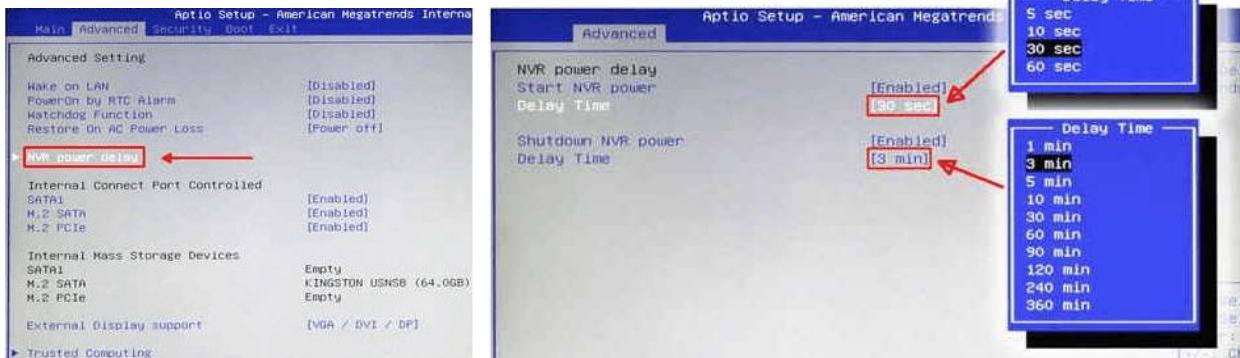Instructions and test program with source code: https://go.shuttle.eu/HJbZW
Please contact Shuttle Support Hotline for further questions: support@shuttle.eu

[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 PE65 or 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.

[3] Supports AI accelerator module for AI applications
The M.2-2230 slot of this Edge PC can also be used with an AI accelerator module instead of a WLAN card. The following AI module was successfully tested:
Model: Hailo-8
- Form factor: M.2-2230 Key A+E
- Interface: PCIe Gen-3.0, 2 lanes
- AI compute power: 26 Tera-Operations Per Second (TOPS)
- Typical TDP: 2.5 W
https://hailo.ai/products/ai-accelerators/hailo-8-ai-accelerator/#hailo8-overview