Shuttle®
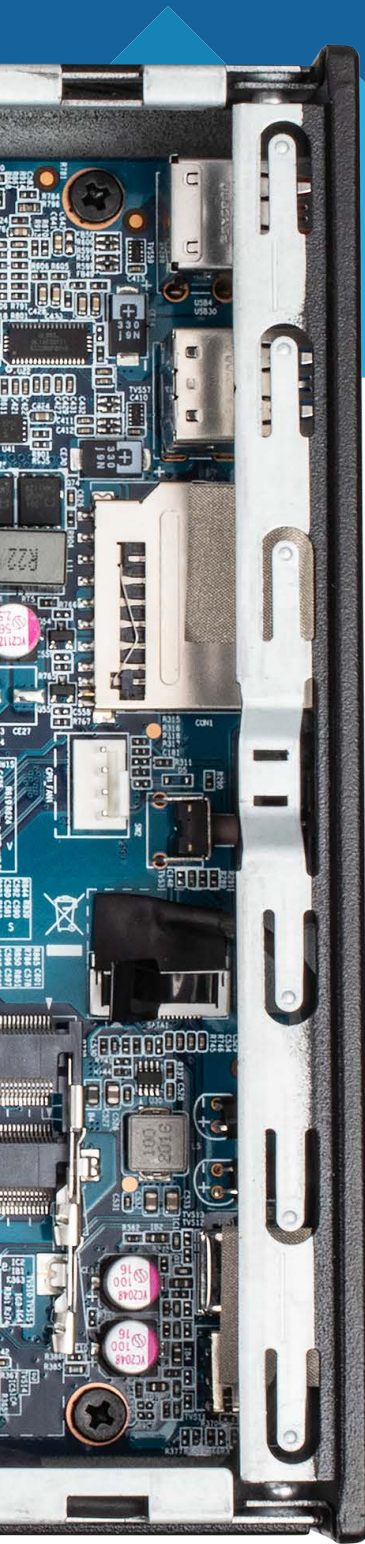
DIGITAL SIGNAGE PRODUCT GUIDE

Discover resilient, long-lasting, and trustworthy computing solutions designed to empower your future business. Our offerings span across diverse sectors, including factory automation, digital healthcare, smart retail, and IoT Edge applications.

ShuttleComputers.com
marketing@us.shuttle.com

Company Profile

Since its inception in 1983, **Shuttle** has been a trailblazer in the development of compact commercial and industrial computers, establishing a robust foundation in the technology landscape. Our proud legacy is rooted in the seamless combination of innovation, design prowess, and the manufacturing of cutting-edge computer products.

Among our impressive lineup are mini PCs, all-in-one PCs, edge computing solutions, embedded computers, and industrial and medical-grade Panel PCs. These sophisticated products find extensive applications in various domains such as automation control, intelligent self-service kiosks, digital signage, IP monitoring edge computing, machine vision, VR/AR, and more. As a result, we've garnered acclaim across diverse industries, including manufacturing, hospitality, retail, healthcare, and business.

As technology evolves at an unprecedented pace, embracing advancements like artificial intelligence and the Internet of Things, Shuttle remains at the forefront. Our commitment to continuous improvement is evident in the strengthening of our research and development capabilities and the enhancement of our system integration expertise. This strategic approach ensures that we offer a high-quality, diverse, and competitive product portfolio.

Our dedication goes beyond providing cutting-edge solutions; it extends to empowering our customers to triumph in their projects. By delivering efficiency, productivity, and effectiveness, we contribute to the success of businesses navigating the dynamic landscape of advanced technologies. At **Shuttle**, we envision a future where our innovations redefine the possibilities of computing, and we're driven to make that vision a reality.
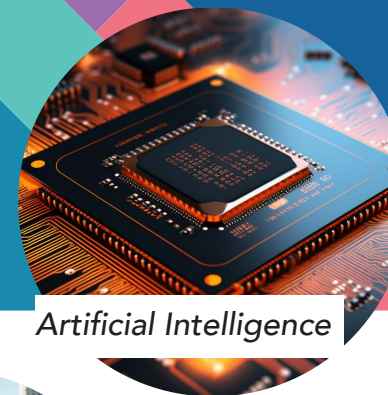
Artificial Intelligence

Automation / HMI

Digital Signage

Edge Computing

Kiosk / Smart Retail

Tech Innovations and Intergrated Solutions

Embark on a transformative journey with our comprehensive suite of solutions, seamlessly integrating cutting-edge technologies to elevate your business capabilities.

From interactive kiosk systems that redefine customer engagement to sophisticated Artificial Intelligence (AI) applications that augment decision-making processes, our offerings span a spectrum of innovative solutions.

Experience the future of automation and Human-Machine Interface (HMI) through our state-of-the-art solutions designed to optimize operations and enhance efficiency.

Our Industrial/Edge computing solutions form the backbone of your technological infrastructure, providing robust support for critical processes.
Navigate the digital landscape with confidence using our advanced digital signage solutions. Whether you're aiming to captivate audiences with dynamic displays or streamline information dissemination, our digital signage technologies offer versatility and impact.

This path of solutions isn't just a technological upgrade; it's a strategic investment in the future of your business. By seamlessly integrating kiosk, AI, automation/HMI, Industrial/Edge, and digital signage solutions, we empower you to stay ahead in a rapidly evolving digital era. Explore the possibilities, enhance your operational landscape, and pave the way for sustainable growth with our innovative suite of technologies.

Digital Signage

Digital Signage (DS) presents multimedia content on screens in public areas, serving as a versatile tool for advertising and information sharing in commercial and non-commercial settings. OOH Digital Signage (OOHD) focuses on outdoor spaces, utilizing LED billboards, bus stop displays, kiosks, and outdoor screens for impactful content delivery to a broad audience.

BPCEL02/ BPCEL03/BPCEL07

Intel Elkhart Lake-Based

Accelerate Your IoT Innovations with Powerful Computing

Shuttle BPCEL02/BPCEL03/BPCEL07 are powerful and versatile fanless embedded PCs designed with the Intel® Elkhart Lake platform, offering multiple processor options to meet different performance requirements. The series comes in a rich set of I/O and expansion interfaces, including dual Intel 2.5GbE, 4x USB 3.2 Gen 1, 4x USB 2.0, 3x RS232, M.2 2280 Type M, and M.2 2230 Type E. The modular design of this series allows for different I/O expansions and replacements to meet various customization needs. Moreover, the aluminum alloy housing design provides excellent heat dissipation and anti-interference capabilities, supporting a broad working temperature range of -30°C to +70°C. It is well-suited for several application fields, including industrial control, automation, IoT, edge computing, retail, and more.

Features

- CPU options of Intel® Elkhart Lake Pentium® J6426/ Celeron® J6412/ Atom® x6425E
- Dual independent display via HDMI (Support up to triple display through optional video output expansion kit)
- 4 x USB 3.2 Gen 1, 4 x USB 2.0, 3 x RS232, M.2 2280 Type M, and M.2 2230 Type E
- Dual Intel® 2.5G LAN supports Wake On LAN
- Dual DDR4 3200MHz memory, up to 32GB
- Multiple installation support : VESA, Ear Mount, DIN-rail

	BPCEL02	BPCEL03	BPCEL07
PROCESSOR	Pentium® J6426 Celeron® J6412 Atom® x6425E	Pentium® J6426 Celeron® J6412 Atom® x6425E	Atom® x6425E
OPERATING TEMPERATURE	0°C ~ 40°C	-20°C ~ 60°C	-30°C ~ 70°C
BUNDLED ADAPTER	19V/4.74A 90W external adapter	19V/7.89A 150W external adapter	19V/7.89A 150W external adapter

intel PENTIUM · intel CELERON · intel ATOM

Wide Range Voltage Support (Optional)
Wide Temperature
Dual 2.5G LAN
Fanless

|		BPCWL02	BPCWL03
SYSTEM	Processor	8th Gen. Intel® Whiskey Lake Core™ i3-8145UE (default) Optional : i5-8265U, i5-8365UE, i7-8565U, i7-8665UE, Celeron® 4305UE	
	Memory	2 x 260 pin SO-DIMM up to 64GB Dual Channel DDR4 2666MHz	
	BIOS	AMI UEFI 64 Mbit	
GRAPHICS	Chipset	Intel® UHD Graphics	
	Display Interface	2 x HDMI 1.4b : 4096 x 2160@30Hz	
	Display Output	Max: 3 independent or clone	
	Video Decoder	MPEG2, WMV9/VC1, AVC/H.264, JPEG/MPEG, HEVC/H.265, VP8, VP9	
STORAGE	Internal	1 x M.2 2280 M key (PCIe NVMe / SATA)	
AUDIO	Audio Codec	Realtek ALC662 / ALC888S 2-channel	
NETWORK	Ethernet	2 x Intel® Gigabit LAN Support Wake On LAN	
	WLAN	Realtek RTL8821CE 802.11a/b/g/n/ac + Bluetooth 5.0 WLAN card M.2 2230 E key (Optional) External antenna (Dipole) x2 (Optional)	
I/O INTERFACE	Serial Ports	1 x RS-232 (DB-9) 2 x RS-232/422/485 (D B-9) (RS-232 with power supply: ring in/ 5V (standard) & 12V (with specific optional board))	
	USB	4 x USB3.2 Gen 1(Type A) 4 x USB2.0	
	Audio	1 x Line-out 1 x Mic-in	
POWER	Bundled Adapter	19V/4.74A 90W external adapter	19V/7.89A 150W external adapter
	Option	With option wide range board, MB support 9-36V DC-in	
WATCHDOG TIMER	Watchdog	Support watchdog	
OS SUPPORT	OS Support	Windows 10/11 64bit / Linux 64bit	
MECHANISM	Mounting	VESA Mount 75 x 75 mm / Ear Mount 256 x 100 mm / Din Rail	
	Dimension (L/W/H)	245 x 169 x 57	245 x 169 x 57
	Weight	2.85kg	2.85kg
ENVIRONMENT	Operating Temperature	0°C ~ 40°C	-20°C ~ 60°C
	Relative Humidity	20% - 80% RH (non-condensing)	20% - 80% RH (non-condensing)
	EMC	CE, FCC, VCCI, BSMI, RCM	CE, FCC, VCCI, BSMI, RCM
	Safety	CB, CEC, cTUVus, BSMI, EAC	CB, CEC, cTUVus, BSMI, EAC

Flexible I/O Customization with Expansion Kits

Shuttle's Embedded Box PCs offer flexible I/O design, making it easy to customize and optimize IoT applications for maximum efficiency.

The front panel is divided into four sections that support optional expansion kits with daughter boards, allowing for the addition of I/O ports. Expansion must begin with Section 1, with subsequent kits occupying Section 2, and so on.
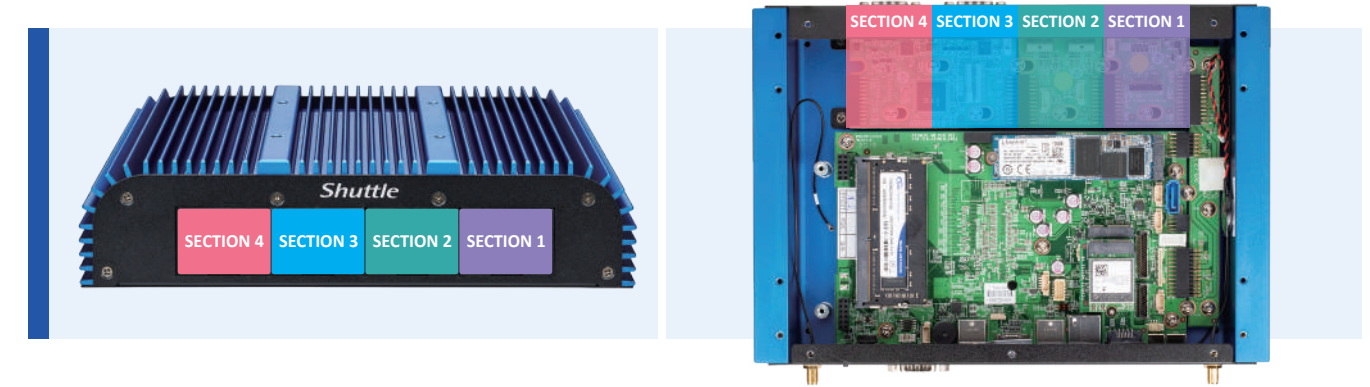
Guidance for Video Output Port Customized Configuration

BACK PANEL

DEFAULT VIDEO OUTPUT

HDMI 1.4 or HDMI 2.0

FRONT PANEL

VIDEO OPTIONS (SECTION 1)

HDMI 1.4 | HDMI 2.0
VGA | DisplayPort | DVI-I

VIDEO OPTIONS (SECTION 2)

VGA | DisplayPort

DH32U/ DH32UE

Quad Display   Dual 1G LAN   24 / 7

Powerful 1-Liter PC with Intel Tiger Lake -U Supports Four Ultra HD Displays

Experience lightning-fast performance with the DH32U series, powered by Intel® 11th Tiger Lake-U processors and advanced technologies. CPU-integrated Intel® Iris® Xe graphics and high-speed DDR4-3200Mhz memory provide exceptional bandwidth for faster transmission and superior graphics performance, making DH32U series efficient for Edge IoT computing applications such as network video recorders in security systems, digital signage, and video-based machine vision tasks. With support for up to four independent displays at 4K resolution and 60Hz refresh rate via its four native HDMI outputs, DH32U/DH32UE delivers outstanding performance in video walls, control centers, video conferencing, and other multi-display applications.

Feature

CPU options of 11th Gen Intel® Core™ i3-1115G4 / i5-1135G7 / i7-1165G7, Pentium® 7505

Built-in Intel® Iris® Xe graphics*

Four Native HDMI 2.0b for Quad displays

1 x M.2 2280 M key (PCIe Gen 4 x 4/SATA mode) for SSD, 1 x M.2 2230 E key for WIFI

Rich IO ports :
4 x USB 3.2 Gen2, 4 x USB 3.2 Gen1, 2 x RS232, 2 x Intel® Gigabit LAN

EDID (Extended Display Identification Data):
Support by the DH32UE model, allowing uninterrupted content playback even with transmission interruptions.

∗ Intel® Iris® Xe graphics for Core™ i5/i7 model only

DH610

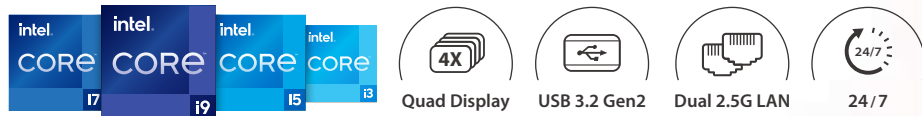## 13th Gen Power, Connectivity, 3-Display Efficiency in 1-liter Form

DH610 supports 13th/ 12th Gen Intel® Core™ i3/i5/i7/i9 processors. With Intel® new performance hybrid architecture and UHD graphics integrated, it computes performance for powering AI deployment. Support up to three displays via one HDMI 2.0 and two DisplayPort for display productivity and flexibility. Moreover, the model provides comprehensive connectivity with multiple ports, including four USB 3.2 Gen1 (Including one Type-C), four USB 2.0, two RS232, Intel® 2.5GbE + Intel® 1GbE LAN, and two M.2 expansion slots. DH610 can perform a reliable operation suitable for Office, Digital Signage, and other Multi-platform AI deployment.

| intel CORE i7 | intel CORE i9 | intel CORE i5 | intel CORE i3 | Triple Display | USB 3.2 Gen1 | 2.5G LAN | 24/7 |
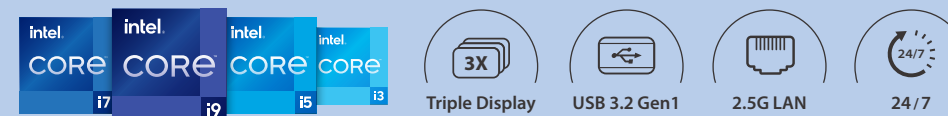
Feature

Support 13th/12th Gen Intel® Core™, Pentium®, Celeron® 65W LGA 1700 processors	Intel® 2.5GbE + Intel® 1GbE LAN	24/7 operations in 0-50°C environments
Three independent displays via one HDMI 2.0b and two DisplayPort	4 x USB 3.2 Gen1 (including one Type-C), 4 x USB 2.0, 2 x RS232, 1 x M.2 2280 M Key (PCIe 3.0 x4/SATA), 1 x M.2 2230 E Key	

DH670 / DH670 V2

intel CORE i7 · intel CORE i9 · intel CORE i5 · intel CORE i3

4X Quad Display	USB 3.2 Gen2	Dual 2.5G LAN	24/7

Compact 1-liter, Elite Performance, Future-Proof Agility

13th Gen Ready. AI-Enhancement and Four Displays

DH670 / DH670V2 supports Intel® Raptor Lake / Alder Lake hybrid architecture, combining high-performance and high-efficiency cores. Thanks to the new integrated Intel® UHD graphic processor, the model can deliver incredible clarity for 4K / 60P and bring more achievement to AI and computer vision applications. Quad-display is supported via two HDMI 2.0b and two DisplayPort. DH670 / DH670V2 offers multiple interfaces to deliver expandability and flexible connectivity, including four USB 3.2 Gen2, four USB 3.2 Gen1 (including one Type-C), two RS232 ports, and two M.2 expansion slots. It's suitable for various applications, such as digital signage and kiosk.

Feature

- Support 13th/12th Gen Intel® Core™, Pentium®, Celeron® 65W LGA 1700 processors

- Support up to 64GB DDR4-3200 memory

- Four independent displays via two HDMI 2.0b and two DisplayPort

- Flexible connectivity : 4 x USB 3.2 Gen2, 4 x USB 3.2 Gen1 (including one Type-C), 2 x RS232, 1 x M.2 2280 M Key (PCIe 4.0 x4/SATA), 1 x M.2 2230 E Key

- **DH670 V2 :** Dual Intel® 2.5 Gigabit LAN
  DH670 : Dual Intel® Gigabit LAN

DH410

Cooling system	Smart fan
Processor	Intel ® 10th Gen LGA1200 socket Core i3/i5/i7/i9, Pentium, Celeron 65W processor
Chipset	Intel® H410
Graphics	Intel® UHD Graphics series
Display Resolution Max.	HDMI : 4096 x 2160@60Hz DisplayPort : 4096 x 2160@60Hz
Display Output	2 Independent Displays
Video Decoder	MPEG2, WMV9 / VC1, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP8, VP9, AV1
Memory	2 x DDR4 2933/2666 MHz, Max. 64GB
Storage	1 x 2.5" HDD/SSD (max. 12.5 mm) / 1 x SD card(Optional)
RAID	-
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	1
DisplayPort	1
VGA Port	Optional
USB 3.2 (Front)	Gen1 : 2
USB 3.2 (Rear)	Gen1 : 2
USB 2.0 (Front)	2
USB 2.0 (Rear)	2
COM Port	1 x RS232 / 1 x RS232/422/485, Support 5V/12V
Line out / Mic in	1 / 1
Network	LAN : 2 x Intel® 1G LAN WLAN: Optional
VESA	Bracket included
Dimension	L : 190 x W: 165 x H : 43 mm
Weight	NW (kg) : 1.2 / GW (kg) : 2
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI
Operating Temperature (°C)	0~50
Chassis	Metal
Power Supply	Power Input : 12V or 19V DC in Bundled Adapter : 19V/4.74A 90W external adapter
Operating System	Windows 10/11 64bit, Linux
Optional Accessories	WLN-M, PVG01, PS02, WWN03

DH410S

Cooling system	Smart fan
Processor	Intel ® 10th Gen LGA1200 socket Core i3/i5/i7/i9, Pentium, Celeron 65W processor
Chipset	Intel® H410
Graphics	Intel® UHD Graphics series
Display Resolution Max.	HDMI : 3840 x 2160@30Hz DisplayPort : 4096 x 2160@60Hz
Display Output	2 Independent Displays
Video Decoder	MPEG2, WMV9 / VC1, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP8, VP9, AV1
Memory	2 x DDR4 2933/2666 MHz, Max. 64GB
Storage	1 x 2.5" HDD/SSD (max. 12.5 mm) / 1 x SD card(Optional)
RAID	-
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	1
DisplayPort	1
VGA Port	Optional
USB 3.2 (Front)	Gen1 : 2
USB 3.2 (Rear)	Gen1 : 2
USB 2.0 (Front)	2
USB 2.0 (Rear)	2
COM Port	-
Line out / Mic in	1 / 1
Network	LAN : 1 x Realtek 1G LAN WLAN: Optional
VESA	Optional
Dimension	L : 190 x W: 165 x H : 43 mm
Weight	NW (kg) : 1.2 / GW (kg) : 2
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI
Operating Temperature (°C)	0~50
Chassis	Metal
Power Supply	Power Input : 19V DC in Bundled Adapter : 19V/4.74A 90W external adapter
Operating System	Windows 10/11 64bit, Linux
Optional Accessories	WLN-M, PVG01, PS02, WWN03, PV04

DH32U SERIES

Cooling system	Smart fan
Processor	Intel® Pentium® Gold 7505 or Intel® i3-1115G4/i5-1135G7/i7-1165G7
Chipset	Integrated in CPU
Graphics	Intel® UHD or Iris® Xe Graphics
Display Resolution Max.	HDMI : 4096 x 2160@60Hz
Display Output	4 Independent Displays
Video Decoder	MPEG2, WMV9, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP9, AV1
Memory	2 x DDR4 3200/2933/2666 MHz, Max. 64GB
Storage	1 x 2.5" HDD/SSD (max. 12.5 mm) / 1 x SD card
RAID	-
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	4
DisplayPort	-
VGA Port	Optional
USB 3.2 (Front)	Gen2 : 4
USB 3.2 (Rear)	Gen1 : 4
USB 2.0 (Front)	-
USB 2.0 (Rear)	-
COM Port	1 x RS232 / 1 x RS232/422/485, Support 5V/12V
Line out / Mic in	1 / 1
Network	LAN : 2 x Intel® 1G LAN WLAN: Optional
VESA	Bracket included
Dimension	L : 190 x W: 165 x H : 43 mm
Weight	NW (kg) : 1.03 / GW (kg) : 2.2
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI
Operating Temperature (°C)	0~50
Chassis	Metal
Power Supply	Power Input : 19V DC in Bundled Adapter : 19V/4.74A 90W external adapter
Operating System	Windows 10/11 64bit, Linux
Optional Accessories	WLN-M, PVG01, PS02, WWN03

DH02U SERIES

Cooling system	Smart fan
Processor	Intel® Celeron 3865U or Intel® i3-7100U/i5-7200U/i7-7500U
Chipset	Integrated in CPU
Graphics	NVIDIA GeForce GTX 1050 GPU 4GB
Display Resolution Max.	HDMI : 4096 x 2160@60Hz 8192 x 4320@60Hz in Surround Mode
Display Output	4 Independent Displays
Video Decoder	MPEG, MPEG2, VC1, VP9, AVC / H.264, HEVC / H.265, AV1
Memory	2 x DDR4 2133 MHz, Max. 32GB
Storage	1 x 2.5" HDD/SSD (max. 12.5 mm)
RAID	-
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	4 (HDMI 2.0)
DisplayPort	-
VGA Port	Optional
USB 3.2 (Front)	Gen1 : 2
USB 3.2 (Rear)	Gen1 : 2
USB 2.0 (Front)	2
USB 2.0 (Rear)	-
COM Port	1 x RS232
Line out / Mic in	1 / 1
Network	LAN : 1 x Intel® Gigabit LAN WLAN: Optional
VESA	Bracket included
Dimension	L : 190 x W: 165 x H : 43 mm
Weight	NW (kg) : 2.2 / GW (kg) : 3.5
Certification	CB, CE, BSMI, ETL, FCC, RCM, RoHS, VCCI
Operating Temperature (°C)	0~50
Chassis	Metal
Power Supply	Power Input : 19V DC in Bundled Adapter : 19V/6.32A 120W external adapter
Operating System	Windows 10 64bit, Linux
Optional Accessories	WLN-M, PS02

DH670/DH670 V2 | DH610 | DH610S | DH470

	DH670/DH670 V2	DH610	DH610S	DH470
Cooling system	Smart fan	Smart fan	Smart fan	Smart fan
Processor	Intel® 13th/12th Gen LGA1700 socket Core i3/i5/i7/i9, Pentium, Celeron 65W processor	Intel® 13th/12th Gen LGA1700 socket Core i3/i5/i7/i9, Pentium, Celeron 65W processor	Intel® 13th/12th Gen LGA1700 socket Core i3/i5/i7/i9, Pentium, Celeron 65W processor	Intel ® 10th Gen LGA1200 socket Core i3/i5/i7/i9, Pentium, Celeron 65W processor
Chipset	Intel® H670	Intel® H610	Intel® H610	Intel® H470
Graphics	Intel® UHD Graphics series	Intel® UHD Graphics series	Intel® UHD Graphics series	Intel® UHD Graphics series
Display Resolution Max.	HDMI : 4096 x 2160@60Hz DisplayPort : 4096 x 2160@60Hz	HDMI : 4096 x 2160@60Hz DisplayPort : 4096 x 2160@60Hz	HDMI : 4096 x 2160@60Hz DisplayPort : 4096 x 2160@60Hz	HDMI : 4096 x 2160@60Hz DisplayPort : 4096 x 2160@60Hz
Display Output	4 Independent Displays	3 Independent Displays	2 Independent Displays	3 Independent Displays
Video Decoder	WMV9, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP9, AV1	WMV9, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP9, AV1	WMV9, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP9, AV1	MPEG2, WMV9 / VC1, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP8, VP9, AV1
Memory	2 x DDR4 3200/2933/2666 MHz, Max. 64GB	2 x DDR4 3200/2933/2666 MHz, Max. 64GB	2 x DDR4 3200/2933/2666 MHz, Max. 64GB	2 x DDR4 2933/2666 MHz, Max. 64GB
Storage	1 x 2.5" HDD/SSD (max. 12.5 mm) / 1 x SD card (only DH670)	1 x 2.5" HDD/SSD (max. 12.5 mm)	1 x 2.5" HDD/SSD (max. 12.5 mm)	1 x 2.5" HDD/SSD (max. 12.5 mm) / 1 x SD card(Optional)
RAID	0, 1	-	-	0, 1
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key	1 x M.2 2280, M Key 1 x M.2 2230, E Key	1 x M.2 2280, M Key 1 x M.2 2230, E Key	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	2	1	1	1
DisplayPort	2	2	1	2
VGA Port	Optional	Optional	Optional	Optional
USB 3.2 (Front)	Gen1 : 2(Include Type C x 1) / Gen2 : 2	Gen1 : 2(Include Type C x 1)	Gen1 : 2(Include Type C x 1)	Gen1 : 2(Include Type C x 1) / Gen2 : 2
USB 3.2 (Rear)	Gen1 : 2 / Gen2 : 2	Gen1 : 2	Gen1 : 2	Gen1 : 2 / Gen2 : 2
USB 2.0 (Front)	-	2	2	-
USB 2.0 (Rear)	-	2	2	-
COM Port	1 x RS232 / 1 x RS232/422/485, Support 5V/12V	1 x RS232 / 1 x RS232/422/485, Support 5V/12V	-	1 x RS232 / 1 x RS232/422/485, Support 5V/12V
Line out / Mic in	1 / 1	1 / 1	1 / 1	1 / 1
Network	LAN : 2 x Intel® 1G LAN (DH670) / 2 x Intel® 2.5G LAN (DH670 V2) WLAN : Optional	LAN : 1 x Intel® 1G LAN / 1 x Intel® 2.5G LAN WLAN : Optional	LAN : 1 x Intel® 1G LAN WLAN: Optional	LAN : 2 x Intel® 1G LAN WLAN: Optional
VESA	Bracket included	Bracket included	Optional	Bracket included
Dimension	L : 190 x W: 165 x H : 43 mm	L : 190 x W: 165 x H : 43 mm	L : 190 x W: 165 x H : 43 mm	L : 190 x W: 165 x H : 43 mm
Weight	NW (kg) : 1.3 / GW (kg) : 2.05	NW (kg) : 1.3 / GW (kg) : 2.05	NW (kg) : 1.3 / GW (kg) : 2.05	NW (kg) : 1.2 / GW (kg) : 2
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI
Operating Temperature (ºC)	0~50	0~50	0~50	0~50
Chassis	Metal	Metal	Metal	Metal
Power Supply	Power Input : 19V DC in Bundled Adapter : 19V/6.32A 120W external adapter	Power Input : 12V or 19V DC in Bundled Adapter : 19V/6.32A 120W external adapter	Power Input : 19V DC in Bundled Adapter : 19V/6.32A 120W external adapter	Power Input : 19V DC in Bundled Adapter : 19V/4.74A 90W external adapter
Operating System	Windows 10/11 64bit, Linux	Windows 10/11 64bit, Linux	Windows 10/11 64bit, Linux	Windows 10/11 64bit, Linux
Optional Accessories	WLN-M, PVG01, PS02, WWN03	WLN-M, PVG01, PS02, WWN03	WLN-M, PVG01, PS02, WWN03, PV04	WLN-M, PVG01, PS02, WWN03

* BIOS v2.05 and up to version support Raptor Lake (13th) CPU

* BIOS v2.02 and up to version support Raptor Lake (13th) CPU

* BIOS v2.01 and up to version support Raptor Lake (13th) CPU

DS50U SERIES

Fanless Design
With 5G/LTE Support Ready

Get Amplified Processing Power with 13th-Gen Raptor Lake-U

DS50U series is a 5G-supported fanless PC powered by Intel® 13th Gen Raptor Lake-U processor with Intel® Iris Xe graphics* and support up to 64GB DDR5 5200 memory, providing robust multi-core processing and powerful AI workloads. Combined with rich I/Os as HDMI 2.0b, DisplayPort 1.4a, VGA, USB3.2 Gen2, USB3.2 Gen1, RS232, and dual LAN. In addition, with the feature of passive cooling architecture, the DS50U series is virtually maintenance-free and is approved for 24/7 nonstop operation. The DS50U can be integrated into various IoT applications, such as IoT gateways, smart digital signage, visual processing, robotic automation control, edge computing, interactive kiosks, and more.

intel CORE i5 | intel CORE i7 | intel CORE i3 | intel INSIDE | intel iRIS Xe GRAPHICS | 3X Triple Display | Fanless | Dual LAN | 24/7

Feature

- CPU options of Intel® Core™ i3-1315U/i5-1335U/i7-1355U and Intel® processor U300

- Support optional WiFi AC+BT kit and 5G/LTE network extension kit

- 1 x Intel® 2.5G LAN + 1 x Intel® 1G LAN

- Triple-display productivity via HDMI 2.0b, DisplayPort 1.4a, and VGA outputs

- **Great connectivity :** 2 x USB3.2 Gen2, 4 x USB3.2 Gen1, 2 x USB2.0, 1 x RS232, 2 x M.2 2280 M Key and 1 x M.2 2230 E Key

* Intel® Iris® Xe graphics for Core™ i5/i7 model only

DL30N SERIES

3X Triple Display **Fanless** **Dual 2.5G LAN** **VESA**
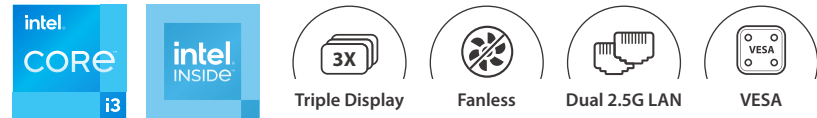
Maximize IoT Capabilities
With Reliable Fanless PC

12th Gen Processor, Dual 2.5G LAN, 4G/LTE Supports

The DL30N series is a fanless PC powered by Intel® Alder Lake-N series processors with DDR5 memory speeds up to 4800Hz. The integrated Intel® UHD graphics promise reliable performance for multitasking. Equipped with dual Intel® 2.5G LAN, it supports Wake On Lan. It is compatible with optional 802.11 AC WiFi and 4G/LTE adapter kit to enable excellent network applications. The device also features rich I/O interfaces, including HDMI 2.0b, DisplayPort 1.4a, VGA output, 8 x USB3.2 Gen1, and 2 x RS232, making it effortless to configure into various applications such as digital signage, POS/kiosk, IoT/edge, and more.

Feature

CPU options of Intel® i3-N300 or Intel® Processor N200/N100

24/7 certified in 0-40°C environments

Support optional WiFi AC+BT kit and 4G/LTE adapter kit

Triple-display productivity via HDMI 2.0b, DisplayPort 1.4a, and VGA outputs

Great connectivity : 2 x Intel® 2.5G LAN, 8 x USB3.2 Gen1 and 2 x RS232

DS50U SERIES

Cooling system	Fanless
Processor	Intel® Processor U300 Intel® i3-1315U/i5-1335U/i7-1355U
Chipset	Integrated in CPU
Graphics	Intel® UHD or Iris® Xe Graphics
Display Resolution Max.	HDMI : 4096 x 2160@60Hz VGA : 1920 x 1080@60Hz DisplayPort : 4096 x 2160@60Hz
Display Output	3 Independent Displays
Video Decoder	WMV9, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP9, AV1
Memory	2 x DDR5 5200MHz Max. 64GB
Storage	1 x 2.5" HDD/SSD (max. 9.5 mm)
Expansion Slot	2 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	1
DisplayPort	1
VGA Port	1
USB 3.2 (Front)	Gen1 : 4 / Gen2 : 2
USB 3.2 (Rear)	-
USB 2.0 (Front)	-
USB 2.0 (Rear)	2
COM Port	1
Line out / Mic in	1 / 1
Network	LAN : 1 x Intel® 1G LAN + 1 x 2.5G LAN WLAN: Optional
VESA	Bracket included
Dimension	L : 200 x W: 165 x H : 39.5 mm
Weight	NW (kg) : TBD / GW (kg) : TBD
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI, UKCA
Operating Temperature (°C)	0~40
Chassis	Metal + Plastic
Power Supply	Power Input : 12V or 19V DC in Bundled Adapter : 19V/4.74A 90W external adapter
Operating System	Windows 11 64bit, Linux
Optional Accessories	WWN04, WLN-M

DS20U/DS20U V2 SERIES

Cooling system	Fanless
Processor	Intel® Celeron 5205U or Intel® i3-10110U/i5-10210U/i7-10510U
Chipset	Integrated in CPU
Graphics	Intel® UHD Graphics
Display Resolution Max.	HDMI : 4096 x 2160@60Hz VGA : 1920 x 1080@60Hz DisplayPort : 4096 x 2160@60Hz
Display Output	3 Independent Displays
Video Decoder	MPEG2, WMV9 / VC1, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP8, VP9, AV1
Memory	2 x DDR4 2666/2400 MHz, Max. 64GB
Storage	1 x 2.5" HDD/SSD (max. 12.5 mm) / 1 x SD card
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	1
DisplayPort	1
VGA Port	1
USB 3.2 (Front)	Gen1 : 2 (for Celeron) / Gen2 : 2 (for Core i series)
USB 3.2 (Rear)	Gen1 : 2 (for Celeron) / Gen2 : 2 (for Core i series)
USB 2.0 (Front)	4
USB 2.0 (Rear)	-
COM Port	1 x RS232/422/485, Support 5V/12V
Line out / Mic in	1 / 1
Network	LAN : 2 x Intel® 1G LAN (DS20U series) 1 x Intel® 1G LAN + 1 x 2.5G LAN (DS20U V2 series) WLAN : Optional
VESA	Bracket included
Dimension	L : 200 x W: 165 x H : 39.5 mm
Weight	NW (kg) : 1.4 / GW (kg) : 2.1
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI
Operating Temperature (°C)	0~40
Chassis	Metal + Plastic
Power Supply	Power Input : 12V or 19V DC in Bundled Adapter : 19V/3.42A 65W external adapter
Operating System	Windows 10/11 64bit, Linux
Optional Accessories	WWN03, WLN-M

DS10U SERIES

Cooling system	Fanless
Processor	Intel® Celeron 4205U or Intel® i3-8145U/i5-8265U/i7-8565U
Chipset	Integrated in CPU
Graphics	Intel® UHD Graphics
Display Resolution Max.	HDMI : 4096 x 2160@60Hz VGA : 1920 x 1080@60Hz DisplayPort : 4096 x 2160@60Hz
Display Output	3 Independent Displays
Video Decoder	MPEG2, WMV9 / VC1, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP8, VP9
Memory	2 x DDR4 2400/2133 MHz, Max. 64GB
Storage	1 x 2.5" HDD/SSD (max. 12.5 mm) / 1 x SD card
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	1
DisplayPort	1
VGA Port	1
USB 3.2 (Front)	Gen1 : 2 (for Celeron) / Gen2 : 2 (for Core i series)
USB 3.2 (Rear)	Gen1 : 2 (for Celeron) / Gen2 : 2 (for Core i series)
USB 2.0 (Front)	4
USB 2.0 (Rear)	-
COM Port	1 x RS232/422/485, Support 5V/12V
Line out / Mic in	1 / 1
Network	LAN : 2 x Intel® 1G LAN WLAN: Optional
VESA	Bracket included
Dimension	L : 200 x W: 165 x H : 39.5 mm
Weight	NW (kg) : 1.4 / GW (kg) : 2.1
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI, RED
Operating Temperature (°C)	0~40
Chassis	Metal + Plastic
Power Supply	Power Input : 12V or 19V DC in Bundled Adapter : 19V/3.42A 65W external adapter
Operating System	Windows 10/11 64bit, Linux
Optional Accessories	WWN03, WLN-M

DL30N SERIES

Cooling system	Fanless
Processor	Intel® i3-N300 or Intel® Processor N200/N100
Chipset	Integrated in CPU
Graphics	Intel® UHD Graphics
Display Resolution Max.	HDMI : 4096 x 2160@60Hz VGA : 1920 x 1080@60Hz DisplayPort : 4096 x 2160@60Hz
Display Output	3 Independent Displays
Video Decoder	MPEG2, WMV9 / VC1, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP9, AV1
Memory	1 x DDR5 4800MHz, Max. 16GB
Storage	1 x 2.5" HDD/SSD (max. 9.5mm)
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	1
DisplayPort	1
VGA Port	1
USB 3.2 (Front)	Gen1 : 4
USB 3.2 (Rear)	Gen1 : 4
USB 2.0 (Front)	-
USB 2.0 (Rear)	-
COM Port	1 x RS232 / 1 x RS232/422/485, Support 5V/12V
Line out / Mic in	1 / 1
Network	LAN : 2 x Intel® 2.5G LAN WLAN: Optional
VESA	Bracket included
Dimension	L : 190 x W: 165 x H : 43 mm
Weight	NW (kg) : TBD / GW (kg) : TBD
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI, UKCA
Operating Temperature (°C)	0~40
Chassis	Metal
Power Supply	Power Input : 12V or 19V DC in Bundled Adapter : 19V/3.42A 65W external adapter
Operating System	Windows 11 64bit, Linux
Optional Accessories	PS02, WWN03, WLN-M

DL20N/DL20N V2 SERIES

Cooling system	Fanless
Processor	Intel® Celeron N4505 or Intel® Celeron N5105/Pentium N6005
Chipset	Integrated in CPU
Graphics	Intel® UHD Graphics
Display Resolution Max.	HDMI : 4096 x 2160@60Hz VGA : 1920 x 1080@60Hz DisplayPort : 4096 x 2160@60Hz
Display Output	3 Independent Displays
Video Decoder	MPEG2, WMV9 / VC1, H.264, JPEG / MPEG, HEVC / H.265, VP9
Memory	2 x DDR4 2933/2666 MHz, Max. 16GB
Storage	1 x 2.5" HDD/SSD (max. 9.5mm) / 1 x SD card
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	1
DisplayPort	1
VGA Port	1
USB 3.2 (Front)	Gen2 : 2
USB 3.2 (Rear)	Gen1 : 2
USB 2.0 (Front)	-
USB 2.0 (Rear)	2
COM Port	1 x RS232 / 1 x RS232/422/485, Support 5V/12V
Line out / Mic in	1 / 1
Network	LAN : 1 x Intel® 1G LAN (DL20N series) 1 x Intel® 2.5G LAN (DL20N V2 series) WLAN: Optional
VESA	Bracket included
Dimension	L : 190 x W: 165 x H : 43 mm
Weight	NW (kg) : 1.5 / GW (kg) : 2.07
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI
Operating Temperature (°C)	0~40
Chassis	Metal
Power Supply	Power Input : 12V or 19V DC in Bundled Adapter : 19V/2.1A 40W external adapter
Operating System	Windows 10/11 64bit, Linux
Optional Accessories	PS02, WWN01, WWN03, WLN-M

2.5" SSD/HDD **VESA** **0-50°C**

NC40U SERIES

Palm-Sized Package with Functionality And 12th-Gen CPU Advantage

XPC Nano NC40U series is integrated with Intel® 12th Alder Lake-U hybrid architecture, providing multitasking capability and Iris® Xe graphics for superior performance in AI deployment and video encoding. Despite its 0.85L palm-sized design, it can accommodate one 2.5" hard disk (up to 15mm) and an additional NVMe SSD installation for flexible storage capacity. Offer a wealth of connectors with USB 3.2 Gen2, USB 3.2 Gen1, Intel® Gigabit Lan, HDMI, DisplayPort, and Type-C. It increases adaptability for various business applications such as office PCs, digital signage, conference rooms, kiosk for self-service, and so on.

Feature

- 12th Gen Intel® Core™ i7-1255U/i5-1235U/ i3-1215U, Celeron® 7305 processer
- Built-in Intel® Iris® Xe graphics* *Intel® Iris® Xe graphics for Core™ i5/i7 model only
- Three independent displays via one HDMI 2.0b, one DisplayPort, and one Type-C
- 2 x M.2 2280 M key (1 of PCIe Gen 4 x4, and 1 of PCIe Gen3 x4/SATA mode), 1x M.2 2230 E key
- Support up to 15mm 2.5-inch hard drive
- 2 x USB 3.2 Gen2, 5 x USB 3.2 Gen1 (including one Type-C), Intel® Gigabit LAN

NC40U SERIES

|	
Cooling system	Smart fan
Processor	Intel® Celeron 7305 or Intel® i3-1215U/i5-1235U/i7-1255U
Graphics	Intel® UHD or Iris® Xe Graphics
Display Resolution Max.	HDMI : 4096 x 2160@60Hz DisplayPort : 4096 x 2160@60Hz
Display Output	3 Independent Displays
Video Decoder	WMV9, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP9, AV1
Memory	2 x DDR4 3200/2933/2666 MHz, Max. 64GB
Storage	1 x 2.5" HDD/SSD (max. 15 mm)
Expansion Slot	2 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	1
DisplayPort	1
Type-C	1
USB 3.2 (Front)	Gen1 : 3 (Include Type C x 1)
USB 3.2 (Rear)	Gen1 : 2 / Gen2 : 2
USB 2.0 (Front)	-
USB 2.0 (Rear)	-
COM Port	-
Line out / Mic in	1 / 1
Network	LAN : 1 x Intel® 1G LAN WLAN: Optional
VESA	Bracket included
Stand	Bracket included
Dimension	L : 142 x W: 142 x H : 42 mm
Weight	NW (kg) : TBC / GW (kg) : TBC
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI, UKCA
Operating Temperature (°C)	0~50
Chassis	Plastic
Power Supply	Power Input : 19V DC in Bundled Adapter : 19V/3.42A 65W external adapter
Operating System	Windows 11 64bit, Linux

NC10U SERIES

Cooling system	Smart fan
Processor	Intel® Celeron 4205U or Intel® i3-8145U/i5-8265U/i7-8565U
Graphics	Intel® UHD Graphics series
Display Resolution Max.	HDMI : 4096 x 2160@60Hz DisplayPort : 4096 x 2160@60Hz
Display Output	2 Independent Displays
Video Decoder	MPEG2, WMV9 / VC1, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP8, VP9
Memory	2 x DDR4 2400/2133 MHz, Max. 64GB
Storage	1 x 2.5" HDD/SSD (max. 15 mm) / 1 x SD card
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	1
DisplayPort	1
Type-C	-
USB 3.2 (Front)	Gen1 : 2 (Include Type C x 1)
USB 3.2 (Rear)	-
USB 2.0 (Front)	-
USB 2.0 (Rear)	2
COM Port	1 x RS232
Line out / Mic in	1(Combo)
Network	LAN : 1 x Intel® 1G LAN WLAN: Realtek 802.11 b/g/n
VESA	Bracket included
Stand	Bracket included
Dimension	L : 142 x W: 142 x H : 42 mm
Weight	NW (kg) : 0.4 / GW (kg) : 1.2
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, VCCI, RoHS, RED
Operating Temperature (°C)	0~50
Chassis	Plastic
Power Supply	Power Input : 19V DC in Bundled Adapter : 19V/3.42A 65W external adapter
Operating System	Windows 10/11 64bit, Linux

SW580R8

intel XEON · **vPro** · ECC RAM · PCIe 4.0 · Dual 2.5G LAN · 80 PLUS GOLD
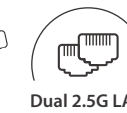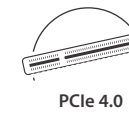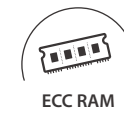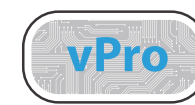
Xeon-Powered Mini-Workstation

Built for Complex Computing and Visualization

Shuttle XPC cube SW580R8 supports Intel® Xeon® W-1000 series processors that deliver outstanding performance, security, and reliability along with up to 128GB of DDR4-3200 ECC memory, which provides stable computing to reduce the numbers of the errors rate effectively. It comes with robust scalability that can accommodate up to 8 x 2.5-inch SSD, PCI-E 4.0 x16 expansion slot, dual 2.5GbE, and dual 1GbE, plus 12 USB interfaces. SW580R8 is designed for a wide range of creative professionals and enterprises to apply it as a high workloads workstation, business server, and more.

Feature

| Support Intel® Xeon® W-1000 series processors and 10th/11th Gen Intel® Core™ processors | Support DDR4-3200 ECC/Non-ECC memory up to 128GB | Support Intel vPro® that helps minimize the risks associated with security threats |
| Dual 2.5 Gigabit LAN and dual Intel® Gigabit Lan support for Wake on Lan | Equipped with one PCIe 4.0 x16, one PCIe 3.0 x4, and two M.2 2280 M key | Built-in 4 x USB 3.2 Gen2, 4 x USB 3.2 Gen1 (includes a Type-C), and 4 x USB 2.0 |

Versatile 3-liter PC for Expanded Possibi lities

Single PCIe Slot for Multi-Application Expansion

Shuttle XH510G has a PCIe expansion slot that provides installing add-on cards to meet diverse circumstances. Equipped with Intel® H510 chipset and compatible with Intel® 10th/ 11th Gen Rocket-Lake platform, it supports up to 8 cores and 16 threads for high-performance computing and 4K UHD content. Multiple I/O ports, including 4 x USB 3.2 Gen 1, 4 x USB 2.0, a SATA connector, 3 x M.2, and an Intel® Gigabit LAN. XH510G can be attached to a wall mount or a monitor mount for space-constrained applications, a standout performance for Data Acquisition System (DAQ), Digital Motion Control, Surveillance, and Kiosk.

XH510G
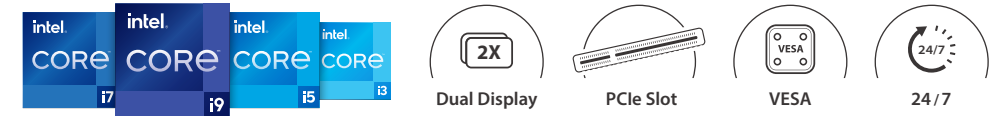
| intel CORE i7 | intel CORE i9 | intel CORE i5 | intel CORE i3 |

2X Dual Display | PCIe Slot | VESA | 24/7

Feature

Support 10th/11th Gen Intel® Core™, Pentium®, Celeron® 65W LGA 1200 processors

Dual display productivity via one HDMI 2.0 and one DisplayPort 1.4

24/7 Certified, operable in 0-50⁰C

Built-in a PCI-e x 16 expansion slot for various card installation (maximum size 208.5 x 120 x 30mm)

Rich connectivity : 4 x USB 3.2 Gen 1, 4 x USB 2.0, 3 x M.2 slot, SATA connector, Intel® i219LM Gigabit LAN

XH510G2

Dual Display **PCIe Slot x2** **M.2** **VESA**
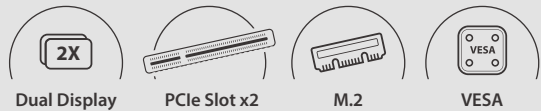
Discover Dynamic Potential
With The Flexible 4.75-liter PC

Dual PCIe for Expansive Add-on Card Options

Equips with Intel® H510 chipset, Shuttle XPC slim XH510G2 supports 10th/11th Gen Intel® Core™ processors delivering high-performance computing for high-speed processing applications. Despite its 4.75-liter compact chassis, XH510G2 provides two PCI-E slots to install an extra graphics card, capture card, or more to meet diverse application requirements.

Furthermore, it offers multiple interfaces to connect peripherals, including 4 x USB 3.2 Gen1, 4 x USB 2.0, an HDMI 2.0, a DisplayPort 1.4, M.2 slots, and Intel® Gigabit LAN. As a result, it is perfect for video walls, data modeling and analytics, surveillance, visualization projects, and a functional kiosk that requires port-intensive.

Feature

Support 10th/11th Gen Intel® Core™, Pentium®, Celeron® 65W LGA 1200 processors

Dual display productivity via one HDMI 2.0 and one DisplayPort 1.4

24/7 Certified, operable in 0-50⁰C

Integrated Dual PCI-E Slots for various card installations : one PCI-E x16 and one PCI-E x1

Rich connectivity : 4 x USB 3.2 Gen 1, 4 x USB 2.0, 3 x M.2 slot, SATA connector, Intel® Gigabit LAN

∗ PCIe card size Max 205 x 120 x 45mm

	XH610/XH610V	XH510G2	XH510G	XH410G	XC60J
Cooling system	Smart fan	Smart fan	Smart fan	Smart fan	Fanless
Processor	Intel® 13th/12th Gen LGA1700 socket Core i3/i5/i7/i9, Pentium, Celeron 65W processor	Intel® 11th/10th Gen LGA1200 socket Core i3/i5/i7/i9, Pentium, Celeron 65W processor	Intel® 11th/10th Gen LGA1200 socket Core i3/i5/i7/i9, Pentium, Celeron 65W processor	Intel® 10th Gen LGA1200 socket Core i3/i5/i7/i9, Pentium, Celeron 65W processor	Intel® Celeron J3355
Chipset	Intel® H610	Intel® H510	Intel® H510	Intel® H410	Integrated in CPU
Graphics	Intel® UHD Graphics series	Intel® UHD Graphics series	Intel® UHD Graphics series	Intel® UHD Graphics series	Intel® HD Graphics 500
Display Resolution Max.	HDMI : 4096 x 2160@60Hz VGA : 1920 x 1080@60Hz DisplayPort : 4096 x 2160@60Hz	HDMI : 4096 x 2160@60Hz DisplayPort : 4096 x 2160@60Hz	HDMI : 4096 x 2160@60Hz DisplayPort : 4096 x 2160@60Hz	HDMI : 4096 x 2160@60Hz VGA : 1920 x 1080@60Hz	HDMI : 3840 x 2160@30Hz VGA : 1920 x 1080@60Hz
Display Output	3 Independent Displays	2 Independent Displays	2 Independent Displays	2 Independent Displays	2 Independent Displays
Video Decoder	WMV9, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP8, AV1	MPEG2, WMV9 / VC1, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP8, VP9, AV1	MPEG2, WMV9 / VC1, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP8, VP9, AV1	MPEG2, WMV9 / VC1, AVC / H.264, JPEG / MPEG, HEVC / H.265, VP8, VP9, AV1	MPEG2, WMV9, VC1, H.264, JPEG / MPEG, MVC, HEVC / H.265, VP8, VP9
Memory	2 x DDR4 3200/2933/2666 MHz, Max. 64GB	2 x DDR4 3200/2933/2666 MHz, Max. 64GB	2 x DDR4 3200/2933/2666 MHz, Max. 64GB	2 x DDR4 2933/2666 MHz, Max. 64GB	2 x DDR3L 1866 MHz, Max. 8GB
Storage	2 x 2.5" HDD/SSD + 1 x slim ODD or 3 x 2.5" HDD /SSD	1 x 2.5" HDD/SSD (max. 9.5 mm)	1 x 2.5" HDD/SSD (max. 9.5 mm)	1 x 2.5" HDD/SSD (max. 9.5 mm)	1 x 3.5" / 2.5" HDD/SSD
Expansion Slot	1 x M.2 2280, M Key 1 x M.2 2230, E Key	2 x M.2 2280, M Key / 1 x M.2 2230, E Key 1 x PCIe Gen3 x 16 / 1 x PCIe Gen3 x 1 (PCIe card size Max 205 x 120 x 45mm)	2 x M.2 2280, M Key / 1 x M.2 2230, E Key 1 x PCIe Gen3 x 16 (PCIe card size Max 208.5 x 120 x 30mm)	1 x M.2 2280, M Key / 1 x M.2 2230, E Key 1 x PCIe Gen3 x 16 (PCIe card size Max 208 x 120 x 30mm)	1 x M.2 2280, M Key 1 x M.2 2230, E Key
HDMI Port	1	1	1	1	1 x HDMI 1.4
DisplayPort	1	1	1	-	-
VGA Port	1	Optional	Optional	1	1
USB 3.2 (Front)	Gen1 : 2	Gen1 : 2	Gen1 : 2	Gen1 : 2	Gen1 : 2
USB 3.2 (Rear)	Gen1 : 2	Gen1 : 2	Gen1 : 2	Gen1 : 2	-
USB 2.0 (Front)	2	2	2	2	2
USB 2.0 (Rear)	2	2	2	2	2
COM Port	1 x RS232 (Max. 4) / 1 x RS232/422/485, Support 5V/12V	RS232 x 1 (Optional)	RS232 x 1 (Optional)	RS232 x 1 (Optional)	7 x RS232 / 1 x RS232/422/485, Support 5V/12V
Line in/ Line out/Mic in	1 / 2 / 2	- / 1 / 1	- / 1 / 1	- / 1 / 1	- / 1 / 1
Network	LAN : 1 x Intel® 1G LAN / 1 x Intel® 2.5G LAN WLAN: Optional	LAN : 1 x Intel® 1G LAN WLAN: Optional	LAN : 1 x Intel® 1G LAN WLAN: Optional	LAN : 1 x Intel® 1G LAN WLAN: Optional	LAN : 1 x Intel® 1G LAN WLAN: Optional
VESA	Optional (PV02)	Bracket included	Bracket included	Bracket included	Optional (PV02)
Dimension	L : 241 x W: 200 x H : 72 mm	L : 250 x W: 200 x H : 95 mm	L : 250 x W: 200 x H : 78.5 mm	L : 250 x W: 200 x H : 78.5 mm	L : 238 x W: 200 x H : 72 mm
Weight	NW (kg) : 2.2 / GW (kg) : 3.5	NW (kg) : 2.98 / GW (kg) : 3.49	NW (kg) : 1.9 / GW (kg) : 3.2	NW (kg) : 1.9 / GW (kg) : 3.2	NW (kg) : 2.2 / GW (kg) : 3.5
Certification	CB, CE, BSMI, cTUVus, FCC, RCM, RoHS, VCCI	CB, CE, BSMI, cTUVus, FCC, RCM, VCCI, RoHS	CB, CE, BSMI, cTUVus, FCC, RCM, VCCI, RoHS	CB, CE, BSMI, cTUVus, FCC, RCM, VCCI, RoHS	CB, CE, BSMI, ETL, FCC, RCM, VCCI, RoHS
Operating Temperature (°C)	0~50	0~50	0~50	0~50	0~40
Chassis	Metal	Metal	Metal	Metal	Metal
Power Supply	Power Input : 12V or 19V DC in Bundled Adapter : 19V/6.32A 120W external adapter	Power Input : 19V DC in Bundled Adapter : 19.5V/9.23A 180W external adapter	Power Input : 19V DC in Bundled Adapter : 19.5V/9.23A 180W external adapter	Power Input : 19V DC in Bundled Adapter : 19.5V/9.23A 180W external adapter	Power Input : 12V or 19V DC in Bundled Adapter : 19V/3.42A 65W external adapter
Operating System	Windows 10/11 64bit, Linux	Windows 10/11 64bit, Linux	Windows 10/11 64bit, Linux	Windows 10/11 64bit, Linux	Windows 10 64bit, Linux
Optional Accessories	PS01, PV02, PHD4, WLN-M,PCM31	PVG01, PRC01, WLN-M, WWN03	PVG01, WLN-M, PS01	WLN-M, PS01	WLN-M, PS01, PV02

＊ BIOS v2.03 and up to version support Raptor Lake (13th) CPU

＊ Graphics and PCIe specifications may vary depending on CPU support