



SDT ECN 2023년 시리즈

가장 고성능의 산업용 에지 컴퓨팅 노드



※상기 이미지는 실제와 다를 수 있습니다.

ECN 시리즈 소개



SDT 에지 컴퓨팅 노드(Edge Computing Node, ECN) 시리즈는 에지 컴퓨팅 및 분산 컴퓨팅에 최적화된 하드웨어와 소프트웨어로 구성되어 있습니다. 데이터가 수집되고 분석되는 현장에서 실시간으로 탈중앙화된 에지 컴퓨팅으로 사용자 체감을 높이며, 중앙 집중화된 데이터센터나 클라우드로 연동시 대역폭을 최적화하여 분산 컴퓨팅을 제공합니다. 필요한 환경에 따라 베이직 라인(Basic Line)에서 고성능의 프로 라인(Pro Line)에 이르기까지 서비스에 적합한 ECN을 선택하십시오.

주요 기능

SDT 클라우드 모니터링 지원

SDT의 산업용 IoT 플랫폼인 SDT Cloud와 연결하여 장비의 상태를 확인 및 원격으로 접속하여 다양한 작업 가능

※자사 솔루션과 연동시 제공

다양한 배치 형태

스탠드얼론 형태 및 19인치 표준 랙의 Half-width로 다양한 장소에 배치 가능한 모듈 사이즈
19인치 표준 랙, VESA 등 다양한 마운트에 장착할 수 있는 브라켓 액세스리 지원

풍부한 선택 옵션

Rockchip부터 10세대 인텔 코어 i 시리즈까지 폭 넓은 성능의 제품군 보유
사양에 따라 팬리스(fanless) 상품군 별도 구성

공간 절약의 디자인

불필요한 것을 뺀 컴팩트한 설계로 현대적 감각을 담은 디자인

다양한 확장 기능

PCI 슬롯을 부여하여 다양한 용도의 확장 기능 지원(프로 라인에 한함)

확장을 위한 다양한 모듈 옵션 제공

ECN 인스펙터 탑재

ECN 하드웨어 상태, 네트워크 정보, 오류 발생 여부 등을 확인할 수 있는 디스플레이 탑재
별도의 디스플레이 연결 없이 장비 상태 모니터링 가능

다양한 OS 지원

Windows, Linux OS의 다양한 버전을 지원
Android OS 지원(RK제품군에 한함)

※ 제품의 외관, 사양 등은 제품 개량을 위해 사전 예고 없이 변경 될 수 있습니다.



Model	ECN-BRK3399FL23R0	ECN-BATMN270FL23R0
Physical Specs		
Form Factor	3.5", Fanless	Mini-ITX, Fanless
Dimensions	185(W)x55(H)x130(D)	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U
Weight	1.8 kg	3.8 kg
Power	12V DC	12V DC
Core System		
Chipset	Rockchip RK3399, SoC Integrated	-
CPU	Arm® Dual-core Cortex®-A72 + Arm® Quad-core Cortex®-A53	Intel Atom® N270, up to 1.6 GHz (Max TDP 2.5W)
Memory	On Board DDR4-1866 Memory, 2GB (4GB Optional)	Single Channel DDR2 SODIMM, up to 2GB
Storage	1 x eMMC 32G, 1 x TF card slot	2 x SATA II
Expansion Slots	1 x mini PCIe (3G/4G, with 1 x Full size SIM card slot)	1 x mini PCIe (Full size), 1 x PCI, 1 x PCIe x1 slot
Environmental		
Operating Temp.	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)
Storage Temp.	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)
Humidity	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing
I/O		
USB	1 x USB 3.0, 1 x USB 2.0, 5 x USB 2.0 (internal)	6 x USB 2.0, 2 x USB 2.0 (internal)
Display I/O	1 x HDMI 2.0, 1 x LVDS, 1 x eDP (internal)	1 x VGA, 1 x LVDS (internal)
LAN I/O	2 x Realtek 1Gbps Ethernet Controller (PHY), RJ45	2 x RJ45, Realtek RTL8111C Giga LAN
Wi-Fi/BT	1 x Wi-Fi + BT (Wi-Fi IEEE 802.11 b/g/n, 2.4GHz, BT 4.0)	-
Serial Port	6 x RS-232 (COM1 RS-485 optional)	3 x RS-232 (internal), 1 x RS-232/422/485 (internal)
Parallel Port	-	-
GPIO	1 x 8bit GPIO header	1 x 8bit GPIO header
Misc.	1 x DC Jack	1 x DC Jack
Graphics		
Graphic Chipset	-	-
Resolution	Up to 4K @ 60Hz	-
Software Support		
OS	Android 5.1/7.1/8.1/9.0, Linux	Windows 7, Linux
SDT Preload	SDT BlokWorks	SDT BlokWorks
Cert		
Certifications	KS	KS

Model	ECN-BI512Z2U23R0	ECN-BI512Z4U23R0	ECN-BI512B2U23R0	ECN-BI512B4U23R0
Physical Specs				
Form Factor	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling
Dimensions	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U	215(W)x172.8(H)x318.2(D), 1/2 width 19" Rack, 4U	215(W)x172.8(H)x318.2(D), 1/2 width 19" Rack, 4U
Weight	3.9 kg	3.9 kg	4.4 kg	4.4 kg
Power	12V DC	12V DC	12V DC	12V DC
Core System				
Chipset	Z690	Z690	B760	B760
CPU	Intel® Core™ i5-12500T	Intel® Core™ i5-12500T	Intel® Core™ i5-12500T	Intel® Core™ i5-12500T
Memory	Dual Channel DDR4 (XMP/ Optane) 5333MHz (PC4- 42600), up to 64GB	Dual Channel DDR4 (XMP/ Optane) 5333MHz (PC4- 42600), up to 64GB	Dual Channel DDR4 (XMP) 5333MHz (PC4-42600), up to 64GB	Dual Channel DDR4 (XMP) 5333MHz (PC4-42600), up to 64GB
Storage	4 x SATA III	4 x SATA III	4 x SATA III, 2 x M.2	4 x SATA III, 2 x M.2
Expansion Slots	1 x PCIe x16 slot, running at x16	1 x PCIe x16 slot, running at x16	1 x PCIe x16 slot	1 x PCIe x16 slot
Environmental				
Operating Temp.	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)
Storage Temp.	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)
Humidity	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing
I/O				
USB	1 x USB 3.2 Gen 2x2 Type-C, 3 x USB 3.2 Gen 2 Type-A, 2 x USB 3.2 Gen 1, 2 x USB 2.0/1.1, 1 x USB 3.2 Gen 2 Type-C (internal), 2 x USB 3.2 Gen 1 (internal)	1 x USB 3.2 Gen 2x2 Type-C, 3 x USB 3.2 Gen 2 Type-A, 2 x USB 3.2 Gen 1, 2 x USB 2.0/1.1, 1 x USB 3.2 Gen 2 Type-C (internal), 2 x USB 3.2 Gen 1 (internal)	2 x USB 2.0, 4 x USB 3.2 Gen1 Type-A, 1 x USB 3.2 Gen2 Type-A, 1 x USB 3.2 Gen2 Type-C, 2 x USB 2.0 (internal), 2 x USB 3.2 Gen1 Type-A (internal), 1 x USB 3.2 Gen2 Type-C (internal)	2 x USB 2.0, 4 x USB 3.2 Gen1 Type-A, 1 x USB 3.2 Gen2 Type-A, 1 x USB 3.2 Gen2 Type-C, 2 x USB 2.0 (internal), 2 x USB 3.2 Gen1 Type-A (internal), 1 x USB 3.2 Gen2 Type-C (internal)
Display I/O	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1
LAN I/O	1 x RJ45, Intel® 2.5GbE LAN	1 x RJ45, Intel® 2.5GbE LAN	1 x RJ45, Realtek® RTL8125BG 2.5Gbps LAN	1 x RJ45, Realtek® RTL8125BG 2.5Gbps LAN
Wi-Fi/BT	Intel® Wi-Fi 6 AX201 (Wi-Fi a, b, g, n, ac, ax) / BT 5.2	Intel® Wi-Fi 6 AX201 (Wi-Fi a, b, g, n, ac, ax) / BT 5.2	Intel® Wi-Fi 6E (802.11 a, b, g, n, ac, ax) / BT 5.3	Intel® Wi-Fi 6E (802.11 a, b, g, n, ac, ax) / BT 5.3
Serial Port	-	-	-	-
Parallel Port	-	-	-	-
GPIO	-	-	-	-
Misc.	-	-	-	-
Graphics				
Graphic Chipset	Integrated Graphics-Intel® HD Graphics	Integrated Graphics-Intel® HD Graphics	-	-
Resolution	Up to 5120 x 2160 @ 60Hz	Up to 5120 x 2160 @ 60Hz	Up to 4K @ 60Hz HDMI, Up to 8K @ 60Hz DP	Up to 4K @ 60Hz HDMI, Up to 8K @ 60Hz DP
Software Support				
OS	Windows 10/11, Linux	Windows 10/11, Linux	Windows 10/11, Linux	Windows 10/11, Linux
SDT Preload	SDT BlokWorks	SDT BlokWorks	SDT BlokWorks	SDT BlokWorks
Cert				
Certifications	KS	KS	KS	KS

Model	ECN-BI513Z2U23R0	ECN-BI513Z4U23R0	ECN-BI513B2U23R0	ECN-BI513B4U23R0
Physical Specs				
Form Factor	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling
Dimensions	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U	215(W)x172.8(H)x318.2(D), 1/2 width 19" Rack, 4U	215(W)x172.8(H)x318.2(D), 1/2 width 19" Rack, 4U
Weight	3.9 kg	3.9 kg	4.4 kg	4.4 kg
Power	12V DC	12V DC	12V DC	12V DC
Core System				
Chipset	Z690	Z690	B760	B760
CPU	Intel® Core™ i5-13500T	Intel® Core™ i5-13500T	Intel® Core™ i5-13500T	Intel® Core™ i5-13500T
Memory	Dual Channel DDR4 (XMP/ Optane) 5333MHz (PC4- 42600), up to 64GB	Dual Channel DDR4 (XMP/ Optane) 5333MHz (PC4- 42600), up to 64GB	Dual Channel DDR4 (XMP) 5333MHz (PC4-42600), up to 64GB	Dual Channel DDR4 (XMP) 5333MHz (PC4-42600), up to 64GB
Storage	4 x SATA III	4 x SATA III	4 x SATA III, 2 x M.2	4 x SATA III, 2 x M.2
Expansion Slots	1 x PCIe x16 slot, running at x16	1 x PCIe x16 slot, running at x16	1 x PCIe x16 slot	1 x PCIe x16 slot
Environmental				
Operating Temp.	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)
Storage Temp.	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)
Humidity	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing
I/O				
USB	1 x USB 3.2 Gen 2x2 Type-C, 3 x USB 3.2 Gen 2 Type-A, 2 x USB 3.2 Gen 1, 2 x USB 2.0/1.1, 1 x USB 3.2 Gen 2 Type-C (internal), 2 x USB 3.2 Gen 1 (internal)	1 x USB 3.2 Gen 2x2 Type-C, 3 x USB 3.2 Gen 2 Type-A, 2 x USB 3.2 Gen 1, 2 x USB 2.0/1.1, 1 x USB 3.2 Gen 2 Type-C (internal), 2 x USB 3.2 Gen 1 (internal)	2 x USB 2.0, 4 x USB 3.2 Gen1 Type-A, 1 x USB 3.2 Gen2 Type-A, 1 x USB 3.2 Gen2 Type-C, 2 x USB 2.0 (internal), 2 x USB 3.2 Gen1 Type-A (internal), 1 x USB 3.2 Gen2 Type-C (internal)	2 x USB 2.0, 4 x USB 3.2 Gen1 Type-A, 1 x USB 3.2 Gen2 Type-A, 1 x USB 3.2 Gen2 Type-C, 2 x USB 2.0 (internal), 2 x USB 3.2 Gen1 Type-A (internal), 1 x USB 3.2 Gen2 Type-C (internal)
Display I/O	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1
LAN I/O	1 x RJ45, Intel® 2.5GbE LAN	1 x RJ45, Intel® 2.5GbE LAN	1 x RJ45, Realtek® RTL8125BG 2.5Gbps LAN	1 x RJ45, Realtek® RTL8125BG 2.5Gbps LAN
Wi-Fi/BT	Intel® Wi-Fi 6 AX201 (Wi-Fi a, b, g, n, ac, ax) / BT 5.2	Intel® Wi-Fi 6 AX201 (Wi-Fi a, b, g, n, ac, ax) / BT 5.2	Intel® Wi-Fi 6E (802.11 a, b, g, n, ac, ax) / BT 5.3	Intel® Wi-Fi 6E (802.11 a, b, g, n, ac, ax) / BT 5.3
Serial Port	-	-	-	-
Parallel Port	-	-	-	-
GPIO	-	-	-	-
Misc.	-	-	-	-
Graphics				
Graphic Chipset	Integrated Graphics-Intel® HD Graphics	Integrated Graphics-Intel® HD Graphics	-	-
Resolution	Up to 5120 x 2160 @ 60Hz	Up to 5120 x 2160 @ 60Hz	Up to 4K @ 60Hz HDMI, Up to 8K @ 60Hz DP	Up to 4K @ 60Hz HDMI, Up to 8K @ 60Hz DP
Software Support				
OS	Windows 10/11, Linux	Windows 10/11, Linux	Windows 10/11, Linux	Windows 10/11, Linux
SDT Preload	SDT BlokWorks	SDT BlokWorks	SDT BlokWorks	SDT BlokWorks
Cert				
Certifications	KS	KS	KS	KS

Model	ECN-PI7102U23R0	ECN-PI7104U23R0
Physical Specs		
Form Factor	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling
Dimensions	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U	215(W)x172.8(H)x318.2(D), 1/2 width 19" Rack, 4U
Weight	3.9 kg	4.4 kg
Power	12V DC	12V DC
Core System		
Chipset	H410	H410
CPU	Intel® Core™ i7-10700TE (Max TDP 35W)	Intel® Core™ i7-10700TE (Max TDP 35W)
Memory	Dual Channel DDR4 2666/2933 MHz SODIMM, up to 32GB	Dual Channel DDR4 2666/2933 MHz SODIMM, up to 32GB
Storage	2 x SATA III, 1 x M.2 2280 SATA/PCIe slot	2 x SATA III, 1 x M.2 2280 SATA/PCIe slot
Expansion Slots	1 x PCIe (x16) slot, 1 x M.2 Wifi/BT, 1 x Full size Mini-PCIe co-lay with mSATA	1 x PCIe (x16) slot, 1 x M.2 Wifi/BT, 1 x Full size Mini-PCIe co-lay with mSATA
Environmental		
Operating Temp.	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)
Storage Temp.	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)
Humidity	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing
I/O		
USB	4 x USB 3.0, 4 x USB 2.0 (internal)	4 x USB 3.0, 4 x USB 2.0 (internal)
Display I/O	1 x HDMI 2.0, 2 x HDMI 1.4, 1 x LVDS (internal)	1 x HDMI 2.0, 2 x HDMI 1.4, 1 x LVDS (internal)
LAN I/O	2 x RJ45, Intel® I219V Giga LAN + Intel® I211-AT Giga LAN	2 x RJ45, Intel® I219V Giga LAN + Intel® I211-AT Giga LAN
Wi-Fi/BT	-	-
Serial Port	2 x RS-232, 2 x RS-232/422/485 (internal)	2 x RS-232, 2 x RS-232/422/485 (internal)
Parallel Port	-	-
GPIO	1 x 8bit GPIO header	1 x 8bit GPIO header
Misc.	1 x DC Jack	1 x DC Jack
Graphics		
Graphic Chipset	-	-
Resolution	Up to 4K @ 60Hz	Up to 4K @ 60Hz
Software Support		
OS	Windows 10/11, Linux	Windows 10/11, Linux
SDT Preload	SDT BlokWorks	SDT BlokWorks
Cert		
Certifications	KS	KS

Model	ECN-BI712Z2U23R0	ECN-BI712Z4U23R0	ECN-BI712B2U23R0	ECN-BI712B4U23R0
Physical Specs				
Form Factor	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling
Dimensions	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U	215(W)x172.8(H)x318.2(D), 1/2 width 19" Rack, 4U	215(W)x172.8(H)x318.2(D), 1/2 width 19" Rack, 4U
Weight	3.9 kg	3.9 kg	4.4 kg	4.4 kg
Power	12V DC	12V DC	12V DC	12V DC
Core System				
Chipset	Z690	Z690	B760	B760
CPU	Intel® Core™ i7-12700T	Intel® Core™ i7-12700T	Intel® Core™ i7-12700T	Intel® Core™ i7-12700T
Memory	Dual Channel DDR4 (XMP/ Optane) 5333MHz (PC4- 42600), up to 64GB	Dual Channel DDR4 (XMP/ Optane) 5333MHz (PC4- 42600), up to 64GB	Dual Channel DDR4 (XMP) 5333MHz (PC4-42600), up to 64GB	Dual Channel DDR4 (XMP) 5333MHz (PC4-42600), up to 64GB
Storage	4 x SATA III	4 x SATA III	4 x SATA III, 2 x M.2	4 x SATA III, 2 x M.2
Expansion Slots	1 x PCIe x16 slot, running at x16	1 x PCIe x16 slot, running at x16	1 x PCIe x16 slot	1 x PCIe x16 slot
Environmental				
Operating Temp.	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)
Storage Temp.	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)
Humidity	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing
I/O				
USB	1 x USB 3.2 Gen 2x2 Type-C, 3 x USB 3.2 Gen 2 Type-A, 2 x USB 3.2 Gen 1, 2 x USB 2.0/1.1, 1 x USB 3.2 Gen 2 Type-C (internal), 2 x USB 3.2 Gen 1 (internal)	1 x USB 3.2 Gen 2x2 Type-C, 3 x USB 3.2 Gen 2 Type-A, 2 x USB 3.2 Gen 1, 2 x USB 2.0/1.1, 1 x USB 3.2 Gen 2 Type-C (internal), 2 x USB 3.2 Gen 1 (internal)	2 x USB 2.0, 4 x USB 3.2 Gen1 Type-A, 1 x USB 3.2 Gen2 Type-A, 1 x USB 3.2 Gen2 Type-C, 2 x USB 2.0 (internal), 2 x USB 3.2 Gen1 Type-A (internal), 1 x USB 3.2 Gen2 Type-C (internal)	2 x USB 2.0, 4 x USB 3.2 Gen1 Type-A, 1 x USB 3.2 Gen2 Type-A, 1 x USB 3.2 Gen2 Type-C, 2 x USB 2.0 (internal), 2 x USB 3.2 Gen1 Type-A (internal), 1 x USB 3.2 Gen2 Type-C (internal)
Display I/O	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1
LAN I/O	1 x RJ45, Intel® 2.5GbE LAN	1 x RJ45, Intel® 2.5GbE LAN	1 x RJ45, Realtek® RTL8125BG 2.5Gbps LAN	1 x RJ45, Realtek® RTL8125BG 2.5Gbps LAN
Wi-Fi/BT	Intel® Wi-Fi 6 AX201 (Wi-Fi a, b, g, n, ac, ax) / BT 5.2	Intel® Wi-Fi 6 AX201 (Wi-Fi a, b, g, n, ac, ax) / BT 5.2	Intel® Wi-Fi 6E (802.11 a, b, g, n, ac, ax) / BT 5.3	Intel® Wi-Fi 6E (802.11 a, b, g, n, ac, ax) / BT 5.3
Serial Port	-	-	-	-
Parallel Port	-	-	-	-
GPIO	-	-	-	-
Misc.	-	-	-	-
Graphics				
Graphic Chipset	Integrated Graphics-Intel® HD Graphics	Integrated Graphics-Intel® HD Graphics	-	-
Resolution	Up to 5120 x 2160 @ 60Hz	Up to 5120 x 2160 @ 60Hz	Up to 4K @ 60Hz HDMI, Up to 8K @ 60Hz DP	Up to 4K @ 60Hz HDMI, Up to 8K @ 60Hz DP
Software Support				
OS	Windows 10/11, Linux	Windows 10/11, Linux	Windows 10/11, Linux	Windows 10/11, Linux
SDT Preload	SDT BlokWorks	SDT BlokWorks	SDT BlokWorks	SDT BlokWorks
Cert				
Certifications	KS	KS	KS	KS

Model	ECN-BI713Z2U23R0	ECN-BI713Z4U23R0	ECN-BI713B2U23R0	ECN-BI713B4U23R0
Physical Specs				
Form Factor	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling
Dimensions	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U	215(W)x172.8(H)x318.2(D), 1/2 width 19" Rack, 4U	215(W)x172.8(H)x318.2(D), 1/2 width 19" Rack, 4U
Weight	3.9 kg	3.9 kg	4.4 kg	4.4 kg
Power	12V DC	12V DC	12V DC	12V DC
Core System				
Chipset	Z690	Z690	B760	B760
CPU	Intel® Core™ i7-13700T	Intel® Core™ i7-13700T	Intel® Core™ i7-13700T	Intel® Core™ i7-13700T
Memory	Dual Channel DDR4 (XMP/ Optane) 5333MHz (PC4- 42600), up to 64GB	Dual Channel DDR4 (XMP/ Optane) 5333MHz (PC4- 42600), up to 64GB	Dual Channel DDR4 (XMP) 5333MHz (PC4-42600), up to 64GB	Dual Channel DDR4 (XMP) 5333MHz (PC4-42600), up to 64GB
Storage	4 x SATA III	4 x SATA III	4 x SATA III, 2 x M.2	4 x SATA III, 2 x M.2
Expansion Slots	1 x PCIe x16 slot, running at x16	1 x PCIe x16 slot, running at x16	1 x PCIe x16 slot	1 x PCIe x16 slot
Environmental				
Operating Temp.	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)
Storage Temp.	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)
Humidity	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing
I/O				
USB	1 x USB 3.2 Gen 2x2 Type-C, 3 x USB 3.2 Gen 2 Type-A, 2 x USB 3.2 Gen 1, 2 x USB 2.0/1.1, 1 x USB 3.2 Gen 2 Type-C (internal), 2 x USB 3.2 Gen 1 (internal)	1 x USB 3.2 Gen 2x2 Type-C, 3 x USB 3.2 Gen 2 Type-A, 2 x USB 3.2 Gen 1, 2 x USB 2.0/1.1, 1 x USB 3.2 Gen 2 Type-C (internal), 2 x USB 3.2 Gen 1 (internal)	2 x USB 2.0, 4 x USB 3.2 Gen1 Type-A, 1 x USB 3.2 Gen2 Type-A, 1 x USB 3.2 Gen2 Type-C, 2 x USB 2.0 (internal), 2 x USB 3.2 Gen1 Type-A (internal), 1 x USB 3.2 Gen2 Type-C (internal)	2 x USB 2.0, 4 x USB 3.2 Gen1 Type-A, 1 x USB 3.2 Gen2 Type-A, 1 x USB 3.2 Gen2 Type-C, 2 x USB 2.0 (internal), 2 x USB 3.2 Gen1 Type-A (internal), 1 x USB 3.2 Gen2 Type-C (internal)
Display I/O	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1	1 x DP, 1 x HDMI 2.1
LAN I/O	1 x RJ45, Intel® 2.5GbE LAN	1 x RJ45, Intel® 2.5GbE LAN	1 x RJ45, Realtek® RTL8125BG 2.5Gbps LAN	1 x RJ45, Realtek® RTL8125BG 2.5Gbps LAN
Wi-Fi/BT	Intel® Wi-Fi 6 AX201 (Wi-Fi a, b, g, n, ac, ax) / BT 5.2	Intel® Wi-Fi 6 AX201 (Wi-Fi a, b, g, n, ac, ax) / BT 5.2	Intel® Wi-Fi 6E (802.11 a, b, g, n, ac, ax) / BT 5.3	Intel® Wi-Fi 6E (802.11 a, b, g, n, ac, ax) / BT 5.3
Serial Port	-	-	-	-
Parallel Port	-	-	-	-
GPIO	-	-	-	-
Misc.	-	-	-	-
Graphics				
Graphic Chipset	Integrated Graphics-Intel® HD Graphics	Integrated Graphics-Intel® HD Graphics	-	-
Resolution	Up to 5120 x 2160 @ 60Hz	Up to 5120 x 2160 @ 60Hz	Up to 4K @ 60Hz HDMI, Up to 8K @ 60Hz DP	Up to 4K @ 60Hz HDMI, Up to 8K @ 60Hz DP
Software Support				
OS	Windows 10/11, Linux	Windows 10/11, Linux	Windows 10/11, Linux	Windows 10/11, Linux
SDT Preload	SDT BlokWorks	SDT BlokWorks	SDT BlokWorks	SDT BlokWorks
Cert				
Certifications	KS	KS	KS	KS

Model	ECN-PI9102U23R0	ECN-PI9104U23R0
Physical Specs		
Form Factor	Mini-ITX, Air-Cooling	Mini-ITX, Air-Cooling
Dimensions	215(W)x86.4(H)x318.2(D), 1/2 width 19" Rack, 2U	215(W)x172.8(H)x318.2(D), 1/2 width 19" Rack, 4U
Weight	3.9 kg	4.4 kg
Power	12V DC	12V DC
Core System		
Chipset	H410	H410
CPU	Intel® Core™ i9-10900TE (Max TDP 35W)	Intel® Core™ i9-10900TE (Max TDP 35W)
Memory	Dual Channel DDR4 2666/2933 MHz SODIMM, up to 32GB	Dual Channel DDR4 2666/2933 MHz SODIMM, up to 32GB
Storage	2 x SATA III, 1 x M.2 2280 SATA/PCIe slot	2 x SATA III, 1 x M.2 2280 SATA/PCIe slot
Expansion Slots	1 x PCIe (x16) slot, 1 x M.2 Wifi/BT, 1 x Full size Mini-PCIe co-lay with mSATA	1 x PCIe (x16) slot, 1 x M.2 Wifi/BT, 1 x Full size Mini-PCIe co-lay with mSATA
Environmental		
Operating Temp.	-20°C to +60°C (+32°F to +140°F)	-20°C to +60°C (+32°F to +140°F)
Storage Temp.	-30°C to +70°C (-22°F to +158°F)	-30°C to +70°C (-22°F to +158°F)
Humidity	10% to 95% relative humidity, non-condensing	10% to 95% relative humidity, non-condensing
I/O		
USB	4 x USB 3.0, 4 x USB 2.0 (internal)	4 x USB 3.0, 4 x USB 2.0 (internal)
Display I/O	1 x HDMI 2.0, 2 x HDMI 1.4, 1 x LVDS (internal)	1 x HDMI 2.0, 2 x HDMI 1.4, 1 x LVDS (internal)
LAN I/O	2 x RJ45, Intel® I219V Giga LAN + Intel® I211-AT Giga LAN	2 x RJ45, Intel® I219V Giga LAN + Intel® I211-AT Giga LAN
Wi-Fi/BT	-	-
Serial Port	2 x RS-232, 2 x RS-232/422/485 (internal)	2 x RS-232, 2 x RS-232/422/485 (internal)
Parallel Port	-	-
GPIO	1 x 8bit GPIO header	1 x 8bit GPIO header
Misc.	1 x DC Jack	1 x DC Jack
Graphics		
Graphic Chipset	-	-
Resolution	Up to 4K @ 60Hz	Up to 4K @ 60Hz
Software Support		
OS	Windows 10/11, Linux	Windows 10/11, Linux
SDT Preload	SDT BlokWorks	SDT BlokWorks
Cert		
Certifications	KS	KS