



## SLP-WHG-TSN

**8th Gen Intel® Core™ Processor Core™ SoC & Celeron® BGA Processor Fanless Expansion Slot PC with TSN Gigabit Ethernet PCIe NIC**

Onboard 8th Gen Intel Core SoC i7/i5/i3 & Celeron Processor

2 x 260-pin DDR4 2133 MHz SO-DIMM Socket, 32GB Max (Non ECC Only)

Rich I/O, 3-USB3.1, 3-HDMI, 4-COM, 3-LAN, 4-TS Gigabit Ethernet

1 x Key A M.2 2230 supports Wi-Fi & BT Module Key-B 3042/2242/2260/2280 with internal SIM slot

Fanless operation temperature from -20°C ~ 50°C CE/FCC Class A

Wide range DC power input from +12~24V

Support TSN Timing and Synchronization for Time Sensitive Applications compliant to IEEE 802.1AS and IEEE 1588V2

### + Spec

#### System Information

##### Processor

Onboard 8th Gen Intel® Core™ SoC i7/i5/i3 & Celeron® BGA Processor  
Intel® Core™ i7-8665UE (15W, 8M Cache, up to 2.0 GHz)  
Intel® Core™ i5-8365UE (15W, 8M Cache, up to 1.8 GHz)  
Intel® Core™ i3-8145UE (15W, 4M Cache, up to 1.6 GHz)  
Intel® Core™ Celeron 4305UE (15W, 2M Cache)

##### System Memory

2 x 260-pin SODIMM socket Max. up to 32GB DDR4 2133MT/s

##### BIOS Information

AMI uEFI BIOS 256 Mbit SPI Flash ROM

##### Watchdog Timer

H/W Reset, 1sec. ~ 65535sec.

##### H/W Status Monitor

Monitoring CPU & System Temperature and Voltage

##### TPM

Onboard TPM 2.0

##### SBC

EMX-WHLGP

#### Expansion

##### M.2

1 x M.2 Key-A 2230 for Wi-Fi & BT Module  
1 x M.2 Key-B 3042/2242/2260/2280, supports SATA 3/PCIe III x 1/USB 2.0 and internal SIM slot 1

##### PCIe

1 x PCIe\*1 slot  
1 x PCIe\*4 slot  
w/ASIX TSN Card: Quad Port TSN Gigabit Ethernet PCIe NIC Card

#### Storage

##### Storage

1 x M.2 Key-B 3042/2242/2260/2280, support SSD(share with expansion slot)  
1 x 2.5" Drive Bay (internal)

#### I/O

##### USB Port

3 x USB3.1 Gen1  
1 x USB Type C w/o ALT mode

##### COM Port

4 x RS-232

##### SIM Slot

1 x Internal SIM slot

##### Antenna

2 x Antenna with dust cover

##### Wire-Control Power On/Off

2-Pin Terminal Block

##### PS/2

1 x PS/2 Keyboard  
1 x PS/2 Mouse

#### System Control

##### Power Button

1 x Power On/Off

##### LED Indicator

1 x Power LED 1 x HDD LED

#### Display

##### Graphic Chipset

Intel® Processor Graphics

##### Spec. & Resolution

3 x HDMI 1.4b: 3840 x 2160 @ 30 Hz

##### Multiple Display

Triple Display

#### Certifications

##### Certification Information

CE/FCC Class A

#### Ethernet

##### LAN Chipset

1 x Intel® I219-LM  
2 x Intel® I210-IT

##### LAN Port

3 x RJ-45 GbE  
4 x RJ45 for TSN Gigabit Ethernet

**.Power Requirement**

|                           |                                    |
|---------------------------|------------------------------------|
| <b>DC Input</b>           | DC in +12V ~ +24V), wide voltage   |
| <b>DC Input Connector</b> | 3-Pin Terminal Block (V+, V-, GND) |
| <b>Power Mode</b>         | AT/ATX (ATX is default setting)    |

**.Mechanical & Environmental**

|                              |                                                                      |
|------------------------------|----------------------------------------------------------------------|
| <b>Operating Temperature</b> | -20~50°C (41°F ~ 122°F) w/Industrial SSD, ambient w/ 0.5m/s air flow |
| <b>Storage Temperature</b>   | -30°C ~ 70°C (-22°F ~ 158°F)                                         |

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|                              |                                                                  |
|------------------------------|------------------------------------------------------------------|
| <b>Operating Humidity</b>    | 40°C @ 95% Relative Humidity, Non-condensing                     |
| <b>Dimension (W x L x H)</b> | 217 mm x 115 mm x 220 mm                                         |
| <b>Weight</b>                | 2.6 kg (System)<br>3.4 kg (w_Package)                            |
| <b>Vibration Test</b>        | With SSD : 1.5 Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 1hr/axis |
| <b>Shock Test</b>            | With SSD : 10Grms, IEC 60068-2-29, Half Sine, 11ms               |
| <b>Drop</b>                  | Complied with ISTA 2A                                            |

**.Software Support**

|                       |                       |
|-----------------------|-----------------------|
| <b>OS Information</b> | Win 10 64bit<br>Linux |
|-----------------------|-----------------------|

**.Ordering Information**

|                             |                                                                                                                                                                                                                                          |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ordering Information</b> | SLP-WHG-TSN<br>8th Gen Intel® Core™ Processor Core™ SoC i7/i5/i3 & Celeron® BGA Processor Fanless Expandable Slot PC with<br>NIC Card<br>SLP-WHG-86-A1-2R ( i7-8665UE)<br>SLP-WHG-83-A1-2R ( i5-8365UE)<br>SLP-WHG-81-A1-2R ( i3-8145UE) |
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