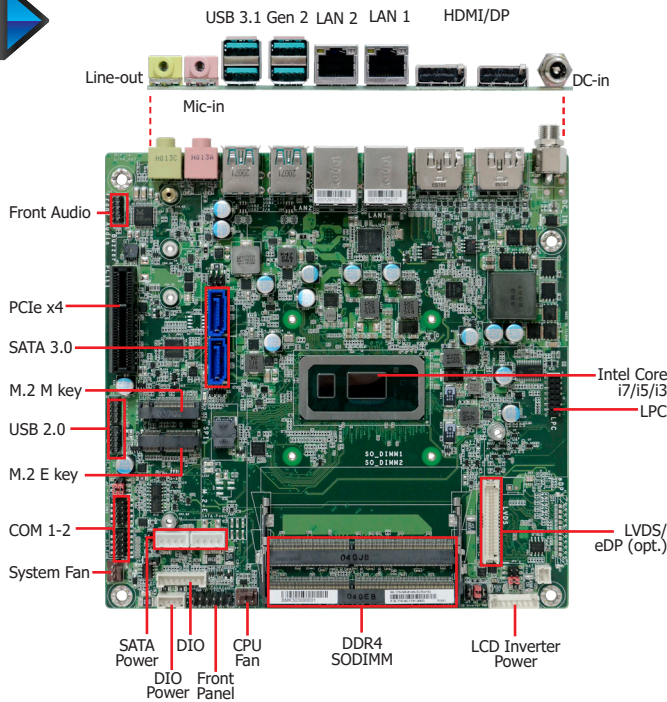


WL171/WL173

ULT



Features

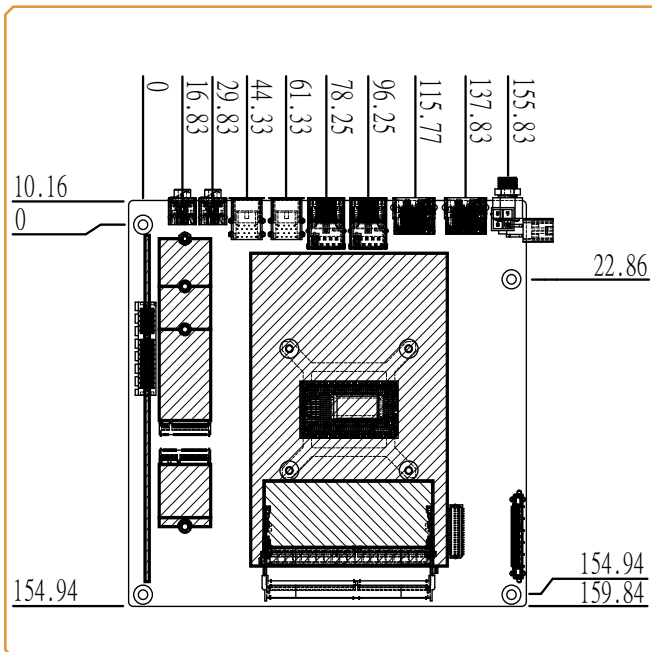
- **DDR4 2400MHz SODIMM up to 32GB**
- **Three independent displays: LVDS/eDP + DP++/HDMI + DP++/HDMI (Auto-detecting)**
- **DP++ resolution supports up to 4096x2304 @ 60Hz**
- **Multiple expansion: 1 PCIe x4, 1 M.2 M Key (PCIe x4/SATA), 1 M.2 E key (PCIe/USB)**
- **Storage: 2 SATA 3.0**
- **Rich I/O: 2 Intel GbE, 4 USB 3.1, 4 USB 2.0**

* Populated by default

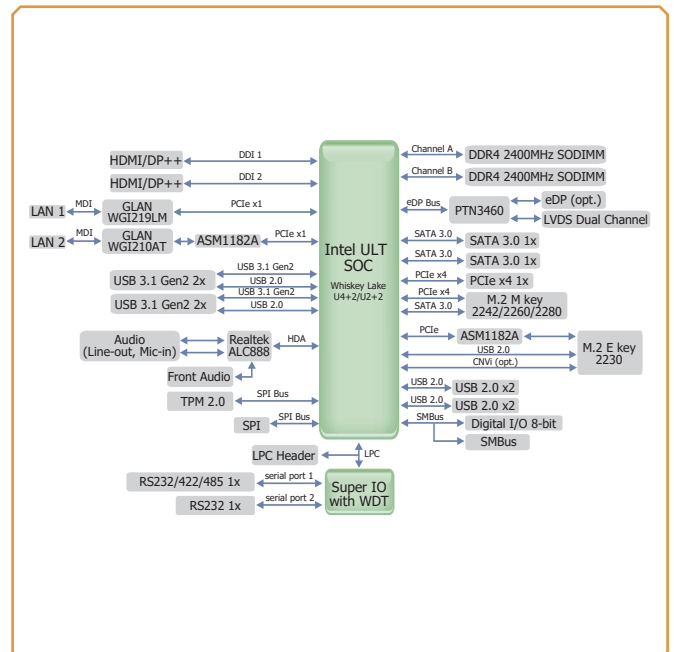


Note: If you would like to have the CPU configuration which is not listed on our ordering, please contact our sales representative.

Mechanical Drawing



Block Diagram



Specifications

| | | | | |
|-----------------------|------------------------------|--|---|--|
| SYSTEM | Processor | 8th Generation Intel® Core™ Processors, BGA 1528 Intel® Core™ i7-8665UE, Quad Core, 8M Cache, 1.7GHz (4.4GHz), 15W Intel® Core™ i5-8365UE, Quad Core, 6M Cache, 1.6GHz (4.1GHz), 15W Intel® Core™ i3-8145UE, Dual Core, 4M Cache, 2.2GHz (3.9GHz), 15W Intel® Core™ Celeron® 4305UE, Dual Core, 2M Cache, 2.0GHz (2.0GHz), 15W | | |
| | Memory | 2 x 260-pin SODIMM up to 32GB | DDR4 2400MHz/DDR4 2133MHz (for Celeron 4305UE) | |
| | BIOS | AMI SPI 128Mbit | | |
| GRAPHICS | Controller | Intel® UHD Graphics 620/ Intel® UHD Graphics 610 (for Celeron 4305UE) | | |
| | Feature | OpenGL 4.5, DirectX 12, OpenCL 2.1 HW Decode: H.264/AVC, VP8, VP9, VP9 10 Bit, H.265/HEVC 8 bit, H.265/HEVC 10 bit, MPEG2, MJPEG, VC-1 HW Encode: H.264/AVC, VP8*, VP9*, H.265/HEVC 8 bit, H.265/HEVC 10 bit, MPEG2, MJPEG (*VP8 and VP9 encode is not supported by Windows OS) | | |
| | Display | 1 x LVDS/eDP (opt.) 2 x DP++/HDMI (Auto-detecting) | LVDS: resolution up to 1920x1200 @ 60Hz eDP: resolution up to 4096x2160 @ 60Hz DP++: resolution up to 4096x2304 @ 60Hz HDMI: resolution up to 4096x2160 @ 30Hz | |
| | Triple Displays | LVDS/eDP + DP++/HDMI + DP++/HDMI (Auto-detecting) | | |
| EXPANSION | Interface | 1 x PCIe x4 (Gen 3) 1 x M.2 2242/2260/2280 M key (PCIe x4/SATA) (Support NVMe and Intel® Optane memory) 1 x M.2 2230 E key (PCIe/USB) | | |
| AUDIO | Audio Codec | Realtek ALC888S-VD2-GR | | |
| ETHERNET | Controller | 1 x Intel® I210AT PCIe (10/100/1000Mbps) 1 x Intel® I219LM PCIe with iAMT11.6 and vPro (10/100/1000Mbps) (only Core i7/i5 supports iAMT) | | |
| REAR I/O | Ethernet | 2 x GbE (RJ-45) | | |
| | USB | 4 x USB 3.1 Gen2 | | |
| | Display | 2 x DP++/HDMI | | |
| | Audio | 1 x Line-out | 1 x Mic-in | |
| INTERNAL I/O | Serial | 1 x RS-232/422/485 (RS-232 w/ power) (2.0mm pitch) 1 x RS-232 (2.0mm pitch) | | |
| | USB | 4 x USB 2.0 (2.0mm pitch) | | |
| | Display | 1 x LVDS Header (default) 1 x eDP Connector (opt.) | | |
| | Audio | 1 x Front Audio Header | | |
| | SATA | 2 x SATA 3.0 (up to 6Gb/s) 2 x SATA Power | RAID 0/1/5 | |
| | DIO | 1 x 8-bit DIO | 1 x DIO Power | |
| | LPC | 1 x LPC | | |
| | SMBus | 1 x SMBus | | |
| WATCHDOG TIMER | Output & Interval | System Reset, Programmable via Software from 1 to 255 Seconds | | |
| SECURITY | TPM | dTPM 2.0 | | |
| POWER | Type | Single 12V +/-5% DC (WL171) | Wide Range 9~36V (WL173) | |
| | Connector | DC-in Jack | Right Angle Connector (4-pin) (available upon request) Straight Type Connector (4-pin) (available upon request) | |
| | RTC Battery | CR2032 Coin Cell | | |
| OS SUPPORT | Microsoft/Linux | Windows 10 IoT Enterprise 64-bit | Debian 8 (with VESA graphic driver) Fedora CentOS 7 (with VESA graphic driver) Yocto 2.6 Linux | |
| ENVIRONMENT | Temperature | Operating: -5 to 65°C / -20 to 70°C | Storage: -40 to 85°C | |
| | Humidity | Operating: 5 to 90% RH | | |
| | MTBF | TBD | | |
| MECHANICAL | Dimensions | Mini-ITX Form Factor | 170mm (6.7") x 170mm (6.7") | |
| | Height | PCB: 1.6mm | Top Side: 16.5mm, Bottom Side: 3.5mm | |

Ordering Information

| Model Name | P/N | Processor | HDMI/ DP++ | LVDS/eDP | GbE | SATA3.0 | COM | USB3.1 Gen2 | USB2.0 | Power Connector | TPM 2.0 | Voltage | Temp. |
|------------------------|-----------------|----------------|---------------|----------|-----|---------|-----|----------------|--------|--------------------|---------|---------|-------------|
| WL171-NE-8665UE | 770-WL1711-000G | I7-8665UE | 2 | LVDS | 2 | 2 | 2 | 4 | 4 | DC jack | Onboard | 12V | -20 to 70°C |
| WL171-NE-8365UE | 770-WL1711-100G | I5-8365UE | 2 | LVDS | 2 | 2 | 2 | 4 | 4 | DC jack | Onboard | 12V | -20 to 70°C |
| WL171-NB-8145UE | 770-WL1711-200G | I3-8145UE | 2 | LVDS | 2 | 2 | 2 | 4 | 4 | DC jack | Onboard | 12V | -5 to 65°C |
| WL171-NB-4305UE | 770-WL1711-300G | Celeron 4305UE | 2 | LVDS | 2 | 2 | 2 | 4 | 4 | DC jack | Onboard | 12V | -5 to 65°C |
| WL173-NE-8665UE | 770-WL1731-000G | I7-8665UE | 2 | LVDS | 2 | 2 | 2 | 4 | 4 | DC jack | Onboard | 9-36V | -20 to 70°C |
| WL173-NE-8365UE | 770-WL1731-100G | I5-8365UE | 2 | LVDS | 2 | 2 | 2 | 4 | 4 | DC jack | Onboard | 9-36V | -20 to 70°C |
| WL173-NB-8145UE | 770-WL1731-200G | I3-8145UE | 2 | LVDS | 2 | 2 | 2 | 4 | 4 | DC jack | Onboard | 9-36V | -5 to 65°C |
| WL173-NB-4305UE | 770-WL1731-300G | Celeron 4305UE | 2 | LVDS | 2 | 2 | 2 | 4 | 4 | DC jack | Onboard | 9-36V | -5 to 65°C |

Packing List

| | |
|--|-----------------|
| • 1 WL171/WL173 motherboard | |
| • 1 COM port cable (Length: 250mm, 1 x COM ports) | A81-015011-001G |
| • 1 Serial ATA data with power cable (Length: 300mm) | A81-002013-000G |
| • 1 Heat sink | |

Optional Items

| | |
|--|-----------------|
| • USB 2.0 port cable (Length: 200mm) | A81-001032-016G |
| • COM port cable (Length: 250mm, 1 x COM ports) | A81-015011-001G |
| • Serial ATA data with power cable (Length: 300mm) | A81-002013-000G |
| • I/O shield | A49-WL1710-000G |