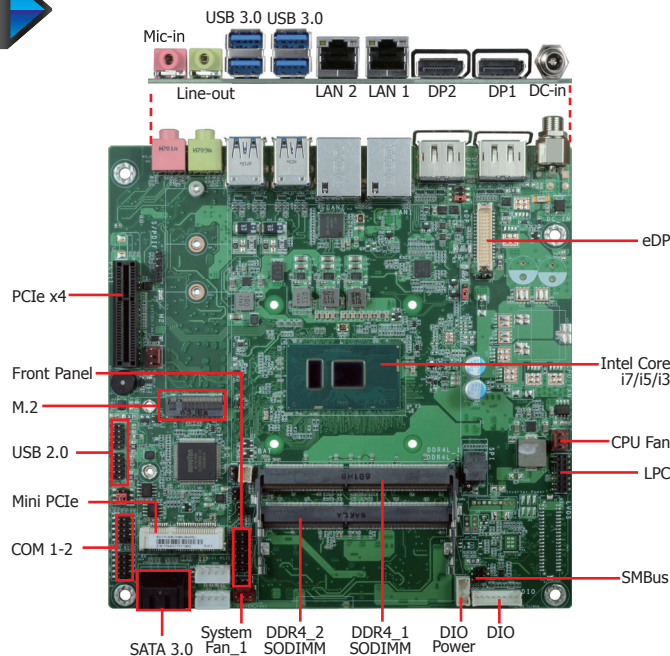


## KU171/KU173

ULT



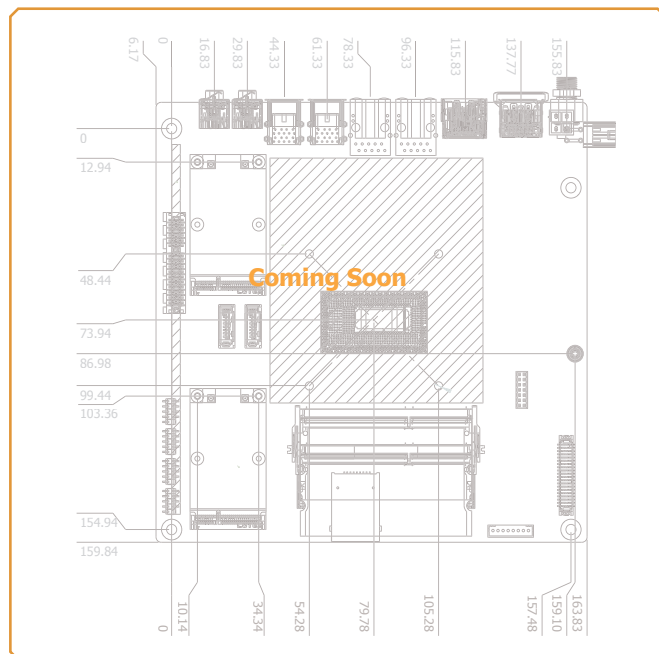
\* The photos above refer to KU171.

### Ordering Information

| Model Name     | P/N             | Processor | Memory   | LVDS/<br>eDP | HDMI/<br>DP++ | GbE | RS-232<br>/422/485 | RS-232 | USB<br>3.0 | USB<br>2.0 | SATA<br>3.0 | Power    | Thermal | Temp.       |
|----------------|-----------------|-----------|----------|--------------|---------------|-----|--------------------|--------|------------|------------|-------------|----------|---------|-------------|
| KU171-NE-7300U | 770-KU1711-000G | i5-7300U  | 2 SODIMM | LVDS         | DP++          | 2   | 1                  | 1      | 4          | 4          | 2           | 12V DC   | Fanless | -20 to 70°C |
| KU171-NB-7100U | 770-KU1711-200G | i3-7100U  | 2 SODIMM | LVDS         | DP++          | 2   | 1                  | 1      | 4          | 4          | 2           | 12V DC   | Fanless | 0 to 60°C   |
| KU171-NE-7600U | 770-KU1711-300G | i7-7600   | 2 SODIMM | LVDS         | DP++          | 2   | 1                  | 1      | 4          | 4          | 2           | 12V DC   | Fanless | -20 to 70°C |
| KU171-NB-3965U | 770-KU1711-400G | 3965U     | 2 SODIMM | LVDS         | DP++          | 2   | 1                  | 1      | 4          | 4          | 2           | 12V DC   | Fanless | 0 to 60°C   |
| KU173-NE-7600U | 770-KU1731-000G | i7-7600   | 2 SODIMM | LVDS         | DP++          | 2   | 1                  | 1      | 4          | 4          | 2           | 9~36V DC | Fanless | -20 to 70°C |
| KU173-NB-3965U | 770-KU1731-200G | 3965U     | 2 SODIMM | LVDS         | DP++          | 2   | 1                  | 1      | 4          | 4          | 2           | 9~36V DC | Fanless | 0 to 60°C   |
| KU173-NE-7300U | 770-KU1731-300G | i5-7300U  | 2 SODIMM | LVDS         | DP++          | 2   | 1                  | 1      | 4          | 4          | 2           | 9~36V DC | Fanless | -20 to 70°C |
| KU173-NB-7100U | 770-KU1731-400G | i3-7100U  | 2 SODIMM | LVDS         | DP++          | 2   | 1                  | 1      | 4          | 4          | 2           | 9~36V DC | Fanless | 0 to 60°C   |

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

### Mechanical Drawing



### Features

- 2 DDR4 1866/2133MHz SODIMM up to 32GB
- Three independent displays:  
LVDS\*/eDP + DP++ + DP++
- DP++ resolution supports up to 4096x2304 @ 60Hz
- Multiple expansion: 1 PCIe x4, 1 M.2 M Key (SATA/PCIe)
- Storage: 2 SATA 3.0, 1 Mini PCIe
- Rich I/O: 2 Intel GbE, 2 COM, 4 USB 3.0, 4 USB 2.0

\* Populated by default



## Specifications

|                     |                        |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                 |
|---------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SYSTEM</b>       | <b>Processor</b>       | 7th Generation Intel® Core™ Processors, BGA 1356 Socket<br>Intel® Core™ i7-7600U Processor, Dual Core, 4M Cache, 2.80 GHz (3.90 GHz), 15W<br>Intel® Core™ i5-7300U Processor, Dual Core, 3M Cache, 2.60 GHz (3.50 GHz), 15W<br>Intel® Core™ i3-7100U Processor, Dual Core, 3M Cache, 2.40 GHz, 15W<br>Intel® Celeron® Processor 3965U, Dual Core, 2M Cache, 2.20 GHz, 15W |                                                                                                                                                 |
|                     | <b>Memory</b>          | Two 260-pin SODIMM up to 32GB                                                                                                                                                                                                                                                                                                                                             | Dual Channel DDR4 1866/2133MHz                                                                                                                  |
|                     | <b>BIOS</b>            | Insyde SPI 128Mbit                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                 |
|                     |                        |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                 |
| <b>GRAPHICS</b>     | <b>Controller</b>      | Intel® HD Graphics GT Series                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                 |
|                     | <b>Feature</b>         | OpenGL 4.4, DirectX 12, OpenCL 2.1<br>HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9<br>HW Encode: AVC/H.264, MPEG2, JPEG, HEVC/H265, VP8, VP9                                                                                                                                                                                                    |                                                                                                                                                 |
|                     | <b>Display</b>         | 1 x LVDS/eDP (eDP available upon request)<br>2 x DP++                                                                                                                                                                                                                                                                                                                     | LVDS: dual channel 48-bit, resolution up to 1920x1200 @ 60Hz<br>DP: resolution up to 4096x2304 @ 60Hz<br>eDP: resolution up to 4096x2304 @ 60Hz |
|                     | <b>Triple Displays</b> | LVDS + DP++ + DP++                                                                                                                                                                                                                                                                                                                                                        | eDP + DP++ + DP++                                                                                                                               |
| <b>EXPANSION</b>    | <b>Interface</b>       | 1 x PCIe x4 (Gen 3)<br>1 x Full-size Mini PCIe (PCIe/USB)                                                                                                                                                                                                                                                                                                                 | 1 x M.2 M Key (2242/2260/2280) (PCIe/SATA)                                                                                                      |
| <b>AUDIO</b>        | <b>Audio Codec</b>     | Realtek ALC888S-VD2-GR                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                 |
| <b>ETHERNET</b>     | <b>Controller</b>      | 1 x Intel® I210AT PCIe (10/100/1000Mbps)<br>1 x Intel® I219LM PCIe with iAMT11.6 (10/100/1000Mbps) (only Core i7/i5 supports iAMT)                                                                                                                                                                                                                                        |                                                                                                                                                 |
| <b>REAR I/O</b>     | <b>Ethernet</b>        | 2 x GbE (RJ-45)                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                 |
|                     | <b>USB</b>             | 4 x USB 3.0                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                 |
|                     | <b>Display</b>         | 2 x DP++                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                 |
|                     | <b>Audio</b>           | 1 x Line-out                                                                                                                                                                                                                                                                                                                                                              | 1 x Mic-in                                                                                                                                      |
| <b>INTERNAL I/O</b> | <b>Serial</b>          | 1 x RS-232/422/485 (RS-232 w/ power) (2.0mm pitch)<br>1 x RS-232 (2.0mm pitch)                                                                                                                                                                                                                                                                                            |                                                                                                                                                 |
|                     | <b>USB</b>             | 4 x USB 2.0 (2.0mm pitch)                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                 |
|                     | <b>Display</b>         | 1 x LVDS LCD Panel Connector<br>1 x LCD/Inverter Power                                                                                                                                                                                                                                                                                                                    | 1 x eDP LCD Panel Connector<br>(available upon request)                                                                                         |
|                     | <b>Audio</b>           | 1 x S/PDIF                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                 |
|                     | <b>SATA</b>            | 2 x SATA 3.0 (up to 6Gb/s)<br>2 x SATA Power                                                                                                                                                                                                                                                                                                                              | RAID 0/1/5                                                                                                                                      |
|                     | <b>DIO</b>             | 1 x 8-bit DIO                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                 |
|                     | <b>LPC</b>             | 1 x LPC                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                 |
|                     | <b>SMBus</b>           | 1 x SMBus                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                 |
|                     | <b>WATCHDOG TIMER</b>  | <b>Output &amp; Interval</b> System Reset, Programmable via Software from 1 to 255 Seconds                                                                                                                                                                                                                                                                                |                                                                                                                                                 |
|                     | <b>SECURITY</b>        | <b>TPM</b> Available Upon Request                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                 |
| <b>POWER</b>        | <b>Type</b>            | Single 12V +/-10% DC (KU171)                                                                                                                                                                                                                                                                                                                                              | Wide Range 9~36V (KU173)                                                                                                                        |
|                     | <b>Connector</b>       | DC-in Jack                                                                                                                                                                                                                                                                                                                                                                | Right Angle Connector (4-pin) (available upon request)<br>Vertical Type Connector (4-pin) (available upon request)                              |
|                     | <b>RTC Battery</b>     | CR2032 Coin Cell                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                 |
| <b>OS SUPPORT</b>   | <b>Microsoft/Linux</b> | Windows 10 IoT Enterprise 64-bit                                                                                                                                                                                                                                                                                                                                          | Debian 8 (with VESA graphic driver)<br>CentOS 7 (with VESA graphic driver)<br>Ubuntu 15.10 (Intel graphic driver available)                     |
| <b>ENVIRONMENT</b>  | <b>Temperature</b>     | Operating: 0 to 60°C / -20 to 70°C                                                                                                                                                                                                                                                                                                                                        | Storage: -40 to 85°C                                                                                                                            |
|                     | <b>Humidity</b>        | Operating: 5 to 90% RH                                                                                                                                                                                                                                                                                                                                                    | Storage: 5 to 90% RH                                                                                                                            |
|                     | <b>MTBF</b>            | KU171 : 433,836 hrs @ 25°C; 252,953 hrs @ 45°C ; 161,770 hrs @ 60°C<br>KU173 : 416,214 hrs @ 25°C; 241,863 hrs @ 45°C ; 154,716 hrs @ 60°C<br>Calculation model: Telcordia Issue 2<br>Environment: GB, GC – Ground Benign, Controlled                                                                                                                                     |                                                                                                                                                 |
| <b>MECHANICAL</b>   | <b>Dimensions</b>      | Mini-ITX Form Factor                                                                                                                                                                                                                                                                                                                                                      | 170mm (6.7") x 170mm (6.7")                                                                                                                     |
|                     | <b>Height</b>          | PCB: 1.6mm                                                                                                                                                                                                                                                                                                                                                                | Top Side: 16.5mm, Bottom Side: 3.5mm                                                                                                            |

## Packing List

|                                                      |
|------------------------------------------------------|
| • 1 KU171/KU173 motherboard                          |
| • 1 COM port cable (Length: 250mm, 1 x COM ports)    |
| • 1 Serial ATA data with power cable (Length: 300mm) |
| • 1 DVD                                              |
| • 1 Heat sink (Height: 25mm)                         |

## Optional Items

|                                                    |                 |
|----------------------------------------------------|-----------------|
| • USB 2.0 port cable (Length: 200mm)               | 332-753059-000G |
| • COM port cable (Length: 250mm, 1 x COM ports)    | A81-015001-000G |
| • Serial ATA data with power cable (Length: 300mm) | A81-002013-000G |
| • Power adapter (100W, 12V, Level 6)               | 671-110002-100G |
| • Power adapter (120W, 19V)                        | 671-112004-100G |
| • I/O shield                                       | TBD             |
| • Heat sink (Height: 32mm)                         | A71-010037-000G |