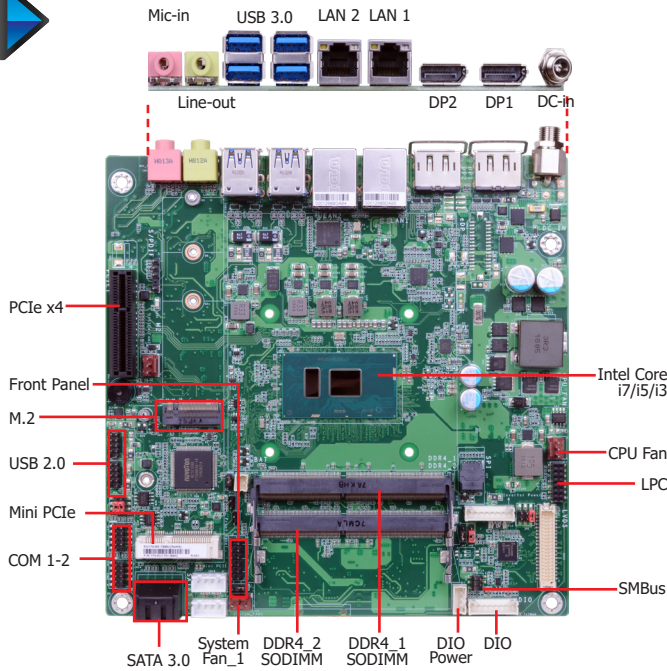


# KU171/KU173

ULT



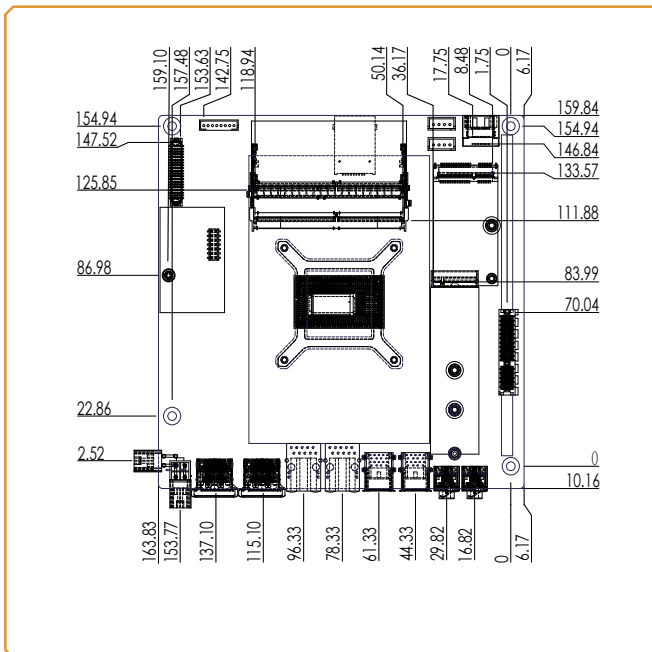
\* The photos above refer to KU171.

## Ordering Information

Model Name	P/N	Processor	Memory	LVDS/ eDP	HDMI/ DP++	GbE	RS-232 /422/485	RS-232	USB 3.0	USB 2.0	SATA 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	i7-7600U	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	i7-7600U	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



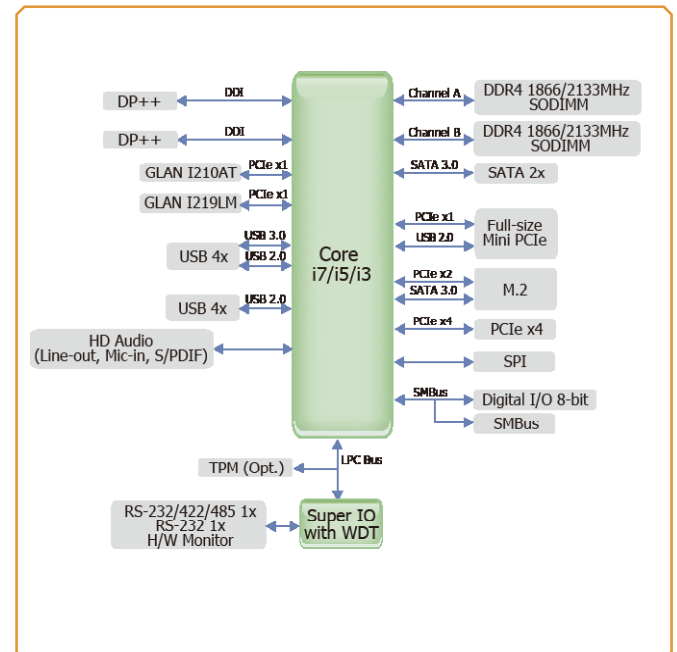
## Features

- 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



## Block Diagram



**Specifications**

<b>SYSTEM</b>	<b>Processor</b>	7th Generation Intel® Core™ Processors, BGA 1356 Socket Intel® Core™ i7-7600U Processor, Dual Core, 4M Cache, 2.80 GHz (3.90 GHz), 15W Intel® Core™ i5-7300U Processor, Dual Core, 3M Cache, 2.60 GHz (3.50 GHz), 15W Intel® Core™ i3-7100U Processor, Dual Core, 3M Cache, 2.40 GHz, 15W 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 HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 HW Encode: AVC/H.264, MPEG2, JPEG, HEVC/H265, VP8, VP9	
	<b>Display</b>	1 x LVDS/eDP (eDP available upon request) 2 x DP++	LVDS: dual channel 48-bit, resolution up to 1920x1200 @ 60Hz DP: resolution up to 4096x2304 @ 60Hz eDP: resolution up to 4096x2304 @ 60Hz
<b>EXPANSION</b>	<b>Triple Displays</b>	LVDS + DP++ + DP++	eDP + DP++ + DP ++
	<b>Interface</b>	1 x PCIe x4 (Gen 3) 1 x Full-size Mini PCIe (PCIe/USB)	1 x M.2 2242/2260/2280 M key (SATA3.0/PCIe Gen3 x2 NVMe)
<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) 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>INTERNAL I/O</b>	<b>Audio</b>	1 x Line-out	1 x Mic-in
	<b>Serial</b>	1 x RS-232/422/485 (RS-232 w/ power) (2.0mm pitch) 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 1 x LCD/Inverter Power	1 x eDP LCD Panel Connector (available upon request)
	<b>Audio</b>	1 x S/PDIF	
	<b>SATA</b>	2 x SATA 3.0 (up to 6Gb/s) 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>	TPM 2.0 (Opt.)	
<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) Vertical Type Connector (4-pin) (available upon request)
	<b>Consumption</b>	Typical: i7-7600U: 12V @ 0.39A (4.68Watt); 19V @ 2.79A (33.48Watt) Max.: i7-7600U: 12V @ 0.28A (5.32Watt); 19V @ 1.94A (36.86Watt)	
	<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) CentOS 7 (with VESA graphic driver) Linux
	<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 KU173 : 416,214 hrs @ 25°C; 241,863 hrs @ 45°C ; 154,716 hrs @ 60°C Calculation model: Telcordia Issue 2 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	
<b>CERTIFICATION</b>	RoHS, CE, FCC		

**Packing List**

• 1 KU171/KU173 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 (Height: 25mm)	A71-010033-000G (0 to 60°C) A71-010037-000G (-20 to 70°C)

**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
• Power adapter (100W, 12V, Level 6) (KU171)	671-110002-100G
• Power adapter (120W, 19V) (KU173)	671-112004-100G
• I/O shield	A49-SU1710-000G
• I/O shield (Thin Type)	A49-SU1710-010G
• I/O shield (Thin Type Non Audio)	A49-SU1710-020G
• Heat sink (Height: 32mm)	A71-010037-000G