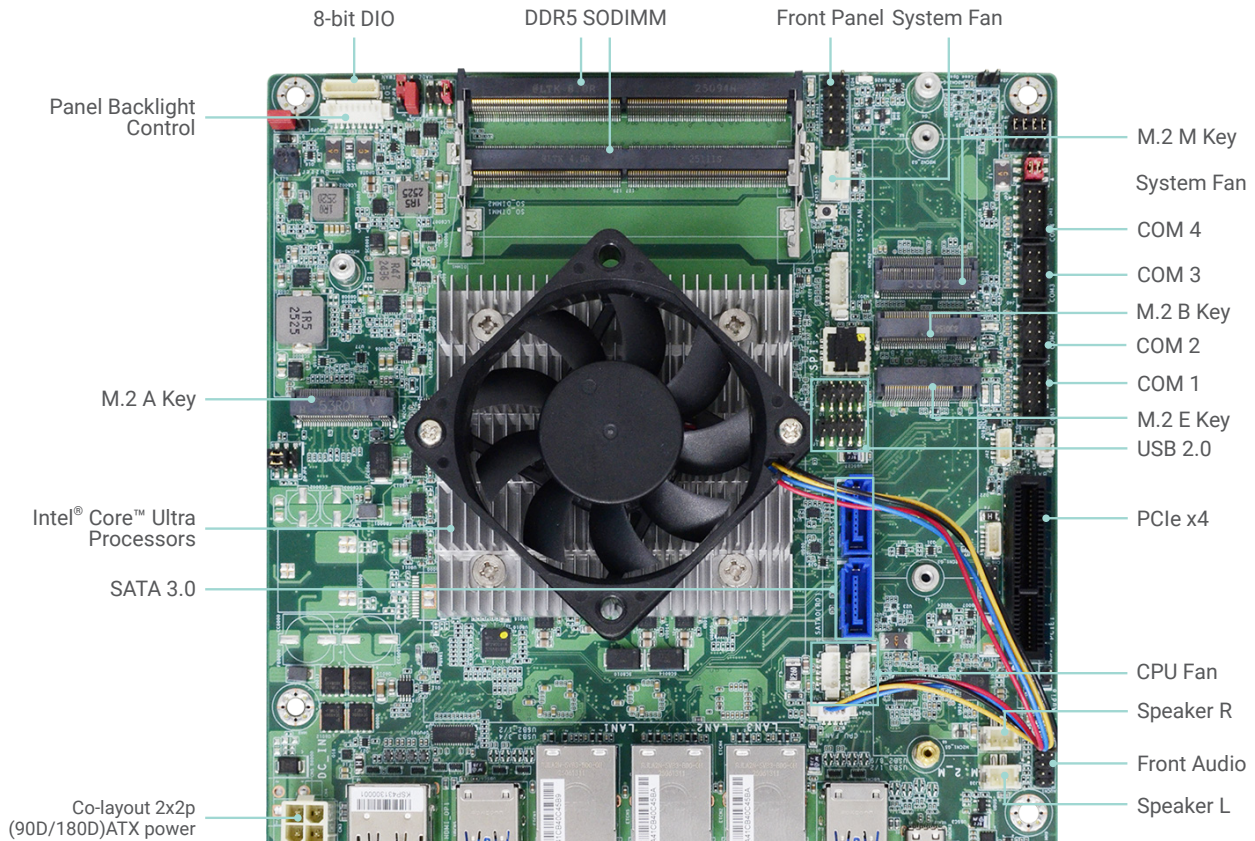
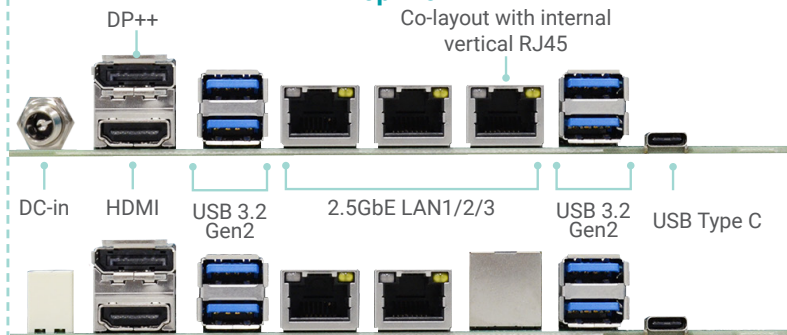


# ARH171/ARH173

Intel® Arrow Lake H/U Processors,  
Intel® Meteor Lake H/U Processors  
Mini-ITX



Top View



## KEY FEATURES



### DDR5

2 DDR5 5600/6400MHz SODIMM up to 96GB/128GB



### 4K High Resolution

Supports 4K/ 2K resolution



### Quad Displays

1 DP++, 1 HDMI, 1 USB Type C, 1 M2A Modular (eDP/LVDS/VGA/HDMI/M21)



### Multiple Expansion

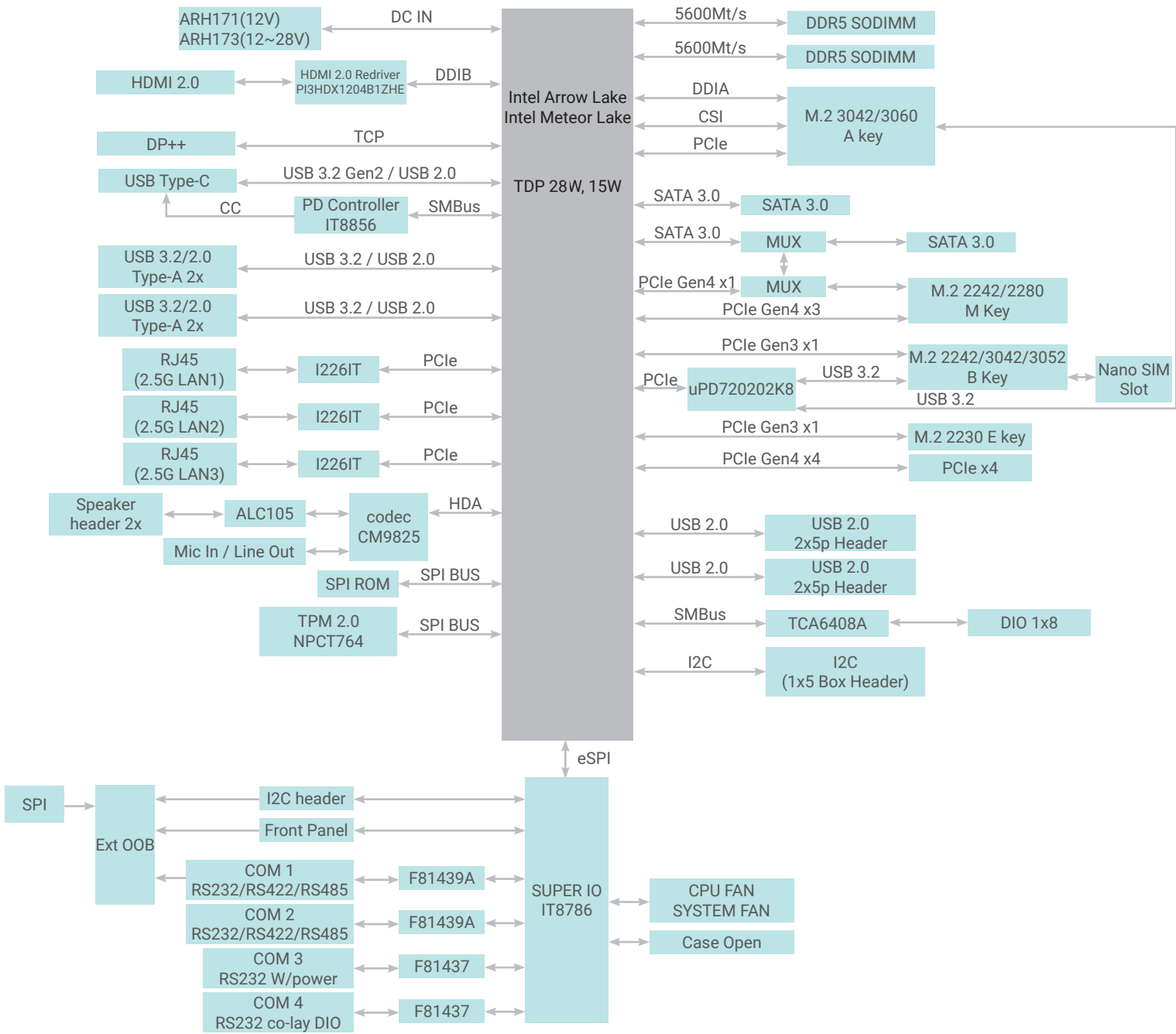
1 PCIe Gen4 x4, 1 M.2 M Key, 1 M.2 B Key, 1 M.2 E Key, 1 M.2 A Key



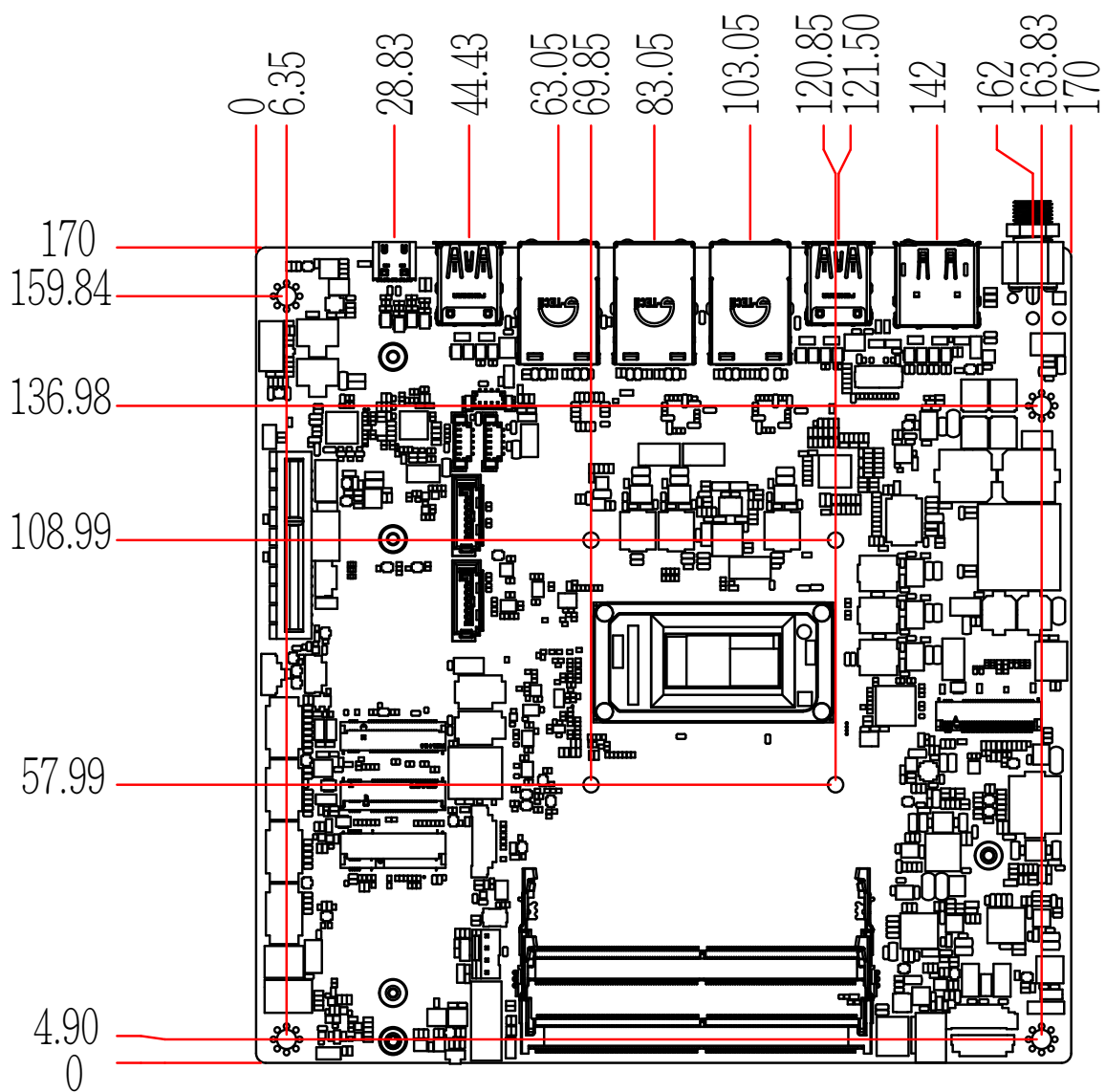
### Rich I/O

Up to 3 2.5GbE LAN, 4 USB 3.2, 1 USB Type C, 4 USB2.0, 2 SATA3.0, 4 COM

# BLOCK DIAGRAM



# MECHANICAL DRAWING



## SPECIFICATION

Model Name		ARH171	ARH173
SYSTEM	Processor	<b>Intel® Arrow Lake H/U Processors</b> Intel® Core™ Ultra 7 265H (28W) (vPro) Intel® Core™ Ultra 7 255H (28W) Intel® Core™ Ultra 5 235H (28W) (vPro) Intel® Core™ Ultra 5 225H (28W) Intel® Core™ Ultra 7 265U (15W) (vPro) Intel® Core™ Ultra7 255U (15W) Intel® Core™ Ultra 5 235U (15W) (vPro) Intel® Core™ Ultra 5 225U (15W) <b>Intel® Meteor Lake H/U Processors</b> Intel® Core™ Ultra 7 165H (28W) (vPro) Intel® Core™ Ultra 7 155H (28W) Intel® Core™ Ultra 5 135H (28W) (vPro) Intel® Core™ Ultra 5 125H (28W) Intel® Core™ Ultra 7 165U (15W) (vPro) Intel® Core™ Ultra 7 155U (15W) Intel® Core™ Ultra 5 135U (15W) (vPro) Intel® Core™ Ultra 5 125U (15W)	
	Memory	2x 262-pin SODIMM up to 96GB(MTL)/128GB(ARL) Dual Channel DDR5 5600MHz(MTL)/6400MHz(ARL)	2x 262-pin SODIMM up to 96GB(MTL)/128GB(ARL) Dual Channel DDR5 5600MHz(MTL)/6400MHz(ARL)
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit
	GRAPHICS	Controller	Intel® Arc™ Graphics 140T (265H/255H) Intel® Arc™ 130T GPU(225H) Intel® Graphics (265U/225U/255U)
	Feature	DirectX12.2, OpenGL4.6, OpenCL3.0, H.264, H.265, AV1, VP9, Intel® Quick Sync Video <b>AI Software Frameworks Supported by GPU:</b> OpenVINO™, WindowsML, DirectML, ONNX RT, WebGPU	DirectX12.2, OpenGL4.6, OpenCL3.0, H.264, H.265, AV1, VP9, Intel® Quick Sync Video <b>AI Software Frameworks Supported by GPU:</b> OpenVINO™, WindowsML, DirectML, ONNX RT, WebGPU
	Display	1 x DP++ 1 x HDMI <b>HDMI:</b> resolution up to 4096x2160 @60Hz <b>DP:</b> resolution up to 4096x2304 @60Hz <b>USB Type C (DP alt-mode/USB3.2 Gen2/PD 15W):</b> resolution up to 4096x2304 @60Hz (HBR2)	1 x DP++ 1 x HDMI <b>HDMI:</b> resolution up to 4096x2160 @60Hz <b>DP:</b> resolution up to 4096x2304 @60Hz <b>USB Type C (DP alt-mode/USB3.2 Gen2/PD 15W):</b> resolution up to 4096x2304 @60Hz (HBR2)
	Quad Displays	1 DP++ + 1 HDMI + 1 USB Type C + 1 M2A Modular (eDP/LVDS/VGA/HDMI/M21)	1 DP++ + 1 HDMI + 1 USB Type C + 1 M2A Modular (eDP/LVDS/VGA/HDMI/M21)
EXPANSION	Interface	1 x PCIe Gen 4 x4	1 x PCIe Gen 4 x4
		1 x M.2 2242/2280 M Key (PCIe Gen4x4, support NVMe )	1 x M.2 2242/2280 M Key (PCIe Gen4x4, support NVMe )
		1 x M.2 2242/3042/3052 B Key (PCIe Gen3x1, USB3.2 Gen2, USB2.0, selected by BIOS)	1 x M.2 2242/3042/3052 B Key (PCIe Gen3x1, USB3.2 Gen2, USB2.0, selected by BIOS)
		1 x M.2 2230 E Key (PCIe Gen3x1 and USB2.0, support Intel® CNVi)	1 x M.2 2230 E Key (PCIe Gen3x1 and USB2.0, support Intel® CNVi)
		1 x M.2 3042/3060 A Key (Standoff 3030) <b>Standard (Default)</b> M2A Display(eDP/LVDS/VGA/HDMI/DP) M2AM21 (PCIEx1,USB3/USB2,SIM) <b>DFI self define (Jumper Opt.)</b> M2A-MIPI for camera M2A-HDMIIN for video capture	1 x M.2 3042/3060 A Key (Standoff 3030) <b>Standard (Default)</b> M2A Display(eDP/LVDS/VGA/HDMI/DP) M2AM21 (PCIEx1,USB3/USB2,SIM) <b>DFI self define (Jumper Opt.)</b> M2A-MIPI for camera M2A-HDMIIN for video capture
AUDIO	Audio Codec	Realtek ALC888S	Realtek ALC888S
ETHERNET	Controller	<b>LAN1/2:</b> i226V/IT (10/100/1000/2.5G speeds) <b>LAN3(vPro):</b> i226LM/IT (10/100/1000/2.5G speeds)	<b>LAN1/2:</b> i226V/IT (10/100/1000/2.5G speeds) <b>LAN3(vPro):</b> i226LM/IT (10/100/1000/2.5G speeds)
REAR I/O	Ethernet	Up to 3 x 2.5GHz RJ45 (LAN 3 colayout with internal vertical RJ45 by option)	Up to 3 x 2.5GHz RJ45 (LAN 3 colayout with internal vertical RJ45 by option)
	USB	4 x USB 3.2 Gen2 1 x USB Type C (DP alt-mode/USB3.2 Gen2/PD 15W)	4 x USB 3.2 Gen2 1 x USB Type C (DP alt-mode/USB3.2 Gen2/PD 15W)
	Display	1 x DP++ 1 x HDMI	1 x DP++ 1 x HDMI
INTERNAL I/O	Serial	2 x RS-232/422/485 (2.0mm pitch) 1 x RS-232 with power (2.0mm pitch) 1 x RS-232 (2.0mm pitch) colay with DIO-4bit (JP1)	2 x RS-232/422/485 (2.0mm pitch) 1 x RS-232 with power (2.0mm pitch) 1 x RS-232 (2.0mm pitch) colay with DIO-4bit (JP1)
	USB	4 x USB 2.0 (2.0mm pitch)	4 x USB 2.0 (2.0mm pitch)
	Display	1 x M.2 A key, support M2A-Display (eDP/LVDS/VGA/HDMI/DP)	1 x M.2 A key, support M2A-Display (eDP/LVDS/VGA/HDMI/DP)
	Audio	1 x Line-out/Mic-in	1 x Line-out/Mic-in
	SATA	2 x SATA 3.0	2 x SATA 3.0
	DIO	1 x 8-bit DIO	1 x 8-bit DIO
	SMBus	1 x SMBus	1 x SMBus

## SPECIFICATION

Model Name		ARH171	ARH173
<b>WATCHDOG TIMER</b>	<b>Output &amp; Interval</b>	System Reset, Programmable via Software from 1 to 255 Seconds	System Reset, Programmable via Software from 1 to 255 Seconds
<b>SECURITY</b>	<b>TPM</b>	dTPM (default) fTPM (option)	dTPM (default) fTPM (option)
<b>POWER</b>	<b>Type</b>	Single 12VDC	Wide Range 12~28VDC
	<b>Connector</b>	DC-in Jack Right Angle Connector (4-pin) (available upon request) Vertical Type Connector (4-pin) (available upon request)	DC-in Jack Right Angle Connector (4-pin) (available upon request) Vertical Type Connector (4-pin) (available upon request)
	<b>Consumption</b>	<b>Idle:</b> TBD <b>Max:</b> TBD	<b>Idle:</b> TBD <b>Max:</b> TBD
	<b>RTC Battery</b>	CR2032 Coin Cell	CR2032 Coin Cell
<b>OS SUPPORT</b>	<b>Microsoft</b>	Windows IoT Enterprise 11 LTSC	Windows IoT Enterprise 11 LTSC
	<b>Linux</b>	Linux	Linux
<b>ENVIRONMENT</b>	<b>Temperature</b>	<b>Operating:</b> -5 to 65°C, -20 to 70°C <b>Storage:</b> -40 to 85°C	<b>Operating:</b> -5 to 65°C, -20 to 70°C <b>Storage:</b> -40 to 85°C
	<b>Humidity</b>	<b>Operating:</b> 5 to 95% RH <b>Storage:</b> 5 to 95% RH	<b>Operating:</b> 5 to 95% RH <b>Storage:</b> 5 to 95% RH
<b>ENVIRONMENT</b>	<b>MTBF</b>	TBD	TBD
<b>MECHANISM</b>	<b>Dimensions</b>	Mini-ITX Form Factor 170mm (6.7") x 170mm (6.7")	Mini-ITX Form Factor 170mm (6.7") x 170mm (6.7")
	<b>Height</b>	<b>PCB:</b> TBDmm <b>Top Side:</b> TBDmm <b>Bottom Side:</b> TBDmm	<b>PCB:</b> TBDmm <b>Top Side:</b> TBDmm <b>Bottom Side:</b> TBDmm
<b>STANDARDS AND CERTIFICATION</b>	<b>Certifications</b>	CE, FCC, RoHS, UKCA	CE, FCC, RoHS, UKCA

## PACKING LIST

• 1 ARH171/ARH173 motherboard	
• 1 COM port cable with bracket (Length: 250mm, 1 x COM ports)	A81-015115-018G
• 1 Serial ATA data with power cable (Length: 300mm)	A81-002144-018G
• 4 M.2 screw/standoff	
• 1 I/O Shield	
- (2 LAN, Regular type)(For Sample)	TBD
- (3 LAN, Regular type)(For Sample)	TBD
- (2 LAN, Thin type)(For Sample)	TBD
- (3 LAN, Thin type)(For Sample)	TBD
• 1 Cooler/Heat sink	
- (Wide/Normal Temp. -Cooler for 28W)	TBD (Default)
- (Wide Temp. Fanless HS for 15W)	TBD (By request)
- (Normal Temp. Fanless HS for 15W)	TBD (By request)