

# 1ST-MITX-RL10

**Mini ITX Embedded Motherboard**  
with 13<sup>th</sup> Gen Intel® Core™ CPU (Raptor Lake), 4x HDMI, 2x LAN



The 1ST-MITX-RL10 is an embedded Mini-ITX motherboard with the 13<sup>th</sup> Gen Intel® Raptor Lake-P or U series Core™ i3/ i5/ i7 processor soldered on board and provides an incremental set of crucial industrial features vital to the manufacturing and energy sector along with a significant increase in instructions-per-cycle performance from the 12th Gen Core™ Mobile processor. It also comes with long-life hardware availability of up to 10 years and software support of up to 5 years. It offers a complete PC platform on a small form factor design with a high performance with up to 14 cores and 20 threads.

This board features 4K Resolution HD Displays via 4x HDMI 2.0.

It carries 2x DDR4 SO-DIMM slots up to 64GB. A TPM module for added security is optional.

- 2x 10/100/1000Mbps LAN (Intel® i225/i226 with 2,5GbE and i219 with 1GbE)
- GPU: Intel® Iris® XE Graphics eligible/UHD Graphics depends on CPU
- 4x USB3.2, 4x USB 2.0, 6x COM, 8 bit GPIO
- M.2 for WiFi, PCIe x4
- SATA, M.2 for NVMe 2280 SSD

The 1ST-MITX-RL10 is an ideal solution for applications requiring a high-speed communication front-end like mini-server or high-resolution display products, electronic gaming machines, medical imaging, interactive digital signage or thin clients.

## Applications

- Industrial control: factory control and testing, security systems, energy sector
- Digital signage: split display, shopping mall billboard, scoreboard
- Other Applications: Stock Trading, Medical Imaging, Smart School, High-End Gaming

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		Items	Descriptions
Motherboard	CPU		Intel® Core™ i3-1320PE(3.3GHz up to 4.5GHz, 8 core/12T CPU, TDP 28W), Intel® Core™ i5-1340P(3.4GHz up to 4.6GHz, 12 core/16T CPU, TDP 28W), Intel® Core™ i7-1370P(3.9GHz up to 5.2GHz, 14 core/20T CPU, TDP 28W), Intel® Core™ i3-1315U((3.3GHz up to 4.5GHz, 6 core/8T CPU, TDP 15W), Intel® Core™ i5-1334U(3.4GHz up to 4.6GHz, 10 core/12T CPU, TDP 15W), Intel® Core™ i7-1365U(3.9GHz up to 5.2GHz, 10 core/12T CPU, TDP 15W)
	System Memory		2x SO-DIMM DDR4 up to 64GB
	GPU		Intel® Iris® XE Graphics eligible/UHD Graphics (varies on CPU)
	BIOS		AMI UEFI BIOS
Display			4x HDMI 2.0, 1x LVDS/eDP header, 1x eDP/DP/HDMI2.0
Ethernet	Speed		10/100/1000 Mbps
	Controller		1x Intel® i225/226 Data Rate per Port: 2.5GbE 1x Intel® i219 Data Rate per Port: 1.0GbE
	Interface		2x RJ45
Hardware Monitoring			CPU/System temperature, onboard DC-IN voltage, watchdog and auto power on
Storage			1x M.2 for NVMe 2280 SSD 1x SATA
Expansions			1x M.2 for WiFi, support Intel ® Integrated Connectivity (CNVi) 1x PCIe x4
I/O Interface			2x LAN RJ45 4x USB3.2 8bit GPIO TPM2.0 onboard optional Audio 1x Line-out , 1x Mic-in
I/O Headers			6x COM: 6x RS232(default) or 5x RS232 and 1x RS485(COM1) 4x USB2.0 header
Power	Standard Input		19V DC-IN, 4 Pin Power
Mechanical & Environmental	Type		Mini ITX
	Dimensions (LxW)		170mm x 170mm (LxW)
	Operating temperature		-20°C ~ 60°C non condensing
	Storage temperature		-40°C ~ 80°C
	Peripheral Input		for Fan and SATA
Supported OS			Windows10/11 64bit, Linux 64bit

## Ordering Information

Part No.	Descriptions
1ST-MITX-RL10-i7-1370P	Thin Mini ITX Embedded Motherboard with Intel® Core™ i7-1370P
1ST-MITX-RL10-i5-1334U	Thin Mini ITX Embedded Motherboard with Intel® Core™ i5-1334U
1ST-MITX-RL10-i7-1365U	Thin Mini ITX Embedded Motherboard with Intel® Core™ i7-1365U

## 1ST-MITX-RL10 Functional Block Diagram

