

# MIC-770

## Compact Fanless System with 8<sup>th</sup>/9<sup>th</sup> Gen Intel® Core™ i CPU Socket (LGA 1151)



### Features

- Intel® 8<sup>th</sup>/9<sup>th</sup> Gen Core™ i CPU socket-type (LGA1151) with Intel® Q370/H310 chipset
- Wide operating temperature (-10 ~ 50 °C)
- VGA and HDMI output
- 2 x GigaLAN, 2 x USB 3.1 and 6 x USB 3.0
- 2 x RS-232/422/485 and 4 x RS232 serial ports (Optional)
- 1 x 2.5" HDD/SSD, and 1 x mSATA
- 9 ~ 36 V<sub>DC</sub> input power range
- IP40 dust proof for deployment in harsh environment
- Supports FlexIO and iDoor technology, flexible configure additional HDMI, DVI, Comport, DIO, Remote switch IO
- Supports Advantech i-Modules
- Supports Advantech SUSI API and embedded software APIs
- Supports Intel® vPro™/AMT and TPM technologies
- Microsoft Azure PnP Certified

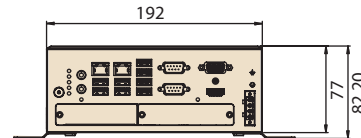
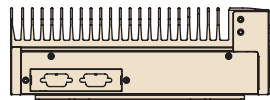
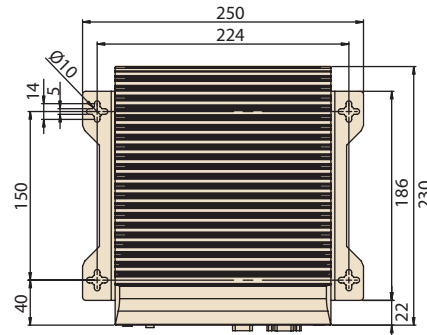
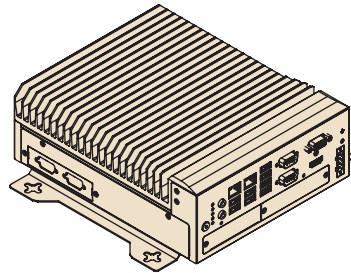


### Specifications

8 <sup>th</sup> /9 <sup>th</sup> Generation Processor (TDP 35W)	CPU	I7-9700TE	I5-9500TE	I3-9100TE	I7-8700T	I5-8500T			
	Core/Thread number	8/8	6/6	4/4	6/12	6/6			
	Base Frequency	1.8GHz	2.2GHz	2.2GHz	2.4GHz	2.1GHz			
	Max Turbo Frequency	3.8GHz	3.6GHz	3.2GHz	4.0GHz	3.5GHz			
	L3 Cache	12MB	9MB	6MB	12MB	9MB			
	Temperature	-10 ~ 50 °C (w/ industrial wide-temp SSD, 0.7m/s air flow)							
	Chipset	Q370/H310							
8 <sup>th</sup> /9 <sup>th</sup> Generation Processor (TDP 65W)	BIOS	AMI 256Mb SPI Flash							
	CPU	I7-9700E	I5-9500E	I3-9100E	I7-8700	I5-8500	i3-8100	G5400	G4900
	Core/Thread number	8/8	6/6	4/4	6/12	6/6	4/4	2/4	2/2
	Base Frequency	2.6GHz	3.0GHz	3.1GHz	3.2GHz	3.0GHz	3.6GHz	3.7GHz	2.9GHz
	Max Turbo Frequency	4.4GHz	4.2GHz	3.7GHz	4.6GHz	4.1GHz	4.1GHz	4.1GHz	2.9GHz
	L3 Cache	12MB	8MB	6MB	12MB	9MB	6MB	4MB	2MB
	Temperature	-10 ~ 40 °C (w/ industrial wide-temp SSD, 0.7m/s air flow)							
Memory	Chipset	Q370/H310							
	BIOS	AMI 256Mb SPI Flash							
	Technology	Dual-channel DDR4 2400/2666 MHz (without ECC)							
Memory	Socket	2 x 260-pin DDR4 SODIMM (up to 32GB per socket)							
	Maximum Capacity	64GB							
	Chipset	Q370: Intel® HD Graphics 630, supports DirectX 12 H310: Intel® HD Graphics 610, supports DirectX 12							
Display	VGA	1 x DB15, up to 1920 x 1200 maximum resolution							
	HDMI	1 x HDMI, up to 4096 x 2160@30Hz							
	Multiple Display	Q370: 3 x independent displays (with Flex I/O for 2nd HDMI, 1 x DVI or 1 x DP) H310: 2 x independent displays							
	Chipset	Q370 LAN1: Intel® I219LM, LAN2: Intel® i210IT H310 LAN1: Intel® I219V, LAN2: Intel® i210IT							
Ethernet	Interface	2 x RJ45							
	HDD	1 x 2.5" HDD/SSD (up to 2 x 2.5" SSD by optional kit; 2 x 3.5" HDD by i-Module)							
	mSATA	1							
	RAID	0/1/5/10 (Q370 SKU only)							
Storage	SATA Conn.	Q370: 3 x SATA signal, 3 x SATA power H310: 2 x SATA signal, 2 x SATA power							
	USB	Q370: 2 x USB3.1, 6 x USB3.0 and 1 x internal USB 2.0 H310: 4 x USB 3.0 and 4 x USB 2.0							
	Serial Port	2 x DB9, 2 x RS-232/422/485 support auto flow control; 4 x RS-232 (Optional)							
I/O	Audio	2 (1 x line out and 1 x mic in)							
	Module	Supports Advantech i-Modules							
Expansion	Mini PCIe	Q370: 1 x mini PCIe (via USIM), 1 x mini PCIe/mSATA H310: 1 x mini PCIe (via USIM), 1 x mSATA							
	LED	2 (1 x Storage and 1 x Power), 4 for COM1 TX/RX and COM2 TX/RX							
LED and Switch	Button	1 x Power on/off switch							
	Remote Switch	Yes, 2pin terminal block (Optional)							
Power	Type	ATX/AT							
	Input Voltage	9 ~ 36 V <sub>DC</sub>							
	Power consumption	Typical: 32.1W Maximum: 116W							
Watchdog Timer	Output	System reset							
	Interval	Programmable 1 ~ 255 sec/min							
Environment	Temperature	65W CPU w/ industrial wide-temp SSD			35W CPU w/ industrial wide-temp SSD		Non-operating		
		-10 ~ 40 °C with 0.7 m/s air flow			-10 ~ 50 °C with 0.7 m/s air flow		-40 ~ 85 °C		
	Humidity	95% @ 40 °C (non-condensing)							
	Vibration	With SSD: 3 Grms @ 5 ~ 500 Hz, random, 1 hr/axis With 2.5" HDD: 1 Grms @ 5 ~ 500 Hz, random, 1 hr/axis							2G
Mechanical	Shock	With SSD: 20G, IEC-68-2-27, half-sine wave, 11 ms duration							50G 11 ms
	Dimensions (W x H x D)	77 x 192 x 230 mm (3.07" x 7.55" x 9.05")							
Mechanical	Weight	2.8 kg (6.17 lbs)							
	Installation	Desktop/wall mount							
	EMC	CE/FCC Class A, CCC, BSMI							
Certifications	Safety	CB/UL, CCC, BSMI							
	OS Support	Windows 10, Windows 10 IoT, Linux OS							

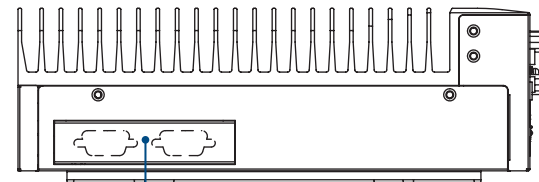
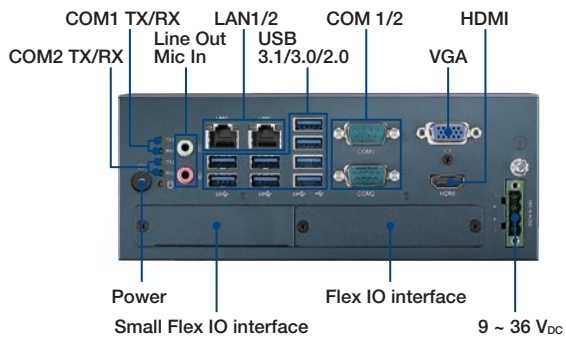
**Dimensions**

Unit: mm



**Front View**

**Side View**



iDoor or 2 x RS-232 expansion slots

**Ordering Information**

Part Number	VGA	HDMI	2.5" HDD/SSD	mSATA	USB 3.1	USB 3.0	USB 2.0	GbE	COM	PCIe	Power
MIC-770Q-00A2	1	1	1	1	2	6	0	2	2, up to 6 (Optional)	i-Module (optional)	9 ~ 36V <sub>DC</sub>
MIC-770H-00A2	1	1	1	1	0	4	4	2	2, up to 6 (Optional)	i-Module (optional)*	9 ~ 36V <sub>DC</sub>

\*MIC-770H does not support MIC-75M40, MIC-75M20-01 and MIC-75G30

## Packing List

Part Number	Description	Quantity
MIC-770	MIC-770 barebone system	1
2041077000	MIC-770 startup manual (ENG+TC+SC)	1
1652003234	4-pin Phoenix power connector	1
1960070543T005	2 x Mounting bracket	2
1700013095-01	SATA cable	1
1700024372-01	SATA power cable	1
2170000093-01	CPU thermal grease	1
1990019498N000	RAM thermal pad	2

## Optional i-Modules\*

Part Number	Description
MIC-75M10-00A2	1-slot expansion module (1 x PCIe)
MIC-75M11-00B1	2-slot expansion module (1 x PCIe and 1 x PCI slots)
MIC-75M13-00B1	4-slot expansion module (1 x PCIe and 3 x PCI slots)
MIC-75M20-00C1	2-slot expansion module (2 x PCIe slots)
MIC-75M20-01A2**	2-slot expansion module (2 x PCIe slots)
MIC-75M40-00A2**	4-slot expansion module (4 x PCIe slots)
MIC-75G20-10B1	GPU card expansion module (2 x PCIe and 2 x removable 2.5" storage bay)
MIC-75G30-00B1**	Dual GPU card expansion module (3 x PCIe and 2 x removable 2.5" storage bay)
MIC-75GF10-00A1	MXM GPU expansion module (1 x PCIe and 2 x removable 2.5" storage bay, 1 x HDMI, 3 x DP)
MIC-75S00-00A1	2 x removable 2.5" storage bay
MIC-75S20-00A2	2-slot expansion and storage module (2 x PCIe and 2 x removable 2.5" storage bay)
98R17520301	2 x 3.5" HDD kit

\*Please refer to i-Module datasheet for more detail.

\*\* Q370 SKU only

## Embedded OS

Part Number	Description
20706WX9HS0005	img MIC-770H Win10 IOT Enterprise 2019 LTSC 64b high end
20706WX9VS0007	img MIC-770H Win10 IOT Enterprise 2019 LTSC 64b value
20706WX9ES0010	img MIC-770H Win10 IOT Enterprise 2019 LTSC 64b entry
20706WX9HS0004	img MIC-770Q Win10 IOT Enterprise 2019 LTSC 64b high end
20706WX9VS0006	img MIC-770Q Win10 IOT Enterprise 2019 LTSC 64b value
20706WX9ES0009	img MIC-770Q Win10 IOT Enterprise 2019 LTSC 64b entry

## Optional Accessories

Part Number	Description
<b>Adaptor</b>	
96PSA-A230W24P4-3*	ADP A/D 100-240V 230W 24V C14 TERMINAL BLOCK 4P
96PSA-A150W19P4-3	ADP A/D 100-240V 150W 19V C14 TERMINAL BLOCK 4P
1702002600	Power cord (USA) UL/CSA, 3-pin, 10A, 125V, 1.83 M, 180 D
1700000237-31	Power Cord PSE 3P 12A 125V 183cm
1702002605	Power Cord (EU), 3-pin, 10A, 250V 1.83M, 90D
<b>Din Rail PSU</b>	
96PSD-A240W24-MN	A/D 100-240V 240W 24V NDR DIN RAIL
1700031170-01	DC-DC power cord, A cable TEM*4/TEM*4 UL2464 18AWG 150cm
1700029720-01	AC-DC power cord (US), M cable AC CONN 3P 183cm
1700030520-01	AC-DC power cord (CN), M cable conn 3P CCC 10A 250V 150cm
1700034561-01	AC-DC power cord (EU), M cable Type E 3P/TEMx3 80CM

\* Please use 230W adaptor when i-Module is added.

Note:

- MIC-770 supports Advantech iDoor modules (both MOS and PCM series), excluding the PoE model.
- The **PCM** series module requires a bracket (**P/N: 1960065854N001**) that must be ordered separately.

## Optional Flex I/O\* & Kits

Part Number	Description
<b>Flex I/O</b>	
AIIS-DIO32-00A1E**	AIIS GPIO module (32 bit)
PCA-TPM-00B1E	TPM 2.0 module
98R17500001	MIC DVI FIO
98R17500101	MIC HDMI/Remote power on/off FIO
98R17500301	MIC HDMI kit FIO
98R17500401	MIC Remote power on/off FIO
98R17500601	MIC COMport kit FIO (4x COM RS-232 via 2x dual DB9 cable)
98R17500701	MIC Remote power on/off kit for SFIO
98R17500801	MIC Reset/Remote power on/off/5VDC kit FIO
98R17500901	MIC GPIO kit FIO
<b>Advanced Flex I/O***</b>	
98910770301	MIC NVMe + 4 LAN Advanced FIO
98910770401	MIC NVMe Advanced FIO
98910770501****	MIC 4 PoE Advanced FIO
<b>Storage Kit</b>	
98R1752010E	2nd 2.5" HDD/SSD kit (used in 2-slot i-Module)
98R1752020E	2 x 2.5" SSD kit (Thickness: 7mm, used insides of MIC-770 V2)
<b>Mounting Kit</b>	
98R17500210	MIC Din Rail Mounting kit
98R17500501	MIC Wall Mounting kit

\* Please refer to Flex I/O datasheet for more detail.

\*\* Can only be placed in the small FIO location and can't be installed with other flex IO.

\*\*\* Q370 SKU only

\*\*\*\* Can't be installed with other flex IO.