

MIC-770 V3

Compact Fanless System with 12th/13th Gen Intel® Core™ i CPU Socket (LGA 1700)

NEW



Features

- Intel® 12th/13th Gen Core™ i CPU socket-type (LGA1700) with Intel® R680E/H610E chipset
- Wide operating temperature (-20 ~ 60 °C)
- VGA and HDMI output
- 2 x GigaLAN, 2 x USB 3.2 (Gen2) and 6 x USB 3.2 (Gen1)
- 2 x RS-232/422/485 and 4 x RS232 serial ports (Optional)
- 1 x 2.5" HDD/SSD, 1 x mSATA, and 1 x NVMe M.2
- 9 ~ 36 V_{DC} input power range
- IP40 dust proof for deployment in harsh environment
- Supports FlexIO and iDoor technology, flexible configure additional HDMI, DP, DVI, COM port, DIO, Remote switch IO
- Supports Advantech i-Modules
- Supports Advantech SUSI-API and embedded software APIs
- Supports Intel® vPro™/AMT and TPM technologies
- Supports Advantech iBMC 1.2 remote out-of-band power management solution on DeviceOn

Specifications

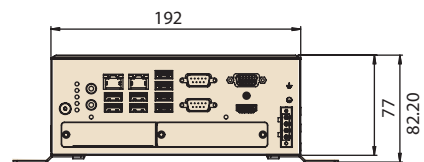
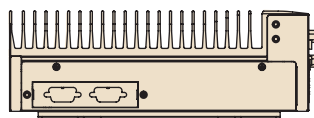
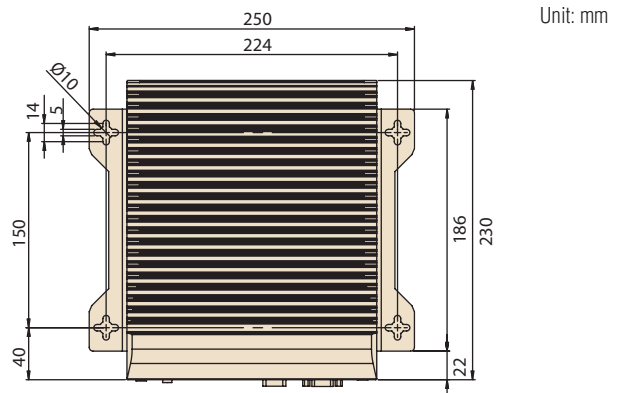
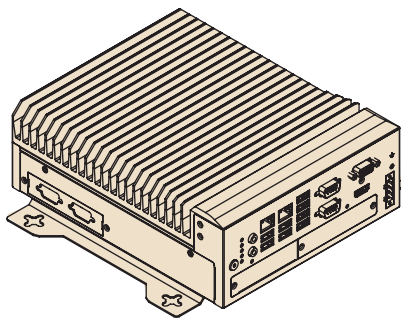
13 th Generation Processors	CPU	i9-13900(E)	i7-13700(E)	i5-13500(E)	i5-13400(E)	i3-13100(E)	i9-13900TE	i7-13700(E)	i5-13500(E)	i3-13100(E)	
	P-core Base Frequency	2.0 GHz	2.10 GHz	2.50 GHz	2.50 GHz	3.40 GHz	1.00 GHz	1.40 GHz	1.60 GHz	2.50 GHz	
	L3 Caches	36 MB	30 MB	24 MB	20 MB	12 MB	36 MB	30 MB	24 MB	12 MB	
	Cores	24	16	14	10	4	24	16	14	4	
	Processor Base Power	65W	65W	65W	65W	60W	35W	35W	35W	35W	
12 th Generation Processor (TDP 35W)	CPU	i9-12900TE	i7-12700TE	i5-12500TE	i3-12100TE	Pentium G7400TE	Celeron G6900TE				
	Core/Thread number	16/24	12/20	6/12	4/8	2/4	2/2				
	Base Frequency	1.10 GHz	1.40 GHz	1.90 GHz	2.10 GHz	3.00 GHz	2.4 GHz				
	Max Turbo Frequency	4.80 GHz	4.60 GHz	4.30 GHz	4.00 GHz						
	L3 Cache	30 MB	16 MB	12 MB	6 MB	2.5MB	2.5MB				
	Temperature	-20 ~ 60 °C (w/ industrial wide-temp SSD, 0.7m/s air flow)									
	Chipset	R680E/H610E									
	BIOS	AMI 256Mb/128Mb SPI Flash									
12 th Generation Processor (TDP 65W)	CPU	i9-12900(E)	i7-12700(E)	i5-12500(E)	i3-12100(E)	G7400E (46W)	G6900E (46W)				
	Core/Thread number	16/24	12/20	6/12	4/8	2/4	2/2				
	Base Frequency	2.30 GHz	2.10 GHz	2.90 GHz	3.20 GHz	3.60 GHz	3.00 GHz				
	Max Turbo Frequency	5.00 GHz	4.80 GHz	4.50 GHz	4.20 GHz						
	L3 Cache	30 MB	25 MB	18 MB	5 MB	2.5 MB	2.5 MB				
	Temperature	-20 ~ 50 °C (w/ industrial wide-temp SSD, 0.7m/s air flow)									
	Chipset	R680E/H610E									
	BIOS	AMI 256Mb/128Mb SPI Flash									
Memory	Technology	Dual-channel DDR5 4800 MHz (R680E SKU supports ECC)									
	Socket	2 x 262-pin DDR5 SODIMM (up to 32GB per socket)									
	Maximum Capacity	64GB									
Display	Chipset	Core i: Intel® UHD Graphics 770 Pentium/Celeron: Intel® HD Graphics 710									
	VGA	1 x DB15, up to 1920 x 1200 maximum resolution									
	HDMI	1 x HDMI, up to 4096 x 2160@30Hz									
	Multiple Display	R680E: 4 x independent displays (third and fourth display output via optional cable) H610E: 3 x independent displays (third display output via optional cable)									
Ethernet	Controller	R680E LAN1: Intel® i219LM, LAN2: Intel® i210IT H610E LAN1: Intel® i219V, LAN2: Intel® i210IT									
	Interface	2 x RJ45									
Storage	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									
	NVMe M.2	1 x M Key 2280 with PCIe Gen 4 x 4 (R680E SKU, operating temp. -20 ~ 50 °C)									
	RAID	0/1/5/10 (R680E SKU only)									
I/O	USB	R680E: 2 x USB3.2 (Gen2), 6 x USB3.2 (Gen1), 1 x USB 2.0 (Internal) H610E: 4 x USB3.2 (Gen1), 4 x USB2.0									
	Serial Port	2 x DB9, RS-232/422/485 support auto flow control; 4 x RS-232 (Optional)									
	Audio	2 (1 x line out and 1 x mic in)									
	Expansion	Module	Supports Advantech i-Modules								
LED and Switch	Mini PCIe/mSATA	R680E: 1 x mini PCIe, 1 x mini PCIe/mSATA H610E: 1 x mini PCIe, 1 x mSATA									
	LED	2 (1 x Storage and 1 x Power), 4 for COM1 TX/RX and COM2 TX/RX									
	Button	1 x Power on/off switch									
	Remote Switch	Yes, 2pin terminal block (Optional)									

Note: The CPU PCIe slot can support graphic cards only due to Intel design specification. Other types of add-on cards will have no function installed on this slot.

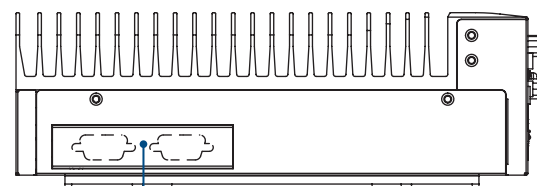
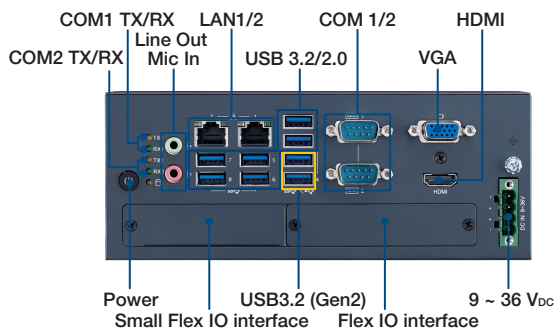
Specifications (Cont.)

Power	Type	ATX/AT		
	Input Voltage	9 - 36 V _{DC}		
	Power consumption	Typical: 45.7W Maximun: 108W		
Watchdog Timer	Output	System reset		
	Interval	Programmable 1 - 255 sec/min		
Environment	Temperature	65W CPU w/ industrial wide Temp. SSD -20 - 50 °C with 0.7 m/s air flow	35W CPU w/ industrial wide Temp. SSD -20 - 60 °C with 0.7 m/s air flow	Non-operating -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
	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



Front View



iDoor or 2 x RS-232 expansion slots

Ordering Information

Part Number	VGA	HDMI	2.5" HDD/SSD	mSATA	NVMe M.2	USB3.2 (Gen2)	USB3.2 (Gen1)	USB 2.0	GbE	COM	PCIe	Power
MIC-770V3W-00A1	1	1	1	1	1	2	6	0	2	2, up to 6 (Optional)	i-Module (optional)*	9 ~ 36V _{bc}
MIC-770V3H-00A1	1	1	1	1	0	0	4	4	2	2, up to 6 (Optional)	i-Module (optional)*	9 ~ 36V _{bc}

* MIC-770V3H does not support MIC-75M20-01 and MIC-75G30

** Please use the wide-temperature NVMe module without the heatsink.

Packing List

Part Number	Description	Quantity
MIC-770 V3	MIC-770 V3 bare system	1
2041077050	MIC-770 V3 startup manual (ENG+TC+SC)	1
1652003234	4-pin Phoenix power connector	1
1960070543T00A	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-75M13-00A2	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-75M11-00A2	2-slot expansion module (1 x PCIe and 1 x PCI slots)
MIC-75S20-00A2	2-slot expansion and storage module (2 x PCIe and 2 x 2.5 removable 2.5" storage bay)
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 (3x PCIe and 2 x removable 2.5" storage bay)
MIC-75GF10-00A1	MXM GPU expansion i-Module (1 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.

** R680E SKU only

Embedded OS

Part Number	Description
20706WX1HS0049	img W10 21HL MIC-770V3W 64b 21H2 ENU
20706WX1VS0049	img W10 21VL MIC-770V3W 64b 21H2 ENU
20706WX1ES0049	img W10 21EL MIC-770V3W 64b 21H2 ENU
20706WX1HS0058	img W10 21HL MIC-770V3H 64b 21H2 ENU
20706WX1VS0058	img W10 21VL MIC-770V3H 64b 21H2 ENU
20706WX1ES0058	img W10 21EL MIC-770V3H 64b 21H2 ENU
20706U22DS0021	img UbuntuD MIC-770V3W 64b 22.04 ENU

Optional Accessories

Part Number	Description
Adaptor	
96PSA-A230W24P4-3	ADP A/D 100-240V 230W 24V 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
Din Rail PSU	
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

Note:

- MIC-770 V3 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
Flex I/O	
AIIS-DIO32-00A1E**	AIIS GPIO module (32 bit)
PCA-TPMSPI-00A1	TPM 2.0 module (SPI)
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 2x COMports kit FIO
98R17500701	MIC Remote power on/off kit for SFIO
98R17500801	MIC Reset/Remote power on/off/5VDC kit FIO
98R17500901	MIC GPIO kit FIO
98R17501001	MIC DP kit FIO
98R17501101	COM and HDMI kit
Advanced Flex I/O***	
98910770301	MIC NVMe + 4 LAN Advanced FIO
98910770401	MIC NVMe Advanced FIO
98910770501	MIC 4 PoE Advanced FIO
Storage Kit	
98R1752010E	2nd 2.5" HDD/SSD kit (used in 2-slot i-Module)
98R1752020E	2 x 2.5" SSD kit (Thickness: 7mm)
Mounting Kit	
98R17500210	MIC Din Rail Mounting kit
98R17500501	MIC Wall Mounting kit

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

** AIIS-DIO32 requires a DB37 bracket (P/N: 1960068787N002)

*** R680E SKU only

MIC-75G20

GPU Expansion Module for Video AI Edge Computing with MIC-7 Series



Features

- Offering powerful GPU solution with NVIDIA 350W, 2.75-slot width, 334.6mm length GPU cards for new AI application
- Dual 24V_{DC} power inputs with reliable power and OCP solution for up to 700W maximum peak power currency
- Intelligent power status indicating LED for system and GPU card independently
- Flexible GPU card holders (R.O.C. Patent Pending), ensuring GPU card's stability and reliability
- Support up to 1Grms Op. vibration
- Support up to 60C Op. temp. with 350W GPU and 4-port PoE card installed with PWM fan control for intelligent thermal management
- Dual front removable 2.5" storage bay for easy swap
- IP30 rating with fan filter, suitable for outdoor or industrial environment
- Compact size design

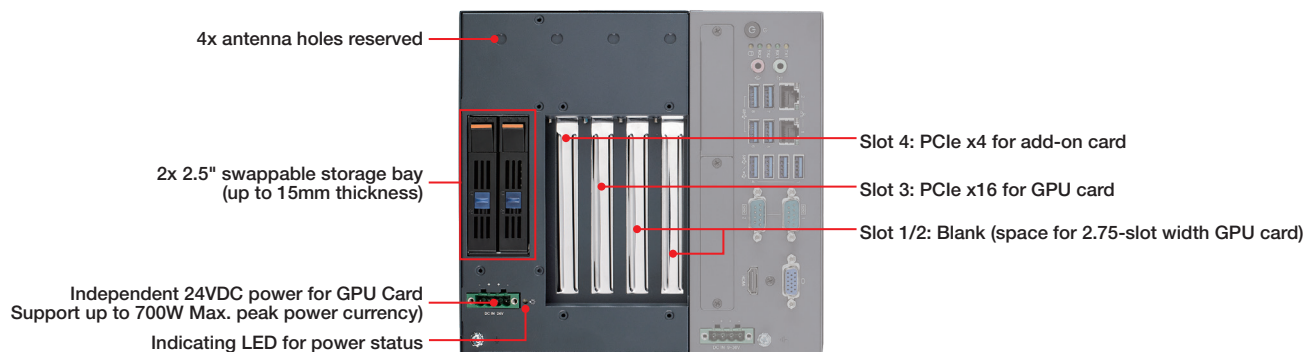
Introduction

MIC-75G20 supports NVIDIA 2.75-slot width high performance 350W triple fan based cards. Robust power design ensures MIC-7 systems and GPU card's reliability under high power consumption application. Suitable for Video AI Edge computing, 3D image processing and vision application.

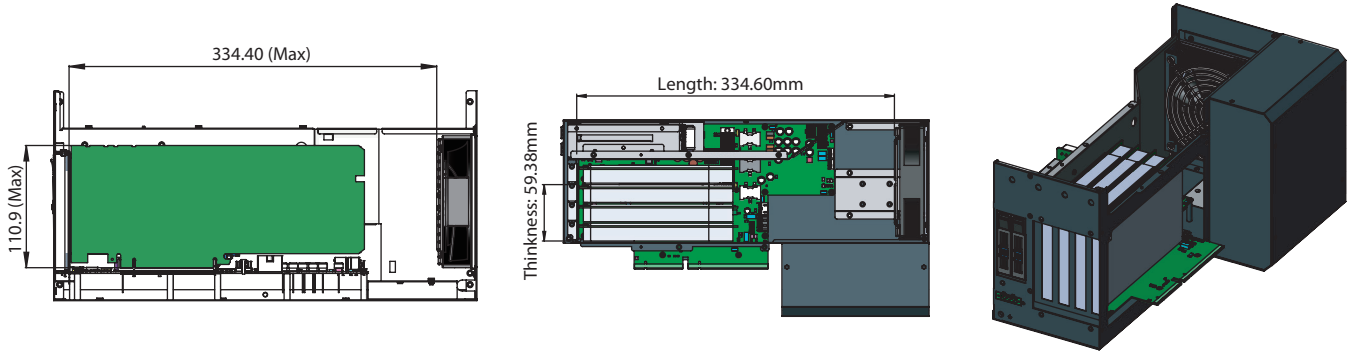
Specification

Expansion slot	Slot 1/2: Blank, Slot 3: PCIe x16, Slot 4: PCIe x4
SATA Connector	1 x SATA Signal, 1 x SATA Power
Storage	2 x 2.5" swappable HDD/SSD storage bay
Power	Input: Dual 24 V _{DC} (one on MIC-7000 system, one on MIC-75G20) Power consumption: Max. Load: 448W (tested with 350W GPU, PoE card and MIC-770 system with 65W CPU) Power solution supports up to maximum 700W (Tested with 350W GPU card's peak power consumption) 2 x 6-pin Conn. for GPU card (12V _{DC} , 17A for each Conn.) 1 x 4-pin Conn. for add-on card (12V _{DC} , 5A)
GPU Card Dimension	Thickness: 59.38 mm (2.75-slot width), Length: 334.6 mm, Height: 110.9 mm Support up to triple-fan fan GPU cards
LED	1x indicating LED for power status
Environment	Operating Temp.: -10~60 °C (35W CPU w/ industrial wide-temp. RAM/SSD) Vibration: With SSD: 1 Grms @ 5~500 Hz, random, 1 hr/axis Shock: With SSD: 10G, IEC-68-2-27, half-sine wave, 11 ms duration
Mechanical	MIC-75G20 N.W: 3.5 kg; G.W.: 5.5 kg Dimension (W x H x D): 130 x192 x 385 mm
Fan	1x 12025 cooling fan embedded (2200 RPM, 82 CFM, Max. 36.5 dB)

Front View



GPU Card Dimension Guide



Ordering Information

Part Number	Description
MIC-75G20-10B1	GPU i-Module with 1 PCIe x16, 1x PCIe x4, 2x 2.5" swappable storage bay

Packing List

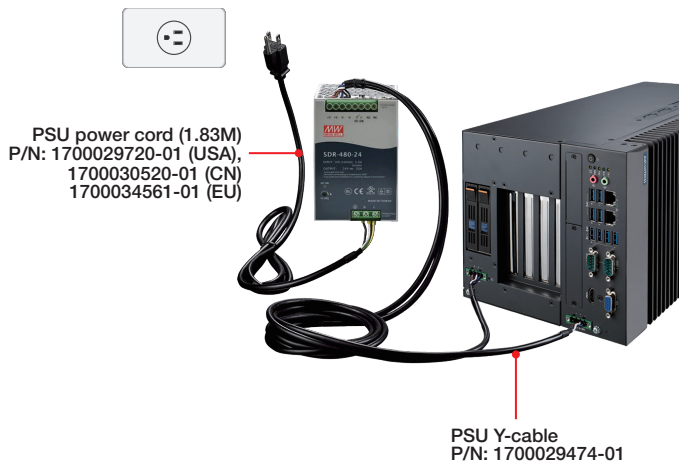
Part Number	Description	Quantity
1652003234	4-pin phoenix connector	2
1700017838	SATA cable (30cm)	1
1700020978-01	SATA cable (40cm)	1
1700024985-01	HDD BP power cable	1
1700023022-01	GPU power cable (6 to 6/8 Pin)	2
1960005359T00A	Mounting bracket (small)	1
1960094392N013	Mounting bracket (large)	1
1930007259-01	Screw for mounting bracket	4
20415G2010	MIC-75G20 Start-up manual	1

Optional Accessories

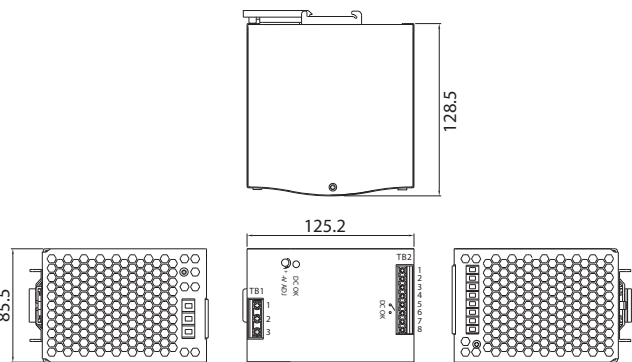
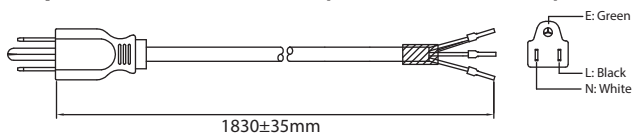
Part Number	Description
96PSD-A480W24-MS*	DIN RAIL PSU 100-240V 480W 24V (Peak power 720W, 3 Sec.)
1700029474-01	PSU Y-Cable, UL2464, 18AWG, 1.5M
1700029720-01	PSU power cord (USA), AC Conn., 3-pin, 10A, 125V, UL/CSA, 1.83M
1700030520-01	PSU power cord (CN), AC Conn., 3-pin, 10A, 250V, CCC, 1.5M
1700034561-01	M cable Type E 3P/TEMx3 80CM (EU)
1700022074-11	4-pin 12V _{DC} power cable (40cm, for PoE card)

* Recommend to use for powering MIC-75G20 + MIC-7000.

Power Supply Cabling Guide



PSU power cord & Pin Definition (connect from AC to DC)



TB2 pin-out (connect from PSU DC to MIC)

Pin No.	Assignment
1, 2	DC OUTPUT+V
3, 4	DC OUTPUT-V
5, 6	Relay Contact
7, 8	NC

TB1 pin-out (connect from AC to PSU)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Y type cable

Connect from PSU to the MIC-7000 and MIC-75G20 via optional PSU Y-cable with 2x 4-pin phoenix connector (1652003234)

Mounting Type and Dimensions

Example: MIC-770 + MIC-75G20

W x H x D: 207 x 192 x 385 mm

Note: By using MIC-7500 and MIC-7900, width will be decreased by 4mm.

