



**SINETIC**  
Advanced Industrial Computer Technology

# Industrial Computing Product Catalogue

Vol.20



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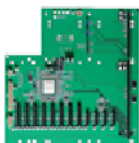
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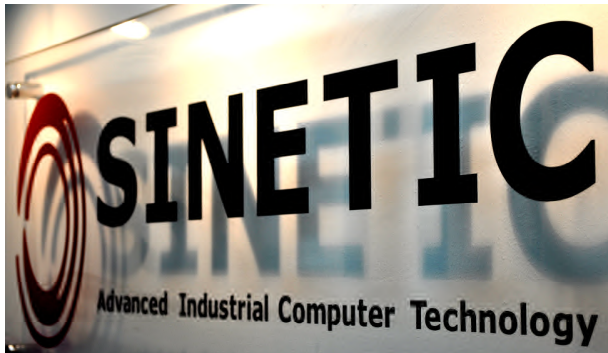
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# Company Profile



## Introduction

Established in 1997, SINETIC Technologies Pte Ltd operates globally through various distribution, resellers and system integrators. With our highly dedicated team of engineers and technicians, SINETIC is dedicated to bring the most advanced Industrial Computer products and solutions in the marketplace to our valued customers globally.

All SINETIC products are designed and manufactured right down to detailed specifications required by our customers from various industries and for wide applications. SINETIC products have been proven effective in meeting the most demanding environments and out performs others in critical applications world-wide. It is this very quality that enables SINETIC to be able to partner with our customers to support them in their business growth.

The SINETIC Industrial Computer is widely used in the following applications and its related fields: Data acquisition, Petrochemical, Automation, Transportation, Military, Embedded, Server environment, analysing LAN/WAN and telecommunication signals. SINETIC's product ruggedness also allows it to function well in manufacturing facility, as well as in the medical field for diagnostics and in aerospace applications. All of this knowledge has allowed SINETIC to support our global partners with their OEM and ODM requirements as well. SINETIC with her Advanced Industrial Computer Technology is able to support any industry that require industrial PC products.

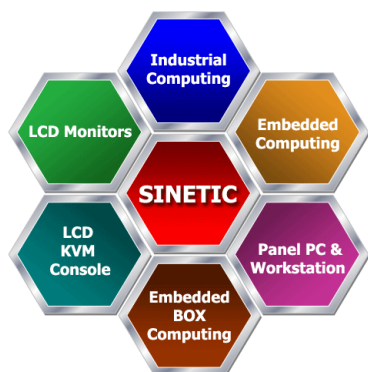
## RoHS Directive

The RoHS Directive stands for "the restriction of the use of certain hazardous substances in electrical and electronic equipment". This Directive bans the placing on the EU market of new electrical and electronic equipment containing more than agreed levels of lead(Pb), cadmium(Cd), mercury(Hg), hexavalent chromium(Cr-VI), polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

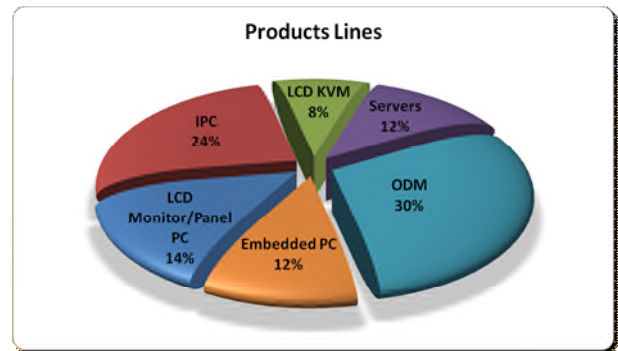
The directive comes into force across Europe on July 1st 2006, from this date on all new electronic and electrical equipment manufactured for resale within Europe must meet the guidelines as set out by the directive, however the directive does reference a list of categories and exemptions to be considered by producers (refer to your local RoHS legislation for details).

SINETIC offers our full product line in compliance with the RoHS requirements per Directive 2002/95/EC. Before placing an order we suggest you to check the RoHS product availability web page or contact our sales office to obtain the latest availability information; orders of RoHS products will be accepted and processed only if the requested delivery date is compatible with the scheduled release date.

## Product Category



## Product Line share



## Our Vertical Markets



SINETIC has been supplying her products to the various Industrial vertical markets. This includes Defence, Medical, Transportation, Education, Security, Marine, Oil & Gas, Food, Retail, RFID, Server Management, Utilities, Gaming.

## Our Solution and Services

SINETIC is continually striving to assist our customers with their diversified demands and requirements. We take our strength in Preconfigured systems, customised System Integration and solution.

## ODM/OEM Services

For special Project and designs, we provide ODM and OEM services to our customer all year round.

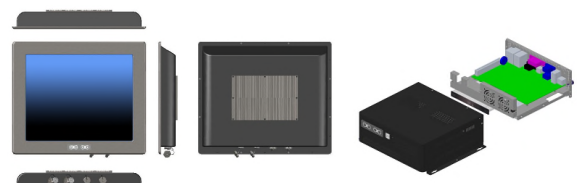
### OEM

We supply preconfigured systems, custom systems and integration services to products designed, developed or marketed by SINETIC for resale under customer own brand name.



### ODM

We manufacture and supply products and systems that are designed by our customers.



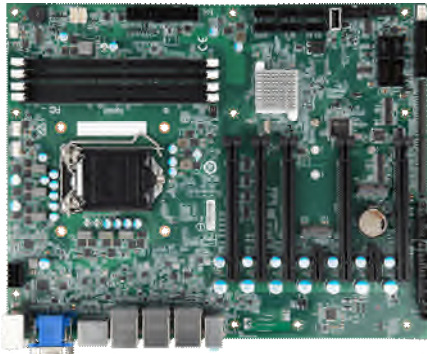


# INDUSTRIAL MOTHERBOARD



# MB-8514G3V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core® Processor Q370  
Chipset Based Industrial ATX Motherboard with  
13x USB Ports/10x COM Ports /DP /HDMI/ VGA/  
Triple Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Core® Processor in Socket 1151
- Four 288-pin DIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 64GB memory (Non-ECC)
- Intel® Q370 Express chipset
- Intel® Dual I210AT & I219LM on board for Triple GbE LAN
- Integrated Intel® HD Graphics with VGA/HDMI/Dual DP ++ connectors
- Realtek® ALC887 High Definition Audio chip on-board
- Multi I/O: 13x USB, 10 x COM ports, 6 x SATA 3.0 Port
- Expansion Slot: 3 PCIe x16 (Signal configured as 1 PCIe x16 or 2 PCIe x8 or 1 PCIe x8 + 2 PCIe x4), 2 PCIe x4 (PCIe x16 Slot Type) and 2 PCIe x1 Slots

## Introduction

Industrial Motherboard MB-8514G3V based on the Intel® Q370 Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated HD Controller, 10 x Com Port, 13 x USB, 6 x SATA 3.0.

MB-8514G3V is ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	• LGA 1151 socket for: - 9 <sup>th</sup> /8 <sup>th</sup> generation Intel® Core® /Pentium®/Celeron® processors, Max 95W
BIOS	• AMI UEFI
System Memory	• Four 288-pin DDR4 uDIMM sockets • Supports up to 64GB non ECC RAM • Dual Channel DDR4 2400/2666MHz
Chipset	• Intel® Q370 Express Chipset
Video	• Intel® HD Graphics • VGA up to 1920 x 1200 @60Hz • HDMI up to 4096 x 2160 @24Hz • DP up to 4096 x 2304 @60Hz
Ethernet	• Intel® Dual I210 PCI Express Gigabit Ethernet controller • Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy • Integrated 10/100/1000 transceiver • Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab
On Board I/O	• 1x Connector for PS/2 Mouse/Keyboard • 10 x Serial ports (2 x RS-232/422/485, 0V/5V/12V, 8x RS-232C, 0V/5V/12V) • 6 x SATA 3.0 (Support RAID 0/1/5/10, SATA Port 6 share with M.2 M Key) • 13 USB: 6 x USB 3.1 Gen2 (6 x rear), 7 x USB 2.0 (2 x rear, 5 x internal with one Vertical Type-A) • 1x SMBus • 1x 16-bits (8 x GPI; 8 x GPO), 5V
TPM function	• 1 x TPM module expansion (optional)
Watchdog Timer	• Programmable watchdog timer for 1~255 seconds.
CMOS	• On-board RTC with 242 bytes of Battery-back CMOS RAM.
Audio	• Realtek® ALC887 High Definition Audio • Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out
Power	• One 24pins power connector for system power. • One ATX-12V 8-pins connector for CPU power. • Support both AT and ATX mode.
Cooling	• One CPU cooling FAN connector nearby CPU socket

## Packing List

item	Description / Quantity
Motherboard	MB-8514G3V / 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

Form Factor	12" x 9.6" (307mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

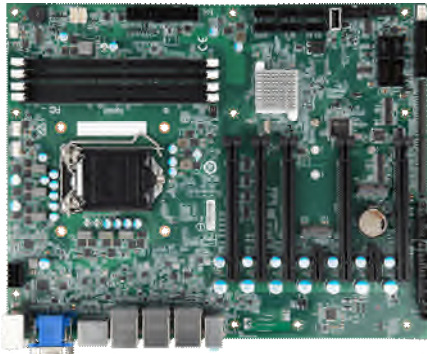
## Ordering Information

<b>MB-8514G3V</b>	Intel® 9 <sup>th</sup> /8 <sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial ATX Motherboard with 13x USB Ports/10x COM Ports/DP/HDMI/VGA/ Triple Gigabit LAN
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# MB-8513G3V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Xeon®/Core® Processor  
C246 Chipset Based Industrial ATX Motherboard  
with 13x USB Ports/10x COM Ports/DP/DVI-I/VGA/  
Triple Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Xeon®/Core® Processor in Socket 1151
- Four 288-pin uDIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 64GB memory (ECC/Non-ECC)
- Intel® C246 Express chipset
- Intel® Dual I210AT & I219LM on board for Triple GbE LAN
- Integrated Intel® HD 9 Graphics with VGA/HDMI/Dual DP ++ connectors
- Realtek® ALC887 High Definition Audio chip on-board
- Multi I/O: 13x USB, 10 x COM ports, 6 x SATA 3.0 Port
- Expansion Slot: 3 PCIe x16 (Signal configured as 1 PCIe x16 or 2 PCIe x8 or 1 PCIe x8 + 2 PCIe x4), 2 PCIe x4 (PCIe x16 Slot Type) and 2 PCIe x1 Slots

## Introduction

Industrial Motherboard MB-8513G3V based on the Intel® C246 Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Xeon®/Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated HD Controller, 10 x Com Port, 13 x USB, 6 x SATA 3.0.

MB-8513G3V is ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	• LGA 1151 socket for: - 9 <sup>th</sup> /8 <sup>th</sup> generation Intel® Xeon®/Core®/Pentium®/Celeron® processors, Max 95W
BIOS	• AMI UEFI
System Memory	• Four 288-pin DDR4 uDIMM sockets • Supports up to 64GB ECC/non ECC RAM • Dual Channel DDR4 2400/2666MHz
Chipset	• Intel® C246 Express Chipset
Video	• Intel® HD Graphics • VGA up to 1920 x 1200 @60Hz • HDMI up to 4096 x 2160 @24Hz • DP up to 4096 x 2304 @60Hz
Ethernet	• Intel® Dual I210 PCI Express Gigabit Ethernet controller • Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy • Integrated 10/100/1000 transceiver • Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab
On Board I/O	• 1x Connector for PS/2 Mouse/Keyboard • 10 x Serial ports (2 x RS-232/422/485, 0V/5V/12V, 8x RS-232C, 0V/5V/12V) • 6 x SATA 3.0 (Support RAID 0/1/5/10, SATA Port 6 share with M.2 M Key) • 13 USB: 6 x USB 3.1 Gen2 (6 x rear), 7 x USB 2.0 (2 x rear, 5 x internal with one Vertical Type-A) • 1x SMBus • 1x 16-bits (8 x GPI; 8 x GPO), 5V
TPM function	• 1 x TPM module expansion (optional)
Watchdog Timer	• Programmable watchdog timer for 1~255 seconds.
CMOS	• On-board RTC with 242 bytes of Battery-back CMOS RAM.
Audio	• Realtek® ALC887 High Definition Audio • Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out
Power	• One 24pins power connector for system power. • One ATX-12V 8-pins connector for CPU power. • Support both AT and ATX mode.
Cooling	• One CPU cooling FAN connector nearby CPU socket

## Packing List

item	Description / Quantity
Motherboard	MB-8513G3V / 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

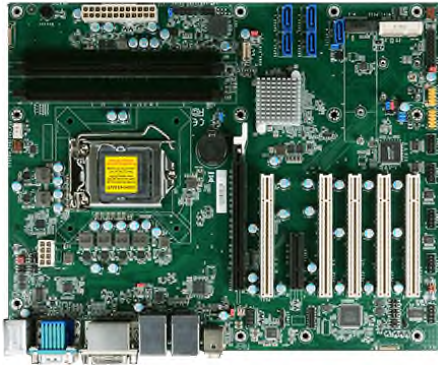
Form Factor	12" x 9.6" (307mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8513G3V	Intel® 8th Generation Xeon®/Core® Processor C246 Chipset Based Industrial ATX Motherboard with 13x USB Ports/10x COM Ports/DP/HDMI/VGA/ Triple Gigabit LAN
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# MB-8510G2V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core® Processor H310 Chipset Based Industrial ATX Motherboard with 10x USB/ 6x COM Ports/ DP/ DVI-I/ VGA/ Dual Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Core® Processor in Socket 1151
- Two 288-pin DIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 32GB memory
- Intel® H310 Express chipset
- Intel® I210 & I219LM on board for Dual GbE LAN
- Integrated Intel® HD 9 Graphics with VGA/ DVI-D/ DP ++ connectors
- Realtek® ALC888 High Definition Audio chip on-board
- Multi I/O: 10x USB, 6 x COM ports, 4 x SATA 3.0 Port
- Expansion Slot: 1 PCIe x16, 1 PCIe x4, 5 PCI slots

## Introduction

Industrial Motherboard MB-8510G2V based on the Intel® H310 Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core™ i7/i5/i3 Processor. Integrated with Intel® HD Integrated Gen 9 Graphic Controller, 6 x COM Port, 10 x USB, 4 x SATA 3.0.

MB-8510G2V is ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>• LGA 1151 socket for:<ul style="list-style-type: none"><li>- 9<sup>th</sup>/8<sup>th</sup> generation Intel® Core® processors</li><li>: Intel® Core™ i7-8700 Processor 12M Cache, up to 4.60 GHz</li><li>: Intel® Core™ i5-8400 Processor 9M Cache, up to 4.00 GHz</li><li>: Intel® Core™ i3-8100 Processor 6M Cache, 3.60 GHz</li></ul></li></ul>
BIOS	<ul style="list-style-type: none"><li>• Insyde SPI 128Mbit</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Two 288-pin DDR4 DIMM sockets</li><li>• Supports up to 32GB non ECC RAM</li><li>• Dual Channel DDR4 2400/2666MHz</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® H310 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Gen 9 Graphics</li><li>• VGA display resolution up to 1920x1200 pixels with 24-bit color @ 60Hz</li><li>• DVI-D supports up to 1920x1200 @ 60Hz resolution</li><li>• Intel® Clear Video Technology</li><li>• One VGA, One DVI-I (DVI-D signal), , Dual DP++</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• Intel® I210 PCI Express Gigabit Ethernet controller</li><li>• Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy</li><li>• Integrated 10/100/1000 transceiver</li><li>• Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 6 x Serial ports (2 x RS-232/422/485 ,0V/5V/12V, 4 x RS-232C , 0V/5V/12V)</li><li>• 4 SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>• Supports Intel® Smart Response Technology</li><li>• Integrated Advanced Host Controller Interface (AHCI) controller</li><li>• 10 USB: 4 USB 3.1, 6 USB 2.0 ports</li><li>• 1x SMBus</li><li>• 1x 8 bit GPIO</li></ul>
TPM function	<ul style="list-style-type: none"><li>• 1 x TPM module expansion (optional)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC888 High Definition Audio</li><li>• Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>

## Packing List

Item	Description / Quantity
Motherboard	MB-8510G2V / 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

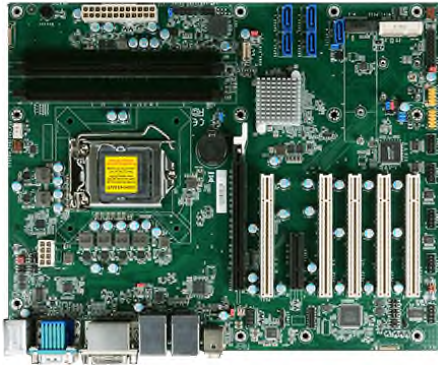
Form Factor	12" x 9.6" (307mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8510G2V	Intel® 8 <sup>th</sup> Generation Core® Processor H310 Chipset Based Industrial ATX Motherboard with 10x USB/6x COM Ports/ DP++/ DVI-I/ VGA/ Dual Gigabit LAN
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# MB-8509G2V

## Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial ATX Motherboard with 12x USB/6x COM Ports/DP/DVI-I/VGA/ Dual Gigabit LAN



### FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Core® Processor in Socket 1151
- Four 288-pin DIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 64GB memory
- Intel® Q370 Express chipset
- Intel® I210 & I219LM on board for Dual GbE LAN
- Integrated Intel® HD 9 Graphics with VGA/DVI-D/DP ++ connectors
- Realtek® ALC888 High Definition Audio chip on-board
- Multi I/O: 12x USB, 6 x COM ports, 5 x SATA 3.0 Port
- Expansion Slot: 1 PCIe x16, 1 PCIe x4, 5 PCI spots, 1 mPCIe, 1 M.2 M key

### Introduction

Industrial Motherboard MB-8509G2V based on the Intel® Q370 Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core™ i7/i5/i3 Processor. Integrated with Intel® HD Integrated Gen 9 Graphic Controller, 6 x COM Port, 12 x USB, 5 x SATA 3.0.

MB-8509G2V is ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

### Specification

System	
Processor	<ul style="list-style-type: none"><li>• LGA 1151 socket for:<ul style="list-style-type: none"><li>- 9<sup>th</sup>/8<sup>th</sup> generation Intel® Core® processors</li><li>: Intel® Core™ i7-8700 Processor 12M Cache, up to 4.60 GHz</li><li>: Intel® Core™ i5-8400 Processor 9M Cache, up to 4.00 GHz</li><li>: Intel® Core™ i3-8100 Processor 6M Cache, 3.60 GHz</li></ul></li></ul>
BIOS	<ul style="list-style-type: none"><li>• Insyde SPI 128Mbit</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Four 288-pin DDR4 DIMM sockets</li><li>• Supports up to 64GB non ECC RAM</li><li>• Dual Channel DDR4 2400/2666MHz</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® Q370 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Gen 9 Graphics</li><li>• VGA display resolution up to 1920x1200 pixels with 24-bit color @ 60Hz</li><li>• DVI-D supports up to 1920x1200 @ 60Hz resolution</li><li>• Intel® Clear Video Technology</li><li>• One VGA, One DVI-I (DVI-D signal), , Dual DP++</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• Intel® I210 PCI Express Gigabit Ethernet controller</li><li>• Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy</li><li>• Integrated 10/100/1000 transceiver</li><li>• Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 6 x Serial ports (2 x RS-232/422/485 ,0V/5V/12V, 4 x RS-232C , 0V/5V/12V)</li><li>• 5 SATA 3.0 ports with data transfer rate up to 6Gb/s (RAID 0,1,5,10)</li><li>• 12 USB: 4 USB 3.1, 2 USB 3.1(Gen 2), 6 USB 2.0 ports</li><li>• 1x SMBus</li><li>• 1x 8 bit GPIO</li></ul>
TPM function	<ul style="list-style-type: none"><li>• 1 x TPM module expansion (optional)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC888 High Definition Audio</li><li>• Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>

### Packing List

Item	Description / Quantity
Motherboard	MB-8509G2V / 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

### Mechanical & Environment

Form Factor	12" x 9.6" (307mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

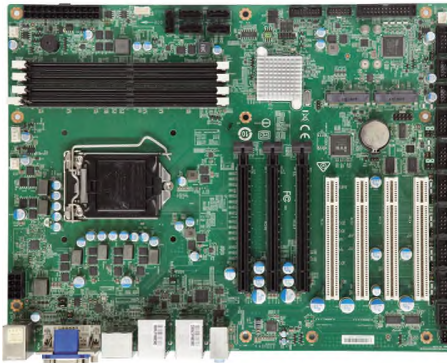
### Ordering Information

MB-8509G2V	Intel® 9 <sup>th</sup> /8 <sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial ATX Motherboard with 12x USB/6x COM Ports/DP++/DVI-I/VGA/ Dual Gigabit LAN
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# MB-8507G2V

Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core® Processor Q170 Chipset Based Industrial ATX Motherboard with 12x USB/ 6x COM Ports/ DP/ DVI-I/ VGA/ Dual Gigabit LAN



## FEATURES

- Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Intel® Core® Processor in Socket 1151
- Four 288-pin DIMM sockets Dual-channel DDR4 1866/2133 SDRAM. Max. up to 64GB memory
- Intel® Q170 Express chipset
- Intel® I210 & I219LM on board for Dual GbE LAN
- Integrated Intel® HD Graphics with VGA/DVI/DP connectors
- RealTek® ALC887 5.1 Channel High Definition Audio chip on-board
- Multi I/O: 12 x USB, 6 x COM ports, 5 x SATA 3.0, 1x mSATA socket
- Expansion Slot: 1 PCIe x16, 2 PCIe x4, 4 PCI slots & 1x Mini PCIe socket

## Introduction

Industrial Motherboard MB-8507G2V based on the Intel® Q170 Chipset, supports Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated Gen 9 Graphic Controller, 6 x COM Port, 12 x USB, 5 x SATA 3.0 with RAID.

MB-8507G2V is ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>• LGA 1151 socket for:<ul style="list-style-type: none"><li>- 7<sup>th</sup>/6<sup>th</sup> generation Intel® Core® processors</li><li>: Intel® Core™ i7-6700 Processor, 8M Cache, 3.4GHz (4.0GHz), 65W</li><li>: Intel® Core™ i5-6500 Processor, 6M Cache, 3.2GHz (3.6GHz), 65W</li><li>: Intel® Core™ i3-6100 Processor, 3M Cache, 3.7GHz, 47W</li><li>: Intel® Pentium® Processor G4400, 3M Cache, 3.3GHz, 47W</li><li>: Intel® Pentium® Processor G4400TE, 3M Cache, 2.4GHz, 35W</li></ul></li></ul>
BIOS	<ul style="list-style-type: none"><li>• UEFI</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Four 288-pin DDR4 DIMM sockets</li><li>• Supports up to 64GB non ECC RAM</li><li>• Dual Channel DDR4 1866/2133MHz</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® Q170 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Gen 9 Graphics</li><li>• VGA display resolution up to 1920x1200 pixels with 24-bit color @ 60Hz</li><li>• DVI-I supports up to 1920x1200 @ 60Hz resolution</li><li>• Intel® Clear Video Technology</li><li>• One VGA, One DVI-I, Dual DP</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• Intel® I210 PCI Express Gigabit Ethernet controller</li><li>• Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy</li><li>• Integrated 10/100/1000 transceiver</li><li>• Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 6 x Serial ports (2 x RS-232/422/485 ,0V/5V/12V, 4 x RS-232C , 0V/5V/12V)</li><li>• 5 SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>• Supports RAID 0/1/5/10</li><li>• Supports Intel® Smart Response Technology</li><li>• Integrated Advanced Host Controller Interface (AHCI) controller</li><li>• 12 USB: 6 USB 3.0, 6 USB 2.0 ports</li><li>• 1 Parallel Port</li><li>• 1x 8 bit GPIO</li></ul>
TPM function	<ul style="list-style-type: none"><li>• 1 x TPM module expansion (optional)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC887 5.1-channel High Definition Audio</li><li>• Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>

## Packing List

item	Description / Quantity
Motherboard	MB-8507G2V / 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

Form Factor	12" x 9.6" (307mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

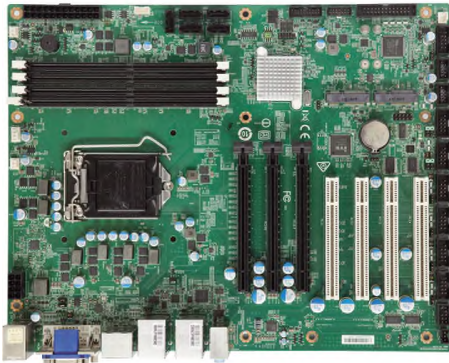
## Ordering Information

MB-8507G2V	Intel® 7 <sup>th</sup> /6 <sup>th</sup> Generation Core® Processor Q170 Chipset Based Industrial ATX Motherboard with 12x USB/ 6x COM Ports/ DP/ DVI-I/ VGA/ Dual Gigabit LAN
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# MB-8507G2V

Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core® Processor Q170 Chipset Based Industrial ATX Motherboard with 12x USB/ 6x COM Ports/ DP/ DVI-I/ VGA/ Dual Gigabit LAN



## FEATURES

- Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Intel® Core® Processor in Socket 1151
- Four 288-pin DIMM sockets Dual-channel DDR4 1866/2133 SDRAM. Max. up to 64GB memory
- Intel® Q170 Express chipset
- Intel® I210 & I219LM on board for Dual GbE LAN
- Integrated Intel® HD Graphics with VGA/DVI/DP connectors
- RealTek® ALC887 5.1 Channel High Definition Audio chip on-board
- Multi I/O: 12 x USB, 6 x COM ports, 5 x SATA 3.0, 1x mSATA socket
- Expansion Slot: 1 PCIe x16, 2 PCIe x4, 4 PCI slots & 1x Mini PCIe socket

## Introduction

Industrial Motherboard MB-8507G2V based on the Intel® Q170 Chipset, supports Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated Gen 9 Graphic Controller, 6 x COM Port, 12 x USB, 5 x SATA 3.0 with RAID.

MB-8507G2V is ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>• LGA 1151 socket for:<ul style="list-style-type: none"><li>- 7<sup>th</sup>/6<sup>th</sup> generation Intel® Core® processors</li><li>: Intel® Core™ i7-6700 Processor, 8M Cache, 3.4GHz (4.0GHz), 65W</li><li>: Intel® Core™ i5-6500 Processor, 6M Cache, 3.2GHz (3.6GHz), 65W</li><li>: Intel® Core™ i3-6100 Processor, 3M Cache, 3.7GHz, 47W</li><li>: Intel® Pentium® Processor G4400, 3M Cache, 3.3GHz, 47W</li><li>: Intel® Pentium® Processor G4400TE, 3M Cache, 2.4GHz, 35W</li></ul></li></ul>
BIOS	<ul style="list-style-type: none"><li>• UEFI</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Four 288-pin DDR4 DIMM sockets</li><li>• Supports up to 64GB non ECC RAM</li><li>• Dual Channel DDR4 1866/2133MHz</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® Q170 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Gen 9 Graphics</li><li>• VGA display resolution up to 1920x1200 pixels with 24-bit color @ 60Hz</li><li>• DVI-I supports up to 1920x1200 @ 60Hz resolution</li><li>• Intel® Clear Video Technology</li><li>• One VGA, One DVI-I, Dual DP</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• Intel® I210 PCI Express Gigabit Ethernet controller</li><li>• Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy</li><li>• Integrated 10/100/1000 transceiver</li><li>• Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 6 x Serial ports (2 x RS-232/422/485 ,0V/5V/12V, 4 x RS-232C , 0V/5V/12V)</li><li>• 5 SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>• Supports RAID 0/1/5/10</li><li>• Supports Intel® Smart Response Technology</li><li>• Integrated Advanced Host Controller Interface (AHCI) controller</li><li>• 12 USB: 6 USB 3.0, 6 USB 2.0 ports</li><li>• 1 Parallel Port</li><li>• 1x 8 bit GPIO</li></ul>
TPM function	<ul style="list-style-type: none"><li>• 1 x TPM module expansion (optional)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC887 5.1-channel High Definition Audio</li><li>• Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>

## Packing List

item	Description / Quantity
Motherboard	MB-8507G2V / 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

Form Factor	12" x 9.6" (307mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

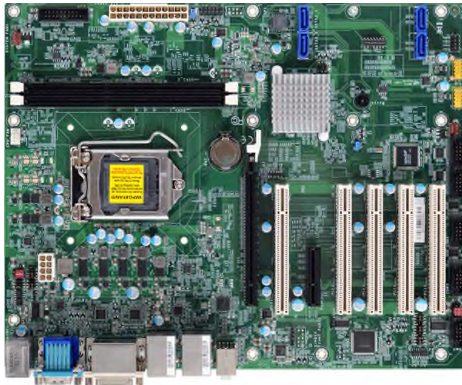
## Ordering Information

MB-8507G2V	Intel® 7 <sup>th</sup> /6 <sup>th</sup> Generation Core® Processor Q170 Chipset Based Industrial ATX Motherboard with 12x USB/ 6x COM Ports/ DP/ DVI-I/ VGA/ Dual Gigabit LAN
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# MB-8503G2V

Intel® Core™ i7/i5/i3 7<sup>th</sup>/6<sup>th</sup> Generation Processor  
H110 Chipset Based Industrial ATX Motherboard  
with 10x USB/ 6x COM Ports/ VGA/ DVI/ HDMI/  
Dual Gigabit LAN



## FEATURES

- Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core™ i7/i5/i3 Processor in Socket 1151
- Four 240pin DIMM Dual-channel DDR3 1600MHz up to 32GB
- Intel® H110 chipset
- Intel® i211AT & I219V on board for Dual Gigabit Ethernet
- Integrated Intel® HD Graphics with VGA/DVI/HDMI connectors
- Realtek® ALC888S High Definition Audio chip on-board
- Multi I/O: 10 x USB, 6 x COM ports, 4 x SATA
- Expansion Slot: 1 PCIe x16 , 1 PCIe x4, 5 PCI

## Introduction

Industrial Motherboard MB-8503G2V based on the Intel® H110 Chipset, supports Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core™ i7/i5/i3 Processor. Integrated with Intel® HD Integrated Graphic Controller, 6x Com Port, 10 x USB, 4 x SATA Ports.

MB-8503G2V is ideal for developing high-performance systems for industrial Workstation.

## Specification

System	
Processor	• 7 <sup>th</sup> /6 <sup>th</sup> Gen Intel® Core™ Processors LGA 1151 socket for: Intel® Xeon® Processor E3-1275 v5, 3.6GHz (4.0GHz), 80W Intel® Core™ i7-6700 Processor, 3.4GHz (4.0GHz), 65W Intel® Core™ i5-6500 Processor, 3.2GHz (3.6GHz), 65W Intel® Core™ i3-6100 Processor, 3.7GHz, 65W Intel® Pentium® Processor G4400, 3.3GHz, 65W
BIOS	• Insyde SPI 128Mbit
System Memory	• Four 288pin DIMM Dual-channel DDR4 1866/2133MHz (ECC) up to 64GB
Chipset	• Intel® H110 Express chipset.
Video	• Intel® HD Gen 9 Graphics 1 x VGA, 1 x DVI-I (DVI-D signal), 1 x HDMI on rear I/O. • Support up to triple independent display with CPU.
Ethernet	• 1 x Intel® I211AT PCIe (10/100/1000Mbps), 1 x Intel® I219V PCIe with (10/100/1000Mbps)
On Board I/O	• 1x Connector for PS/2 Mouse/Keyboard • 6x Serial ports (2x RS-232/422/485 selectable ) • 4 Serial ATA ports • 4 SATA 3.0 ports with data transfer rate up to 6Gb/s • 10 USB: 4 USB 3.0 (4 x rear), 6 USB 2.0 ports (2 x rear; 4 x Header) • 8bit Digital I/O
Watchdog Timer	• Programmable watchdog timer for 1~255 seconds.
CMOS	• On-board RTC with 242 bytes of Battery-back CMOS RAM.
Audio	• Realtek® ALC888S-VD2-GR high-definition audio chip on-board. • Support 1 x Line-out, 1 x Mic-in, SPDIF
Power	• One 24pins power connector for system power. • One ATX-12V 4-pins connector for CPU power. • Support both AT and ATX mode.
Cooling	• One CPU cooling FAN connector nearby CPU socket • Three system fan connectors for system cooling

## Mechanical & Environment

Form Factor	12" x 9.6" (305mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

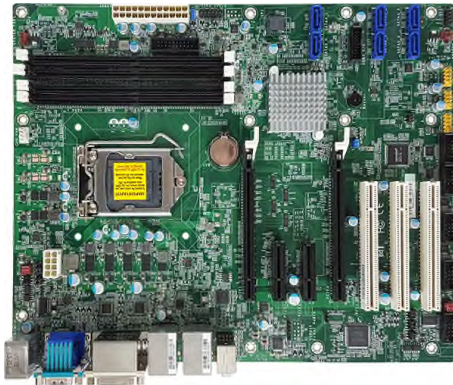
## Ordering Information

MB-8503G2V	Intel® Core™ i7/i5/i3 7 <sup>th</sup> /6 <sup>th</sup> Generation Processor H110 Chipset Based Industrial ATX Motherboard with 10x USB/ 6x COM Ports/ VGA/ DVI/ HDMI/ Dual Gigabit LAN
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# MB-8502G2V

Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core™ i7/i5/i3 Processor  
Q170 Chipset Based Industrial ATX Motherboard  
with 14x USB/6x COM Ports/ VGA/ DVI/ HDMI/  
Dual Gigabit LAN



## FEATURES

- Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core™ i7/i5/i3 Processor in Socket 1151
- Four 288pin DIMM Dual-channel DDR4 1866/2133MHz up to 64GB
- Intel® Q170 Express chipset
- Intel® i210AT & I219LM on board for Dual Gigabit Ethernet
- Integrated Intel® HD Graphics with VGA//DVI/HDMI connectors
- Realtek® ALC888S High Definition Audio chip on-board
- Multi I/O: 14 x USB, 6 x COM ports, 6 x SATA,
- Expansion Slot: 2 x PCIe x16 (1 x16 or 2 x8 signal) (Gen 3) 2 x PCIe x4 (Gen 3), 3 x PCI

## Introduction

Industrial Motherboard MB-8502G2V based on the Intel® Q170 Express Chipset, supports Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Xeon®/Core™ i7/i5/i3 Processor. Integrated with Intel® HD Integrated Graphic Controller, 6x Com Port, 14 x USB, 6 x SATA Ports supporting RAID 0,1,5.

MB-8502G2V is ideal for developing high-performance systems for industrial Workstation.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>7<sup>th</sup>/6<sup>th</sup> Gen Intel® Core™ Processors LGA 1151 socket for: Intel® Core™ i7-6700 Processor, 3.4GHz (4.0GHz), 65W</li><li>Intel® Core™ i5-6500 Processor, 3.2GHz (3.6GHz), 65W</li><li>Intel® Core™ i3-6100 Processor, 3.7GHz, 65W</li><li>Intel® Pentium® Processor G4400, 3.3GHz, 65W</li></ul>
BIOS	<ul style="list-style-type: none"><li>Insyde SPI 128Mbit</li></ul>
System Memory	<ul style="list-style-type: none"><li>Four 288pin DIMM Dual-channel DDR4 1866/2133MHz up to 64GB</li></ul>
Chipset	<ul style="list-style-type: none"><li>Intel® Q170 Express chipset.</li></ul>
Video	<ul style="list-style-type: none"><li>Intel® HD Gen 9 Graphics</li><li>1 x VGA, 1 x DVI-I (DVI-D signal), 1 x HDMI on rear I/O.</li><li>Support up to triple independent display with CPU.</li></ul>
Ethernet	<ul style="list-style-type: none"><li>1 x Intel® I210AT PCIe (10/100/1000Mbps), 1 x Intel® I219LM PCIe with iAMT11.0 (10/100/1000Mbps) (only Core i7/i5 supports iAMT)</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>1x Connector for PS/2 Mouse/Keyboard</li><li>6x Serial ports (2x RS-232/422/485 selectable )</li><li>6 Serial ATA ports</li><li>6 SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>Supports RAID 0/1/5/10</li><li>14 USB: 6 USB 3.0 (4 x rear; 2 x Header), 8 USB 2.0 ports (2 x rear; 6 x Header)</li><li>8bit Digital I/O</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>RealTek ALC888S-VD2-GR high-definition audio chip on-board.</li><li>Support 1 x Line-out, 1 x Mic-in, SPDIF</li></ul>
Power	<ul style="list-style-type: none"><li>One 24pins power connector for system power.</li><li>One ATX-12V 4-pins connector for CPU power.</li><li>Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>One CPU cooling FAN connector nearby CPU socket</li><li>Three system fan connectors for system cooling</li></ul>

## Mechanical & Environment

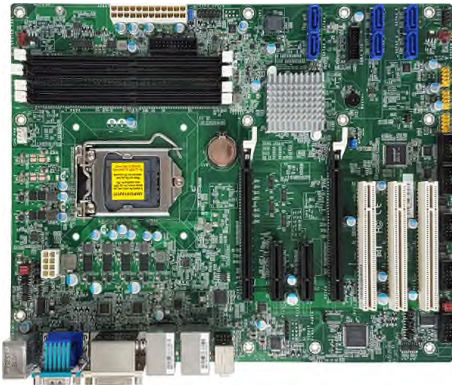
Form Factor	12" x 9.6" (305mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8502G2V	Intel® Core™ i7/i5/i3 7 <sup>th</sup> /6 <sup>th</sup> Generation Processor Q170 Chipset Based Industrial ATX Motherboard with 14x USB/6x COM Ports/ VGA/ DVI/ HDMI/ Dual Gigabit LAN
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# MB-8501G2V

Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Xeon®/Core™ i7/i5/i3 Processor C236 Chipset Based Industrial ATX Motherboard with 14x USB/6x COM Ports/ VGA/ DVI/ HDMI/ Dual Gigabit LAN



## Introduction

Industrial Motherboard MB-8501G2V based on the Intel® C236 Chipset, supports Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Xeon®/Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated Graphic Controller, 6x Com Port, 14 x USB, 6 x SATA Ports supporting RAID 0,1,5.

MB-8501G2V is ideal for developing high-performance systems for industrial Workstation.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>• 7<sup>th</sup>/6<sup>th</sup> Gen Intel® Core™ Processors LGA 1151 socket for: Intel® Xeon® Processor E3-1275 v5, 3.6GHz (4.0GHz), 80W</li><li>• Intel® Core™ i7-6700 Processor, 3.4GHz (4.0GHz), 65W</li><li>• Intel® Core™ i5-6500 Processor, 3.2GHz (3.6GHz), 65W</li><li>• Intel® Core™ i3-6100 Processor, 3.7GHz, 65W</li><li>• Intel® Pentium® Processor G4400, 3.3GHz, 65W</li></ul>
BIOS	<ul style="list-style-type: none"><li>• Insyde SPI 128Mbit</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Four 288pin DIMM Dual-channel DDR4 1866/2133MHz (ECC) up to 64GB</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® C236 Express chipset.</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Gen 9 Graphics</li><li>• 1 x VGA, 1 x DVI-I (DVI-D signal), 1 x HDMI on rear I/O.</li><li>• Support up to triple independent display with CPU.</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• 1 x Intel® I210AT PCIe (10/100/1000Mbps), 1 x Intel® I219LM PCIe with iAMT11.0 (10/100/1000Mbps) (only Core i7/i5 supports iAMT)</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 6x Serial ports (2x RS-232/422/485 selectable )</li><li>• 6 Serial ATA ports</li><li>• 6 SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>• Supports RAID 0/1/5/10</li><li>• 14 USB: 6 USB 3.0 (4 x rear; 2 x Header), 8 USB 2.0 ports (2 x rear; 6 x Header)</li><li>• 8bit Digital I/O</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• RealTek ALC888S-VD2-GR high-definition audio chip on-board.</li><li>• Support 1 x Line-out, 1 x Mic-in, SPDIF</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 4-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li><li>• Three system fan connectors for system cooling</li></ul>

## FEATURES

- Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Xeon®/Core™ i7/5/3 Processor in Socket 1151
- Four 288pin DIMM Dual-channel DDR4 1866/2133MHz (ECC) up to 64GB
- Intel® C236 chipset
- Intel® i210AT & I219LM on board for Dual Gigabit Ethernet
- Integrated Intel® HD Graphics with VGA//DVI/HDMI connectors
- Realtek® ALC888S High Definition Audio chip on-board
- Multi I/O: 14 x USB, 6 x COM ports, 6 x SATA,
- Expansion Slot: 2 x PCIe x16 (1 x16 or 2 x8 signal) (Gen 3) 2 x PCIe x4 (Gen 3), 3 x PCI

## Mechanical & Environment

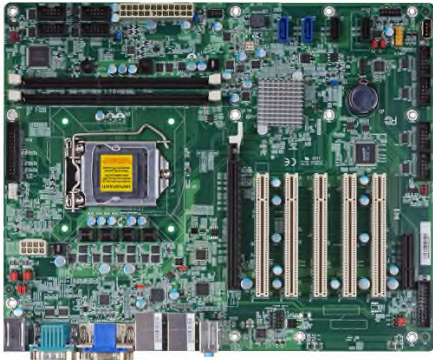
Form Factor	12" x 9.6" (305mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8501G2V	Intel® 7 <sup>th</sup> /6 <sup>th</sup> Generation Xeon®/Core™ i7/i5/i3 Processor C236 Chipset Based Industrial ATX Motherboard with 14x USB/6x COM Ports/ VGA/ DVI/ HDMI/ Dual Gigabit LAN
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# MB-8500G2V

Intel® 4<sup>th</sup> Generation Core™ i7/i5/i3 Processor  
H81 Chipset Based Industrial ATX Motherboard  
with 7x USB/10x COM Ports/ VGA/ DVI/ Dual  
Gigabit LAN



## FEATURES

- Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor in Socket 1151
- Two 240pin DIMM Dual-channel DDR3 1333/1600MHz (Non-ECC) up to 16GB
- Intel® H81 Express chipset
- Intel® i210 on board for Dual Gigabit Ethernet
- Integrated Intel® HD Graphics with VGA/DVI-D connectors
- Realtek® ALC886 High Definition Audio chip on-board
- Multi I/O: 9 x USB, 10 x COM ports, 4 x SATA,
- Expansion Slot: 1 x PCIe x16, 1 x PCIe x4, 5 x PCI

## Introduction

Industrial Motherboard MB-8500G2V based on the Intel® H81 Express Chipset, supports Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated Graphic Controller, 10x Com Port, 9 x USB, 4 x SATA Ports supporting RAID 0,1,5.

MB-8500G2V is ideal for developing high-performance systems for industrial Workstation.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>• 4th Gen Intel® Core™ Processors LGA 1150 socket for: Intel® Core™ i7-4790S Processor, 8M Cache, 4.0 GHz, 65W Intel® Core™ i7-4770S Processor, 8M Cache, 3.9 GHz, 65W Intel® Core™ i5-4590S Processor, 6M Cache, 3.7 GHz, 65W Intel® Core™ i5-4590T Processor, 6M Cache, 3.0 GHz, 35W Intel® Core™ i5-4570S Processor, 6M Cache, 3.6 GHz, 65W Intel® Core™ i3-4360 Processor, 4M Cache, 3.7 GHz, 54W Intel® Core™ i3-4350T Processor, 4M Cache, 3.1 GHz, 35W Intel® Core™ i3-4330 Processor, 4M Cache, 3.5 GHz, 54W</li></ul>
BIOS	<ul style="list-style-type: none"><li>• AMI 64Mbit SPI BIOS</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Two 240pin DIMM Dual-channel DDR3 1333/1600MHz (non-ECC) up to 16GB</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® H81 Express chipset.</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Graphics</li><li>• 1 x DVI-I (DVI-D signal) -resolution up to 1920x1200 @ 60Hz</li><li>• 1 x VGA -resolution up to 1920x1200 @ 60Hz</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• 2 Intel® I210 PCI Express Gigabit Ethernet controllers</li><li>• Integrated 10/100/1000 transceiver</li><li>• Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 10x Serial ports (2x RS-232/422/485 selectable )</li><li>• 4 Serial ATA ports</li><li>- 2 SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>- 2 SATA 2.0 ports with data transfer rate up to 3Gb/s</li><li>- SATA port 5 provides adequate space for SATA DOM</li><li>• Integrated Advanced Host Controller Interface (AHCI) controller</li><li>• 9 USB: 2 USB 3.0 (2x rear), 7 USB 2.0 ports (4x rear; 3x Header)</li><li>• 1x Parallel Port</li><li>• 8bit Digital I/O</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek ALC886 5.1-channel High Definition Audio</li><li>• Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line out</li><li>• S/PDIF audio interface</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 4-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li><li>• Three system fan connectors for system cooling</li></ul>

## Mechanical & Environment

Form Factor	12" x 9.6" (305mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

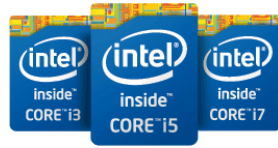
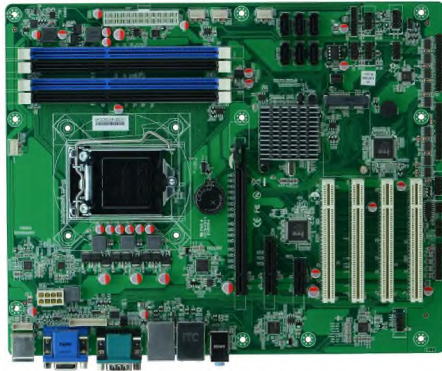
## Ordering Information

MB-8500G2V	Intel® 4 <sup>th</sup> Generation Xeon®/Core™ i7/i5/i3 Processor H81 Chipset Based Industrial ATX Motherboard with 7x USB/10x COM Ports/ VGA/ DVI-D/ Dual Gigabit LAN
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# MB-8519G2V

Intel® 4<sup>th</sup> Generation Core™ i7/i5/i3 Processor Based Industrial ATX Motherboard with 14x USB/ 10x COM Ports/ VGA/ HDMI/ Dual Gigabit LAN



## FEATURES

- Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor in Socket 1150
- Four 240-pin DIMM sockets Dual-channel DDR3 1066/1333/1600 SDRAM. Max. up to 32 GB memory
- Intel® H87 Express chipset
- Dual Intel® 82583V Gigabit Ethernet Ports
- Integrated Intel® HD Graphics with 2x VGA/1x HDMI connectors
- Realtek® ALC662 High Definition Audio chip on-board
- Multi I/O: 14 x USB, 10 x COM ports, 6 x SATA,
- Expansion Slot: 1x PCIe x16 , 1x PCIe x4 slot, 1x PCIe x1, 4x PCI slots .1x mSATA

## Introduction

Industrial ATX Motherboard MB-8519G2V based on the Intel® H87 Chipset, supports Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated Graphic Controller, 10x Com Port, 14 x USB, 6 x SATA Ports.

MB-8519G2V is ideal for developing high-performance systems for industrial Workstation.

## Specification

### System

Processor	<ul style="list-style-type: none"><li>4<sup>th</sup> Generation Intel® Core™ processors, LGA 1150 socket</li><li>Intel® Core™ i7-4790 Processor, 8M Cache, 4.0 GHz, 84W</li><li>Intel® Core™ i5-4590 Processor, 6M Cache, 3.7 GHz, 84W</li><li>Intel® Core™ i3-4330 Processor, 4M Cache, 3.5 GHz, 54W</li><li>Intel® Pentium® G3420 Processor, 3M Cache, 3.2 GHz, 53W</li><li>Intel® Celeron® G1820 Processor, 2M Cache, 2.7 GHz, 53W</li></ul>
BIOS	<ul style="list-style-type: none"><li>AMI 64Mbit Flash ROM BIOS</li></ul>
System Memory	<ul style="list-style-type: none"><li>Four 240pin DIMM Dual-channel DDR3 1066/1333/1600MHz (non-ECC) up to 32GB</li></ul>
Chipset	<ul style="list-style-type: none"><li>Intel® H87 Express chipset.</li></ul>
Video	<ul style="list-style-type: none"><li>Intel® Core i processors integrated HD graphics engine.2x VGA, 1x HDMI on rear I/O.</li></ul>
Ethernet	<ul style="list-style-type: none"><li>Dual Intel® 82583V Gigabit Ethernet controllers.</li><li>Support Wake-on-LAN</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>1x Connector for PS/2 Mouse/Keyboard</li><li>10x Serial ports (1x RS-232/422/485 selectable )<ul style="list-style-type: none"><li>1x COM Port (Rear)</li><li>9x COM Ports (Header)</li></ul></li><li>6x Serial ATA ports</li><li>6x SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>1x support mSATA module</li><li>Integrated Advanced Host Controller Interface (AHCI) controller</li><li>14 USB: 4x USB 3.0, 10 USB 2.0 ports (6 x rear; 8 x internal)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>RealTek ALC662 high-definition audio chip on-board.</li><li>Support Line-OUT, Line-IN, MIC, CD-IN, Surrounding and SPDIF.</li></ul>
Power	<ul style="list-style-type: none"><li>One 24pins power connector for system power.</li><li>One ATX-12V 8-pins connector for CPU power.</li><li>Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>One CPU cooling FAN connector nearby CPU socket</li><li>Three system fan connectors for system cooling</li></ul>

### Mechanical & Environment

Form Factor	12" x 9.6" (305mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

### Ordering Information

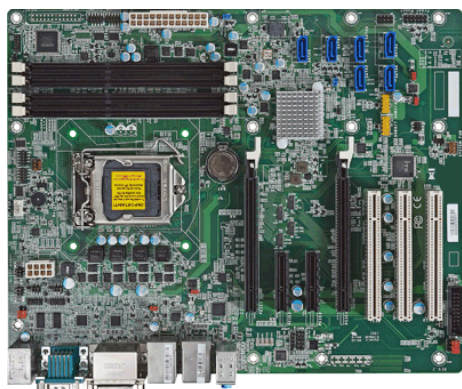
MB-8519G2V	Intel® 4 <sup>th</sup> Generation Core™ i7/i5/i3 Processor Based Industrial ATX Motherboard with 14x USB/ 10x COM Ports/ VGA/ HDMI/ Dual Gigabit LAN
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## IO Front View



# MB-8496G2V

Intel® 4<sup>th</sup> Generation Xeon® /Core™ i7/i5/i3 Processor C226 Chipset Based Industrial ATX Motherboard with 10x USB/ 6x COM Ports/ HDMI/ DVI-I/ Dual Gigabit LAN



## FEATURES

- Intel® 4<sup>th</sup> Generation Intel® Xeon®/Core™ i7/i5/i3 Processor in Socket 1150
- Four 240-pin DIMM sockets Dual-channel DDR3 1066/1333/1600 SDRAM. Max. up to 32 GB memory
- Intel® C226 Express chipset
- Intel® I210 & I217LM on board for Dual GbE LAN
- Integrated Intel® HD Graphics with VGA/DVI-I connectors
- RealTek® ALC886 5.1 Channel High Definition Audio chip on-board
- Multi I/O: 10 x USB, 6 x COM ports, 6 x SATA 3.0
- Expansion Slot: 2 PCIe x16 (1 x16 or 2 x8 signal), 2 PCIe x4 (1 x4 and 1 x1 signal), 3 PCI

## Introduction

Industrial Motherboard MB-8496G2V based on the Intel® C226 Chipset, supports Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated Graphic Controller, 6x Com Port, 10 x USB, 6 x SATA 3.0.

MB-8496G2V is ideal for developing high-performance systems for industrial Automation and control.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>• LGA 1150 socket for:<ul style="list-style-type: none"><li>- 4<sup>th</sup> generation Intel® Xeon® processors (22nm process technology)</li><li>: Intel® Xeon® E3-1275 v3 (8M Cache, up to 3.9GHz); 84W</li><li>: Intel® Core™ i7-4770S (8M Cache, up to 3.9 GHz); 65W</li><li>: Intel® Core™ i5-4570S (6M Cache, up to 3.6 GHz); 65W</li><li>: Intel® Core™ i3-4330 (4M Cache, 3.5 GHz); 54W</li><li>: Intel® Pentium® G3420 (3M Cache, 3.2 GHz); 53W</li></ul></li></ul>
BIOS	<ul style="list-style-type: none"><li>• AMI BIOS - 64Mbit SPI BIOS</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Four 240-pin DDR3/DDR3L DIMM sockets</li><li>Supports DDR3/DDR3L 1333/1600MHz when operating at 1.5V</li><li>Supports dual channel memory interface</li><li>Supports up to 32GB system memory</li><li>DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3 DRAM technologies are supported for x8 and x16 devices, unbuffered, non-ECC</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® C226 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Graphics</li><li>• DVI-I supports up to 1920x1200 @ 60Hz resolution</li><li>• HDMI supports up to 4096x2304 @ 24Hz resolution or 2560x1600 @ 60Hz resolution</li><li>• VGA display resolution up to 1920x1200 pixels with 24-bit color @ 60Hz</li><li>• Supports 6 Graphics Execution Units (EUs)</li><li>• Intel® Clear Video Technology</li><li>• DirectX Video Acceleration (DXVA) support for accelerating video processing</li><li>• One HDMI, One DVI-I</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• Intel® I210 PCI Express Gigabit Ethernet controller</li><li>• Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy</li><li>• Integrated 10/100/1000 transceiver</li><li>• Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 6 x Serial ports (2x RS-232/422/485 selectable )</li><li>• 6 SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>Supports RAID 0/1/5/10</li><li>Supports Intel® Smart Response Technology</li><li>Integrated Advanced Host Controller Interface (AHCI) controller</li><li>• 10 USB: 4 USB 3.0, 6 USB 2.0 ports</li><li>• 1x 8 bit Digital I/O</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC886 5.1-channel High Definition Audio</li><li>• Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out</li><li>• S/PDIF audio interface</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>

## Mechanical & Environment

Form Factor	12" x 9.6" (307mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	5% to 90% (Non-Condensing)

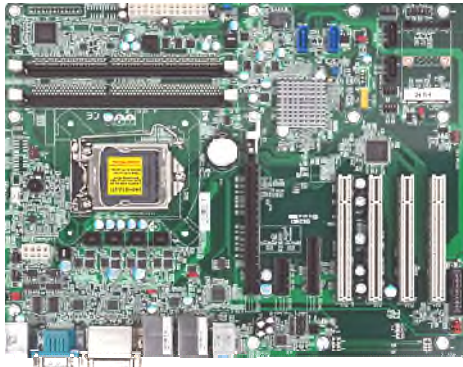
## Ordering Information

MB-8496G2V	Intel® 4 <sup>th</sup> Generation Xeon® /Core™ i7/i5/i3 Processor C226 Chipset Based Industrial ATX Motherboard with 10x USB/ 6x COM Ports/ HDMI/ DVI-I/ Dual Gigabit LAN
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# MB-8495G2V

Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor H81 Chipset Based Industrial ATX Motherboard with 8x USB/ 2x COM Ports/ HDMI/ DVI/ Dual Gigabit LAN



## FEATURES

- Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor in Socket 1150
- Two 240-pin DIMM sockets Dual-channel DDR3 1066/1333/1600 SDRAM. Max. up to 16 GB memory
- Intel® H81 Express chipset
- Intel® I210 & I217LM on board for Dual GbE LAN
- Integrated Intel® HD Graphics with VGA/DVI-I connectors
- Realtek® ALC886 5.1 Channel High Definition Audio chip on-board
- Multi I/O: 8 x USB, 2 x COM ports, 2 x SATA3.0, 2 x SATA2.0
- Expansion Slot: 1 PCIe x16, 1 PCIe x4 (x1 signal), 1 PCIe x1, 4 PCI, 1 Mini PCIe

## Introduction

Industrial Motherboard MB-8495G2V based on the Intel® H81 Chipset, supports Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated Graphic Controller, 2x Com Port, 8 x USB, 2 x SATA 3.0, 2 x SATA 2.0

MB-8495G2V is ideal for developing high-performance systems for industrial Automation and control.

## Specification

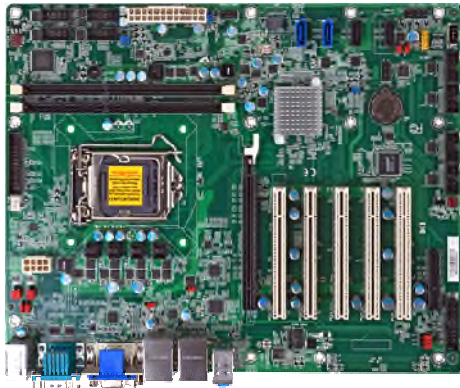
System	
Processor	<ul style="list-style-type: none"><li>• LGA 1150 socket for:</li><li>- 4<sup>th</sup> Generation Intel® Core™ processors (22nm process technology)</li><li>: Intel® Core™ i3-4330 (3M Cache, 3.5 GHz); 54W</li><li>: Intel® Core™ i3-4330TE (3M Cache, up to 2.4 GHz); 35W</li><li>: Intel® Pentium™ G3420 (3M Cache, 3.2 GHz); 54W</li><li>: Intel® Pentium™ G3320TE (3M Cache, 2.3 GHz); 35W</li></ul>
BIOS	<ul style="list-style-type: none"><li>• AMI BIOS - 64Mbit SPI BIOS</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Two 240-pin DDR3/DDR3L DIMM sockets</li><li>• Supports DDR3/DDR3L 1333/1600MHz</li><li>• Supports dual channel memory interface</li><li>• Supports up to 16GB system memory DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3 DRAM technologies are supported for x8 and x16 devices, unbuffered, non-ECC</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® H81 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Graphics</li><li>• Display ports: HDMI and DVI-I</li><li>• DVI-I supports up to 1920x1200 @ 60Hz resolution</li><li>• HDMI supports up to 4096x2304 @ 24Hz resolution or 2560x1600 @ 60Hz resolution</li><li>• VGA display resolution up to 1920x1200 pixels with 24-bit color @ 60Hz</li><li>• Supports 6 Graphics Execution Units (EUs)</li><li>• Intel® Clear Video Technology</li><li>• DirectX Video Acceleration (DXVA) support for accelerating video processing</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• Intel® I210 PCI Express Gigabit Ethernet controller</li><li>• Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy</li><li>• Integrated 10/100/1000 transceiver</li><li>• Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 2 x Serial ports (2x RS-232/422/485 selectable )</li><li>• 2 SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>• 2 SATA 2.0 ports with data transfer rate up to 3Gb/s</li><li>• Integrated Advanced Host Controller Interface (AHCI) controller</li><li>• 8 USB: 2 USB 3.0, 6 USB 2.0 ports</li><li>• 1x 8 bit Digital I/O</li></ul>

Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC886 5.1-channel High Definition Audio</li><li>• Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out</li><li>• S/PDIF audio interface</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>
Mechanical & Environment	
Form Factor	12" x 9.6" (307mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	5% to 90% (Non-Condensing)
Ordering Information	
MB-8495G2V	Intel® 4 <sup>th</sup> Generation Core™ i7/5/3 Processor H81 Chipset Based Industrial ATX Motherboard with 8x USB/ 2x COM Ports/ HDMI/ DVI/ Dual Gigabit LAN



# MB-8493G2V

Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor H81 Chipset Based Industrial ATX Motherboard with 9x USB/ 10x COM Ports/ VGA/ DVI-D/ Dual Gigabit LAN



## FEATURES

- Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor in Socket 1150
- Two 240-pin DIMM sockets Dual-channel DDR3 1066/1333/1600 SDRAM. Max. up to 16 GB memory
- Intel® H81 Express chipset
- Intel® I210 & I217LM on board for Dual GbE LAN
- Integrated Intel® HD Graphics with VGA/DVI-D connectors
- RealTek® ALC886 5.1 Channel High Definition Audio chip on-board
- Multi I/O: 9 x USB, 10 x COM ports, 2 x SATA3.0, 2 x SATA2.0
- Expansion Slot: 1 PCIe x16, 1 PCIe x4, 5 PCI

## Introduction

Industrial Motherboard MB-8493G2V based on the Intel® H81 Chipset, supports Intel® 4<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated Graphic Controller, 10x Com Port, 9 x USB, 2 x SATA 3.0, 2 x SATA 2.0

MB-8493G2V is ideal for developing high-performance systems for industrial Automation and control.

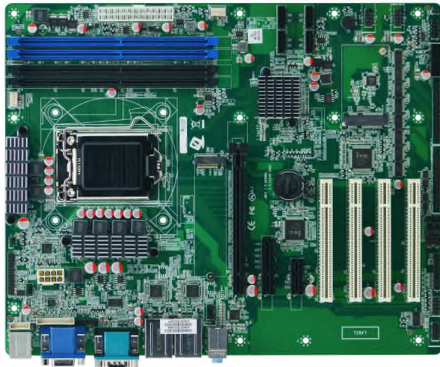
## Specification

System	
Processor	<ul style="list-style-type: none"><li>• LGA 1150 socket for:</li><li>- 4<sup>th</sup> Generation Intel® Core™ processors (22nm process technology)</li><li>: Intel® Core™ i3-4330 (3M Cache, 3.5 GHz); 54W</li><li>: Intel® Core™ i3-4330TE (3M Cache, up to 2.4 GHz); 35W</li><li>: Intel® Pentium™ G3420 (3M Cache, 3.2 GHz); 54W</li><li>: Intel® Pentium™ G3320TE (3M Cache, 2.3 GHz); 35W</li></ul>
BIOS	<ul style="list-style-type: none"><li>• AMI BIOS - 64Mbit SPI BIOS</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Two 240-pin DDR3/DDR3L DIMM sockets</li><li>• Supports DDR3/DDR3L 1333/1600MHz</li><li>• Supports dual channel memory interface</li><li>• Supports up to 16GB system memory DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3 DRAM technologies are supported for x8 and x16 devices, unbuffered, non-ECC</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® H81 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Graphics</li><li>• Display ports: VGA and DVI-D</li><li>• VGA and DVI-D supports up to 1920x1200 @ 60Hz resolution</li><li>• Supports 6 Graphics Execution Units (EUs)</li><li>• Intel® Clear Video Technology</li><li>• DirectX Video Acceleration (DXVA) support for accelerating video processing</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• Intel® I210 PCI Express Gigabit Ethernet controller</li><li>• Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy</li><li>• Integrated 10/100/1000 transceiver</li><li>• Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 10 x Serial ports (1x RS-232/422/485 selectable )</li><li>• 2 SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>• 2 SATA 2.0 ports with data transfer rate up to 3Gb/s</li><li>• Integrated Advanced Host Controller Interface (AHCI) controller</li><li>• 1 Parallel Port</li><li>• 9 USB: 2 USB 3.0, 7 USB 2.0 ports</li><li>• 1x 8 bit Digital I/O</li></ul>

Watchdog Timer	• Programmable watchdog timer for 1~255 seconds.
CMOS	• On-board RTC with 242 bytes of Battery-back CMOS RAM.
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC886 5.1-channel High Definition Audio</li><li>• Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out</li><li>• S/PDIF audio interface</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	• One CPU cooling FAN connector nearby CPU socket
Mechanical & Environment	
Form Factor	12" x 9.6" (307mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	5% to 90% (Non-Condensing)
Ordering Information	
MB-8493G2V	Intel® 4 <sup>th</sup> Generation Core™ i7/5/3 Processor H81 Chipset Based Industrial ATX Motherboard with 9x USB/ 10x COM Ports/ VGA/ DVI-D/ Dual Gigabit LAN

# MB-8520G2V

Intel® Core™ i7/i5/i3 7<sup>th</sup>/6<sup>th</sup> Generation Processor  
Based Industrial ATX Motherboard with 12x USB/  
10x COM Ports/ VGA/ HDMI/ DisplayPort Dual  
Gigabit LAN



## FEATURES

- Intel® Core™ i7/i5/i3 7<sup>th</sup>/6<sup>th</sup> Generation Processor in Socket 1151
- Four 288-pin DIMM sockets Dual-channel DDR4 1866/2133 SDRAM. Max. up to 64 GB memory
- Intel® B150 Express chipset
- Dual Intel® i211AT Gigabit Ethernet Ports
- Integrated Intel® HD Graphics with VGA/HDMI/DisplayPort connectors
- Realtek® ALC892 High Definition Audio chip on-board
- Multi I/O: 12 x USB, 10 x COM ports, 4 x SATA,
- Expansion Slot: 1x PCIe x16 , 1x PCIe x4 slot, 1x PCIe x1, 4x PCI slots, 1x mSATA, 1x M.2 Slot support M.2 2280 Standard SSD

## Introduction

Industrial Motherboard MB-8520G2V based on the Intel® B150 Chipset, supports Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core™ i7/i5/i3 Processor. Integrated with Intel® HD Integrated Graphic Controller, 10x Com Port, 12 x USB, 4 x SATA Ports.

MB-8520G2V is ideal for developing high-performance systems for industrial Workstation.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>7<sup>th</sup>/6<sup>th</sup> Generation Intel® Core™ processors, LGA 1151 socket</li></ul>
BIOS	<ul style="list-style-type: none"><li>AMI 128Mbit Flash ROM BIOS</li></ul>
System Memory	<ul style="list-style-type: none"><li>Four 288-pin DIMM sockets Dual-channel DDR4 1866/2133 SDRAM. Max. up to 64 GB memory</li></ul>
Chipset	<ul style="list-style-type: none"><li>Intel® B150 Express chipset.</li></ul>
Video	<ul style="list-style-type: none"><li>Intel® Core i processors integrated HD graphics engine. 1x VGA, 1x HDMI, 1x DisplayPort on rear I/O.</li></ul>
Ethernet	<ul style="list-style-type: none"><li>Dual Intel® i211AT Gigabit Ethernet controllers.</li><li>Support Wake-on-LAN</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>1x Connector for PS/2 Mouse/Keyboard</li><li>10x Serial ports (1x RS-232/422/485 selectable )<ul style="list-style-type: none"><li>1x COM Port (Rear)</li><li>9x COM Ports (Header)</li></ul></li><li>4x Serial ATA ports<ul style="list-style-type: none"><li>4x SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>1x support mSATA module</li><li>1x M.2 slot, support M.2 2280 Standard SSD</li></ul></li><li>12 USB: 6x USB 3.0, 6 USB 2.0 ports (6 x rear; 6 x internal)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>Realtek® ALC892 high-definition audio chip on-board.</li><li>Support Line-OUT, Line-IN, MIC, CD-IN, Surrounding and SPDIF.</li></ul>
Power	<ul style="list-style-type: none"><li>One 24pins power connector for system power.</li><li>One ATX-12V 8-pins connector for CPU power.</li><li>Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>One CPU cooling FAN connector nearby CPU socket</li><li>One system fan connector for system cooling</li></ul>

## Mechanical & Environment

Form Factor	12" x 9.6" (305mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8520G2V	Intel® Core™ i7/i5/i3 7 <sup>th</sup> /6 <sup>th</sup> Generation Processor Based Industrial ATX Motherboard with 12x USB/ 10x COM Ports/ VGA/ HDMI/ DisplayPort , Dual Gigabit LAN
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## I/O Rear View



# MB-8522G4V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Xeon®/Core® Processor  
C246 Chipset Based Industrial uATX Motherboard  
with 13x USB Ports/ 6x COM Ports/ DP/ VGA/  
HDMI/ Quad Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Xeon®/Core® Processor in Socket 1151
- Four 288-pin uDIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 128GB memory (ECC/Non-ECC)
- Intel® C246 Express chipset
- Intel® 3x I210AT & 1x I219LM on board for Quad GbE LAN
- Integrated Intel® HD 9 Graphics with Triple independent displays HDMI/VGA/DP connectors
- Realtek® ALC887 High Definition Audio chip on-board
- Multi I/O: 4x USB 3.2 Gen 2, 4x USB 3.2 Gen 1, 5x USB 2.0, 6x COM (2x RS-485)
- Expansion Slot: 1 PCIe x16 (Gen 3), 3 PCIe x4 (Gen 3), 1 Mini-PCIe (Full/Half size) slots M.2 M Key, 4 SATA 3.0 for storage
- RAID: SATA RAID 0/1/5/10

## Introduction

Industrial Motherboard MB-8522G4V based on the Intel® C246 Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Xeon®/Core™ i7/i5/i3 Processor. Integrated with Intel® HD Integrated HD Controller, 4 x Com Port, 13 x USB, 4 x SATA 3.0.

MB-8522G4Vs ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>• LGA 1151 socket for:<ul style="list-style-type: none"><li>- 9<sup>th</sup>/8<sup>th</sup> Gen Intel® Desktop Xeon®/Core™ i7/i5/i3/ Pentium®/ Celeron® Series Processor, Max 95W</li></ul></li></ul>
BIOS	<ul style="list-style-type: none"><li>• AMI UEFI</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Four 288-pin DDR4 uDIMM sockets</li><li>• Supports up to 128GB ECC/non ECC RAM</li><li>• Dual Channel DDR4 2400/2666MHz</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® C246 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Graphics</li><li>• 1 x VGA up to 1920 x 1200 @60Hz</li><li>• 1 x HDMI up to 4096 x 2160 @24Hz</li><li>• 1 x DP up to 4096 x 2304 @60Hz</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• 3 x Intel® I211AT (10/100/1000Mbps)</li><li>• 1 x Intel® I219LM with iAMT 12.0 (10/100/1000Mbps)</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 6 x Serial ports (2 x RS-232/422/485, 0V/5V/12V, 4x RS-232C, 0V/5V/12V)</li><li>• 4x SATA 3.0 (Support RAID 0/1/5/10)</li><li>• 13 USB: 4x USB 3.2 Gen2, 4x USB 3.2 Gen1, 5 x USB 2.0 (Header)</li><li>• 1x LPT Port</li><li>• 1x 16-bits</li></ul>
TPM function	<ul style="list-style-type: none"><li>• 1 x TPM module expansion (optional)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC887 High Definition Audio</li><li>• Audio outputs: Mic-in, line-in and line-out</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>

## Packing List

Item	Description / Quantity
Motherboard	MB-8522G4V/ 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

Form Factor	9.6" x 9.6" (244mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8522G4V	Intel® 9 <sup>th</sup> /8 <sup>th</sup> Generation Xeon®/Core® Processor C246 Chipset Based Industrial uATX Motherboard with 13x USB Ports/ 6x COM Ports/ DP/ VGA/ HDMI/ Quad Gigabit LAN
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## Rear I/O





# MB-8523G4V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial uATX Motherboard with 13x USB Ports/ 6x COM Ports/ DP/ VGA/ HDMI/ Quad Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Core® Processor in Socket 1151
- Four 288-pin uDIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 128GB memory (Non-ECC)
- Intel® Q370 Express chipset
- Intel® 3x I210AT & 1x I219LM on board for Quad GbE LAN
- Integrated Intel® HD 9 Graphics with Triple independent displays HDMI/VGA/DP connectors
- Realtek® ALC887 High Definition Audio chip on-board
- Multi I/O: 4x USB 3.2 Gen 2, 4x USB 3.2 Gen 1, 5x USB 2.0, 6x COM (2x RS-485)
- Expansion Slot: 1 PCIe x16 (Gen 3), 3 PCIe x4 (Gen 3), 1 Mini-PCIe (Full/Half size) slots M.2 M Key, 4 SATA 3.0 for storage
- RAID: SATA RAID 0/1/5/10

## Introduction

Industrial Motherboard MB-8523G4V based on the Intel® Q370 Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Xeon®/Core™ i7/i5/i3 Processor. Integrated with Intel® HD Integrated HD Controller, 4 x Com Port, 13 x USB, 4 x SATA 3.0.

MB-8523G4Vs ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>• LGA 1151 socket for:<ul style="list-style-type: none"><li>- 9<sup>th</sup>/8<sup>th</sup> Gen Intel® Desktop Core™ i7/i5/i3/ Pentium®/ Celeron® Series Processor, Max 95W</li></ul></li></ul>
BIOS	<ul style="list-style-type: none"><li>• AMI UEFI</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Four 288-pin DDR4 uDIMM sockets</li><li>• Supports up to 128GB/non ECC RAM</li><li>• Dual Channel DDR4 2400/2666MHz</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® Q370 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Graphics</li><li>• 1 x VGA up to 1920 x 1200 @60Hz</li><li>• 1 x HDMI up to 4096 x 2160 @24Hz</li><li>• 1 x DP up to 4096 x 2304 @60Hz</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• 3 x Intel® I211AT (10/100/1000Mbps)</li><li>• 1 x Intel® I219LM with iAMT 12.0 (10/100/1000Mbps)</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 6 x Serial ports (2 x RS-232/422/485, 0V/5V/12V, 4x RS-232C, 0V/5V/12V)</li><li>• 4x SATA 3.0 (Support RAID 0/1/5/10)</li><li>• 13 USB: 4x USB 3.2 Gen2, 4x USB 3.2 Gen1, 5 x USB 2.0 (Header)</li><li>• 1x LPT Port</li><li>• 1x 16-bits</li></ul>
TPM function	<ul style="list-style-type: none"><li>• 1 x TPM module expansion (optional)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC887 High Definition Audio</li><li>• Audio outputs: Mic-in, line-in and line-out</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>

## Packing List

Item	Description / Quantity
Motherboard	MB-8523G4V/ 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

Form Factor	9.6" x 9.6" (244mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8523G4V	Intel® 9 <sup>th</sup> /8 <sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial uATX Motherboard with 13x USB Ports/ 6x COM Ports/ DP/ VGA/ HDMI/ Quad Gigabit LAN
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## Rear I/O



# MB-8524G2V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial uATX Motherboard with 13x USB Ports/ 6x COM Ports/ DP/ VGA/ HDMI/ Quad Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Core® Processor in Socket 1151
- Four 288-pin uDIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 128GB memory (Non-ECC)
- Intel® Q370 Express chipset
- Intel® 3x I210AT & 1x I219LM on board for Quad GbE LAN
- Integrated Intel® HD 9 Graphics with Triple independent displays HDMI/VGA/DP connectors
- Realtek® ALC887 High Definition Audio chip on-board
- Multi I/O: 4x USB 3.2 Gen 2, 4x USB 3.2 Gen 1, 5x USB 2.0, 6x COM (2x RS-485)
- Expansion Slot: 1 PCIe x16 (Gen 3), 3 PCIe x4 (Gen 3), 1 Mini-PCIe (Full/Half size) slots M.2 M Key, 4 SATA 3.0 for storage
- RAID: SATA RAID 0/1/5/10

## Introduction

Industrial Motherboard MB-8524G2V based on the Intel® Q370 Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Xeon®/Core™ i7/i5/i3 Processor. Integrated with Intel® HD Integrated HD Controller, 4 x Com Port, 13 x USB, 4 x SATA 3.0.

MB-8524G2Vs ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>• LGA 1151 socket for:<ul style="list-style-type: none"><li>- 9<sup>th</sup>/8<sup>th</sup> Gen Intel® Desktop Core™ i7/i5/i3/ Pentium®/ Celeron® Series Processor, Max 95W</li></ul></li></ul>
BIOS	<ul style="list-style-type: none"><li>• AMI UEFI</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Four 288-pin DDR4 uDIMM sockets</li><li>• Supports up to 128GB/non ECC RAM</li><li>• Dual Channel DDR4 2400/2666MHz</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® Q370 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Graphics</li><li>• 1 x VGA up to 1920 x 1200 @60Hz</li><li>• 1 x HDMI up to 4096 x 2160 @24Hz</li><li>• 1 x DP up to 4096 x 2304 @60Hz</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• 1 x Intel® I211AT (10/100/1000Mbps)</li><li>• 1 x Intel® I219LM with iAMT 12.0 (10/100/1000Mbps)</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 6 x Serial ports (1 x RS-232/422/485, 0V/5V/12V, 5x RS-232C, 0V/5V/12V)</li><li>• 4x SATA 3.0 (Support RAID 0/1/5/10)</li><li>• 13 USB: 4x USB 3.2 Gen2, 4x USB 3.2 Gen1, 5 x USB 2.0 (Header)</li><li>• 1x LPT Port</li><li>• 1x 16-bits</li></ul>
TPM function	<ul style="list-style-type: none"><li>• 1 x TPM module expansion (optional)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC887 High Definition Audio</li><li>• Audio outputs: Mic-in, line-in and line-out</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>

## Packing List

Item	Description / Quantity
Motherboard	MB-8524G2V/ 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

Form Factor	9.6" x 9.6" (244mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8524G2V	Intel® 9 <sup>th</sup> /8 <sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial uATX Motherboard with 13x USB Ports/ 6x COM Ports/ DP/ VGA/ HDMI/ Quad Gigabit LAN
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## Rear I/O



# MB-8516G2V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Xeon®/Core® Processor  
C246 Chipset Based Industrial uATX Motherboard  
with 12x USB Ports/ 4x COM Ports/ DP/ DVI-D/  
HDMI/ Dual Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Xeon®/Core® Processor in Socket 1151
- Four 288-pin uDIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 64GB memory (ECC/Non-ECC)
- Intel® C246 Express chipset
- Intel® I210AT & I219LM on board for Dual GbE LAN
- Integrated Intel® HD 9 Graphics with HDMI/DVI-D/DP ++ connectors
- Realtek® ALC888 High Definition Audio chip on-board
- Multi I/O: 12x USB, 4 x COM ports, 5 x SATA 3.0 Port
- Expansion Slot: 2 PCIe x16 (1 x16 or 2 x8 signal), 2 PCIe x4, 1 mini PCIe, 1 M.2 M key (support Optane Memory)

## Introduction

Industrial Motherboard MB-8516G2V based on the Intel® C246 Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Xeon®/Core™ i7/i5/i3 Processor. Integrated with Intel® HD Integrated HD Controller, 4 x Com Port, 12 x USB, 5 x SATA 3.0.

MB-8516G2Vs ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	• LGA 1151 socket for: - 9 <sup>th</sup> /8 <sup>th</sup> generation Intel® Core® /Pentium®/Celeron® processors, Max 65W
BIOS	• AMI SPI 128MBit
System Memory	• Four 288-pin DDR4 uDIMM sockets • Supports up to 64GB ECC/non ECC RAM • Dual Channel DDR4 2400/2666MHz
Chipset	• Intel® C246 Express Chipset
Video	• Intel® HD Graphics • 1 x HDMI (Resolution up to 1920x1200 @ 60Hz) • 1 x DVI-I (DVI-D signal - resolution up to 1920x1200 @ 60Hz) • 1 x DP++ (Resolution up to 4096x2160 @ 60Hz)
Ethernet	• 1 x Intel® I211AT (10/100/1000Mbps) • 1 x Intel® I219LM with iAMT 12.0 (10/100/1000Mbps) (only Core i7/i5 supports iAMT)
On Board I/O	• 1x Connector for PS/2 Mouse/Keyboard • 4 x Serial ports (2 x RS-232/422/485, 0V/5V/12V, 2x RS-232C, 0V/5V/12V) • 5 x SATA 3.0 (Support RAID 0/1/5/10) • 12 USB: 4x USB 3.1 Gen2, 2x USB 3.1 Gen1, 4 x USB 2.0 (2 x rear, 4 Header) • 1x SMBus • 1x 8-bits
TPM function	• 1 x TPM module expansion (optional)
Watchdog Timer	• Programmable watchdog timer for 1~255 seconds.
CMOS	• On-board RTC with 242 bytes of Battery-back CMOS RAM.
Audio	• Realtek® ALC888 High Definition Audio • Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out
Power	• One 24pins power connector for system power. • One ATX-12V 8-pins connector for CPU power. • Support both AT and ATX mode.
Cooling	• One CPU cooling FAN connector nearby CPU socket

## Packing List

Item	Description / Quantity
Motherboard	MB-8516G2V/ 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

Form Factor	9.6" x 9.6" (244mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8516G2V	Intel® 9 <sup>th</sup> /8 <sup>th</sup> Generation Xeon®/Core® Processor C246 Chipset Based Industrial uATX Motherboard with 12x USB Ports/ 4x COM Ports/ DP/ DVI-D/ HDMI/ Dual Gigabit LAN
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# MB-8515G2V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core® Processor Q370  
Chipset Based Industrial uATX Motherboard with  
12x USB Ports/ 4x COM Ports/ DP/ DVI-D/ HDMI/  
Dual Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Core® Processor in Socket 1151
- Four 288-pin uDIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 64GB memory (Non-ECC)
- Intel® Q370 Express chipset
- Intel® I210AT & I219LM on board for Dual GbE LAN
- Integrated Intel® HD 9 Graphics with HDMI/DVI-D/DP ++ connectors
- Realtek® ALC888 High Definition Audio chip on-board
- Multi I/O: 12x USB, 4 x COM ports, 4 x SATA 3.0 Port
- Expansion Slot: 2 PCIe x16 (1 x16 or 2 x8 signal), 2 PCIe x4, 1 mini PCIe, 1 M.2 M key (support Optane Memory)

## Introduction

Industrial Motherboard MB-8515G2V based on the Intel® Q370 Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated HD Controller, 4 x Com Port, 12 x USB, 5 x SATA 3.0.

MB-8515G2V is ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>LGA 1151 socket for:</li><li>- 9<sup>th</sup>/8<sup>th</sup> generation Intel® Core® /Pentium®/Celeron® processors, Max 65W</li></ul>
BIOS	<ul style="list-style-type: none"><li>• AMI SPI 128MBit</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Four 288-pin DDR4 uDIMM sockets</li><li>• Supports up to 64GB non ECC RAM</li><li>• Dual Channel DDR4 2400/2666MHz</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® Q370 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Graphics</li><li>• 1 x HDMI (Resolution up to 1920x1200 @ 60Hz)</li><li>• 1 x DVI-I (DVI-D signal - resolution up to 1920x1200 @ 60Hz)</li><li>• 1 x DP++ (Resolution up to 4096x2160 @ 60Hz)</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• 1 x Intel® I211AT (10/100/1000Mbps)</li><li>• 1 x Intel® I219LM with iAMT 12.0 (10/100/1000Mbps) (only Core i7/i5 supports iAMT)</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 4 x Serial ports (2 x RS-232/422/485, 0V/5V/12V, 2x RS-232C, 0V/5V/12V)</li><li>• 5 x SATA 3.0 (Support RAID 0/1/5/10)</li><li>• 12 USB: 4x USB 3.1 Gen2, 2x USB 3.1 Gen1, 4 x USB 2.0 (2 x rear, 4 Header)</li><li>• 1x SMBus</li><li>• 1x 8-bits</li></ul>
TPM function	<ul style="list-style-type: none"><li>• 1 x TPM module expansion (optional)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC888 High Definition Audio</li><li>• Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>

## Packing List

item	Description / Quantity
Motherboard	MB-8515G2V/ 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

Form Factor	9.6" x 9.6" (244mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8515G2V	Intel® 9 <sup>th</sup> /8 <sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial uATX Motherboard with 12x USB Ports/ 4x COM Ports/ DP/ DVI-D/ HDMI/ Dual Gigabit LAN
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## I/O Rear View

# MB-8515G2V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core® Processor Q370  
Chipset Based Industrial uATX Motherboard with  
12x USB Ports/ 4x COM Ports/ DP/ DVI-D/ HDMI/  
Dual Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Core® Processor in Socket 1151
- Four 288-pin uDIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 64GB memory (Non-ECC)
- Intel® Q370 Express chipset
- Intel® I210AT & I219LM on board for Dual GbE LAN
- Integrated Intel® HD 9 Graphics with HDMI/DVI-D/DP ++ connectors
- Realtek® ALC888 High Definition Audio chip on-board
- Multi I/O: 12x USB, 4 x COM ports, 4 x SATA 3.0 Port
- Expansion Slot: 2 PCIe x16 (1 x16 or 2 x8 signal), 2 PCIe x4, 1 mini PCIe, 1 M.2 M key (support Optane Memory)

## Introduction

Industrial Motherboard MB-8515G2V based on the Intel® Q370 Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated HD Controller, 4 x Com Port, 12 x USB, 5 x SATA 3.0.

MB-8515G2V is ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>LGA 1151 socket for:</li><li>- 9<sup>th</sup>/8<sup>th</sup> generation Intel® Core® /Pentium®/Celeron® processors, Max 65W</li></ul>
BIOS	<ul style="list-style-type: none"><li>• AMI SPI 128MBit</li></ul>
System Memory	<ul style="list-style-type: none"><li>• Four 288-pin DDR4 uDIMM sockets</li><li>• Supports up to 64GB non ECC RAM</li><li>• Dual Channel DDR4 2400/2666MHz</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® Q370 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>• Intel® HD Graphics</li><li>• 1 x HDMI (Resolution up to 1920x1200 @ 60Hz)</li><li>• 1 x DVI-I (DVI-D signal - resolution up to 1920x1200 @ 60Hz)</li><li>• 1 x DP++ (Resolution up to 4096x2160 @ 60Hz)</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• 1 x Intel® I211AT (10/100/1000Mbps)</li><li>• 1 x Intel® I219LM with iAMT 12.0 (10/100/1000Mbps) (only Core i7/i5 supports iAMT)</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 1x Connector for PS/2 Mouse/Keyboard</li><li>• 4 x Serial ports (2 x RS-232/422/485, 0V/5V/12V, 2x RS-232C, 0V/5V/12V)</li><li>• 5 x SATA 3.0 (Support RAID 0/1/5/10)</li><li>• 12 USB: 4x USB 3.1 Gen2, 2x USB 3.1 Gen1, 4 x USB 2.0 (2 x rear, 4 Header)</li><li>• 1x SMBus</li><li>• 1x 8-bits</li></ul>
TPM function	<ul style="list-style-type: none"><li>• 1 x TPM module expansion (optional)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC888 High Definition Audio</li><li>• Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out</li></ul>
Power	<ul style="list-style-type: none"><li>• One 24pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li></ul>

## Packing List

item	Description / Quantity
Motherboard	MB-8515G2V/ 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

Form Factor	9.6" x 9.6" (244mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8515G2V	Intel® 9 <sup>th</sup> /8 <sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial uATX Motherboard with 12x USB Ports/ 4x COM Ports/ DP/ DVI-D/ HDMI/ Dual Gigabit LAN
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## I/O Rear View

# MB-8511G2V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial uATX Motherboard with 12x USB Ports/ 6x COM Ports/ DP/ DVI-D/ VGA/ Dual Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Core® Processor in Socket 1151
- Four 288-pin uDIMM sockets Dual-channel DDR4 2400/2666 Module. Max. up to 64GB memory (Non-ECC)
- Intel® Q370 Express chipset
- Intel® I210AT & I219LM on board for Dual GbE LAN
- Integrated Intel® HD 9 Graphics with VGA/DVI-D/DP ++ connectors
- Realtek® ALC888 High Definition Audio chip on-board
- Multi I/O: 12x USB, 6 x COM ports, 4 x SATA 3.0 Port
- Expansion Slot: 1 PCIe x16, 1 PCIe x4, 2 PCI, 1 Mini PCIe

## Introduction

Industrial Motherboard MB-8511G2V based on the Intel® Q370 Chipset, supports Intel® 8<sup>th</sup> Generation Core™ i7/5/3 Processor. Integrated with Intel® HD Integrated HD Controller, 6 x Com Port, 12 x USB, 4 x SATA 3.0.

MB-8511G2V is ideal for developing high-performance systems for Factory Automation, Machine Automation, Test & Measurement Control & Machine Vision control.

## Specification

System	
Processor	• LGA 1151 socket for: - 9 <sup>th</sup> /8 <sup>th</sup> generation Intel® Core® /Pentium®/Celeron® processors, Max 65W
BIOS	• AMI SPI 128MBit
System Memory	• Four 288-pin DDR4 uDIMM sockets • Supports up to 64GB non ECC RAM • Dual Channel DDR4 2400/2666MHz
Chipset	• Intel® Q370 Express Chipset
Video	• Intel® HD Graphics • 1 x VGA (Resolution up to 1920x1200 @ 60Hz) • 1 x DVI-I (DVI-D signal - resolution up to 1920x1200 @ 60Hz) • 1 x DP++ (Resolution up to 4096x2160 @ 60Hz)
Ethernet	• 1 x Intel® I211AT (10/100/1000Mbps) • 1 x Intel® I219LM with iAMT 12.0 (10/100/1000Mbps) (only Core i7/i5 supports iAMT)
On Board I/O	• 1x Connector for PS/2 Mouse/Keyboard • 6 x Serial ports (2 x RS-232/422/485, 0V/5V/12V, 4x RS-232C, 0V/5V/12V) • 4 x SATA 3.0 (Support RAID 0/1/5/10) • 12 USB: 2 x USB 3.1 Gen2, 4 x USB 3.1 Gen1, 6 x USB 2.0 (2 x rear, 4 Header) • 1x SMBus • 1x 8-bits
TPM function	• 1 x TPM module expansion (optional)
Watchdog Timer	• Programmable watchdog timer for 1~255 seconds.
CMOS	• On-board RTC with 242 bytes of Battery-back CMOS RAM.
Audio	• Realtek® ALC888 High Definition Audio • Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line-out
Power	• One 24pins power connector for system power. • One ATX-12V 8-pins connector for CPU power. • Support both AT and ATX mode.
Cooling	• One CPU cooling FAN connector nearby CPU socket

## Packing List

Item	Description / Quantity
Motherboard	MB-8511G2V / 1
Driver	DVD driver disk with Guide / 1
Shield	I/O shield / 1
SATA	Serial ATA data cables / 1
USB	Two USB port cable with bracket / 1
COM	COM port cables with bracket / 1
PS/2	PS2 Y-cable / 1

## Mechanical & Environment

Form Factor	9.6" x 9.6" (244mm x 244mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-20°C to 80°C (-68° F to 176° F)
Relative humidity	10% to 90% (Non-Condensing)

## Ordering Information

MB-8511G2V	Intel® 8 <sup>th</sup> Generation Core® Processor Q370 Chipset Based Industrial uATX Motherboard with 12x USB Ports/ 6x COM Ports/ DP/ DVI-D/ VGA/ Dual Gigabit LAN
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# NINO-7094G2V

Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Desktop Processor Based  
ITX Board with 6 USB 2.0/4 USB 3.0/ 6x COM  
Ports/ VGA/ HDMI/ DVI-I/ Dual Gigabit LAN



## FEATURES

- Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core™ Desktop Processors
- Two Dual-channel DDR4 2666Mhz Memory Modules. Max. up to 32GB memory
- Dual Intel® PCI Express Gigabit Ethernet controllers (i210AT and I219LM)
- Integrated Intel® HD Graphics with VGA, DVI-I, HDMI, LVDS connectors
- Realtek® ALC262 High Definition Audio chip on-board
- Multi I/O: 4x USB 3.1, 6x USB 2.0, 6x COM ports, 3x SATA 3.0
- Expansion Slot: 1 PCIe x16, 1 Mini PCIe socket support mSATA, 1 Half size Mini PCIe slot and 1 SIM Slot
- Power: 24-pin ATX power supply and 4-pin 12V

## Introduction

NINO-7094G2V ITX Board supporting Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core™ Processor. NINO-7094G2V supports LVDS function for interface to LVDS Displays. NINO-7094G2V supports 6x COM Port, 6 x USB 2.0, 4 x USB 3.1, two Mini-PCIe sockets and one SIM socket.

NINO-7094G2V is ideal for developing high-performance systems for industrial control and Automation, retail, gaming, print imaging and digital signage.

## Specification

System	
Processor	• Intel® Core™ 9 <sup>th</sup> /8 <sup>th</sup> Generation Processors
BIOS	• Insyde BIOS
System Memory	• Dual DDR4 DIMM 2666 MHz up to 32GB, Support Non-ECC, unbuffered memory only (Core i3, Pentium, Celeron CPU support 2400 MHz only)
Chipset	• Intel® Q370
Video	• Intel® UHD Graphics • Display ports: x DVI, 1 x DisplayPort (optional), 1 x LVDS, 1 x HDMI, 1 x VGA
Ethernet	• 1x Intel® I219-LM Gigabit PHY LAN (Support iAMT12.0) • 1x Intel® I210-AT Gigabit LAN
On Board I/O	• 6x Serial ports - 2x RS-232/422/485 selectable – Rear - 4x RS-232– Internal Header • 3x SATA 3.0 ports with data transfer rate up to 6Gb/s • Integrated Advanced Host Controller Interface (AHCI) controller • 10 USB Ports - 4 x USB3.1 Gen2 - 4 x USB2.0, 2 x USB3.1 Gen2 (Internal Header) • 1x 8 bit Digital I/O
OS Support	• Microsoft® Windows 10 only
Watchdog Timer	• Programmable watchdog timer for 1~255 seconds.
CMOS	• On-board RTC with 242 bytes of Battery-back CMOS RAM.
Audio	• Realtek ALC262 High Definition Audio
Power	• Standard 24pin ATX Power Supply and 4 Pin 12V • Support both AT and ATX mode.
Cooling	• One CPU cooling FAN connector nearby CPU socket • One system cooling FAN connectors for chassis or power supply cooling.

## Mechanical & Environment

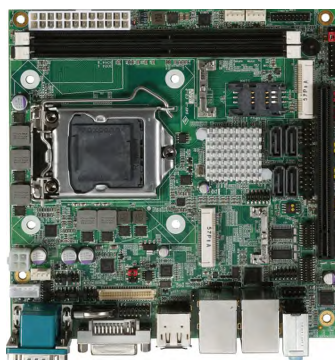
Dimension	• 170x170 mm
Operation temperature	• 0°C to 60°C (32° F to 140° F)
Storage temperature	• -20°C to 80°C (-68° F to 176° F)
Relative humidity	• 10% to 90% (Non-Condensing)

## Ordering Information

NINO-7094G2V	Intel® 9 <sup>th</sup> /8 <sup>th</sup> Generation Desktop Processor Based ITX Board with 6 USB 2.0/4 USB 3.0/6x COM Ports/ VGA/ HDMI/ DVI-I/ Dual Gigabit LAN
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# NINO-7091G2V

Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core™ i7/i5/i3/Xeon® Processor Socket 1155 Desktop Processor Q236 Chipset Based ITX Board with 4 USB 2.0/6 USB 3.0/6x COM Ports/VGA /Dual Gigabit LAN



## FEATURES

- Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core™ i7/ i5/ i3/ Xeon® E3-1200v5 Desktop socket 1151
- Intel® Q236 Express chipset
- Two DDR4 DIMM 1866 / 2133 MHz up to 32GB
- One Intel® I210 Gigabit LAN and 1 x Intel® I219-LM Gigabit PHY LAN
- Intel® Core™ integrated HD Graphics 530 Technology
- Realtek® ALC262 High-Definition Audio chip on-board
- Multi I/O: 4xUSB 2.0, 6xUSB 3.0, 6x COM ports, 4x SATA
- Expansion: PCIe x16 slot, 1x Mini-PCIe socket & 1x Half Size Mini PCIe socket
- Standard 20-pin + 4 Pin ATX Power Supply

## Introduction

NINO-7091G2V ITX Board supporting Intel® 7<sup>th</sup>/6<sup>th</sup> Generation Core™ i7, i5, i3/ Xeon E3-1200v5 Desktop Socket 1151 Desktop Processor. NINO-7091G2V supports LVDS function for interface to LVDS Displays. NINO-7091G2V supports 6x Com Port, 4 x USB 2.0, 6 x USB 3.0, one PCIe x16, two Mini-PCIe sockets.

NINO-7091G2V is ideal for developing high-performance systems for industrial control and Automation, retail, gaming, print imaging and digital signage.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>7<sup>th</sup>/6<sup>th</sup> Generation Intel® i7 / i5 / i3 series and Xeon® E3-1200 v5 Desktop Processor.</li><li>- Intel® Core™ i7-6700T Processor (8M Cache, up to 3.60 GHz)</li><li>- Intel® Core™ i5-6600T Processor (6M Cache, up to 3.50 GHz)</li><li>- Intel® Core™ i3-6300T Processor (4M Cache, 3.30 GHz)</li><li>- Intel® Xeon® Processor E3-1275 v5 (8M Cache, 3.60 GHz)</li><li>Package Type: FCLGA1151</li></ul>
BIOS	<ul style="list-style-type: none"><li>uEFI BIOS. 64Mbit FlashROM with DOS and Windows update utility support.</li></ul>
System Memory	<ul style="list-style-type: none"><li>Two DDR4 1866/2133 Mhz DIMM Module up to 32GB</li><li>Supports Non ECC Memory only</li></ul>
Chipset	<ul style="list-style-type: none"><li>Intel® Q236 Express chipset</li></ul>
Video	<ul style="list-style-type: none"><li>Intel® Core™ integrated HD Graphics 530 Technology</li><li>Onboard 15-pin CRT interface</li><li>Onboard DVI connector</li><li>Onboard 24-bit dual channel LVDS connector with +3.3V/+5V/+12V supply</li><li>Onboard Display port connector</li></ul>
Ethernet	<ul style="list-style-type: none"><li>One Intel® I210 Gigabit LAN and 1 x Intel® I219-LM Gigabit PHY LAN</li><li>Support Wake-on-LAN, Remote Boot with PXE and RTL.</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>Four serial ports as COM1~COM6. One COM Port is RS232/422/485 selectable by jumper with auto-flow control.</li><li>Four SATA-III ports (Support RAID 0, 1, 5, 10 and Intel Rapid Storage Technology.)</li><li>Support Six USB3.0 ports. Two ports are on rear I/O.</li><li>Support Four USB2.0 ports. Two ports are on rear I/O.</li><li>8bits Digital I/O</li><li>One SMBus interface</li><li>PS2 KB and MS. (Optional)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>RealTek® ALC262 High-Definition Audio chip on-board.</li><li>Support Line-in, MIC-in, Front, Rear, Center/Subwoofer</li></ul>
TPM	<ul style="list-style-type: none"><li>Infineon TPM 1.2 on board supports security functions</li></ul>
Power	<ul style="list-style-type: none"><li>Standard 20Pin + 4pin ATX power supply</li><li>Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>One CPU cooling FAN connector nearby CPU socket</li><li>One system cooling FAN connectors for chassis or power supply cooling.</li></ul>

## Mechanical & Environment

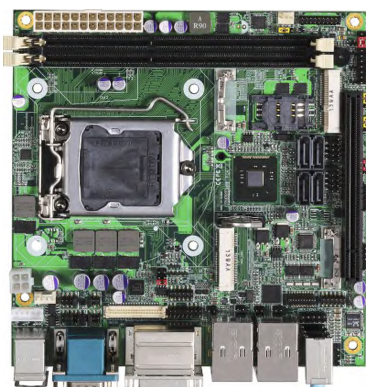
Dimension	• 170x170 mm
Operation temperature	• 0°C to 60°C (32° F to 140° F)
Storage temperature	• -20°C to 80°C (-68° F to 176° F)
Relative humidity	• 5% to 95% (Non-Condensing)

## Ordering Information

NINO-7091G2V	Intel® 7 <sup>th</sup> /6 <sup>th</sup> Generation Core™ i7/i5/i3/Xeon® Processor Socket 1155 Desktop Processor Q236 Chipset Based ITX Board with 4 USB 2.0/ 6x USB 3.0/ 6x COM Ports/ VGA / Dual Gigabit LAN
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# NINO-7088G2V

Intel® 4<sup>th</sup> Generation Core™ i7/i5/i3 Processor  
Socket 1150 Desktop Processor Q87 Chipset  
Based ITX Board with 4 USB 2.0/ 6x USB 3.0/ 4x  
COM Ports/ DisplayPort / DVI-I / Dual Gigabit LAN



## FEATURES

- Intel® 4<sup>th</sup> Generation Intel® Core™ i7/i5/i3 Processor in Socket 1150
- Two 240-pin DIMM sockets Dual-channel DDR3 1066/1333/1600 SDRAM. Max. up to 16 GB memory
- Intel® Q87 Express chipset
- Intel® I210 & I217LM on board for Dual GbE LAN
- Integrated Intel® HD Graphics with DVI-I/DisplayPort connectors
- Realtek® ALC888 High Definition Audio chip on-board
- Multi I/O: 6x USB 3.0, 4x USB 2.0, 4x COM ports, 4x SATA 3.0
- Expansion Slot: 1 PCIe x16, 2 Mini PCIe socket

## Introduction

NINO-7088G2V ITX Board supporting Intel® 4<sup>th</sup> Generation Core™ i7/i5/i3 Desktop Socket 1150 Desktop Processor. NINO-7088G2V supports LVDS function for interface to LVDS Displays. NINO-7088G2V supports 4x COM Port, 4 x USB 2.0, 6 x USB 3.0, one PCIe x16, two Mini-PCIe sockets

NINO-7088G2V is ideal for developing high-performance systems for industrial control and Automation, retail, gaming, print imaging and digital signage.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>4<sup>th</sup> Generation Intel® Core™ processors (22nm process technology)</li><li>LGA 1150 socket</li></ul>
BIOS	<ul style="list-style-type: none"><li>uEFI BIOS. 64Mbit FlashROM with DOS and Windows update utility support.</li></ul>
System Memory	<ul style="list-style-type: none"><li>Four 240-pin DDR3/DDR3L DIMM sockets</li><li>Supports DDR3/DDR3L 1333/1600MHz when operating at 1.5V</li><li>Supports dual channel memory interface</li><li>Supports up to 16GB system memory</li><li>DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3 DRAM technologies are supported for x8 and x16 devices, unbuffered, non-ECC</li></ul>
Chipset	<ul style="list-style-type: none"><li>Intel® Q87 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>Intel® HD Graphics</li><li>Display ports: DisplayPort and DVI-I</li><li>DVI-I supports up to 1920x1200 @ 60Hz resolution</li><li>DisplayPort supports up to 3840x2160@60Hz resolution</li><li>VGA display resolution up to 1920x1200 pixels with 24-bit color@ 60Hz</li><li>Intel® Clear Video Technology</li><li>Supports 20 Graphics Execution Units (EUs)</li><li>Intel® Advanced Vector Extensions (Intel® AVX) Instructions</li><li>DirectX Video Acceleration (DXVA) support for accelerating video processing</li><li>Supports DirectX 11.1 and OpenGL 4.0</li></ul>
Ethernet	<ul style="list-style-type: none"><li>Intel® I210 PCI Express Gigabit Ethernet controller</li><li>Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy</li><li>Integrated 10/100/1000 transceiver</li><li>Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>1x Connector for PS/2 Mouse/Keyboard</li><li>4 x Serial ports (1x RS-232/422/485 selectable )</li><li>1 x SPDIF</li><li>4 SATA 3.0 ports with data transfer rate up to 6Gb/s</li><li>Integrated Advanced Host Controller Interface (AHCI) controller</li><li>RAID 0, 1, 5, 10</li><li>10 USB: 6 USB 3.0, 4USB 2.0 ports</li><li>1x 8 bit Digital I/O</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>Realtek® ALC888 High Definition Audio</li><li>Audio outputs: Mic-in, line-in and line-out</li><li>SPDIF audio interface</li></ul>
Power	<ul style="list-style-type: none"><li>Standard 20Pin + 4pin ATX power supply</li><li>Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>One CPU cooling FAN connector nearby CPU socket</li><li>One system cooling FAN connectors for chassis or power supply cooling.</li></ul>

## Mechanical & Environment

Dimension	<ul style="list-style-type: none"><li>170x170 mm</li></ul>
Operation temperature	<ul style="list-style-type: none"><li>0°C to 60°C (32° F to 140° F)</li></ul>
Storage temperature	<ul style="list-style-type: none"><li>-20°C to 80°C (-68° F to 176° F)</li></ul>
Relative humidity	<ul style="list-style-type: none"><li>5% to 95% (Non-Condensing)</li></ul>

## Ordering Information

NINO-7088G2V	Intel® Core™ i7/i5/i3 Processor Socket 1150 Desktop Processor Q87 Chipset Based ITX Board with 4 USB 2.0/ 6x USB 3.0/ 4x COM Ports / DisplayPort / DVI-I / Dual Gigabit LAN
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# NINO-7081G2V

Intel® 3<sup>rd</sup>/2<sup>nd</sup> Generation Core™ i7/i5/i3 socket 1155 Processor Q77 Chipset Based ITX Board with 4 USB 2.0/ 4 USB 3.0/ 4x COM Ports/ VGA/ DVI/ Dual Gigabit LAN



## FEATURES

- Intel® 3<sup>rd</sup>/2<sup>nd</sup> Generation Core™ i7/ i5/ i3/ Socket 1155 Processor
- Intel® Q77 Express chipset
- Two DDR3 1006/1333/1600 MHz up to 16 GB
- One Intel® 82574L Giga LAN and One Intel® 82579LM Giga LAN
- Intel® Core™ integrated HD Graphics Technology
- RealTek® ALC888 High-Definition Audio chip on-board
- Multi I/O: 4xUSB 2.0, 4xUSB 3.0, 4x COM ports, 4x SATA
- Expansion: 1xPCI-Express x16 slot, 1x Mini-PCIe sockets, 1x Mini PCI
- Standard 24-pin ATX & 4 pin 12V Power Supply

## Introduction

NINO-7081G2V ITX Board supporting Intel® 3<sup>rd</sup>/2<sup>nd</sup> Generation Core™ i7/i5/i3 Socket 1155 processor. NINO-7081G2V supports VGA & DVI Interface. NINO-7081G2V supports 4x Com Port, 4 x USB 2.0, 4 x USB 3.0, one PCIe x16, One Mini PCIe socket and One Mini-PCI socket.

NINO-7081G2V is ideal for developing high-performance systems for industrial control and Automation, retail, gaming, print imaging and digital signage.

## Specification

System	
Processor	• Intel® 3 <sup>rd</sup> /2 <sup>nd</sup> Generation Core™ i7/i5/i3® Socket 1155 processor
BIOS	• Phoenix Secure core Tiano.
System Memory	• Two DDR3 1066/1333/1600 SO-DIMM up to 16 GB
Chipset	• Intel® Q77 Express chipset
Video	• Intel® Core i processors integrated HD graphics engine. • Onboard DSUB15 connector for VGA interface • Onboard 20-pin DVI interface
Ethernet	• One Intel® 82574L & One Intel® 82579LM Gigabit Ethernet Controller • Support Wake-on-LAN, Remote Boot with PXE and RTL.
On Board I/O	• Winbond W83627DHG-P LPC I/F Super I/O chip. • Four serial ports as COM1~COM4. COM2 is RS232/422/485 selectable by jumper with auto-flow control. • Four USB 2.0 & Four USB 3.0 Ports • Two SATA-III and Two SATA-II ports support IDE, AHCI, RAID. • Onboard programmable 8-bit Digital I/O interface
Watchdog Timer	• Programmable watchdog timer for 1~255 seconds.
CMOS	• On-board RTC with 242 bytes of Battery-back CMOS RAM.
Audio	• Realtek® ALC888 high-definition audio chip on-board. • Support Line-OUT, Line-IN, MIC, SPDIF and 2.5W audio amplifiers.
Power	• Standard ATX power connectors for system power. • Support both AT and ATX mode.
Cooling	• One CPU cooling FAN connector nearby CPU socket • One system cooling FAN connectors for chassis or power supply cooling.

## Mechanical & Environment

Dimension	• 170x170 mm
Operation temperature	• 0°C to 60°C (32° F to 140° F)
Storage temperature	• -20°C to 80°C (-68° F to 176° F)
Relative humidity	• 5% to 95% (Non-Condensing)
Vibration	• 5-17Hz 0.1" double amplitude displacement • 17-640Hz 1.5G Acceleration peak to peak
Shock	• 10G acceleration peak to peak (11ms)

## Ordering Information

NINO-7081G2V	Intel® 3 <sup>rd</sup> /2 <sup>nd</sup> Generation Core™ i7/i5/i3 socket 1155 Processor Q77 Chipset Based ITX Board with 4 USB 2.0/ 4 USB 3.0/4x COM Ports/ VGA/ DVI/ Dual Gigabit LAN
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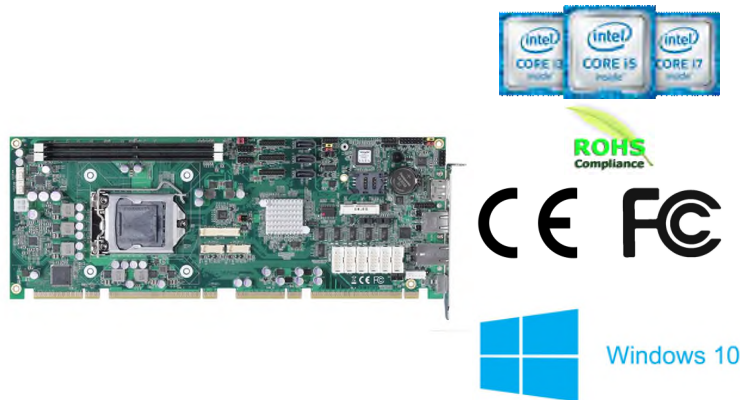


# SINGLE BOARD COMPUTER



# SINE-8492G2V

PICMG 1.3 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Core™ i7/i5/i3 Processor Based Single Board Computer with 6x USB 3.1/ 4x USB 2.0/ 6x COM Ports/ Displayport/ VGA/ Dual Gigabit LAN



## FEATURES

- 9<sup>th</sup>/8<sup>th</sup> Generation Intel® Core™ i7/i5/i3 & Pentium Processor in Socket 1151
- Dual DDR4-2666 un-buffered DIMM max. up to 32 GB
- Intel® Q370 Chipset
- Intel® I211AT & Intel® I219LM Dual Gigabit Ethernet Controller
- Integrated Intel® HD Graphics with Displayport Connector
- Intel® HD Codec Audio chip on-board
- Multi I/O: 6x USB3.1, 4x USB2.0, 6x COM ports, 3x SATA 3.0

## Introduction

PICMG 1.3 SBC SINE-8492G2V based on the Intel® Q370 Express Chipset, supports Intel® 9<sup>th</sup>/8<sup>th</sup> Generation Core™ i7/i5/i3 Processor. Integrated with Intel® HD Graphic, 6 Com Port, 6 x USB 3.1, 4 x USB 2.0 and 3x SATA3.0 with RAID 0, 1, 5.

SINE-8492G2V is ideal for developing high-performance systems for industrial control and Automation, gaming, Medical Instruments, Surveillance Server, Military systems, print imaging and digital signage.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>Intel® Core™ 9<sup>th</sup>/8<sup>th</sup> Generation Processor</li><li>LGA1151 socket.</li></ul>
BIOS	<ul style="list-style-type: none"><li>AMI UEFI BIOS with OA 3.0 built</li></ul>
System Memory	<ul style="list-style-type: none"><li>Dual DDR4 DIMM 2666 MHz up to 32GB, Support Non-ECC, unbuffered memory only (Core i3, Pentium, Celeron CPU support 2400 MHz only)</li></ul>
Chipset	<ul style="list-style-type: none"><li>Intel® Q370 Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>Intel® UHD Graphics</li><li>2 x DVI, 1 x DisplayPort, 1 x VGA, 1 x LVDS</li><li>Onboard 18/24-bit single/dual channel +3.3V/5V/ 12V LVDS</li></ul>
Ethernet	<ul style="list-style-type: none"><li>Intel® I211AT PCI Express Gigabit Ethernet controller</li><li>Intel® I219LM with iAMT9.0 Gigabit Ethernet Phy</li><li>Integrated 10/100/1000 transceiver</li><li>Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>Six serial ports as COM1~COM6. COM1&amp;2 is RS232/422/485 selectable by jumper with auto-flow control.</li><li>Intel® Q370 PCH built-in 3 x Serial ATA3 interface up to 600MB/s Support RAID 0, 1, 5 and Intel Rapid Storage Technology. (does not support SATA2 device)</li><li>Support six USB3.1 ports.</li><li>Support four USB2.0 ports.</li></ul>
Expansion	<ul style="list-style-type: none"><li>-</li></ul>
Extended Interface	<ul style="list-style-type: none"><li>PICMG 1.3 Interface Support 1 PCI-Express x16 and 1 PCI-Express x4 or 4 PCI-Express x1, 4 PCI, mSATA (<i>mSATA only Support SATA3</i>)</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>Intel® integrated Q370 with Realtek ALC232 HD Audio</li></ul>
Power	<ul style="list-style-type: none"><li>One ATX-12V 4-pins connector for CPU power.</li><li>Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>One CPU cooling FAN connector nearby CPU socket</li><li>One system cooling FAN connectors for chassis or power supply cooling.</li></ul>

## Mechanical & Environment

Form Factor	PICMG 1.3 Full-Size SBC form factor. 13.3" (L) x 4.96"(W); or 338mm (L) x 126mm (W).
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-40°C to 70°C (-68° F to 176° F)
Relative humidity	5% to 95% (Non-Condensing)

## Ordering Information

SINE-8492G2V-01	PICMG 1.3 9 <sup>th</sup> /8 <sup>th</sup> Generation Intel® Core™ i7/i5/i3 Processor Based Single Board Computer with 4x USB 3.0/10x USB 2.0/6x COM Ports/ Displayport / Dual Gigabit LAN/1 PCIe x16 and 4 PCIe x1
SINE-8492G2V-04	PICMG 1.3 9 <sup>th</sup> /8 <sup>th</sup> Generation Intel® Core™ i7/i5/i3 Processor Based Single Board Computer with 6x USB 3.1/4x USB 2.0/6x COM Ports/ Displayport/ Dual Gigabit LAN/1 PCIe x16 and 1 PCIe x4



# SINE-8485G2V

PICMG 1.3 4<sup>th</sup> Generation Intel® Core™ i7/i5/i3 Processor Based Single Board Computer with 4x USB 3.0/ 6x USB 2.0/6x COM Ports/ VGA / DVI / Dual Gigabit LAN



## FEATURES

- 4<sup>th</sup> Generation Intel® Core™ i7/i5/i3 & Pentium Processor in Socket 1150
- Dual DDR3/DDR3L 1333/1600 DIMM up to 16 GB
- Intel® Q87 Chipset
- Intel® I210 & Intel® I210LM Dual Gigabit Ethernet Controller
- Integrated Intel® HD Graphics with VGA/DVI-/ DisplayPort/ LVDS connectors
- Realtek® ALC888 Audio chip on-board
- Multi I/O: 4 x USB3.0, 6 x USB2.0, 6 x COM ports, 4 SATA3.0 and 1x LPT
- Expansion: 1x Mini PCIe

## Introduction

PICMG 1.3 SBC SINE-8485G2V based on the Intel® Q87 Express Chipset, supports Intel® Core® i7/i5/i3 Processor. Integrated with Intel® HD Graphic, 6 Com Port, 4 x USB 3.0, 6 x USB 2.0 and 4 x SATA3.0, 1x LPT.

SINE-8485G2V is ideal for developing high-performance systems for industrial control and Automation, gaming, Medical Instruments, Surveillance Server, Military systems, print imaging and digital signage.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>Intel® Core™ /i7/i5/i3/Pentium®/ Celeron® processor.</li><li>LGA1150 socket.</li></ul>
BIOS	<ul style="list-style-type: none"><li>Phoenix® Securecore Tiano</li></ul>
System Memory	<ul style="list-style-type: none"><li>2 x DDR3 DIMM sockets Dual-channel DDR3 1066/1333Mhz SDRAM. Max. up to 16 GB memory</li></ul>
Chipset	<ul style="list-style-type: none"><li>Intel® Q87 Express Chipset</li></ul>
Video	<ul style="list-style-type: none"><li>Intel® HD Graphics</li><li>Display ports: VGA/DVI-I/Displayport/LVDS</li><li>DVI-I supports up to 1920x1200 @ 60Hz resolution</li><li>VGA display resolution up to 1920x1200 pixels with 24-bit color @ 60Hz</li><li>Supports 6 Graphics Execution Units (EUs)</li><li>Intel® Clear Video Technology</li><li>DirectX Video Acceleration (DXVA) support for accelerating video processing</li></ul>
Ethernet	<ul style="list-style-type: none"><li>Intel® I210 PCI Express Gigabit Ethernet controller</li><li>Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy</li><li>Integrated 10/100/1000 transceiver</li><li>Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>Six serial ports as COM1~COM6. COM1 is RS232/422/485 selectable by jumper with auto-flow control.</li><li>One Parallel port</li><li>One IrDA Port</li><li>Four SATA-III ports support IDE, AHCI, RAID 0, 1,5,10</li><li>Support four USB3.0 ports.</li><li>Support six USB2.0 ports.</li></ul>
Expansion	<ul style="list-style-type: none"><li>One Mini-PCIE socket.</li></ul>
Extended Interface	<ul style="list-style-type: none"><li>1 PCI-Express x16 and 1 PCI-Express x4 or 4 PCI-Express x1, 4 PCI</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>Realtek® ALC888 High-Definition Audio chip on-board.</li><li>Support Line-OUT, Line-IN, MIC, SPDIF, CD-IN and Surrounding sounds with pin-headers</li></ul>
Power	<ul style="list-style-type: none"><li>One 4-pins power connector for system power.</li><li>One ATX-12V 4-pins connector for CPU power.</li><li>Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>One CPU cooling FAN connector nearby CPU socket</li><li>One system cooling FAN connectors for chassis or power supply cooling.</li></ul>

## Mechanical & Environment

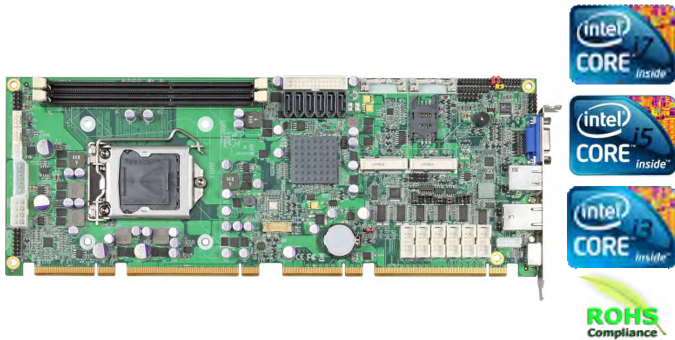
Form Factor	PICMG 1.3 Full-Size SBC form factor. 13.3" (L) x 4.96"(W); or 338mm (L) x 126mm (W).
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-40°C to 70°C (-68° F to 176° F)
Relative humidity	5% to 95% (Non-Condensing)

## Ordering Information

SINE-8485G2V-01	PICMG 1.3 4 <sup>th</sup> Generation Intel® Core™ i7/i5/i3 Processor Based Single Board Computer with 4x USB 3.0/6x USB 2.0/6x COM Ports/VGA /DVI / Dual Gigabit LAN/1 PCIe x16 and 4 PCIe x1
SINE-8485G2V-04	PICMG 1.3 4 <sup>th</sup> Generation Intel® Core™ i7/i5/i3 Processor Based Single Board Computer with 4x USB 3.0/6x USB 2.0/6x COM Ports/VGA /DVI / Dual Gigabit LAN/1 PCIe x16 and 1 PCIe x4

# SINE-8483G2V

PICMG 1.3 3<sup>rd</sup>/2<sup>nd</sup> Generation Intel® Core™ i7/i5/i3 Processor Based Single Board Computer with 4x USB 3.0/ 4x USB 2.0/ 6x COM Ports/ VGA/ DVI/ Dual Gigabit LAN



## FEATURES

- 3<sup>rd</sup>/2<sup>nd</sup> Generation Intel® Core™ i7/i5/i3 & Pentium Processor in Socket 1155
- 2 x DDR3 DIMM sockets Dual-channel 1066/1333Mhz SDRAM. Max. up to 16GB memory
- Intel® Q77 Chipset
- Embedded Dual Intel® GbE LAN
- Intel® HD Graphics
- RealTek® ALC888 Audio chip on-board
- 2x Mini-PCIE expansion slots & 1 x SIM socket.
- Multi I/O: 4 x USB3.0, 4 x USB2.0, 6 x COM ports, 4 x SATA2.0, 2x SATA3.0 and 1x LPT

## Introduction

PICMG 1.3 SBC SINE-8483G2V based on the Intel® Q77 Express Chipset, supports Intel® Core® i7/i5/i3 Processor. Integrated with Intel® HD Graphic (CPU dependent), 6 Com Port, 4 x USB 3.0, 4 x USB 2.0, 4 x SATA2.0 and 2 x SATA3.0, 1x LPT.

SINE-8483G2V is ideal for developing high-performance systems for industrial control and Automation, gaming, Medical Instruments, Surveillance Server, Military systems, print imaging and digital signage.

## Specification

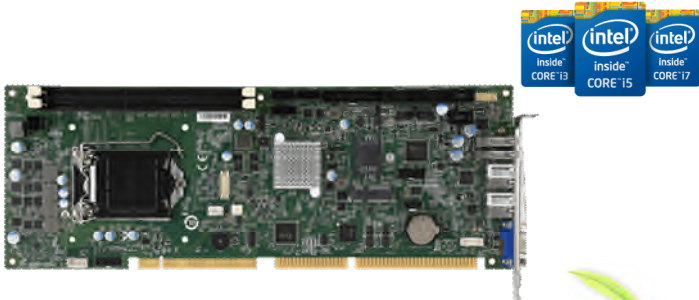
System	
Processor	<ul style="list-style-type: none"><li>• 3<sup>rd</sup>/2<sup>nd</sup> Generation Intel® Core™ i7/i5/i3 &amp; Intel® Pentium Processor in Socket 1155</li><li>• LGA 1155 socket</li></ul>
BIOS	<ul style="list-style-type: none"><li>• Phoenix Secure core</li></ul>
System Memory	<ul style="list-style-type: none"><li>• 2 x DDR3 DIMM sockets Dual-channel DDR3 1066/1333Mhz SDRAM. Max. up to 16 GB memory</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® Q77 Express</li></ul>
Video	<ul style="list-style-type: none"><li>• Integrated Intel® HD graphic technology</li><li>• Onboard 26-pin DVI interface</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• Intel® 82574L &amp; Intel® 82579LM</li><li>• Wake-on-LAN, Remote Boot with PXE and RTL.</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 6 x Serial ports (One RS-232/422/485 selectable )</li><li>• 1 x Keyboard/mouse</li><li>• 2 x SATA3.0 interface up to 600MB/s, 4x SATA 2.0 interface up to 300MB/s</li><li>• Support RAID 0, 1, 5, 10</li><li>• Intel® Rapid Storage Technology</li><li>• 4x USB 3.0, 4x USB 2.0 Ports</li></ul>
Expansion	<ul style="list-style-type: none"><li>• 2x Mini-PCIE expansion slots &amp; 1 x SIM socket</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC888 High-Definition Audio chip on-board.</li><li>• Support Line-OUT, Line-IN, MIC, SPDIF, CD-IN and Surrounding sounds with pin-headers</li></ul>
Power	<ul style="list-style-type: none"><li>• One 8-pins power connector for system power.</li><li>• One ATX-12V 8-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li><li>• One system cooling FAN connectors for chassis or power supply cooling.</li></ul>
Mechanical & Environment	
Form Factor	13.33x4.98" (338x126mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-40°C to 70°C (-68° F to 176° F)
Relative humidity	5% to 95% (Non-Condensing)

## Ordering Information

SINE-8483G2V	PICMG 1.3 2 <sup>nd</sup> Generation Intel® Core™ i7/i5/i3 Processor Based Single Board Computer with 4xUSB 3.0/ 4x USB2.0/ VGA/ DVI/ 6xCOM / Dual GIGA LAN
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# SINE-8487G2V

PICMG 1.0 4<sup>th</sup> Generation Intel® Core™ i7/i5/i3 Processor Based Single Board Computer with 2x USB 3.0/ 4x USB 2.0/ 2x COM Ports/ VGA/ DVI/ Dual Gigabit LAN



## Introduction

PICMG 1.0 SBC SINE-8487G2V based on the Intel® H81 Express Chipset, supports Intel® Core® i7/i5/i3 Processor. Integrated with Intel® HD Graphic (CPU dependent), 2 Com Port, 2 x USB 3.0, 4 x USB 2.0, 1 x SATA2.0 and 2 x SATA3.0.

SINE-8487G2V is ideal for developing high-performance systems for industrial control and Automation, gaming, Medical Instruments, Surveillance Server, Military systems, print imaging and digital signage.

## Specification

System	
Processor	<ul style="list-style-type: none"><li>• 4th Generation Intel® Core™ i7/i5/i3, Pentium, Celeron Processor</li><li>• LGA 1150 socket</li></ul>
BIOS	<ul style="list-style-type: none"><li>• AMI</li></ul>
System Memory	<ul style="list-style-type: none"><li>• 2 x DDR3 DIMM sockets Dual-channel DDR3 1066/1333Mhz SDRAM. Max. up to 16 GB memory</li></ul>
Chipset	<ul style="list-style-type: none"><li>• Intel® H81 Express</li></ul>
Video	<ul style="list-style-type: none"><li>• Integrated Intel® HD graphic technology</li><li>• VGA Connector</li><li>• Onboard 26-pin DVI-D interface</li></ul>
Ethernet	<ul style="list-style-type: none"><li>• 1 x Intel® I217-LM GbE LAN</li><li>• 1 x Intel® I210-AT GbE LAN</li></ul>
On Board I/O	<ul style="list-style-type: none"><li>• 2 x Serial ports (COM1: RS-232/422/485, 0V/5V/12V, COM2: RS-232, 0V/5V/12V)</li><li>• 1 x Keyboard/mouse (Header)</li><li>• 1x Parallel Port (Header)</li><li>• 2 x SATA3.0 interface up to 600MB/s, 1x SATA 2.0 interface up to 300MB/s</li><li>• 1x mSATA Interface</li><li>• 2x USB 3.0, 4x USB 2.0 Ports</li><li>• 8-bits (4 x GPI; 4 x GPO), 5V</li></ul>
Expansion	<ul style="list-style-type: none"><li>• 1x mSATA expansion slot</li></ul>
Watchdog Timer	<ul style="list-style-type: none"><li>• Programmable watchdog timer for 1~255 seconds.</li></ul>
CMOS	<ul style="list-style-type: none"><li>• On-board RTC with 242 bytes of Battery-back CMOS RAM.</li></ul>
Audio	<ul style="list-style-type: none"><li>• Realtek® ALC887 HD Audio Codec</li><li>• Support Line-OUT, Line-IN, MIC, SPDIF, CD-IN and Surrounding sounds with pin-headers</li></ul>
Power	<ul style="list-style-type: none"><li>• One ATX-12V 4-pins connector for CPU power.</li><li>• Support both AT and ATX mode.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• One CPU cooling FAN connector nearby CPU socket</li><li>• One system cooling FAN connectors for chassis or power supply cooling.</li></ul>

## Mechanical & Environment

Form Factor	13.33x4.98" (338x126mm)
Operation temperature	0°C to 60°C (32° F to 140° F)
Storage temperature	-40°C to 70°C (-68° F to 176° F)
Relative humidity	5% to 95% (Non-Condensing)

## FEATURES

- 4<sup>th</sup> Generation Intel® Core™ i7/i5/i3 & Pentium Processor in Socket 1150
- 2 x DDR3 DIMM sockets Dual-channel 1066/1333Mhz SDRAM. Max. up to 16GB memory
- Intel® H81 Chipset
- Embedded Dual Intel® GbE LAN
- Intel® HD Graphics
- Realtek® ALC887 Audio chip on-board
- 1x mSATA expansion
- Multi I/O: 2 x USB3.0, 4 x USB2.0, 2 x COM ports, 1 x SATA2.0, 2x SATA3.0 and 1x LPT

## Ordering Information

SINE-8487G2V	PICMG 1.0 4 <sup>th</sup> Generation Intel® Core™ i7/i5/i3 Processor Based Single Board Computer with 2x USB 3.0/ 4x USB 2.0/ 2x COM Ports/ VGA/ DVI/ Dual Gigabit LAN
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# INDUSTRIAL BACKPLANE

	Backplane	PICMG 1.3	PCIe x16	PCIe x8	PCIe x4	PCIe x1	PCI	ISA	Dimension
	IP13-20P16	1	1	-	1	-	16	-	417x327mm
	IP13-14P4e4x5	1	2	-	5	-	4	-	317x327.66mm
	IP13-14P7e4x4	1	1	-	4	-	7	-	317x328mm
	IP13-14x8441	1	1	-	8	4	-	-	317x273mm
	IP13-14P34x1	1	1	-	-	4	3	4	317x327mm
	IP13-14e12x1	1	1	-	-	12	-	-	317x273mm
	IP13-14P7e4x1	1	1	-	-	4	7	-	317x327mm
	IP13-14P10e4x1	1	1	-	1	-	10	-	317x327mm
	IP13-14P8e1x3	1	1	-	-	3	8	-	317x268mm
	IP13-10P6e4x1	1	1	-	1	-	6	-	327x221mm

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	Backplane	PICMG 1.0	PCIe x16	PCIe x8	PCIe x4	PCIe x1	PCI	ISA	Dimension
	BP-19P17	2	-	-	-	-	17	-	415.3x 259mm
	BP-19P4	3	-	-	-	-	4	12	415.3x 259mm
	BP-14P12 Rev 2.0	2	-	-	-	-	12	1	219.1 x 260.1 mm
	BP-14P7 Rev 2.0	2	-	-	-	-	7	5	219.1 x 260.1 mm
	BP-14P4 Rev 2.0	3	-	-	-	-	4	7	219.1 x 260.1 mm
	BP-10P4	2	-	-	-	-	4	4	220.1 x 260.1mm
	BP-8P7	1	-	-	-	-	7	1	220.1 x 260.1mm
	BP-8P4	3	-	-	-	-	4	2	220.1 x 260.1mm
	BP-6P4	2	-	-	-	-	4	2	142.2 x 263.1 mm





# INDUSTRIAL CHASSIS

# SR-569R

## 19" Industrial 4U Rack Mount 20 Slot Chassis



### FEATURES

- 4U Rack mount chassis supports up to 20 Slot for add on Cards for Backplane Version
- Three 5.25" and Two 3.5" disk drives
- Front accessible USB interface for easy data transfer
- Front-accessible filtered cooling fan provide optimized and streamlined airflow
- Front LEDs indicate power status, and HDD activity
- Lockable front door prevents unauthorized access
- Supports 400W single PS/2

### Introduction

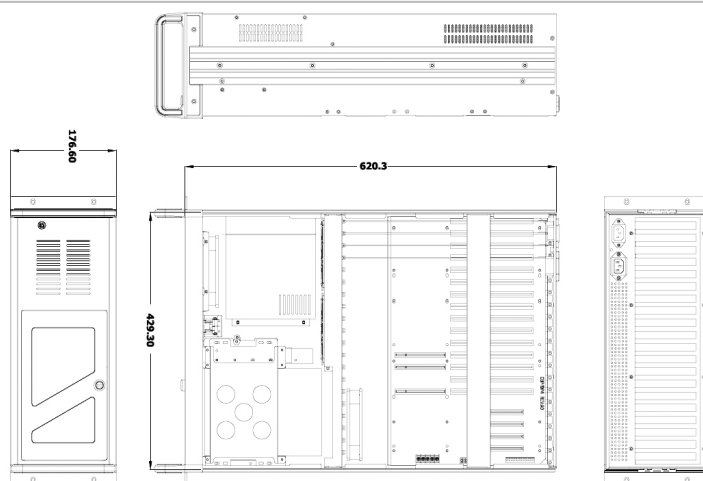
4U Industrial 19" Rack Mount Chassis with support 20 slots Backplane. SR-569R can support up to 5 Drives. Front door is equipped with a lock to prevent unauthorized accesses. One 12cm Front Ventilation fan for Backplane.

SR-569R supports both the Standard PS/2 Power Supplies.

### Specification

System	
Drive bays	Totally 5 drive bay: 3x 5.25" CD and 2 x 3.5" HDD bay drive bay equipped with anti-vibration function
Front Panel	Two USB 2.0 ports at front bezel
Motherboard	Single Board Computer
Fan	4x 120mm Fan for Backplane
Power Supply	PS2 Power Supplies
Expansion	20 Slot Backplane
Color	Black
Dimension	482 x 177 x 620.3mm
Weight	N.W: 21KGS G.W:23KGS
Mechanical & Environment	
Operating Temperature	0°~60°C
Storage Temperature	-40°~70°C
Relative Humidity	5~95%, non-condensing
Storage Humidity	5% ~ 95%
Altitude	10,000 Feet (3000 m)
Vibration (Operating)	1.5G Max
Shock	10G peak acceleration (10Msec duration)
Ordering Information	
SR-569R-C1	19" Industrial 4U Rack Mount 20 slot Chassis (Color:Black)
TCPS-1D41Y060	Industrial 600W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y050	Industrial 500W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y040	Industrial 400W ATX PS/2 Auto Ranging Power Supply

### Dimension





### Introduction

4U Industrial 19" Rack Mount Chassis with support Standard ATX or Backplane. SR-571 can support up to 4 Drives. Front door is equipped with a lock to prevent unauthorized accesses. 2x (92mm = 51CFM ea.) Hot Swap Fans Front Ventilation fan for both the Backplane and Motherboard version. SR-571 supports both the Standard PS/2 and Mini Redundant Power Supplies.

### Specification

System	
Drive bays	Totally 5 drive bay: 3x 5.25" CD and 1 x 3.5" HDD bay drive bay equipped with anti-vibration function
Front Panel	Two USB 2.0 ports at front bezel
Motherboard	ATX Motherboard/ Single Board Computer
Fan	2x (92mm = 51CFM ea.) Hot Swap Fans
Power Supply	PS2 or hot swappable redundant P/S (Option)
Expansion	14 Slot Backplane or ATX Motherboard
Color	Beige/Black
Dimension	483x177x510mm
Weight	G.W: 17.4KGS

### Mechanical & Environment

Operating Temperature	0°~60°C
Storage Temperature	-40°~70°C
Relative Humidity	5~95%, non-condensing
Storage Humidity	5% ~ 95%
Altitude	10,000 Feet (3000 m)
Vibration (Operating)	1.5G Max
Shock	10G peak acceleration (10Msec duration)

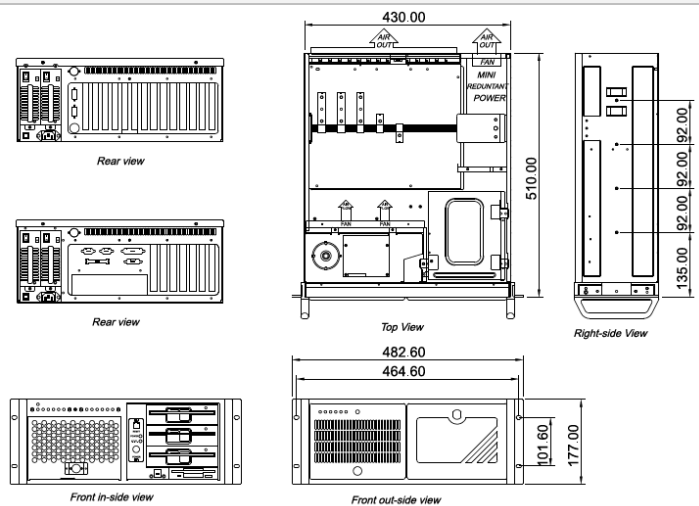
### Ordering Information

SR-571-C0	19" Industrial 4U Rack Mount Chassis (Color:Beige)
SR-571-C1	19" Industrial 4U Rack Mount Chassis (Color:Black)
SR-M571-C0	19" Industrial 4U ATX Motherboard Rack Mount Chassis (Color:Beige)
SR-M571-C1	19" Industrial 4U ATX Motherboard Rack Mount Chassis (Color:Black)
TCPS-1D41Y060	Industrial 600W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y050	Industrial 500W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y040	Industrial 400W ATX PS/2 Auto Ranging Power Supply
RB4-800G1V2	Industrial Redundant 800W+800W Auto Ranging Power Supply
RB4-700G1V2	Industrial Redundant 700W+700W Auto Ranging Power Supply
RB4-600G1V2	Industrial Redundant 600W+600W Auto Ranging Power Supply
RB4-500G1V2	Industrial Redundant 500W+500W Auto Ranging Power Supply

### FEATURES

- 4U rackmount chassis supports up to 14 Slot for add on Cards for Backplane Version and 7 Slots for Motherboard Version
- Three 5.25" and One 3.5" disk drives
- Front accessible USB interface for easy data transfer
- Front-accessible filtered cooling fan provide optimized and streamlined airflow
- Front LEDs indicate power status, and HDD activity
- Lockable front door prevents unauthorized access
- Supports single ATX PS/2 and Mini redundant ATX power supplies

### Dimension







### Introduction

4U Industrial 19" Rack Mount Chassis with support Standard ATX or Backplane. SR-570 can support up to 4 Drives. Front door is equipped with a lock to prevent unauthorized accesses. 2x (92mm = 51CFM ea.) Hot Swap Fans Front Ventilation fan for both the Backplane and Motherboard version.

SR-570 supports both the Standard PS/2 and Mini Redundant Power Supplies.

### Specification

System	
Drive bays	Totally 5 drive bay: 3x 5.25" CD and 1 x 3.5" HDD bay drive bay equipped with anti-vibration function
Front Panel	Two USB 2.0 ports at front bezel
Motherboard	ATX Motherboard/ Single Board Computer
Fan	2x (92mm = 51CFM ea.) Hot Swap Fans
Power Supply	PS2 or hot swappable redundant P/S (Option)
Expansion	14 Slot Backplane or ATX Motherboard
Color	Beige/Black
Dimension	483x177x510mm
Weight	G.W: 17.4KGS

### Mechanical & Environment

Operating Temperature	0°~60°C
Storage Temperature	-40°~70°C
Relative Humidity	5~95%, non-condensing
Storage Humidity	5% ~ 95%
Altitude	10,000 Feet (3000 m)
Vibration (Operating)	1.5G Max
Shock	10G peak acceleration (10Msec duration)

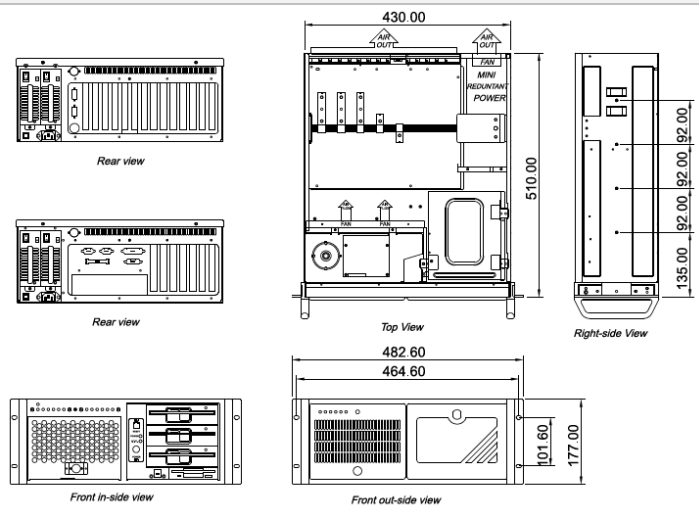
### Ordering Information

SR-570-C0	19" Industrial 4U Rack Mount Chassis (Color:Beige)
SR-570-C1	19" Industrial 4U Rack Mount Chassis (Color:Black)
SR-M570-C0	19" Industrial 4U ATX Motherboard Rack Mount Chassis (Color:Beige)
SR-M570-C1	19" Industrial 4U ATX Motherboard Rack Mount Chassis (Color:Black)
TCPS-1D41Y060	Industrial 600W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y050	Industrial 500W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y040	Industrial 400W ATX PS/2 Auto Ranging Power Supply
RB4-800G1V2	Industrial Redundant 800W+800W Auto Ranging Power Supply
RB4-700G1V2	Industrial Redundant 700W+700W Auto Ranging Power Supply
RB4-600G1V2	Industrial Redundant 600W+600W Auto Ranging Power Supply
RB4-500G1V2	Industrial Redundant 500W+500W Auto Ranging Power Supply

### FEATURES

- 4U rackmount chassis supports up to 14 Slot for add on Cards for Backplane Version and 7 Slots for Motherboard Version
- Three 5.25" and One 3.5" disk drives
- Front accessible USB interface for easy data transfer
- Front-accessible filtered cooling fan provide optimized and streamlined airflow
- Front LEDs indicate power status, and HDD activity
- Lockable front door prevents unauthorized access
- Supports ATX PS/2 or Mini redundant ATX power supplies

### Dimension





### Introduction

2U Industrial 19" Rack Mount Chassis with support PICMG 1.0 and PICMG 1.3 Single Board Computer. Three different backplanes are available for the SBC. SR-2110 can support up to 4 Drives. Front door is equipped with a lock to prevent unauthorized accesses. 2x 80mm Fans Front Ventilation fan for Backplane version. SR-2110 supports PS/2 ATX 400/500/600W Power Supply.

Suitable for Factory Automation Application, Machine Automation, Military Application and Industrial / Telecom Computers.

### Specification

System	
Drive bays	Totally 4 drive bay: 2x 5.25" and 2 x 3.5" HDD bay drive bay equipped with anti-vibration function
Front Panel	Two USB 2.0 ports at front bezel
Motherboard	PICMG 1.0/1.3 Single Board Computer
Fan	2x 80mm
Power Supply	PS2
Expansion	6 Slot Butterfly Backplane
Color	Black
Dimension	483 x 450 x 88 mm
Weight	G.W: 9.7KGS

### Mechanical & Environment

Operating Temperature	0°~60°C
Storage Temperature	-40°~70°C
Relative Humidity	5~95%, non-condensing
Storage Humidity	5% ~ 95%
Altitude	10,000 Feet (3000 m)
Vibration (Operating)	1.5G Max
Shock	10G peak acceleration (10Msec duration)

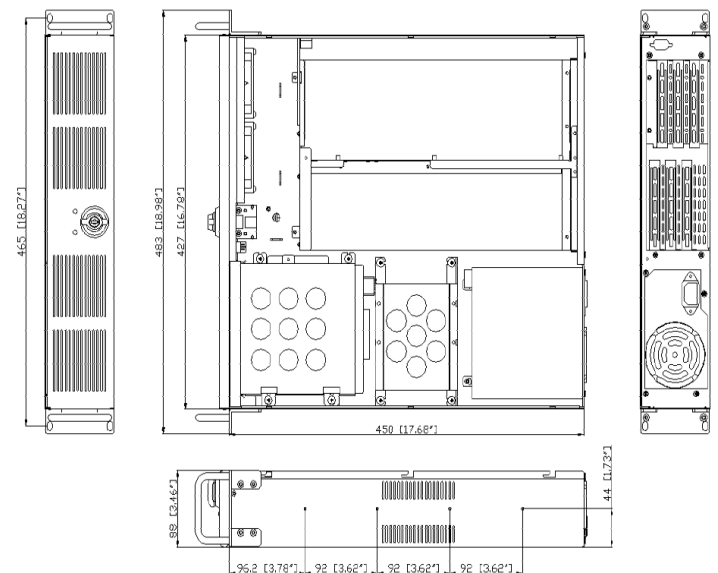
### Ordering Information

SR-2110-C1	19" Industrial 2U Rack Mount Chassis (Color:Black)
Optional	
TCPS-1D41Y060	Industrial 600W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y050	Industrial 500W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y040	Industrial 400W ATX PS/2 Auto Ranging Power Supply
BP-6VP4	PICMG 1.0 Butterfly 6 Slot Backplane (4 PCI Slot)
IP13-6VP3	PICMG 1.3 Butterfly 6 Slot Backplane (3 PCI and 1x PCIe x16 Slot)
IP13-6VP5	PICMG 1.3 Butterfly 6 Slot Backplane (5 PCI Slot)

### FEATURES

- 2U rackmount chassis supports up to 6 Slot for add on Cards for Backplane Version
- Two 5.25" and Two 3.5" disk drives
- Front accessible USB interface for easy data transfer
- Front-accessible filtered cooling fan provide optimized and streamlined airflow
- Front LEDs indicate power status, and HDD activity
- Lockable front door prevents unauthorized access
- Supports 400/500/600W single PS/2 ATX power supply

### Dimension



# SR-M2110

## 19" Industrial 2U Rack Mount ATX Motherboard Chassis



### Introduction

2U Industrial 19" Rack Mount Chassis with support ATX Motherboard. Three different Riser Selections are available for this Chassis. SR-M2110 can support up to 4 Drives. Front door is equipped with a lock to prevent unauthorized accesses. 2x 80mm Fans Front Ventilation fan for Backplane version. SR-M2110 supports PS/2 ATX 400 Power Supply.

Suitable for Factory Automation Application, Machine Automation, Military Application and Industrial / Telecom Computers.

### Specification

System	
Drive bays	Totally 4 drive bay: 2x 5.25" and 2 x 3.5" HDD bay drive bay equipped with anti-vibration function
Front Panel	Two USB 2.0 ports at front bezel
Motherboard	ATX Motherboard
Fan	2x 80mm
Power Supply	PS2
Expansion	3 Slot Riser
Color	Black
Dimension	483 x 450 x 88 mm
Weight	G.W: 9.2KGS

### Mechanical & Environment

Operating Temperature	0°~60°C
Storage Temperature	-40°~70°C
Relative Humidity	5~95%, non-condensing
Storage Humidity	5% ~ 95%
Altitude	10,000 Feet (3000 m)
Vibration (Operating)	1.5G Max
Shock	10G peak acceleration (10Msec duration)

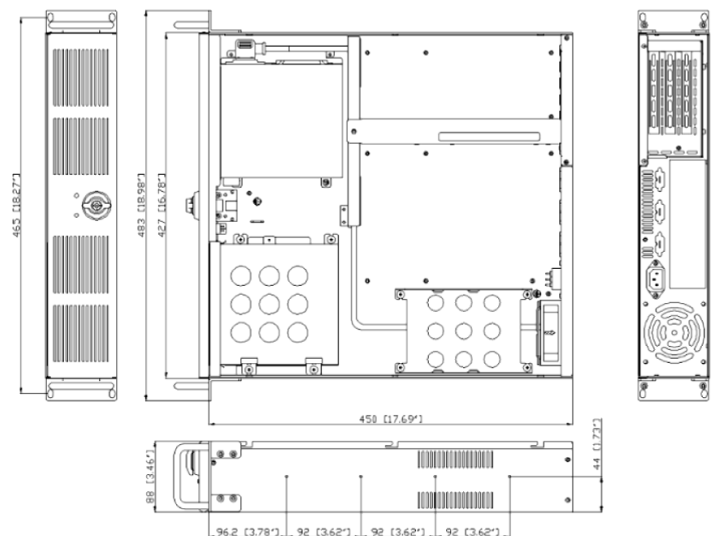
### Ordering Information

SR-M2110-C1	19" Industrial 2U Rack Mount ATX Motherboard Chassis (Color:Black)
Optional	
TCPS-1D41Y060	Industrial 600W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y050	Industrial 500W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y040	Industrial 400W ATX PS/2 Auto Ranging Power Supply
RS-P3	3 Slot PCI Riser for SRM2110
RS-P21x16	3 Slot Riser for SR-M2110 (2x PCI, 1x PCIe x16)
RS-1x16	1 Slot PCIe x16 Extension

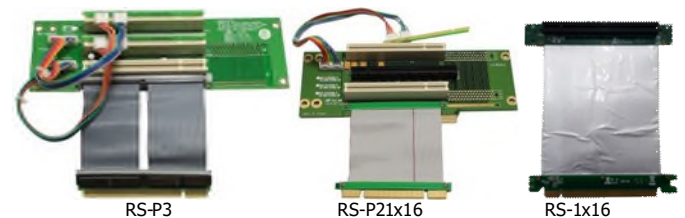
### FEATURES

- 2U Rack mount chassis supports ATX Motherboard on
- Two 5.25" and Two 3.5" disk drives
- Front accessible USB interface for easy data transfer
- Front-accessible filtered cooling fan provide optimized and streamlined airflow
- Front LEDs indicate power status, and HDD activity
- Lockable front door prevents unauthorized access
- Supports 400W single PS/2 ATX power supply

### Dimension



### Optional Riser





# SC-M608-R3

## Industrial ATX Motherboard Compact Chassis



### FEATURES

- Compact chassis supports up to 7 add-on Cards (Depend on the Motherboard)
- Two 5.25" and One 3.5" disk drives
- Front accessible USB interface for easy data transfer
- Front-accessible filtered cooling fan provide optimized and streamlined airflow
- Front LEDs indicate power status, and HDD activity
- Supports 400W single PS/2 and Mini redundant ATX power supplies

### Introduction

Industrial ATX Motherboard Compact Chassis supports Standard ATX Motherboard. SC-M608R3 can support up to 3 Drives. Single 9cm system cooling fan allows maximum ventilation for the system to function at its peak.

SC-M608R2 supports only Standard PS/2 Power Supplies.

### Specification

System	
Drive bays	Totally 3 drive bay: 2x 5.25" CD and 1 x 3.5" HDD bay Drive bay equipped with anti-vibration function
Front Panel	Two USB 2.0 ports at front bezel
Motherboard	ATX Motherboard
Fan	One 90mm intake fan
Power Supply	PS2 or hot swappable redundant P/S (Option)
Expansion	7 Slot for ATX Motherboard
Color	Beige/Black
Dimension	410(D) x 310(W) x 175(H)mm
Weight	N.W: 8.1 KG.W:9.1 KGS

### Mechanical & Environment

Operating Temperature	0°~50°C
Storage Temperature	-40°~70°C
Relative Humidity	5~95%, non-condensing
Storage Humidity	5% ~ 95%
Altitude	10,000 Feet (3000 m)
Vibration (Operating)	1.5G Max
Shock	10G peak acceleration (10Msec duration)

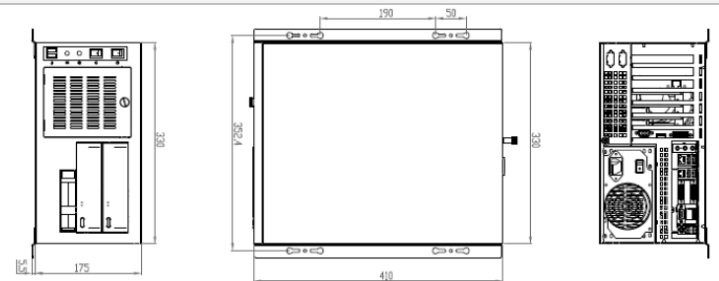
### Ordering Information

SC-M608R3-C0	Industrial ATX Motherboard Compact Chassis (Color:Beige)
SC-M608R3-C1	Industrial ATX Motherboard Compact Chassis (Color:Black)

### Optional

TCPS1D41Y060	Industrial 600W ATX PS/2 Auto Ranging Power Supply
TCPS1D41Y050	Industrial 500W ATX PS/2 Auto Ranging Power Supply
TCPS1D41Y040	Industrial 400W ATX PS/2 Auto Ranging Power Supply

### Dimension



# SC-608-R3 SC-610-R3

## Industrial 8/10 Slot Compact Chassis (Backplane Version)



### FEATURES

- Compact chassis supports 8/10 Slot PICMG 1.3/PICMG 1.0 Backplane
- Two 5.25" and One 3.5" disk drives
- Front accessible USB interface for easy data transfer
- Front-accessible filtered cooling fan provide optimized and streamlined airflow
- Front LEDs indicate power status, and HDD activity
- Supports 400/500/600W single PS/2 ATX Power Supply

### Introduction

Industrial 8/10 Slot Compact Chassis supports PICMG 1.3/PICMG1.0 Single Board Computer. SC-S608R3 can support up to 4 Drives. Single 12cm system cooling fan allows maximum ventilation for the system to function at its peak. SC-S608R2 supports only Standard PS/2 Power Supplies.

### Specification

System	
Drive bays	Totally 4 drive bay: 2x 5.25" and 2 x 3.5" HDD bay Drive bay equipped with anti-vibration function
Front Panel	Two USB 2.0 ports at front bezel
Motherboard	PICMG 1.3 or PICMG 1.0
Fan	One 120mm intake fan
Power Supply	ATX PS2
Expansion	8/10 Slot PICMG 1.3/PICMG1.0 Backplane
Color	Beige/Black
Dimension	405.8(D) x 330(W)x 172(H)mm
Weight	N.W: 8.2 KG G.W:10.4 KG

### Mechanical & Environment

Operating Temperature	0°~50°C
Storage Temperature	-40°~70°C
Relative Humidity	5~95%, non-condensing
Storage Humidity	5% ~ 95%
Altitude	10,000 Feet (3000 m)
Vibration (Operating)	1.5G Max
Shock	10G peak acceleration (10Msec duration)

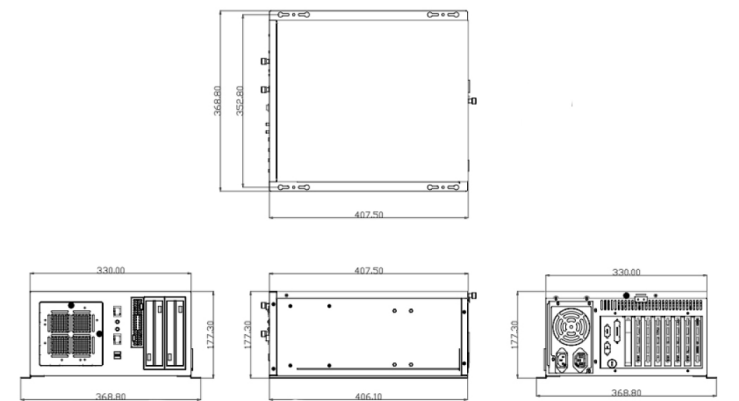
### Ordering Information

SC-608R3-C0	Industrial 8 Slot Compact Chassis (Color:Beige)
SC-608R3-C1	Industrial 8 Slot Compact Chassis (Color:Black)
SC-610R3-C0	Industrial 10 Slot Compact Chassis Color:Beige)
SC-610R3-C1	Industrial 10 Slot Compact Chassis (Color:Black)

### Optional

TCPS-1D41Y060	Industrial 600W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y050	Industrial 500W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y040	Industrial 400W ATX PS/2 Auto Ranging Power Supply
IP13-10P6e4x1	PICMG 1.3 10 lot Backplane (1x PICMG 1.3, 1x PCIe X4 and 7 PCI Slots)
BP-10P4	PICMG 1.0 10 Slot Backplane (2x PICMG 1.0, 4x PCI Slot and 4x ISA Slots)
BP-8P7	PICMG 1.0 8 Slot Backplane (1x PICMG 1.0, 7x PCI Slot and 1x ISA Slots)
BP-8P4	PICMG 1.0 8 Slot Backplane (3x PICMG 1.0, 4x PCI Slot and 2x ISA Slots)

### Dimension









# INDUSTRIAL POWER SUPPLY

# TCPS-1D41Y060

# TCPS-1D41Y050

# TCPS-1D41Y040

## Industrial 600/500/400W ATX PS/2 Auto Ranging Power Supply



High Efficiency



### FEATURES

- Maximum Power Output: 600/500/400W
- Voltage: 100 - 240Vac Full Range
- Frequency: 50 - 60Hz.
- Input current: 10 for 115V AC, 5A for 230VAC.
- Inrush current: 25A for 115VAC, 50A for 230VAC
- Safety Approval: Meet CE RoHS 2.0 2011/65/EU, Meet REACH
- Operation Temp.: 0°C~50°C
- High Efficiency: 80%
- Reliability MTBF: Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.

### Introduction

Industrial ATX PS/2 Auto Ranging Power Supply suitable for Desktop & Rack Mount Chassis solutions. The Input power is Auto ranging from 100~240 VAC providing up to 400~600W of power to DC solutions.

### Specification

Efficiency	The minimum efficiency shall be 80% with full load and 115Vac/60Hz.				
Hold-Up Time	The output voltages stay in regulation at least 18ms with 70% load after loss of AC input				
PROTECTIONS	Over Current Protection Over Voltage Protection Short Circuit Protection Over Temperature Protection				
MTBF (Electronics)	100,000 hours at full load and 25°C ambient temperature				
MTBF (Fan)	40,000 hours at 40°C				
EMI	FCC part 15, Subpart B, Class B EN55022 CISPR22 Class B				
Remote ON/OFF Control	When PS-ON is pull to TTL low, the DC output is to be enabled. When PS-OFF is pull to TTL high the DC output is to be disabled				
RoHS	Compliant				
COOLING	One 70mm DC FANS				

### Outputs (400W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Maximum Load	25A	33A	0.8A	25A	3.5A
Minimum Load	0.1A	0.1A	0A	0.1A	0A
Ripple/Noise Max.(P-P)	50mv	120mv	120mv	50mv	50mv
Line Regulation	±5 %	±5 %	±10 %	±5 %	±5 %

### Outputs (500W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Maximum Load	25A	41A	0.8A	25A	3.5A
Minimum Load	0.1A	0.1A	0A	0.1A	0A
Ripple/Noise Max.(P-P)	50mv	120mv	120mv	50mv	50mv
Line Regulation	±5 %	±5 %	±10 %	±5 %	±5 %

### Outputs (600W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Maximum Load	25A	49A	0.8A	25A	3.5A
Minimum Load	0.1A	0.1A	0A	0.1A	0A
Ripple/Noise Max.(P-P)	50mv	120mv	120mv	50mv	50mv
Line Regulation	±5 %	±5 %	±10 %	±5 %	±5 %

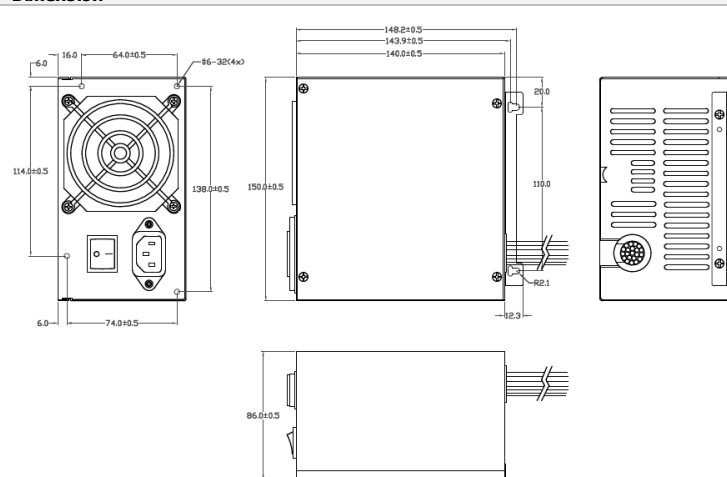
### Mechanical & Environment

Operating Temperature	0°~50°C
Storage Temperature	-20°~70°C
Relative Humidity	5~90%, non-condensing 20% to 90%, non-condensing
Altitude	Altitude during operation: Up to 5000m
Reliability MTBF	Using MIL - HDBK -217F the calculated MTBF>100,000 hours at 25°C.
Cooling	By ball bearing DC fan.
Dimensions	140x150x86(mm)
Compliance/ Approval	EN-61000-3-2 CLASS D (Active PFC), UL60950, CAN/CSA22.2 No.60950

### Ordering Information

TCPS-1D41Y060	Industrial 600W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y050	Industrial 500W ATX PS/2 Auto Ranging Power Supply
TCPS-1D41Y040	Industrial 400W ATX PS/2 Auto Ranging Power Supply

### Dimension



# SS-2U70EL SS-2U60EL SS-2U50ES SS-2U40ES

## Industrial 700/600/500/400W ATX 2U Auto Ranging Power Supply



High Efficiency  
86%



### Introduction

Industrial ATX 2U Auto Ranging Power Supply suitable for Desktop & Rack Mount Chassis solutions. The Input power is Auto ranging from 100~240 VAC providing up to 400~700W of power to DC solutions.

### Specification

Efficiency	The minimum efficiency shall be 86% with full load and 115Vac/60Hz.
Hold-Up Time	The output voltages stay in regulation at least 18ms with 70% load after loss of AC input
PROTECTIONS	Over Current Protection Over Voltage Protection Short Circuit Protection Over Temperature Protection
MTBF (Electronics)	100,000 hours at full load and 25°C ambient temperature
MTBF (Fan)	40,000 hours at 40°C
EMI	FCC part 15, Subpart B, Class B EN55022 CISPR22 Class B
Remote ON/OFF Control	When PS-ON is pull to TTL low, the DC output is to be enabled. When PS-OFF is pull to TTL high the DC output is to be disabled
RoHS	Compliant
COOLING	One 60mm DC FANS

### Outputs (400W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Output Current(Max)	25A	32A	0.8A	25A	3.5A
Output Current(Min.)	0.5A	2A	0A	0.5A	0.1A
Ripple/Noise Max.(P-P):	60mv	120mv	120mv	60mV	60mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (500W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Output Current(Max)	25A	40A	0.8A	25A	3.5A
Output Current(Min.)	0.5A	2A	0A	0.5A	0.1A
Ripple/Noise Max.(P-P):	60mv	120mv	120mv	60mV	60mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (600W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Output Current(Max)	25A	48A	0.8A	25A	3.5A
Output Current(Min.)	0.5A	2A	0A	0.5A	0.1A
Ripple/Noise Max.(P-P):	60mv	120mv	120mv	60mV	60mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (700W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Output Current(Max)	25A	56A	0.8A	25A	3.5A
Output Current(Min.)	0.5A	2A	0A	0.5A	0.1A
Ripple/Noise Max.(P-P):	60mv	120mv	120mv	60mV	60mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### FEATURES

- Maximum Power Output: 700/600/500/400W
- Voltage: 100 - 240VAC Full Range
- Frequency: 50 - 60Hz.
- Input current: 8A/10A (RMS) for 115VAC / 4A/5A (RMS) for 230VAC. (400W/500W,600W,700W)
- Inrush current: 35A for 115VAC, 55A for 230VAC (400W)
- Inrush current: 40A for 115VAC, 60A for 230VAC (500,600,700W)
- Safety Approval: Meet CE Rohs 2.0 2011/65/EU, Meet REACH
- Operation Temp.: 0°C~50°C
- High Efficiency: 86%
- Reliability MTBF : Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.

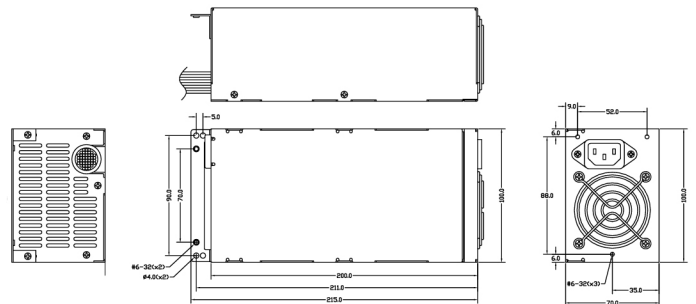
### Mechanical & Environment

Operating Temperature	0°~45°C
Storage Temperature	-20°~70°C
Relative Humidity	5~90%, non-condensing 20% to 90%, non-condensing
Altitude	Altitude during operation: Up to 5000m
Reliability MTBF	Using MIL - HDBK -217F the calculated MTBF >100,000 hours at 25°C.
Cooling	By ball bearing DC fan.
Dimensions	200x100x70(mm) (400W, 500W) 225x100x70(mm) (600,700W)
Compliance/ Approval	EN-61000-3-2 CLASS D (Active PFC), UL60950, CAN/CSA22.2 No.60950

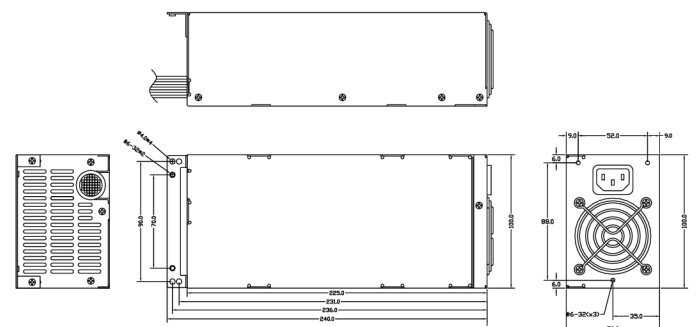
### Ordering Information

SS-2U70EL	Industrial 700W ATX 2U Auto Ranging Power Supply
SS-2U60EL	Industrial 600W ATX 2U Auto Ranging Power Supply
SS-2U50ES	Industrial 500W ATX 2U Auto Ranging Power Supply
SS-2U40ES	Industrial 400W ATX 2U Auto Ranging Power Supply

### Dimension



SS-2U40ES/SS-2U50ES



SS-2U60EL/SS-2U70EL

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# SS-1U60EL SS-1U52ES SS-1U40ES

## Industrial 600/520/400W ATX 1U Auto Ranging Power Supply



High Efficiency  
86%



### Introduction

Industrial ATX 1U Auto Ranging Power Supply suitable for Desktop & Rack Mount Chassis solutions. The Input power is Auto ranging from 100~240 VAC providing up to 400~600W of power to DC solutions.

### Specification

Efficiency	The minimum efficiency shall be 86% with full load and 115Vac/60Hz.
Hold-Up Time	The output voltages stay in regulation at least 18ms with 70% load after loss of AC input
PROTECTIONS	Over Current Protection Over Voltage Protection Short Circuit Protection Over Temperature Protection
MTBF (Electronics)	100,000 hours at full load and 25°C ambient temperature
MTBF (Fan)	40,000 hours at 40°C
EMI	FCC part 15, Subpart B, Class B EN55022 CISPR22 Class B
Remote ON/OFF Control	When PS-ON is pull to TTL low, the DC output is to be enabled. When PS-OFF is pull to TTL high the DC output is to be disabled
RoHS	Compliant
COOLING	One 40mm DC FANS

### Outputs (400W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Output Current(Max)	25A	32A	0.8A	25A	3.5A
Output Current(Min.)	0.5A	2A	0A	0.5A	0.1A
Ripple/Noise Max.(P-P):	60mv	120mv	120mv	60mV	60mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (520W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Output Current(Max)	25A	40A	0.8A	25A	3.5A
Output Current(Min.)	0.5A	2A	0A	0.5A	0.1A
Ripple/Noise Max.(P-P):	60mv	120mv	120mv	60mV	60mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (600W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Output Current(Max)	25A	48A	0.8A	25A	3.5A
Output Current(Min.)	0.5A	2A	0A	0.5A	0.1A
Ripple/Noise Max.(P-P):	60mv	120mv	120mv	60mV	60mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### FEATURES

- Maximum Power Output: 600/520/400W
- Voltage: 100 - 240VAC Full Range
- Frequency: 50 - 60Hz.
- Input current: 8A/10A (RMS) for 115VAC / 4A/5A (RMS) for 230VAC. (400W/520W,600W)
- Inrush current: 35A for 115VAC, 55A for 230VAC (400,520,600W)
- Safety Approval: Meet CE Rohs 2.0 2011/65/EU, Meet REACH
- Operation Temp.: 0°C~45°C
- High Efficiency: 86%
- Reliability MTBF: Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.

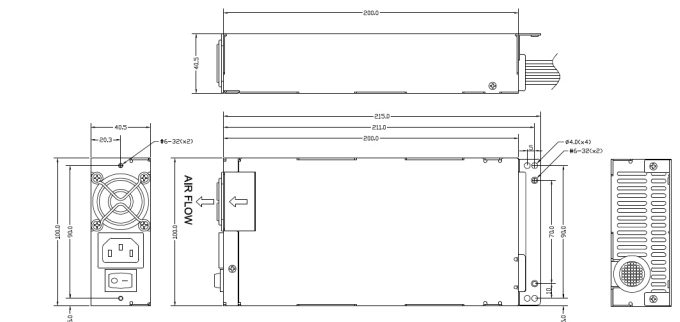
### Mechanical & Environment

Operating Temperature	0°~45°C
Storage Temperature	-20°~70°C
Relative Humidity	5~90%, non-condensing 20% to 90%, non-condensing
Altitude	Altitude during operation: Up to 5000m
Reliability MTBF	Using MIL - HDBK -217F the calculated MTBF >100,000 hours at 25°C.
Cooling	By ball bearing DC fan.
Dimensions	200x100x40.5(mm) (400W, 520W) 225x100x40.5(mm) (600W)
Compliant / Approval	EN-61000-3-2 CLASS D (Active PFC), UL60950, CAN/CSA22.2 No.60950

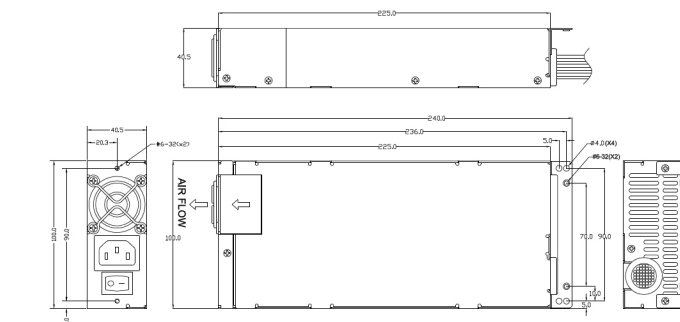
### Ordering Information

SS-1U60EL	Industrial 600W ATX 1U Auto Ranging Power Supply
SS-1U52ES	Industrial 520W ATX 1U Auto Ranging Power Supply
SS-1U40ES	Industrial 400W ATX 1U Auto Ranging Power Supply

### Dimension



SS-1U40ES/SS-1U52ES



SS-1U60EL

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# ENP-7025B ENP-7130B

## 1U Flex ATX 250W Power Supply with PFC 1U Flex ATX 300W Power Supply with PFC



### FEATURES

- AC input: full range 100V~240V
- One 4cm ball bearing fan
- 80Plus Bronze certified class (high efficiency 82%) and build-in temperature control device
- Dimensions: D.150 x W.81 x H.40 /mm
- Power supply wiring harness
- Safety: CCC, CE, Nemko, UL, FCC, RoHS, BSMI

### Introduction

Industrial Flex ATX 1U Auto Ranging Power Supply suitable for Desktop & Rack Mount Chassis solutions. The Input power is Auto ranging from 100~240 VAC providing up to 250~300W of power to DC solutions.

### Ordering Information

ENP-7130B	Industrial 300W Flex ATX 1U Auto Ranging Power Supply
ENP-7025B	Industrial 250W Flex ATX 1U Auto Ranging Power Supply

### Dimension

### Specification

Efficiency	The minimum efficiency shall be 80% with full load and 115Vac/60Hz.				
Hold-Up Time	The output voltages stay in regulation at least 18ms with 70% load after loss of AC input				
PROTECTIONS	Over Current Protection Over Voltage Protection Short Circuit Protection Over Temperature Protection				
MTBF (Electronics)	100,000 hours at full load and 25°C ambient temperature				
MTBF (Fan)	40,000 hours at 40°C				
EMI	FCC part 15, Subpart B, Class B EN55022 CISPR22 Class B				
Remote ON/OFF Control	When PS-ON is pull to TTL low, the DC output is to be enabled. When PS-OFF is pull to TTL high the DC output is to be disabled				
RoHS	Compliant				
COOLING	One 40mm DC FANS				

### Outputs (250W)

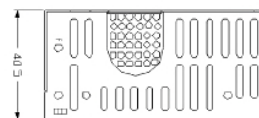
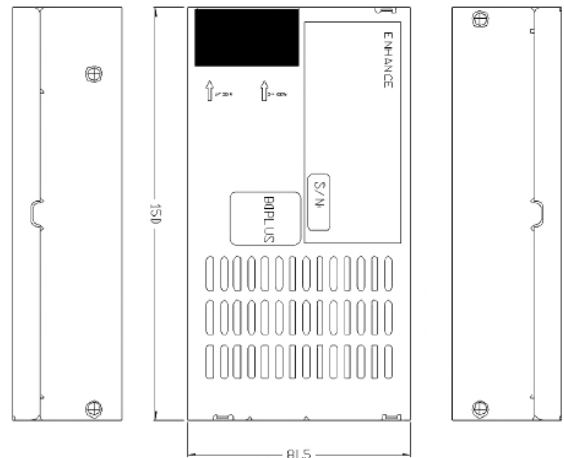
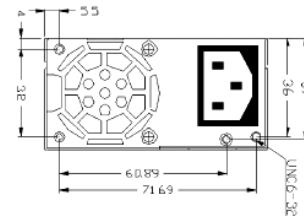
Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Output Current(Max)	14A	18A	0.3A	13A	2A
Output Current(Min.)	0.5A	2A	0A	0.5A	0.1A
Ripple/Noise Max.(P-P):	50mv	120mv	120mv	50mV	50mV
Load Regulation:	±5 %	±5 %	±10 %	±5 %	±5 %

### Outputs (300W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Output Current(Max)	14A	25A	0.3A	15A	2.5A
Output Current(Min.)	0.5A	2A	0A	0.5A	0.1A
Ripple/Noise Max.(P-P):	50mv	120mv	120mv	50mV	50mV
Load Regulation:	±5 %	±5 %	±10 %	±5 %	±5 %

### Mechanical & Environment

Operating Temperature	0°~40°C
Storage Temperature	-40°~70°C
Relative Humidity	5~90%, non-condensing
Altitude	Altitude during operation: Up to 5000m
Reliability MTBF	Using MIL - HDBK -217F the calculated MTBF>100,000 hours at 25°C.
Cooling	By ball bearing DC fan.
Dimensions	150x81.5x40.5mm
Compliance/ Approval	CCC, CE, Nemko, UL, FCC, RoHS, BSMI



# R4B-700G1V2 R4B-800G1V2

## Industrial Redundant 700W/800W Auto Ranging Power Supply



### FEATURES

- Maximum Power Output: 800/700W
- Voltage: 100 - 240VAC Full Range
- Frequency: 50 - 60Hz.
- Input Current: 12A for 115VAC, 6A for 230VAC.
- Inrush Current: 30A for 115VAC, 60A for 230VAC.
- Safety Approval: Meet CE RoHS 2.0 2011/65/EU, Meet REACH
- Operation Temp.: 0°C~50°C
- High Efficiency: 80%
- Reliability MTBF : Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.

### Introduction

Industrial Redundant ATX Auto Ranging Power Supply suitable for Desktop & Rack Mount Chassis solutions. The Input power is Auto ranging from 100~240 VAC providing up to 700~800W of power to DC solutions.

### Specification

Efficiency	The minimum efficiency shall be 80% with full load and 115Vac/60Hz.
Hold-Up Time	The output voltages stay in regulation at least 18ms with 70% load after loss of AC input
PROTECTIONS	Over Current Protection Over Voltage Protection Short Circuit Protection Over Temperature Protection
MTBF (Electronics)	100,000 hours at full load and 25°C ambient temperature
MTBF (Fan)	40,000 hours at 40°C
EMI	FCC part 15, Subpart B, Class B EN55022 CISPR22 Class B
Remote ON/OFF Control	When PS-ON is pull to TTL low, the DC output is to be enabled. When PS-OFF is pull to TTL high the DC output is to be disabled
RoHS	Compliant
COOLING	Two 40mm DC FANS

### Outputs (700W+700W)

Output Voltage	+5VDC	+12VDC	+3.3VDC	-12VDC	+5VSB
Output Current(Max)	32A	57A	32A	0.8A	3.5A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	120mv	60mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (800W+800W)

Output Voltage	+5VDC	+12VDC	+3.3VDC	-12VDC	+5VSB
Output Current(Max)	32A	65A	32A	0.8A	3.5A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	120mv	60mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

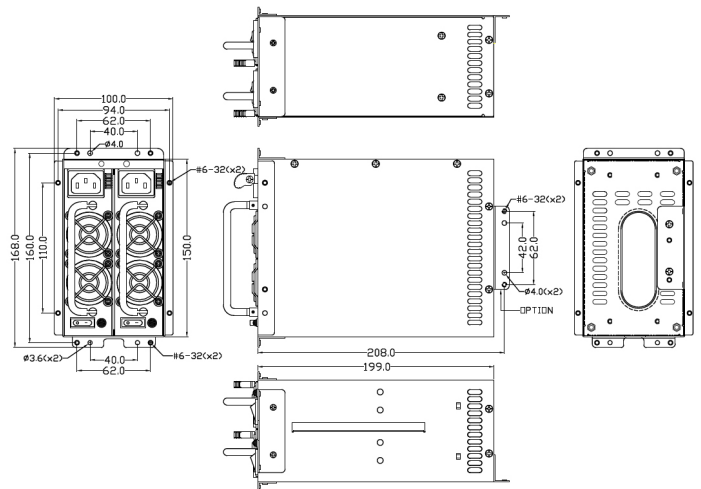
### Mechanical & Environment

Operating Temperature	0°~50°C
Storage Temperature	-20°~70°C
Relative Humidity	5~90%, non-condensing 20% to 90%, non-condensing
Altitude	Altitude during operation: Up to 5000m
Reliability MTBF	Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.
Cooling	By ball bearing DC fan.
Dimensions	199x150x86(mm)
Compliance/ Approval	EN-61000-3-2 CLASS D (Active PFC), UL60950, CAN/CSA22.2 No.60950

### Ordering Information

RB4-700G1V2	Industrial Redundant 700W+700W Auto Ranging Power Supply
RB4-800G1V2	Industrial Redundant 800W+800W Auto Ranging Power Supply

### Dimension





# R4B-500G1V2 R4B-600G1V2

## Industrial Redundant 500W/600W Auto Ranging Power Supply



High Efficiency  
86%



### FEATURES

- Maximum Power Output: 600/50/400W
- Voltage: 100 - 240VAC Full Range
- Frequency: 50 - 60Hz.
- Input current: 8A/10A (RMS) for 115VAC / 4A/5A (RMS) for 230VAC. (500W,600W)
- Inrush current: 35A for 115VAC, 55A for 230VAC (500W,600W)
- Safety Approval: Meet CE Rohs 2.0 2011/65/EU, Meet REACH
- Operation Temp.: 0°C~50°C
- High Efficiency: 86%
- Reliability MTBF : Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.

### Introduction

Industrial Redundant ATX Auto Ranging Power Supply suitable for Desktop & Rack Mount Chassis solutions. The Input power is Auto ranging from 100~240 VAC providing up to 500~600W of power to DC solutions.

### Specification

Efficiency	The minimum efficiency shall be 86% with full load and 115Vac/60Hz.
Hold-Up Time	The output voltages stay in regulation at least 18ms with 70% load after loss of AC input
PROTECTIONS	Over Current Protection Over Voltage Protection Short Circuit Protection Over Temperature Protection
MTBF (Electronics)	100,000 hours at full load and 25°C ambient temperature
MTBF (Fan)	40,000 hours at 40°C
EMI	FCC part 15, Subpart B, Class B EN55022 CISPR22 Class B
Remote ON/OFF Control	When PS-ON is pull to TTL low, the DC output is to be enabled. When PS-OFF is pull to TTL high the DC output is to be disabled
RoHS	Compliant
COOLING	Two 40mm DC FANS

### Outputs (500W+500W)

Output Voltage	+5VDC	+12VDC	+3.3VDC	-12VDC	+5VSB
Output Current(Max)	25A	41A	25A	0.8A	3.5A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	120mv	60mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (600W+600W)

Voltage	+5V	+12V	-12V	+3.3V	+5VSB
Output Current(Max)	25A	49A	0.8A	25A	3.5A
Output Current(Min.)	0.5A	2A	0A	0.5A	0.1A
Ripple/Noise Max.(P-P):	60mv	120mv	120mv	60mV	60mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

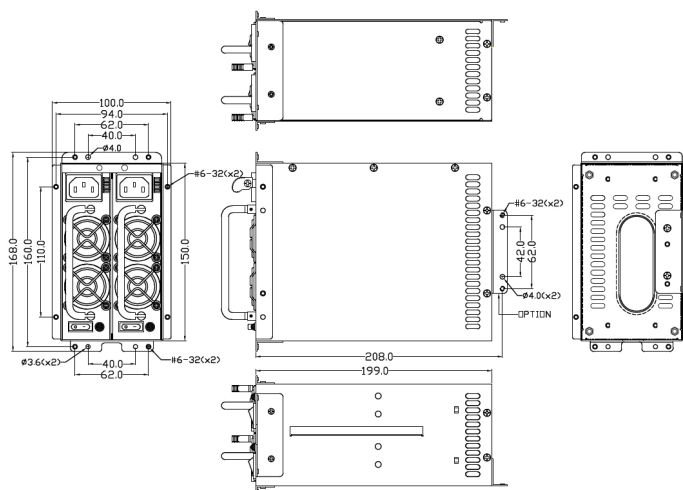
### Mechanical & Environment

Operating Temperature	0°~50°C
Storage Temperature	-20°~70°C
Relative Humidity	5~90%, non-condensing 20% to 90%, non-condensing
Altitude	Altitude during operation: Up to 5000m
Reliability MTBF	Using MIL - HDBK -217F the calculated MTBF>100,000 hours at 25°C.
Cooling	By ball bearing DC fan.
Dimensions	199x150x86(mm)
Compliance/ Approval	EN-61000-3-2 CLASS D (Active PFC), UL60950, CAN/CSA22.2 No.60950

### Ordering Information

RB4-500G1V2	Industrial Redundant 500W+500W Auto Ranging Power Supply
RB4-600G1V2	Industrial Redundant 600W+600W Auto Ranging Power Supply

### Dimension



# R2A-700D1V2 R2A-650D1V2 R2A-600D1V2

## Industrial Redundant 2U 700W/650W/600W Auto Ranging Power Supply



### FEATURES

- Maximum Power Output: 600/650/700W
- Frequency: 50 - 60Hz.
- Input Current: 10A for 115VAC, 5A for 230VAC.
- Inrush Current: 25A for 115VAC, 50A for 230VAC.
- The Minimum efficiency of the power supply is 80% at full load and 1150Vac/60HZ input.
- The minimum power factor at full load shall be 0.98 / 115V 60 Hz and 0.96 / 230V 50 Hz. Safety Approval: Meet CE RoHS 2.0 2011/65/EU, Meet REACH
- Operation Temp.: 0°C~40°C
- High Efficiency: 80%
- Reliability MTBF : Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.

### Introduction

Industrial Redundant 2U ATX Auto Ranging Power Supply suitable for Desktop & Rack Mount Chassis solutions. The Input power is Auto ranging from 100~240 VAC providing up to 700~600W of power to DC solutions.

### Specification

Efficiency	The minimum efficiency shall be 80% with full load and 115Vac/60Hz.
Hold-Up Time	The output voltages stay in regulation at least 18ms with 70% load after loss of AC input
PROTECTIONS	Over Current Protection Over Voltage Protection Short Circuit Protection Over Temperature Protection
MTBF (Electronics)	100,000 hours at full load and 25°C ambient temperature
MTBF (Fan)	40,000 hours at 40°C
EMI	FCC part 15, Subpart B, Class B EN55022 CISPR22 Class B
Remote ON/OFF Control	When PS-ON is pull to TTL low, the DC output is to be enabled. When PS-OFF is pull to TTL high the DC output is to be disabled
RoHS	Compliant
COOLING	Two 40mm DC FANS

### Outputs (600W+600W)

Output Voltage	+5V DC	+12V DC	+3.3V DC	-12V DC	+5VSB
Output Current(Max)	25A	49A	25A	1A	3.5A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	120mv	60mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (650W+650W)

Output Voltage	+5V DC	+12V DC	+3.3V DC	-12V DC	+5VSB
Output Current(Max)	25A	53A	25A	1A	3.5A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	120mv	60mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (700W+700W)

Output Voltage	+5V DC	+12V DC	+3.3V DC	-12V DC	+5VSB
Output Current(Max)	25A	57A	25A	1A	3.5A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	120mv	60mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

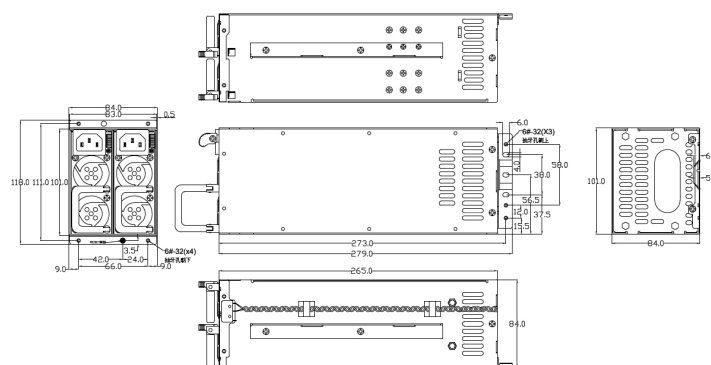
### Mechanical & Environment

Operating Temperature	0°~40°C
Storage Temperature	-20°~70°C
Relative Humidity	5~90%, non-condensing 20% to 90%, non-condensing
Altitude	Altitude during operation: Up to 5000m
Reliability MTBF	Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.
Cooling	By ball bearing DC fan.
Dimensions	265x101x84(mm)
Compliance/ Approval	EN-61000-3-2 CLASS D (Active PFC), UL60950, CAN/CSA22.2 No.60950

### Ordering Information

R2A-700D1V2	Industrial Redundant 2U 700W Auto Ranging Power Supply
R2A-650D1V2	Industrial Redundant 2U 650W Auto Ranging Power Supply
R2A-600D1V2	Industrial Redundant 2U 600W Auto Ranging Power Supply

### Dimension



# R2A-550D1V2 R2A-500D1V2 R2A-460D1V2

## Industrial Redundant 2U 550W/500W/460W Auto Ranging Power Supply



### Introduction

Industrial Redundant 2U ATX Auto Ranging Power Supply suitable for Desktop & Rack Mount Chassis solutions. The Input power is Auto ranging from 100~240 VAC providing up to 550~460W of power to DC solutions.

### Specification

Efficiency	The minimum efficiency shall be 80% with full load and 115Vac/60Hz.
Hold-Up Time	The output voltages stay in regulation at least 18ms with 70% load after loss of AC input
PROTECTIONS	Over Current Protection Over Voltage Protection Short Circuit Protection Over Temperature Protection
MTBF (Electronics)	100,000 hours at full load and 25°C ambient temperature
MTBF (Fan)	40,000 hours at 40°C
EMI	FCC part 15, Subpart B, Class B EN55022 CISPR22 Class B
Remote ON/OFF Control	When PS-ON is pull to TTL low, the DC output is to be enabled. When PS-OFF is pull to TTL high the DC output is to be disabled
RoHS	Compliant
COOLING	Two 40mm DC FANS

### Outputs (460W+460W)

Output Voltage	+5V DC	+12V DC	+3.3V DC	-12V DC	+5VSB
Output Current(Max)	25A	36A	25A	1A	3A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	120mv	60mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (500W+500W)

Output Voltage	+5V DC	+12V DC	+3.3V DC	-12V DC	+5VSB
Output Current(Max)	25A	40A	25A	1A	3.5A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	120mv	60mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (550W+550W)

Output Voltage	+5V DC	+12V DC	+3.3V DC	-12V DC	+5VSB
Output Current(Max)	25A	45A	25A	1A	3.5A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	120mv	60mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### FEATURES

- Maximum Power Output: 550/500/460W
- Frequency: 50 - 60Hz.
- Input Current: 10A for 115VAC, 5A for 230VAC.
- Inrush Current: 25A for 115VAC, 50A for 230VAC.
- The Minimum efficiency of the power supply is 80% at full load and 1150Vac/60HZ input.
- The minimum power factor at full load shall be 0.98 / 115V 60 Hz and 0.96 / 230V 50 Hz.
- Safety Approval: Meet CE Rohs 2.0 2011/65/EU, Meet REACH
- Operation Temp.: 0°C~40°C
- High Efficiency: 80%
- Reliability MTBF : Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.

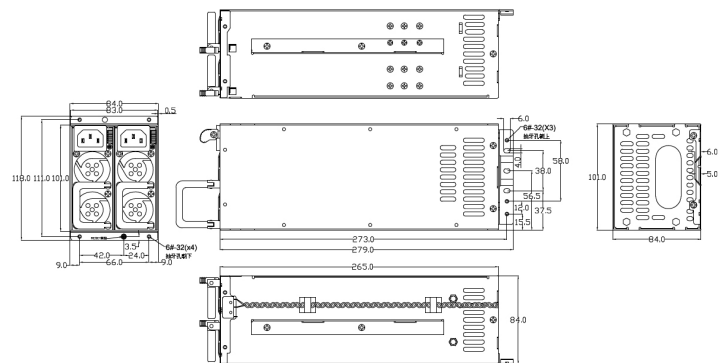
### Mechanical & Environment

Operating Temperature	0°~40°C
Storage Temperature	-20°~70°C
Relative Humidity	5~90%, non-condensing 20% to 90%, non-condensing
Altitude	Altitude during operation: Up to 5000m
Reliability MTBF	Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.
Cooling	By ball bearing DC fan.
Dimensions	265x101x84(mm)
Compliance/ Approval	EN-61000-3-2 CLASS D (Active PFC), UL60950, CAN/CSA22.2 No.60950

### Ordering Information

R2A-550D1V2	Industrial Redundant 2U 550W Auto Ranging Power Supply
R2A-500D1V2	Industrial Redundant 2U 500W Auto Ranging Power Supply
R2A-460D1V2	Industrial Redundant 2U 460W Auto Ranging Power Supply

### Dimension





# R1J-250I1H2A0 R1J-300I1H2A0 R1J-350I1H2A0 R1J-400I1H2A0

## Industrial Redundant 1U 250W/300W/350W/400W Auto Ranging Power Supply



### FEATURES

- Maximum Power Output: 250/300/350/400W
- VOLTAGE: 100 - 240Vac Full Range
- FREQUENCY: 50 - 60Hz.
- INPUT CURRENT: 7A (RMS) for 115V AC, 3A (RMS) for 230VAC.
- INRUSH CURRENT: 35A for 115VAC, 70A for 230VAC
- Safety Approval: Meet CE Rohs 2.0 2011/65/EU, Meet REACH
- Operation Temp.: 0°C~45°C
- High Efficiency: 80%
- Reliability MTBF : Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.

### Introduction

Industrial Redundant 1U ATX Auto Ranging Power Supply suitable for Desktop & Rack Mount Chassis solutions. The Input power is Auto ranging from 100~240 VAC providing up to 250~400W of power to DC solutions.

### Specification

Efficiency	The minimum efficiency shall be 80% with full load and 115Vac/60Hz.
Hold-Up Time	The output voltages stay in regulation at least 18ms with 70% load after loss of AC input
PROTECTIONS	Over Current Protection Over Voltage Protection Short Circuit Protection Over Temperature Protection
MTBF (Electronics)	100,000 hours at full load and 25°C ambient temperature
MTBF (Fan)	40,000 hours at 40°C
EMI	FCC part 15, Subpart B, Class B EN55022 CISPR22 Class B
Remote ON/OFF Control	When PS-ON is pull to TTL low, the DC output is to be enabled. When PS-OFF is pull to TTL high the DC output is to be disabled
RoHS	Compliant
COOLING	Two 40mm DC FANS

### Outputs (250W+250W)

Output Voltage	+3.3V DC	+5V DC	+12V DC	-12V DC	+5VSB
Output Current(Max)	20A	20A	20A	0.5A	2A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	60mv	120mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (300W+300W)

Output Voltage	+3.3V DC	+5V DC	+12V DC	-12V DC	+5VSB
Output Current(Max)	20A	20A	24A	0.5A	2A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	60mv	120mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (350W+350W)

Output Voltage	+3.3V DC	+5V DC	+12V DC	-12V DC	+5VSB
Output Current(Max)	20A	20A	28A	0.5A	3A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	60mv	120mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

### Outputs (400W+400W)

Output Voltage	+3.3V DC	+5V DC	+12V DC	-12V DC	+5VSB
Output Current(Max)	20A	20A	32A	0.5A	3A
Output Current(Min.)	1A	1A	1A	0A	0.5A
Ripple/Noise Max.(P-P):	60mv	60mv	120mv	120mv	50mV
Line Regulation:	±1 %	±1 %	±1 %	±1 %	±1 %
Load Regulation:	±5 %	±5 %	±5 %	±5 %	±5 %

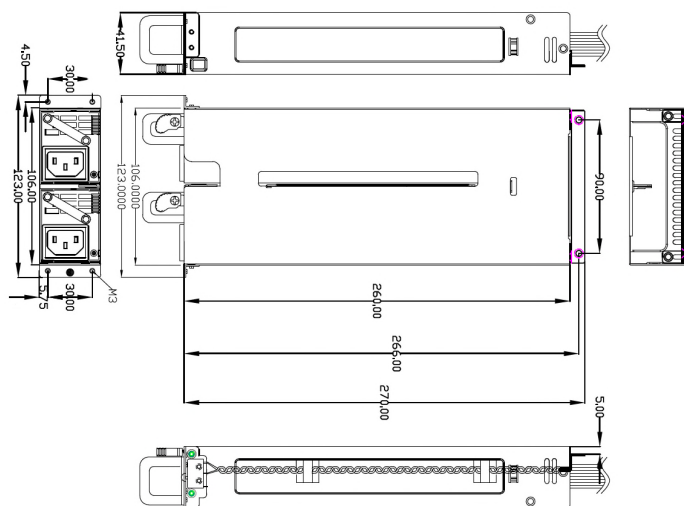
### Mechanical & Environment

Operating Temperature	0°~45°C
Storage Temperature	-20°~70°C
Relative Humidity	5~90%, non-condensing 20% to 90%, non-condensing
Altitude	Altitude during operation: Up to 5000m
Reliability MTBF	Using MIL - HDBK -217F the calculated MTBF>100,000 hours at 25°C.
Cooling	By ball bearing DC fan.
Dimensions	260x106x41.50(mm)
Compliance/ Approval	EN-61000-3-2 CLASS D (Active PFC), UL60950, CAN/CSA22.2 No.60950

### Ordering Information

R1J-250I1H2A0	Industrial Redundant 1U 250W Auto Ranging Power Supply
R1J-300I1H2A0	Industrial Redundant 1U 300W Auto Ranging Power Supply
R1J-350I1H2A0	Industrial Redundant 1U 350W Auto Ranging Power Supply
R1J-400I1H2A0	Industrial Redundant 1U 400W Auto Ranging Power Supply

### Dimension



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