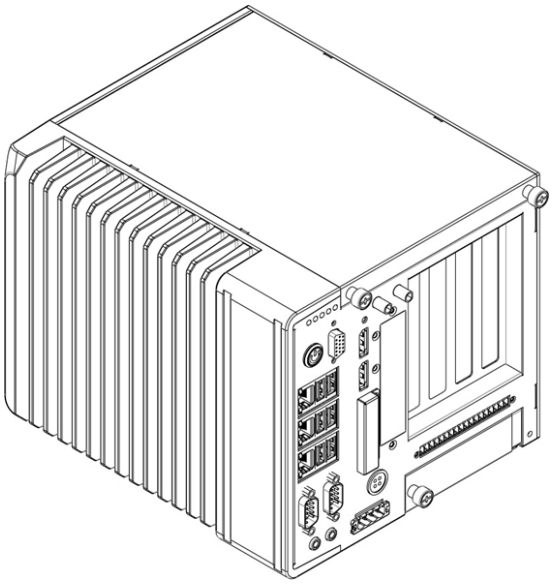


Embedded Computer
EAC PRO-IK90

Quick Start Guide

V2.0

For more information on this and other Winmate products, please visit our website at: www.winmate.com

Document Part Number: 91521117100C

Please read these instructions carefully before using this product, and save this manual for future use.

CONTENTS

FCC Statement

This device complies with part 15 FCC rules.
Operation is subject to the following two conditions:

- This device may not cause harmful interference.

This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class "B" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at him own expense.

European Union

Electromagnetic Compatibility Directive (2014/30/EU)

- EN55024: 2010/ A1: 2015
  - IEC61000-4-2: 2009
  - IEC61000-4-3: 2006+A1: 2007+A2: 2010
  - IEC61000-4-4: 2012
  - IEC61000-4-5: 2014
  - IEC61000-4-6: 2014
  - IEC61000-4-8: 2010
  - IEC61000-4-11: 2004
- EN55032: 2012/AC:2013
- EN61000-3-2:2014
- EN61000-3-3:2013

Low Voltage Directive (2014/35/EU)

- EN 60950-1:2006/A11:2009/A1:2010/A12:2011/ A2:2013

This equipment is in conformity with the requirement of the following EU legislations and harmonized standards. Product also complies with the Council directions.

Copyright Notice

Trademark Acknowledgement

Disclaimer

Winmate Inc. reserve the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s) conveys no license or title under any patent, copyright, or masks work rights to these products, and make no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or guarantee that such application will be suitable for the specified use without further testing or modification.

Warranty

Winmate Inc. warranty guarantees that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, we will, at his/her option, repair or replace the defective product at no charge to the customer, provide it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service. If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W17Axxxxxxxx means October of year 2017.

Customer Service

We provide a service guide for any problem by the following steps: First, visit the website of our distributor to find the update information about the product. Second, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance.
You may need the following information ready before you call:

- Product serial number
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

Safety Information

WARNING! / AVERTISSEMENT!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.
Toujours débrancher le cordon d'alimentation du chassis lorsque vous travaillez sur celui-ci. Ne pas brancher de connections lorsque l'alimentation est présente. Des composantes électroniques sensibles peuvent être endommagées par des sauts d'alimentation. Seulement du personnel expérimenté devrait ouvrir ces chassis.

CAUTION/ATTENTION

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.
Toujours verifier votre mise à la terre afin d'éliminer toute charge statique avant de toucher la carte CPU. Les équipements électroniques modernes sont très sensibles aux décharges d'électricité statique. Toujours utiliser un bracelet de mise à la terre comme précaution. Placer toutes les composantes électroniques sur une surface conçue pour dissiper les charge, ou dans un sac anti-statique lorsqu'elles ne sont pas dans le chassis.

INTRODUCTION

Congratulations on purchasing Winmate® EAC PRO-IK90 Embedded Computer. EAC PRO-IK90 with 6th Generation Intel® Xeon E3 or Core™ i7/i3 processors and C236 chipset offers high performance computing power and outstanding video processing. Abundant I/O ports and PCI/ PCIe expansion make EAC PRO-IK90 suitable for Factory Automation, Machine Vision, Surveillance, Machine Automation and other high-performance applications.

Features

Winmate® EAC PRO-IK90 Embedded Computer offers the following features:

- 6th Generation Intel® Xeon E3, Core™ i7/i5/i3 Processors
- HD 4K resolution & 4U Height Design
- Flexibility, Connectivity and Multi-Expansion
- High Storage Density & Easy Maintenance
- 9-36V Wide Voltage
- -15 to 55 Celsius degrees wide temperature

Optional Configuration

- **Optional Processor**
  EAC PRO-IK90/E
  Intel® Xeon E3-1268L V5
  EAC PRO-IK90/7
  Intel® Core™ i7-6700TE
  EAC PRO-IK90/7
  Intel® Core™ i5-6500TE
  EAC PRO-IK90/3
  Intel® Core™ i3-6100TE

- **Optional Memory DDR4**
  Option: 8GB to 32GB DDR4-2133 SODIMM w/ECC or w/o ECC

- **Optional Storage**
  2.5”HDD 500GB 7200rpm SATAIII
  2.5” HDD 1TB 7200rpm SATAIII
  2.5” SSD 128GB/256GB/512GB SATAIII
  CFast 2.0 16GB/32GB/64GB/128GB/256GB

- **Default Adapter**
  Default: 12V/220W AC-DC Adapter

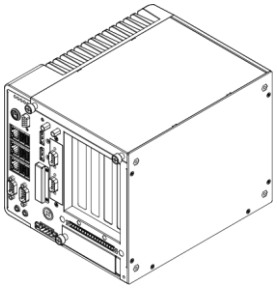
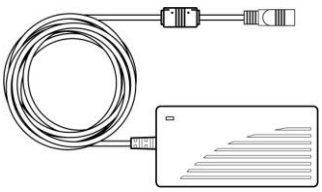
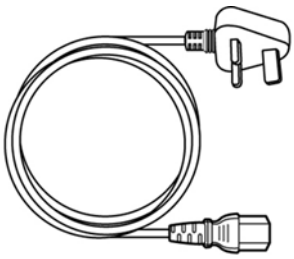
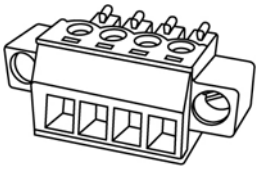
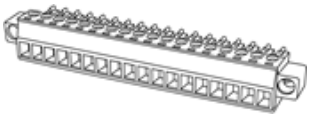
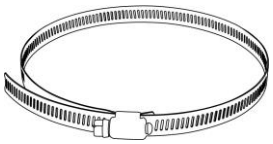
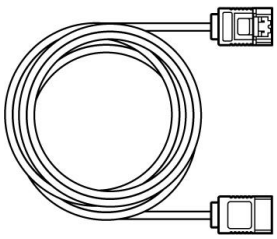
Ordering Information

Backplane Board
EAC PRO-IK90-E/ -7/ -5/ -3
SKU1 (1 PCIe x16, 1 PCIe x8 ,1 PCIe x4 , 1 PCI)
SKU2 (1 PCIe x16, 1 PCI, 1 PCI, 1 PCI)

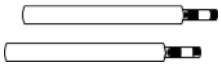
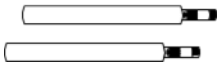
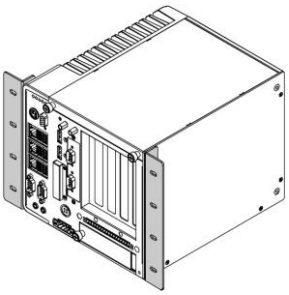
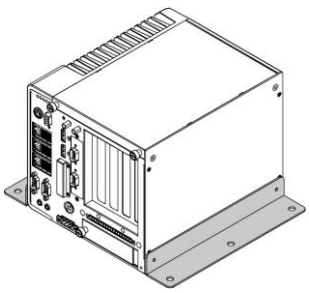
Package Contents

Carefully remove the box and unpack your device. Please check if all the items listed below are inside your package. If any of these items are missing or damaged contact us immediately.

Standard factory shipment list:

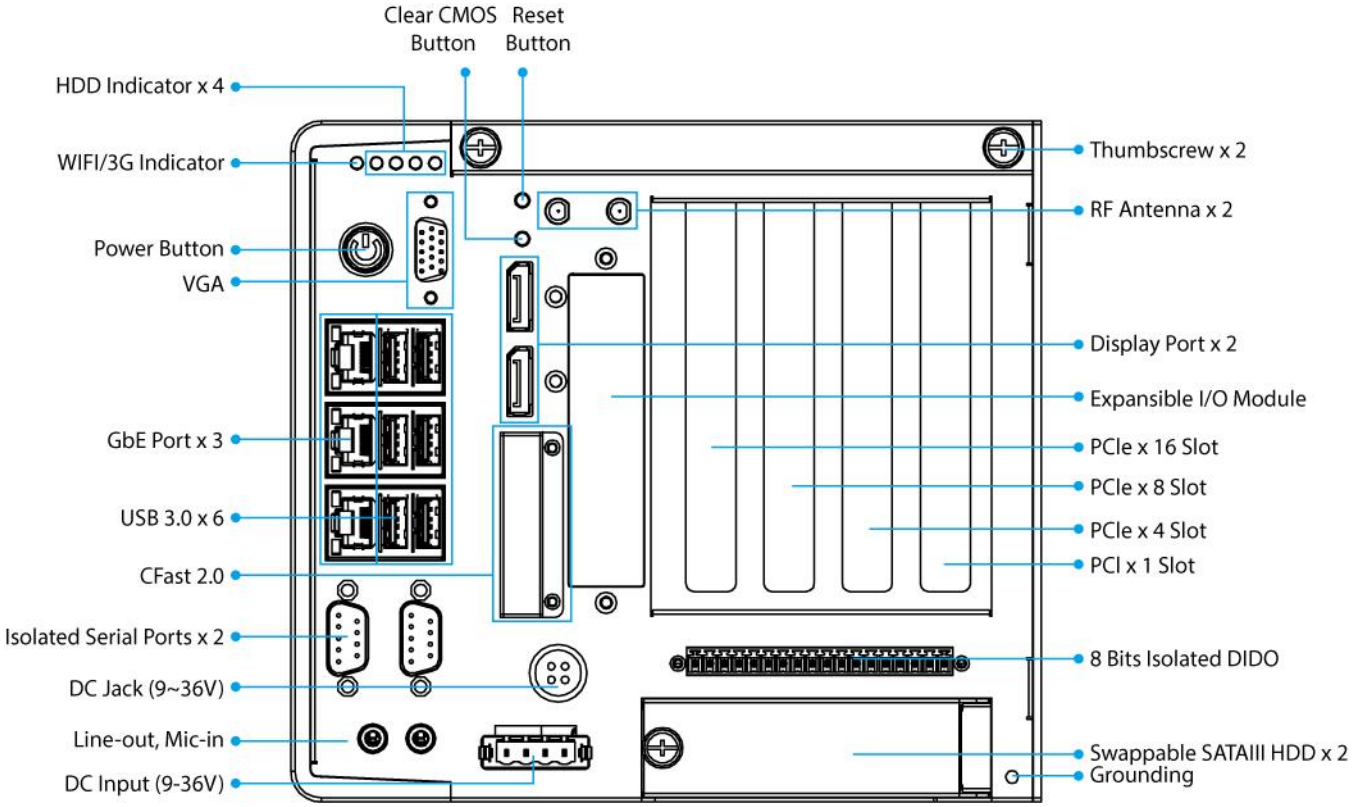
			
EAC PRO-IK90 Embedded Computer	**Quick Start Guide (Hardcopy)**	**Driver CD & User Manual**	**AC Adapter 12V/ 220W**
Varies by product specifications	91521117100C	917111171007	922D220W12V0
			
Power Cord	**4P Terminal Block**	**18P Terminal Block**	**Cable Ties (ROHS)**
Varies by country	604511905D05	604511C05D01	911911101007
			
w/o HDD Internal Hard Disk Wire (Preinstalled)			
94H0070070K0			

Your package may include optional accessories based on your order:

			
WLAN External Antenna	**WWAN External Antenna**	**Panel Mounting Kit**	**Table Mounting Kit**
39700000000E	39700000000F	821118891A00	821118181A00

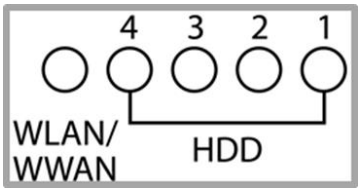
Product Overview

Front Side I/O Connectors



LED Indicators

EAC PRO-IK90 Embedded Computer provides four SSD/HDD LED indicators and one WWAN/ WLAN LED indicator for status monitoring.



LED Indicator	Color	Description
WWAN / WLAN*	Off	Slot is empty; module is not yet discovered by the system.
	Green	WWAN/ WLAN operating normally.
SSD/ HDD	Off	Slot is empty; drive is not yet discovered by the system.
	Green	SSD/ HDD operating normally

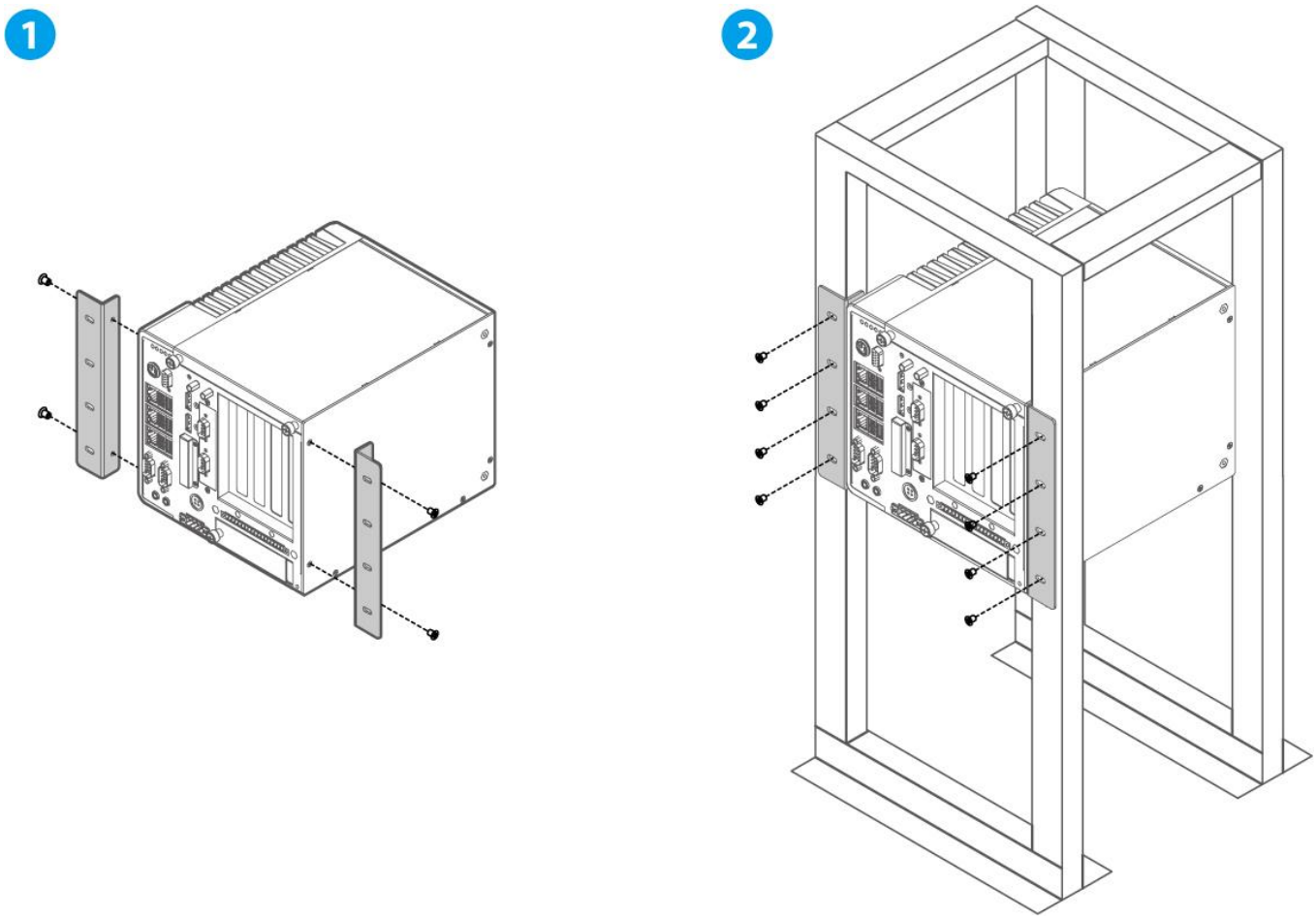
**Mini PCIe (CN4) only supports either WWAN or WLAN indicator.*

INSTALLATION

Mounting

EAC PRO-IK90 Embedded Computer supports two types of mounting: table mounting and panel mounting. You can purchase mounting kit from Winmate as an optional accessory.

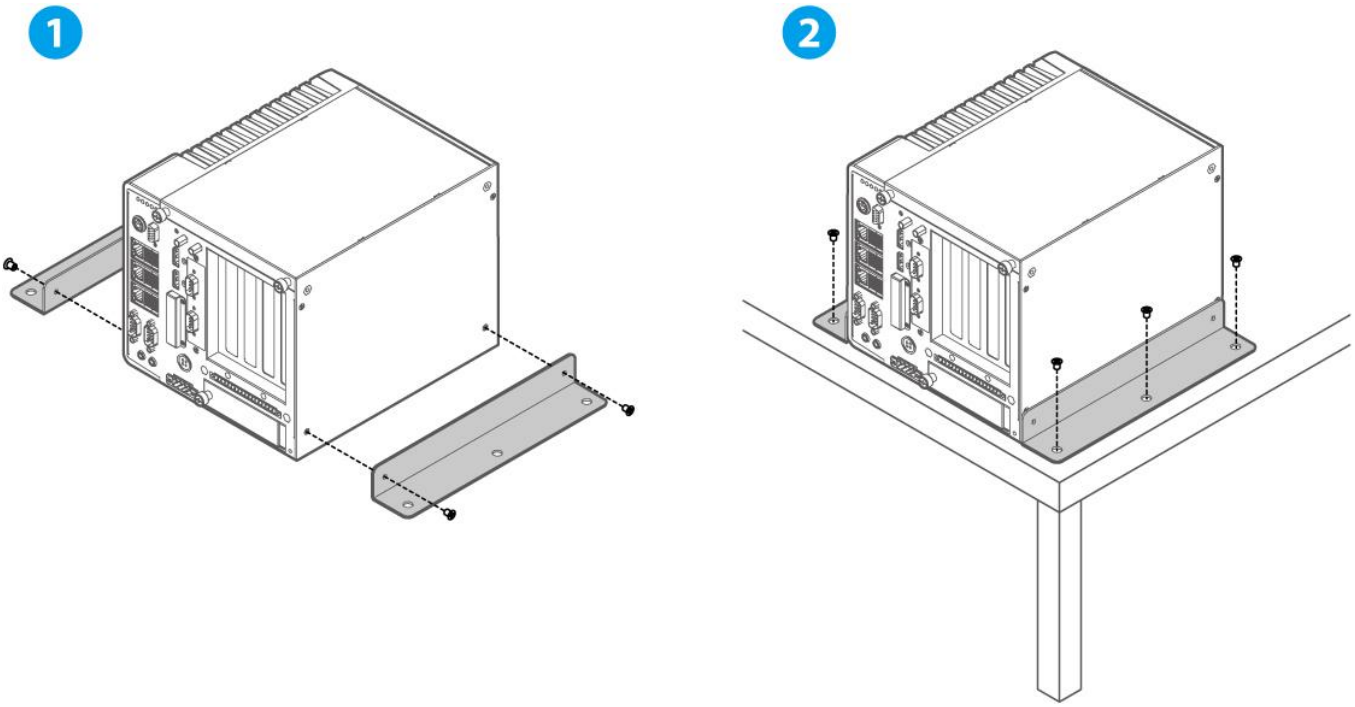
Panel Mounting



Mounting Instruction:

1. Fasten screws to secure L-shape mounting brackets to the EAC PRO-IK90.
2. Insert the EAC PRO-IK90 into the fixture (ex. rack) and fasten screws to secure the unit to the fixture.

Table Mounting

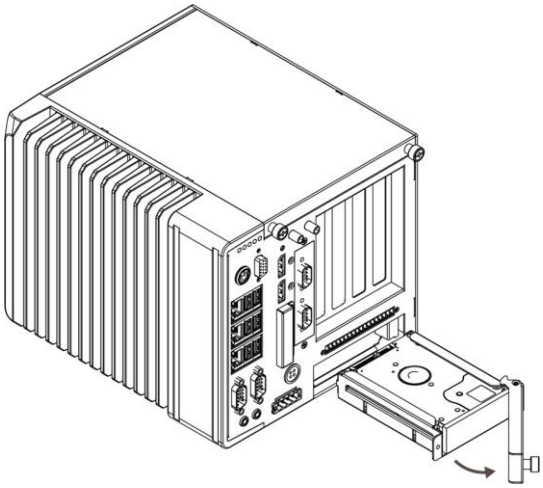


Mounting Instruction:

1. Fasten screws to secure L-shape mounting brackets to the EAC PRO-IK90.
2. Place the EAC PRO-IK90 on the fixture (ex. table) and fasten screws to secure the unit to the fixture.

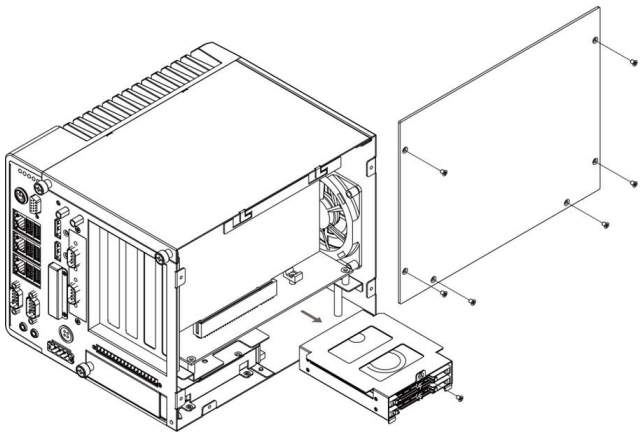
Hardware Installation

SATA HDD Installation (I)



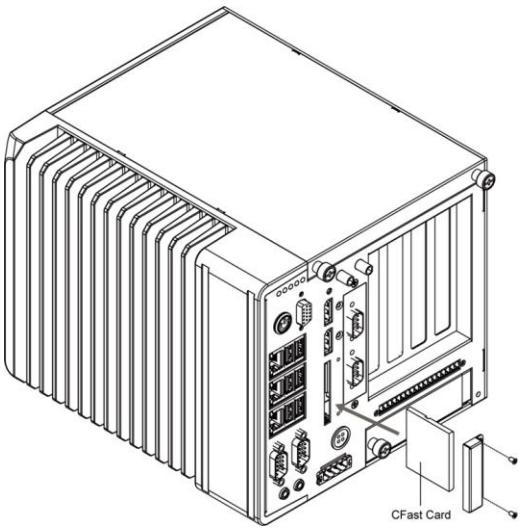
1. Loosen a thumbscrew on the front panel by hand.
2. Withdraw thumbscrew and open the SATA HDD cover.

SATA HDD Installation (II)



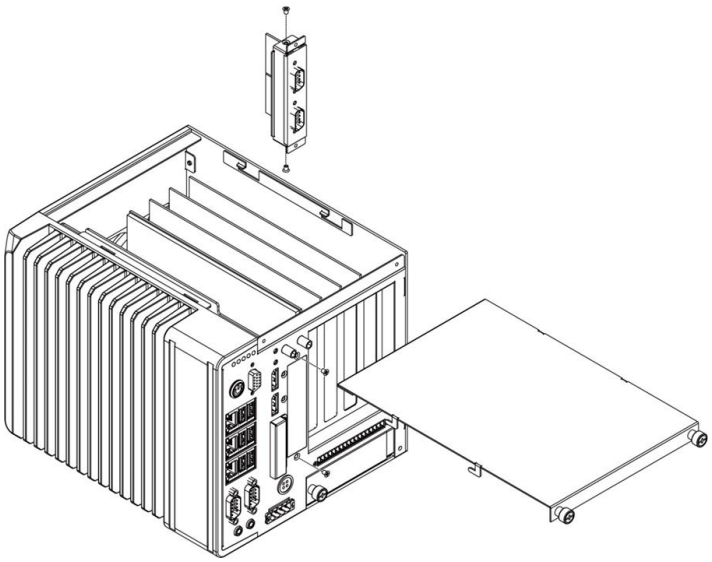
1. Loosen six screws on the right side cover.
2. Loosen one screw on the SATA HDD slot.
3. Replace the SATA HDD.

CFast Card Installation



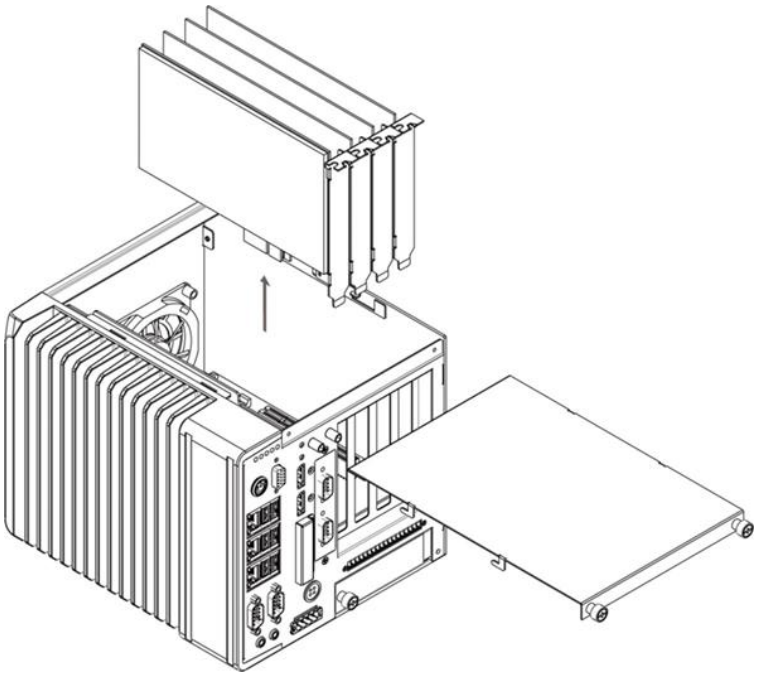
1. Loosen two screws on the front side and remove the external CF socket cover.
2. Align the internally mounted CF card with the guide of the internal CF socket and insert the card until it is firmly seated in the external CF socket.
3. Install external CF socket cover and fasten the screws.

Expansion Module (Preliminary, Optional)

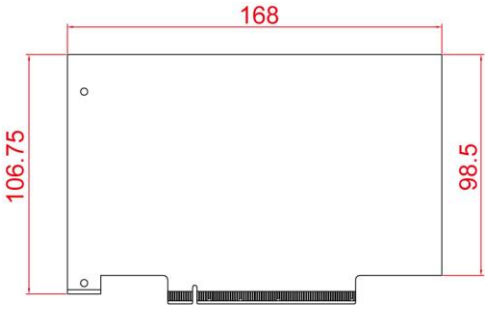


1. Loosen two hand-turn screws and open the top cover.
2. Assemble module on motherboard. Secure module baffle with two screws.
3. Secure expansion model with two screws.
4. Replace top cover and secure with screws.

PCI/ PCIe Card Installation

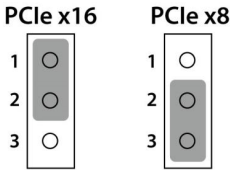


PCI/ PCIe Card Dimensions, mm



IMPORTANT:
Before recovery, remove the PCI/ PCIe card.

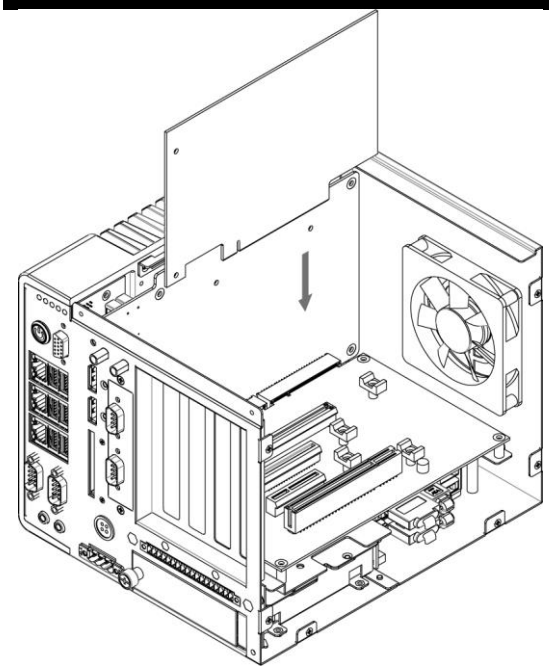
When installing PCIe card, you need to change **JP1 jumper** settings located on the Backplane Board.



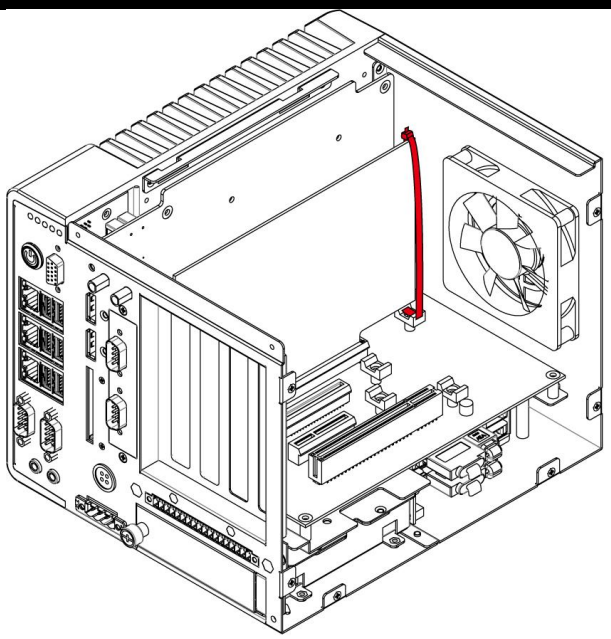
DO NOT Connect any external power to PCI/ PCIe card. Use only DC Out 12V connector (J9) on Backplane Board.

1. Loosen two thumbscrews on the front panel by hand and remove the top cover.
2. Insert the PCI/ PCIe card into the PCI/ PCIe slot.
3. Replace top cover and secure two thumbscrews.

To Enhance Vibration and Shock Resistance Use Cable Ties to Fix the PCI/ PCIe Card



1. Loosen six screws on the right side cover.
2. Loosen a thumbscrew to open the top cover.
3. Insert PCI/ PCIe card.



4. Use the cable tie (included in the package) to secure the PCI/ PCIe card.
5. Reassemble the right side and top cover.

Connecting the Power

The DC power supply connector of the EAC PRO-IK90 Embedded Computer is on the front panel. The DC power input for the EAC PRO-IK90 allows a voltage input range from 9 V DC to 36 V DC.

WARNING!/ AVERTISSEMENT!
Ensure voltage and polarity is compliant with the DC input. Improper input voltage or polarity can cause system damage.

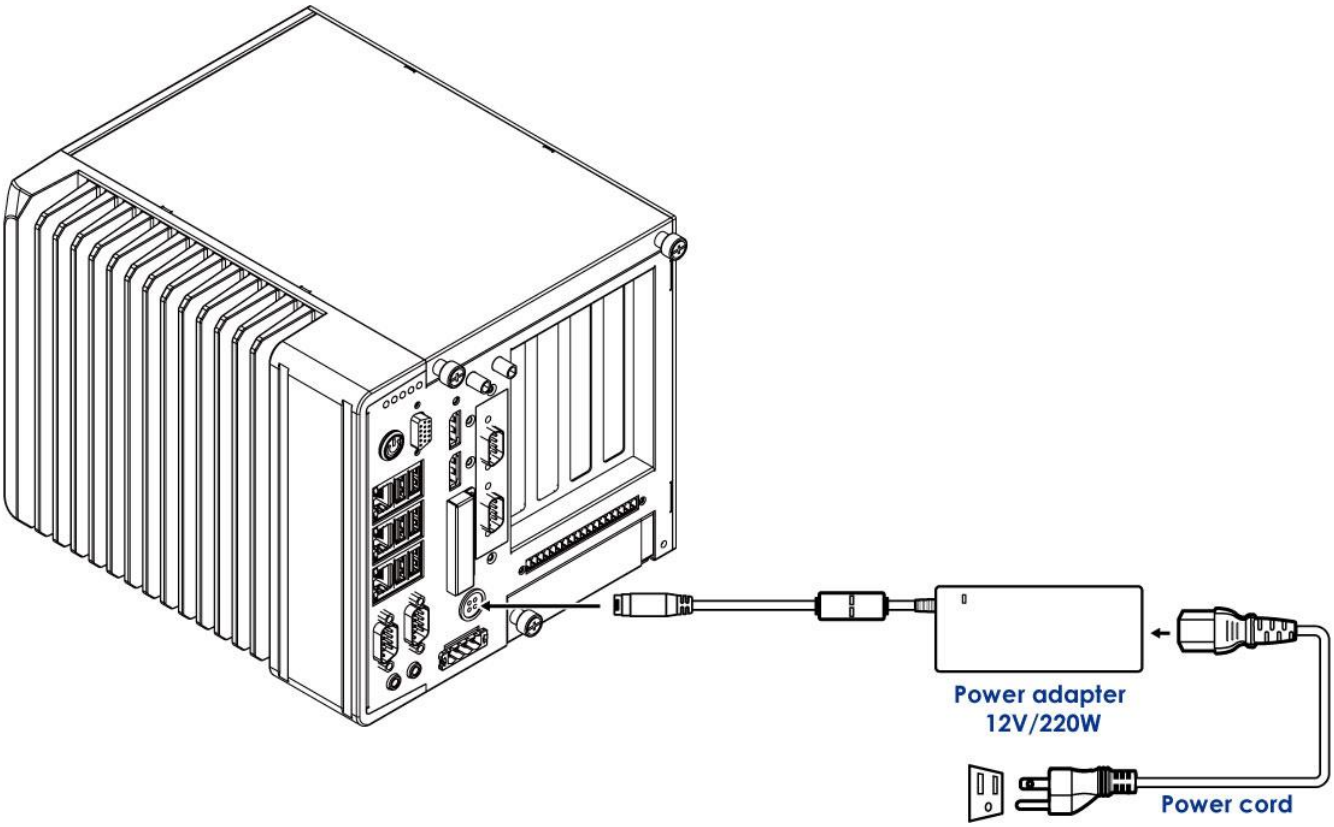
Connecting the Power

Perform power connection as shown at the picture below.

WARNING!/ AVERTISSEMENT!
Connect the EAC PRO-IK90 either to AC power or DC power. Do not perform both connections at the same time.

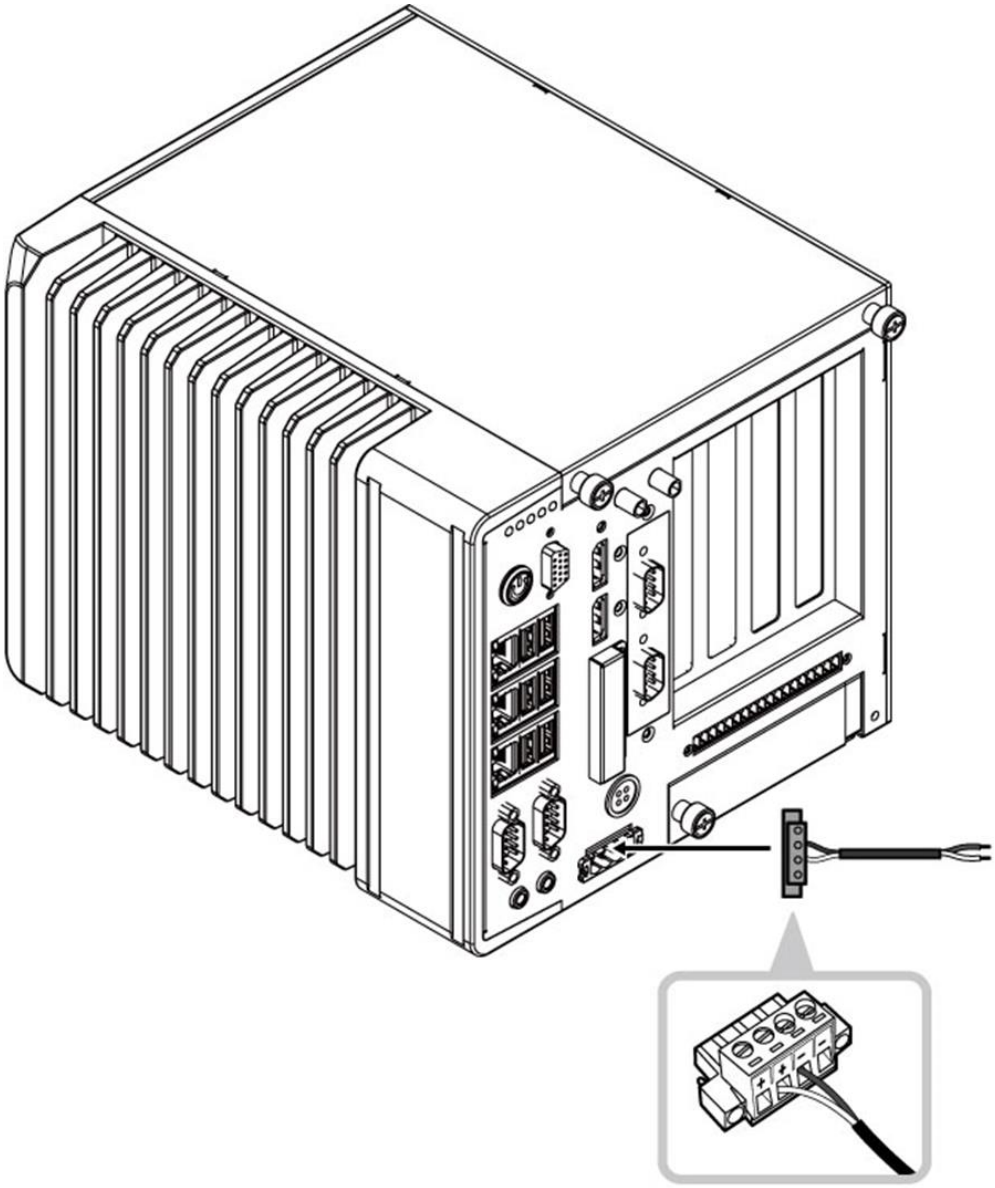
Connecting to AC Power

Use AC Adapter (12V/ 220W) included in the package to connect EAC PRO-IK90 to 9-36V power source.



Connecting to DC Power

Connect open wire cable (not supplied by Winmate) to 9-36V DC, maximum power source 220W.



Power Consumption Reference

Power consumption as follows is based on lab data in which 12V DC is applied and current is measured by the DC power supply. The power consumption (W) is calculated as the product of applied voltage (V) and the current (A).

IMPORTANT:
The maximum power consumption of this device is 200W.

Platforms tested for this data have available CFast Card, SATA HDD.

No internal PCI/ PCIe slots are occupied.

Information is presented for reference only. Actual power consumption will vary with different attached devices and platform operations.

Power consumption

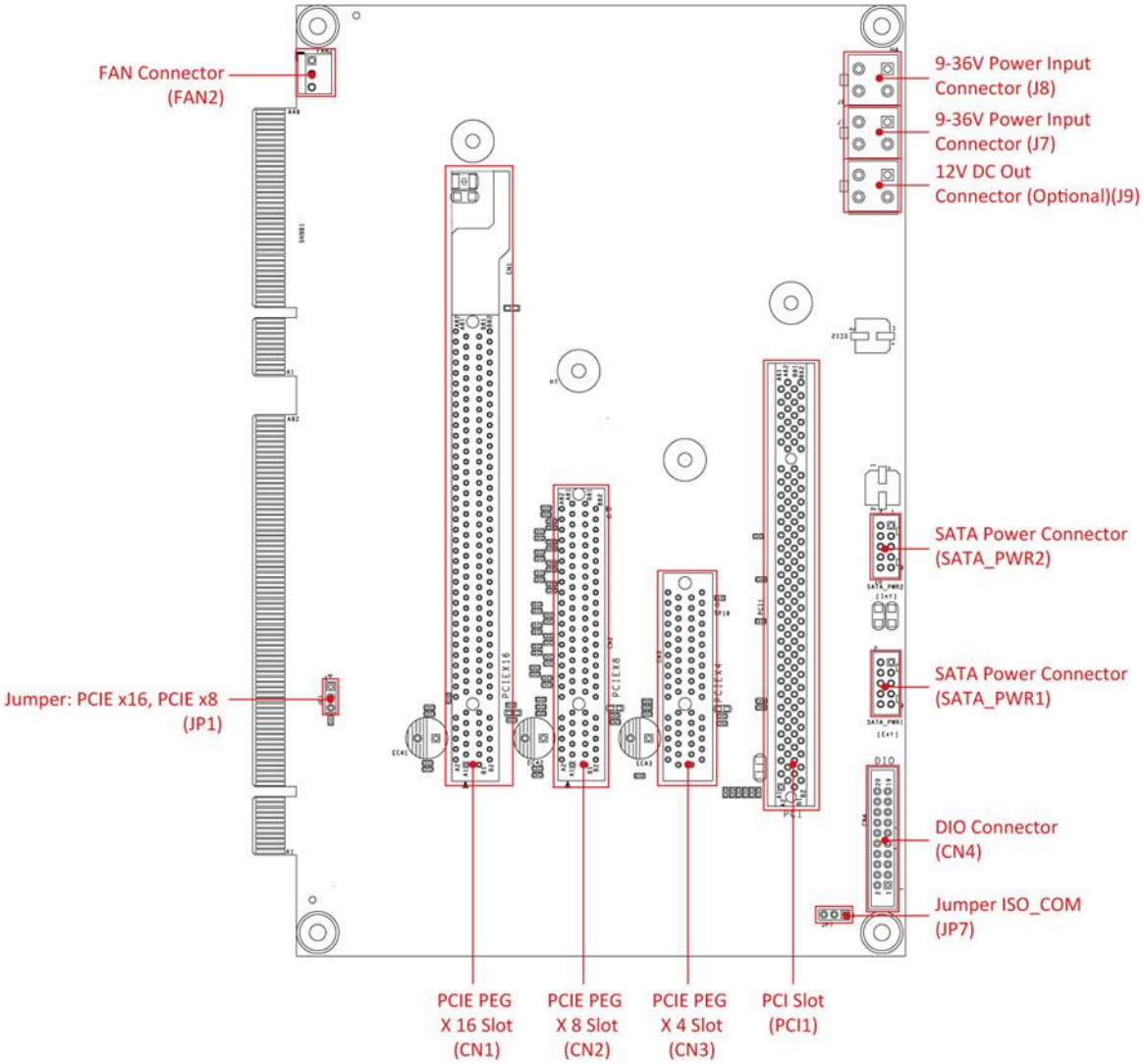
	EAC PRO-IK90/7 CPU i7-6700TE		
	Power Off	**Idle mode**	**Full Load**
Power consumption (W)	3.6	32.16	48

** With internal Graphics, not including other device.*

IMPORTANT:
Please evaluate the extra to join USB Device Power consumption/ SATA HDD Power consumption (Max.).

Backplane Board Jumpers and Connectors

BP1 Board Top Side (Top View)

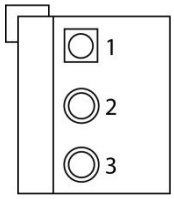


**PCIE PEG x16 Slot (CN1) depends on SKU1 or SKU2.*

Backplane Board Connectors

Fan Connector (FAN2)

Smart fan is connected to FAN2 by default. Sensor chip is located on the BP1 board.



Pin №	Signal Name
1	GND
2	+12VS
3	Sense Pin

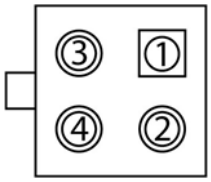
Sensor Chip Behavior:

Connector	Description
FAN1	Always turn on
FAN2	Smart fan: when sensor cheap reaches the temperature of 75 degrees, smart fan turns on. When sensor cheap reaches the temperature of 65 degree, smart fan turns off.

You can check Smart Fan settings in BIOS. Go to **Advanced** > **PC Health Status**

DC Out 12V Connector (J9)

Use this DC Out 12V connector to connect power when you install PCI/ PCIe card.

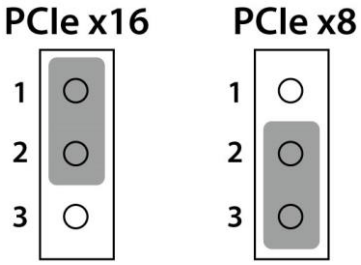


Pin №	Signal Name	Pin №	Signal Name
1	GND	2	INT_+12VS
3	GND	4	INT_+12VS

Backplane Board Jumpers

Jumper: PCIe x16, PCIe x8 (JP1)

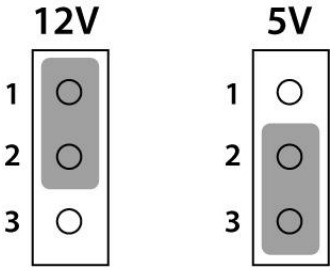
When you install PCIe card it is required to change Jumper: PCIe x16, PCIe x8 (JP1) settings.



Pin №	CN1 (PCIE x16)	CN2 (PCIE x8)
1-2	X16	-
2-3	X8	X8

Jumper ISO_COM (JP7)

When you use DI/DO, it is required to change Jumper ISO_COM settings to switch the internal voltage.



Pin №	Signal Name
1-2	Internal isolation DC12V
2-3	Internal isolation DC5V

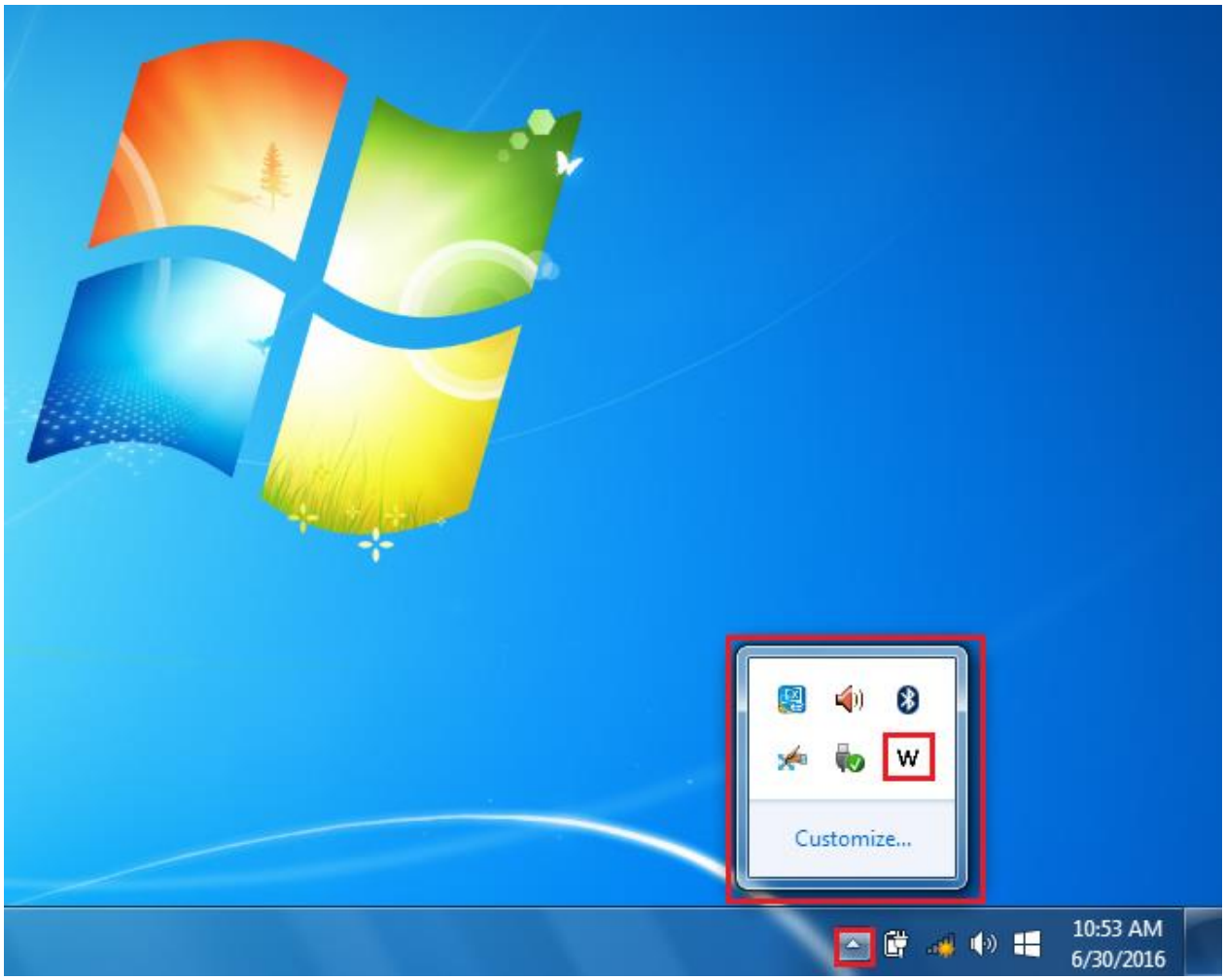
GETTING STARTED

How to Enable Watchdog

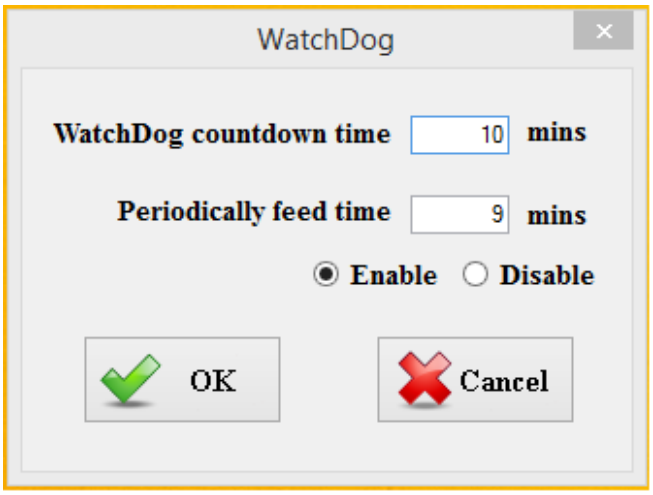
To enable Watchdog, you need to download Winmate Watchdog utility. Find more information on Watchdog in “Watchdog Guide” that you can download from Winmate Download Center. Refer to the User Manual for more details.

To enable watchdog in Watchdog AP follow the instructions below:

1. On the right bottom side of the desktop screen, click **triangle button** to show hidden icons.
2. Click W icon to open Watchdog utility.



3. In Watchdog utility window set countdown time and periodically feed time, or disable watchdog.



Example:

Every 10 min watchdog will monitor the system, in case any error occurs the system will restart automatically when the countdown time reaches 0.

Every 9 min watchdog timer will be reset to 10 min.

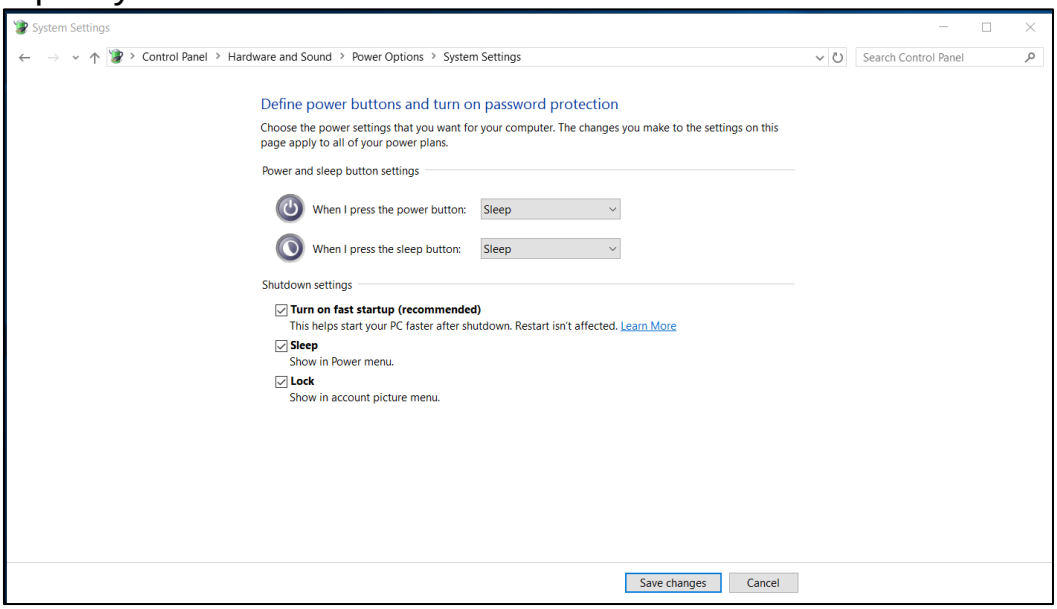
Settings	Description
Watchdog Countdown Time	The system automaticity restarts when this countdown time reaches zero. *Default: 10 min*
Periodically Feed Time	To set a cycle time to automatically reset watchdog timer. *Default: 9 min*
Enable / Disable	Enable or disable watchdog. *Default: Enable*

S4 Wake on LAN

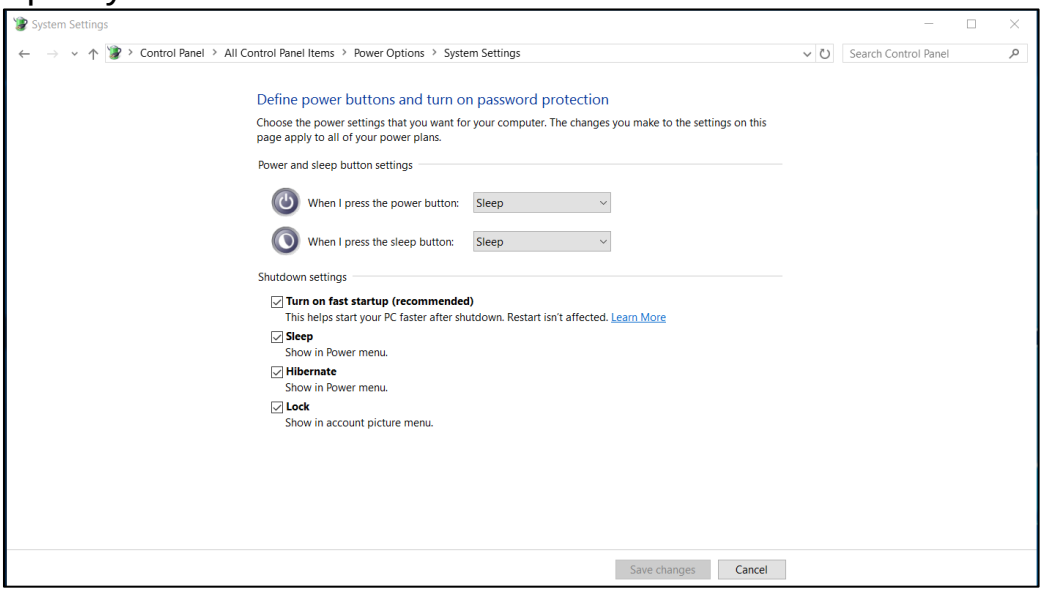
In Windows 10 OS shutdown settings will not have Hibernate mode if your storage capacity is below 32 GB.

CAUTION
Check if the system has the storage capacity of minimum 32 GB before entering Hibernation mode.

Storage capacity below 32 GB:



Storage capacity above 32 GB



Using Recovery Wizard to Restore Computer

Note:
Before starting the recovery process, make sure to backup all user data. The data will be lost after the recovery process.

Important:
Before starting the recovery process, remove the PCI/ PCIe card and CFast card.

To enable quick one-key recovery procedure:

1. Connect the computer to the power source. Make sure the computer stays plugged in to power source during the recovery process.
2. Turn on the computer, and when the boot screen shows up, press **Tab+ F6** to initiate the Recovery Wizard.
3. The following screen shows the Recovery Wizard. Click **Recovery** button to continue.

4. A warning message about data loss will show up. Make sure the data is backed up before recovery, and click **Yes** to continue.

Wait the recovery process to complete. During the recovery process, a command prompt will show up to indicate the percent of recovery process complete. The system will restart automatically after recovery completed.

SPECIFICATIONS

		Model Name EAC PRO-IK90
Processor System	CPU	• Intel® Xeon® E3-1268L V5 Processor (8M Cache, 2.4 GHz up to 3.40 GHz) 35W • Intel® Core™ i7-6700TE Processor (8M Cache, 2.4 GHz up to 3.40 GHz) 35W • Intel® Core™ i5-6500TE Processor (6M Cache, 2.3 GHz up to 3.30 GHz) 35W • Intel® Core™ i3-6100TE Processor (4M Cache, 2.70 GHz) 35W
	System Chipset	Intel® C236 PCH
	Graphics Engine	Intel® HD Graphics P530 / 530
	BIOS	AMI UEFI
Memory	Technology	2 x Slots DDR4 2133 MHz with ECC or w/o ECC (up to 32GB option)
	Socket	260-Pin SODIMM
Storage	SATAIII	2 x Swappable 2.5” SATA 3.0 (6Gb/s) with SATA power 2 x Onboard 2.5” SATA 3.0 (6Gb/s), support RAID 0/1/5/10
	CFast	1 x CFast 2.0
Output Video I/O	VGA	1 x VGA, 1920x1600@ 60 Hz D-Sub 15pin
	DP	2 x Display Ports 1.2, up to 4096x2304@60Hz, female connector w/one lock
	Active Three Display	VGA + DP + DP
External I/O	USB	6 x USB3.0, USB Type A (1A/ 5W)
	Serial Port	2 x COM ports (RS-232/422/485) w/Isolation D-Sub 9, switch by SW (RS-232/422/485)
	Ethernet	3 x Giga LAN RJ45 Connector (2 x Intel I210 and 1 x I219 PHY), Intel iAMT 11.0, Wake On LAN
	DI/ DO	• Digital Input: 8ch dry contact DI0~DI7, 1.5kV Isolation Logic 1: Open ; Logic 0 : close to GND • Digital Output: 8ch DO0~DO7, 1.5kV Isolation, 20mA max/channel by internal com 12V or 5V

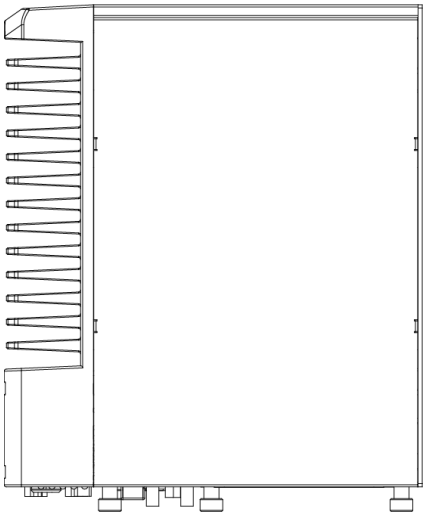
	WDT	Watch Dog Timer supported
Audio	Codec	Audio Codec ALC283
	Connectors	Line Out, Mic in (3.5mm Jack)
Internal I/O	USB	2 x USB 2.0 Pin header 1 x USB 3.0 Dongle
	Serial Port	2 x COM ports pin header (RS-232) 2 x COM pin header (UART)
	PS/2	1 x PS/2 pin header
	Parallel Port	1 x LPT port pin header
	Mini PCIE	1 x Mini PCIE socket (PCIe) for Wi-Fi 1 x Mini PCIE socket (PCIe) for Expansion I/O module or 3G module
	USIM	1 x USIM slot
Expansion Slots	SKU1	1 PCIe x16, 1 PCIe x8,1 PCIe x4 , 1 PCI
	SKU2	1 PCIe x16, 1 PCI, 1 PCI, 1 PCI
	Expansion I/O module	Expansion I/O module (Preliminary)
Power Management	Power Supply (Either one)	9V to 36V DC, 4-Pin Terminal Block, Max: 200W
		9V to 36V DC, 4-Pin DC Jack, Max: 200W
Others	LED Indicator	4 x HDD 1 x Wi-Fi / 3G
	Button	1 x Power Button w/ LED 1 x Clean CMOS Button 1 x Reset Button
Mechanical Specifications	Dimensions	195 (W) x 177 (H) x 225(D) mm
	Weight	5.23 kg (only unit, excl. PCIe card, storage, RAM etc.)
	Mounting	Table Mounting (Optional), Panel Mounting (Optional)
	Cooling System	Intelligent fan: 80 x 80 mm

Environment	System Operation Temp.	-15~55° C (-5~131° F) (with industrial SSD) 0~40°C (32~104°F) (with HDD)
	Storage Temp.	-20~60° C (-4~140° F) (Excl. HDD/ SSD/ CFast)
Certificate	EMC & Safety	CE, FCC
	Shock &Vibration	IEC60068-2-278, IEC60068-2-64
Operating System (Optional)	OS	Windows® 10 IoT Enterprise (64bit) Windows® Embedded 8.1 Industry Pro (64bit)

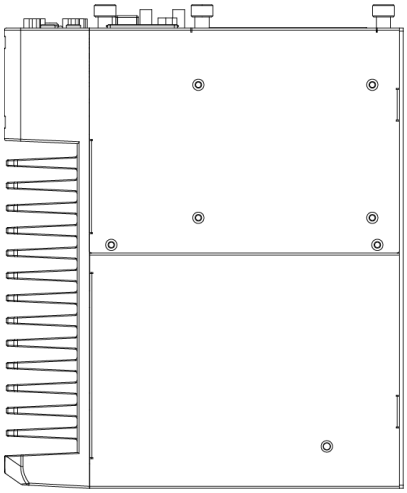
APPENDIX

Appendix A: System Dimensions

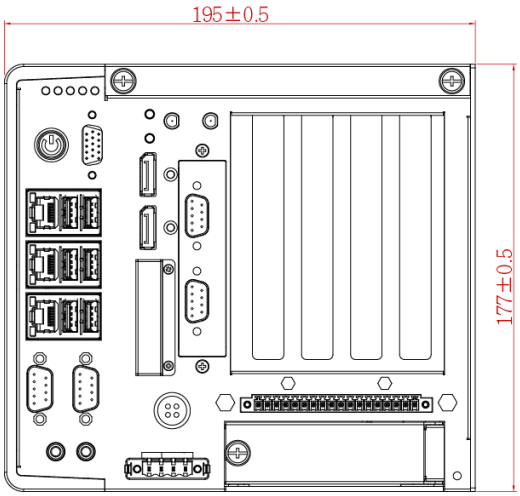
Top View



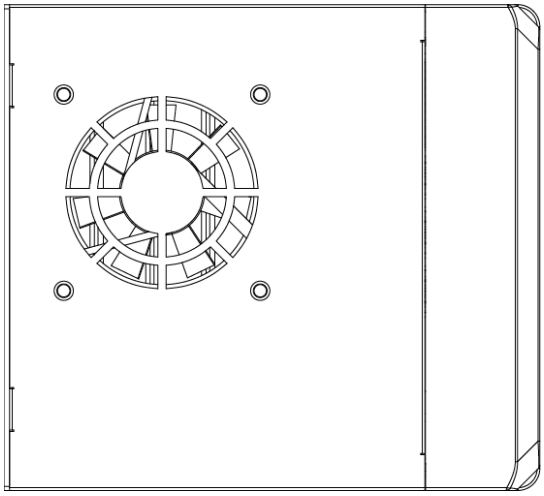
Bottom View



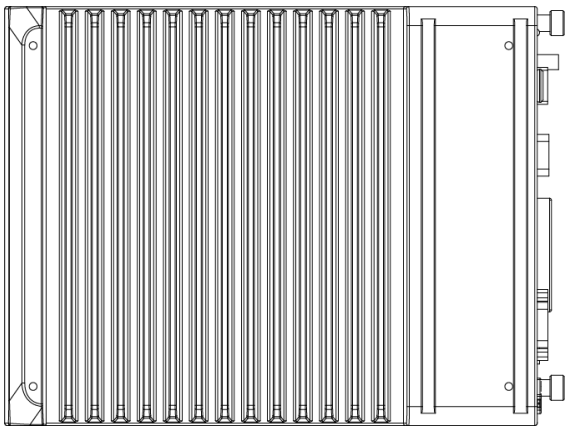
Front View



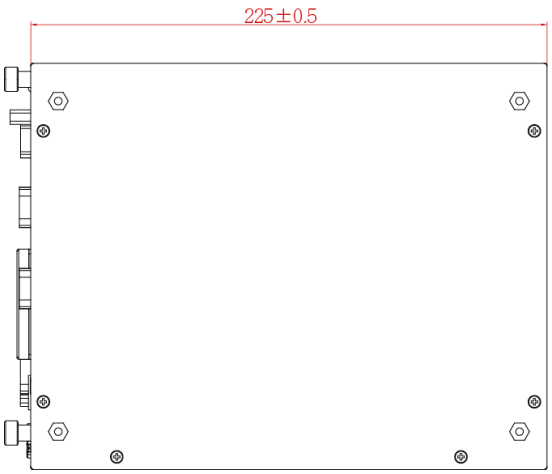
Rear View



Left Side View



Right Side View



Appendix B: Software Developer Support

You can download drivers and Software Development Kit (SDK) and Drivers from Winmate Download Center or Winmate File Share.

Winmate Download Center

http://www.winmate.com.tw/>Support > Download Center > Embedded Computing > EAC PRO-IK90

Or follow the link below:

http://www.winmate.com/DownCenter/DownLoadCenter.asp?DownType=2907

Winmate File Share

http://www.winmate.com/ > Support > Download Center >Public Documents > Embedded Computing > EAC PRO-IK90 Embedded Computer

Or follow the link below: https://winmate.box.com/v/Winmate-EAC-PRO

NOTES

NOTES

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