

# IPC3

## Owner's Manual



# Table of contents

<b>INTRODUCTION.....</b>	<b>3</b>
PACKAGE CONTENTS.....	3
IPC3 FEATURES.....	5
BACK PANEL .....	5
FRONT PANEL .....	7
BOARD FEATURES .....	8
<b>QUICK START GUIDE.....</b>	<b>9</b>
TO OPEN SERVICE DOOR.....	9
INSTALLING RAM.....	9
INSTALLING STORAGE.....	10
ENABLING RTC BATTERY .....	11
CONNECTING IPC3.....	11
BOOTING WINDOWS.....	12
BOOTING LINUX .....	12
BIOS SETUP UTILITY .....	12
<b>MAINTENANCE.....</b>	<b>13</b>
SAFETY INSTRUCTIONS .....	13
<b>SERVICE.....</b>	<b>14</b>
SUPPORT .....	14
WARRANTY .....	14
RMA .....	14
<b>TIPS FOR SAVING POWER.....</b>	<b>14</b>
GENERAL .....	14
IN OPERATING SYSTEM.....	14

For more information and to obtain the latest revision of this document, please visit: [www.fit-pc.com](http://www.fit-pc.com)  
For technical support and product related questions, please email: [support@fit-pc.com](mailto:support@fit-pc.com)

# Introduction

## Package contents

1. IPC3 computer
2. Power supply: input 100-240VAC 50/60Hz, 60W output 12VDC@5A, DC plug lock
3. AC cord
4. HDMI to DVI adapter
5. Audio 3.5mm to RCA cable
6. 2 WiFi antennas (in some models)
7. Mini-serial to DB9-female adapter cable

To use IPC3, you will need:

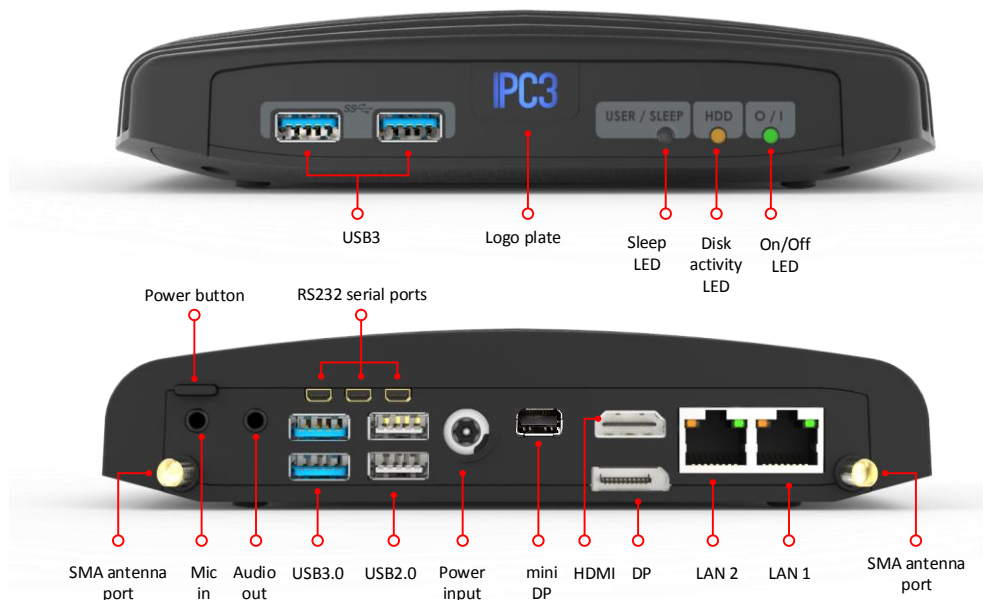
- A display with DVI, HDMI or DisplayPort input + DVI, HDMI or DisplayPort cable
- USB keyboard and mouse

## Hardware specifications

Processor	
Type	Intel Core 7 <sup>th</sup> Gen i7-7500U/i5-7200U
Cores	64-bit dual core
Clock speed	2.5-2.7GHz (turbo boost up to 3.1-4.0GHz) (depends on CPU)
TDP	15W
Chipset	Intel 100 Series Mobile PCH (MCP)
Memory	
Supported	2x SO-DIMM 204-pin DDR4 SDRAM memory slots Up to 32GB (2x 16GB) Non-ECC DDR4-2133
Storage	
Supported	1x SATA up to 6 Gbps (SATA 3.0) for internal 2.5" HDD/SSD 1x M.2 M-key 2280 slot (NVMe 2x PCIe   SATA 3 6 Gbps)
Graphics	
GPU	Intel HD 620 Graphics Dual display mode supported
Display Interface 1	HDMI 1.4 up to 4096 x 2304 @ 24 Hz
Display Interface 2	DisplayPort 1.2 up to 4096 x 2304 @ 60 Hz
Display Interface 3	DisplayPort 1.2 up to 4096 x 2304 @ 60 Hz (mini-DP)
Audio	
Codec	Realtek ALC886 HD audio codec
Audio Output	Analog stereo output, Digital 7.1+2 channels S/PDIF output 3.5mm jack
Audio Input	Analog stereo Microphone input Digital S/PDIF input 3.5mm jack
Networking	
LAN	2x GbE LAN ports LAN1: Intel I219 GbE PHY (MAC integrated into the chipset) (RJ-45) LAN2: Intel I211 GbE controller (RJ-45)
Wireless (optional)	WLAN 802.11ac (2.4/5GHz* dual band) + Bluetooth 4.0 <small>*5GHz channel availability depends on regulations of Country where IPC3 is used</small>

<b>Connectivity</b>	
USB	4x USB 3.0 2x USB 2.0
Serial	3x Serial communication ports COM0: 4-wire RS232 via mini serial connector COM1: 4-wire RS232 via mini serial connector COM2: 2-wire RS232 via mini serial connector
Expansion	M.2 E-key M.2 B-key
<b>Advanced Technologies</b>	
vPRO	No
AMT	No
CPU Virtualization	Yes
Special Functionality	Auto-On Wake-on-LAN Wake-on-Timer PXE Boot Watchdog Remote power button
<b>BIOS</b>	
Vendor	American Megatrends Inc.
<b>Operating System</b>	
Supported	Windows 10 Linux (Linux Mint 18 in preinstalled configurations)
<b>Operating Conditions</b>	
Input Voltage	Unregulated 10 – 15VDC input
Power Consumption	6W – 24W
Operating Temperature	1. Commercial: 0°C to 40°C 2. Extended (TE): -20°C to 70°C 3. Industrial (TI): -40°C to 70°C
Relative Humidity	10% to 90% (operation) 5% to 95% (storage)
<b>Enclosure</b>	
Material	Die Cast Aluminum
Cooling	Passive Cooling Fanless Design
Dimensions	19cm x 16cm x 4cm
Weight	1150gr
<b>Package</b>	
Warranty	5 years

# IPC3 features



## Back panel

IPC3 back panel features motherboard native inputs and outputs, and are documented below.

### Power

IPC3 has a tactile power push-button. It is used for turning on/off the PC and for standby/resume when supported by the operating system.

A push of at least 5 seconds will always turn off the IPC3.

### Display

IPC3 has dual display interface with support for dual head.

- 1x HDMI 1.4 with audio support
- 1x DisplayPort 1.2

To connect IPC3 to a DVI display, use the provided HDMI to DVI-D adapter. Use a DVI cable to connect the adapter to the display.

### Audio

There are 2 standard 3.5mm jacks on the back panel.

Right:

- Stereo Mic-in using a standard 3.5mm plug

- S/PDIF 7.1 in using provided cable

Left:

- Stereo line-out using a standard 3.5mm plug
- S/PDIF 7.1 out using provided cable

## LAN

IPC3 features two 10/100/1000BaseT Ethernet ports using standard RJ45 connectors. Use a standard Ethernet cables to connect.

The connectors feature built-in LEDs that are lit when a connection is detected.

## WLAN

2 WLAN antennas are supplied in models with integrated WiFi and should be screwed into the standard SMA connectors.

## USB

There are 2 USB 3.0 ports (5 Gbps) and 2 USB 2.0 ports on the back panel.

And additional 2 USB3.0 ports on the front panel.

All USB ports support current up to 1A.

Ports on the back are upside down – note when connecting USB plugs.

## Serial port

Three RS232 mini-serial ports is located on the back panel. Mini-serial to DB9 cable to connect to standard serial devices is supplied in the package.

## M.2 slot

IPC3 motherboard features the following M.2 slots:

- M-key 2280 for storage device NVMe / SATA 3
- E-key 2230 – usually used for WiFi
- B-key 3042 – usually used for cellular modem

## Front panel

The features of the front panel of IPC3 depend on the specific FACE Module used.

### FACE Module

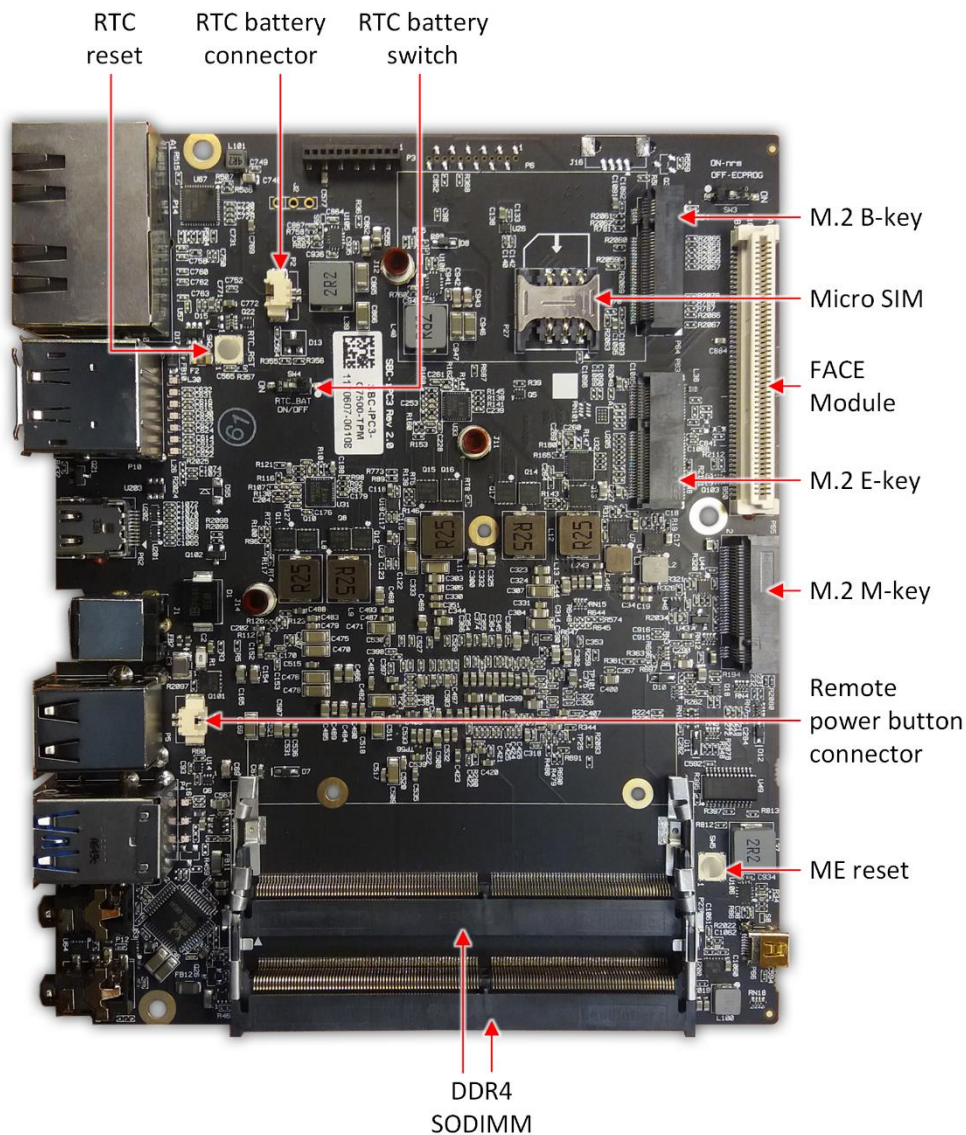
FACE Modules are extension boards that integrate seamlessly into IPC3 to provide custom functionality and I/O extension. FACE Module is connected to the PC motherboard with a board-to-board mezzanine connector featuring standard PC interfaces such as PCI Express, SATA, USB2/3 and serial interfaces.

Compulab offers a catalog of ready-made FACE Modules with various functions. The FACE Module interface is fully documented and supported to allow 3rd parties to design their own FACE Modules.

For more information please visit:

[http://fit-pc.com/wiki/index.php/Fit-PC\\_Product\\_Line:FACE\\_Modules](http://fit-pc.com/wiki/index.php/Fit-PC_Product_Line:FACE_Modules)

## Board features





# Quick start guide

If IPC3 is "barebone" it must have RAM and storage installed first in order to operate.

## To open service door



**WARNING:** before opening the service door make sure IPC3 is disconnected from power.

1. Unscrew marked Phillips screw at the bottom to release service-door.
2. Slide out service-door until it stops – about 10 mm.
3. Service-door is now detached. Lift edge of service-door to completely remove.

Re-assemble in reverse order. Hard disk connects by sliding-in the service-door.

## Installing RAM



**Note:** Make sure to use **non-ECC** DDR4.

IPC3 rev 2.0 supports two DDR4-2133 SODIMM modules up to 16 GB each (32 GB total) in dual channel configuration.

RAM SODIMM sockets are accessible once service door is removed. Make sure RAM modules are seated and latched properly.

## Installing storage

IPC3 rev 2.0 supports the following storage devices:

- M.2 M-key 2280 NVMe / SATA SSD
- 2.5" HDD / SSD

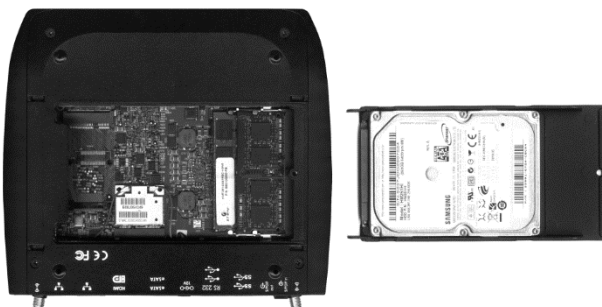
Either can be installed as a boot device. Both can be installed together.

M.2 SSD is installed in the corresponding socket.

Use one of the following storage devices:

- M.2 NVMe M-key 2280 (e.g. SAMSUNG 960 EVO M.2 NVMe PCI-Express 3.0 PN MZ-V6E250BW or similar)
- M.2 SATA M-key 2280 (e.g. SAMSUNG 850 EVO M.2 2280 SATA III PN MZ-N5E250BW or similar)

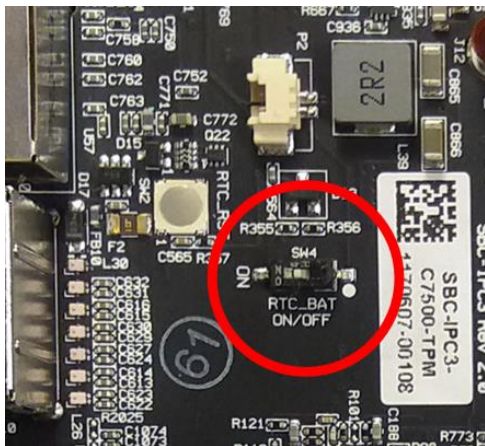
2.5" disk (max thickness 9.5mm) is installed onto the service door and secured with the 4 screws provided in the package. Once the service door is pushed into place the 2.5" disk is connected to the SATA socket.



**Note:** Due to thermal considerations it is recommended to use 5400 RPM hard disk or SSD

## Enabling RTC battery

Enabling RTC battery is required for keeping CMOS settings and time-of-day while IPC3 is disconnected from power. To enable RTC battery push the RTC battery DIP switch to "ON" state



## Connecting IPC3

- Turn off the display and connect it to the IPC3 HDMI (use the HDMI to DVI adapter if needed) or DisplayPort connector.
- Connect the USB keyboard and mouse to USB2 port.
- Plug the Ethernet cable into the Ethernet connector.
- In IPC3 models with WiFi: Mount the WiFi Antennas on the SMA connector by turning it clockwise repeatedly until the antenna holds firm.
- Insert the DC plug into the IPC3 DC-in jack. Rotate clockwise 90° to secure.



- Plug the speakers into the line-out jack.
- Connect the power supply to the AC cord and plug the cord into AC outlet. The front panel logo should light up as the IPC3 boots.

## Booting Windows

Upon first power-up, you will be guided through the Windows Welcome procedure which is self-explanatory. The Windows 10 serial number is printed on the Windows 10 label.

## Booting Linux

Linux loads automatically on power up. Upon boot you will be guided through the Linux Mint first-boot setup procedure.

## BIOS Setup Utility

Turn off the IPC3.

Turn on while holding down the Del key, until access into AMI Inc. BIOS utility.

See [http://www.fit-pc.com/wiki/index.php/Main\\_Page](http://www.fit-pc.com/wiki/index.php/Main_Page).


# Maintenance


IPC3 requires no maintenance. You should not take the IPC3 apart other than opening the service door. Taking IPC3 apart will void its warranty.


## Safety instructions


Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:


- You have read the safety information that shipped with your computer.
- A component can be replaced or, if purchased separately, installed by performing the removal procedure in reverse order.


 **WARNING:** Disconnect all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting to the power source.


 **WARNING:** Before working inside your computer, read the safety information shipped with your computer.


 **CAUTION:** Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Compulab is not covered by your warranty. Read and follow the safety instructions that came with the product.

 **CAUTION:** To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

 **CAUTION:** Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

 **CAUTION:** When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

 **CAUTION:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

 **CAUTION:** To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

# **Service**

## **Support**

For technical support and product related questions, please email: [support@fit-pc.com](mailto:support@fit-pc.com)

For IPC3 on support wiki please visit: [http://fit-pc.com/wiki/index.php/Fit-PC\\_Product\\_Line:\\_IPC3](http://fit-pc.com/wiki/index.php/Fit-PC_Product_Line:_IPC3)

## **Warranty**

- Compulab guarantees products against defects in workmanship and material for a period of 60 months from the date of shipment.
- Your sole remedy and Compulab's sole liability shall be for Compulab, at its sole discretion, to either repair or replace the defective product at no charge.
- This warranty is void if the product has been altered or damaged by accident, misuse or abuse.

## **RMA**

Keep the original package for shipping in case of hardware failure.

In case of HW failure of an IPC3 under warranty, please contact the seller of that IPC3.

Please provide the following required information:

- IPC3 serial number
- Name of purchaser
- Address
- Problem description

If the IPC3 was purchased directly from Compulab, please email: [rma@fit-pc.com](mailto:rma@fit-pc.com)

# **Tips for saving power**

## **General**

- Working without a connected display automatically disables the graphics controller – saving power.
- Disconnect external USB devices when not in use.

## **In Operating System**

Use power scheme as follows

- Turn off monitor after several minutes not in use
- Turn off hard disk after several minutes not in use
- System standby after an hour not in use



### IPC3

**Manufacturer: Compulab Ltd.**

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

### Statement

Changes or modifications to this equipment not expressly approved by the party responsible for compliance (Compulab Ltd.) could void the user's authority to operate the equipment.

### Statement

**NOTE:** 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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### WEEE



This symbol means that you must dispose of an electrical item AND/OR containing in it Li-Mn battery separately from general household waste when they reach the end of their useful life. Take your PC or the battery to your local waste collection point or center. This applies to all countries of the European Union, and to other countries with a separate waste collection system.