# ITG-100-AL

Fanless Ultra Compact Size Embedded System



## Features

» Intel®Atom™ x5-E3930 1.3GHz (up to 1.8 GHz)

» Two GbE LAN ports

» Two RS-232/422/485

» Full-size PCIe Mini slot and M.2 A-key slot for expansion

## Specifications

| | |
|---|---|
| Form factor | |
| SBC Form Factor | » CPU: |
| | Intel® Atom™ x5-E3930 1.3GHz (up to 1.8 GHz, dual core, TDP=6.5W) |
| | » Chipset: |
| | SoC |
| | » System Memory: |
| | 1x 204-pin DDR3L SO-DIMM slot (system max. 8 GB) |
| | » Power: |
| | Input : 2-pin terminal block: 12 V DC |
| | Consumption: 12V @ 1A (Intel® Atom™ x5-E3930 CPU with 2GB 1600 MHz DDR3L memory) |
| | » Reliability: |
| | Operating Shock: Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27 |
| | Operating Vibration: MIL-STD-810G 514.6C-1 (SSD) |
| | Safety/EMC: CE/FCC |
| I/O Interface | |
| I/O Ports | » USB: 2 x USB 3.0 |
| | » Ethernet:2 x RJ-45 |
| | PCIe GbE by Intel® I211 controller |
| | » COM Port:2 x RS-232/422/485 |
| | » Display:1 x VGA |
| Expansion Slots | |
| Expansion Slots | M.2: |
| | 1 x M.2 2230 (A key, PCIe by 1, USB2.0) |
| | PCIe Mini: |
| | 1 x Full-size PCIe Mini slot (supports mSATA, colay with SATA) |
| System | |
| Cooling method / System Fan | Fanless |
| Drive Bays | 1 x 2.5” SATA 6Gb/s HDD/SSD bay |
| | (ITG-100-AL-E1 & ITG-100-AL-E1/2GB support) |

| | |
|---|---|
| Indicator&Buttons | |
| Buttons | 1 x Power Button |
| | 1 x Reset Button |
| | 1 x AT/ATX Switch |
| Indicators | 1 x LED for HDD (Yellow) |
| | 1 x LED for Power (Green) |
| Physical Characteristics | |
| Construction | Extruded aluminum alloy |
| Color | |
| Color | Blue & Silver |
| Dimensions | |
| Dimensions | ITG-100-AL-E1/S: 137 x 102.8 x 36.2 (WxDxH) (mm) |
| | ITG-100-AL-E1: 137 x 102.8 x 56.2 (WxDxH) (mm) |
| Weight | |
| Weight | ITG-100-AL-E1/S: 0.67 kg/1.03 kg |
| | ITG-100-AL-E1: 0.86 kg/1.22 kg |
| Environment | |
| Operating Temperature | -20°C ~ 60°C with air flow (SSD) |
| Humidity | 10% ~ 95%, non-condensing |
| OS Support | |
| OS Support | Microsoft Windows 10 / Windows 11, Linux |

## Ordering Information

| | |
|---|---|
| ITG-100-AL-E1/S-R10 | Fanless embedded system, Intel®Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), VGA, M.2, COM, 12V DC and RoHS |
| ITG-100-AL-E1/2GB/S-R10 | Fanless embedded system, Intel®Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), 2GB DDR3L pre-installed memory, VGA, M.2, COM, 12V DC and RoHS |
| ITG-100-AL-E1/2GB-R10 | Fanless embedded system, Intel®Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), 2GB DDR3L pre-installed memory, VGA, M.2, COM, 12V DC, Flexible I/O Expansion and RoHS |
| ITG-100-AL-E1-R10 | Fanless embedded system, Intel®Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), VGA, M.2, COM, 12V DC, Flexible I/O Expansion and RoHS |

## Packing List

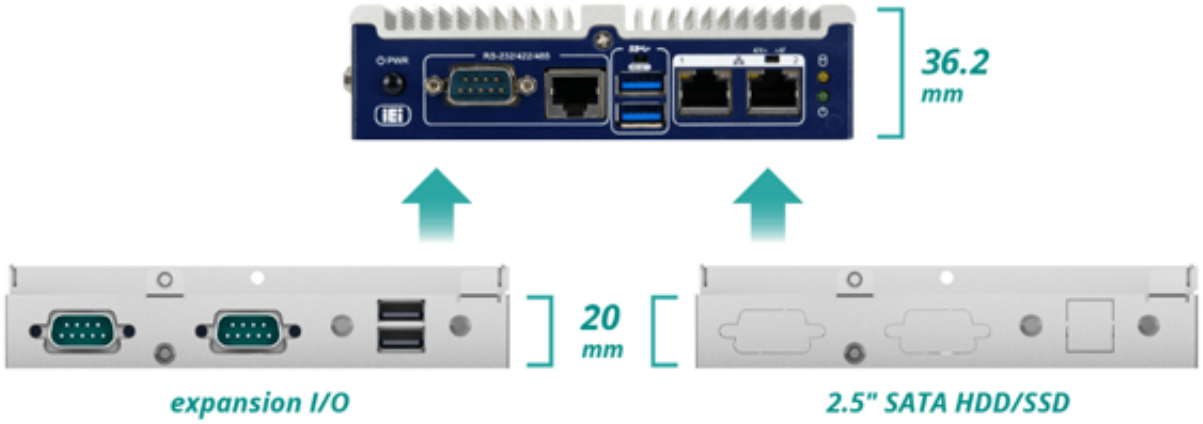
| | |
|---|---|
| 1x Mounting bracket | 1 x Screw kit |
| 1 x SATA cable & SATA power cable(for ITG-100-AL-E1 only) | 1 x RJ-45 to DB-9 COM port cable |

## Ultra-compact Edge Computing System

The ITG-100-AL uses Intel® Atom™ X5-E3930 1.3GHz as its processor with max. 8GB memory. Space limitation is one of the constraints commonly seen in today's industrial environment. Under tight restrictions, the ITG-100-AL not only provides palm-sized design to meet the space requirement, but also comes with adequate basic I/O ports and supports a wide range of operating temperature (-20~60°C), making it suitable for acting the role as a data collection gateway for various applications. In order to respond the demand of adding more functions to the system, the ITG-100-AL is equipped with a full-size PCIe Mini slot reserved for 3G/4G and a M.2 A-key slot reserved for Wi-Fi to provide function expansion with easy access. Additional 2.5" SATA HDD/SDD bay, knockout-hole layer with selectable I/O interface, or both of above-mentioned modularized options could be implemented into the ITG-100-AL to best fit users' preferences and still remaining its small size.

## High Expansion Capability with Modular Design

Additional block layers can be assembled to achieve I/O interface expansion and data storage requirement. With choices of adding a 2.5" SATA HDD/SSD bay, a knockout-hole layer with selectable I/O interface, or both of above-mentioned options, the ITG-100-AL could be modularized to what best fit users' preferences and still remaining its compact size.




## Ultra-compact Size

Space limitation is one of the constraints commonly seen in today's industrial environment. Under tight restrictions, the ITG-100-AL not only provides palm-sized design to meet the space requirement, but also comes with adequate basic I/O interfaces for various applications.




## Functionality Expansions

In order to respond the demand of adding more functions to the system, the ITG-100-AL is designed with a full-size PCIe Mini slot reserved for 3G/4G and a M.2 A-key slot reserved for Wi-Fi to provide function expansions with easy access.



Full-size PCIe Mini



M.2 A key

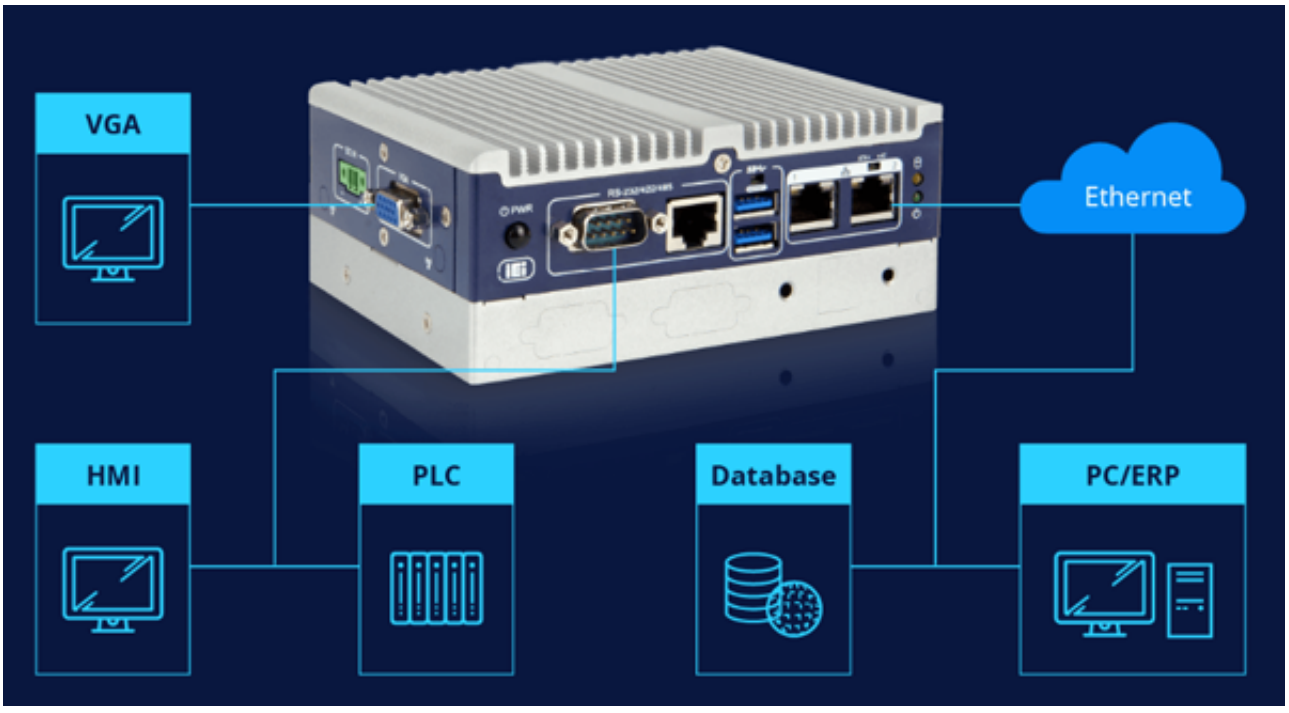



## Intelligent Data Collection Gateway

The followings are some of challenges we may face when deploying new IIoT technology on factory equipment.

*Collecting large amounts of data from sensors
*Computing and analyzing big data
*Delivering the computed result to other machines & devices
*Enhancing data security

IEI ITG-100-AL features Intel® Atom CPU have the capability to provide intelligent machinery and big data analysis. Its rich I/O interfaces and multiple expansions, allowing users to connect different devices for increasing productivity by realizing smart manufacturing. IEI also offer ITG-100AI which is combined with an AI accelerator card to implement as an AI inference system for object detection.



# EV Charging Station Gateway

IEI ITG-100-AL, supports -20°C to 50°C operating temperatures to enable the connection of charge units and monitoring sensors in critical environments. Under tight restrictions, it not only provides palm-sized design to meet the space requirement, but also comes with adequate basic I/O interfaces. As an IoT gateway, the ITG-100 can collect, analyze data and transfer the data to the control center through wireless connection.

